

Investigating Practice Change in Australian and Indonesian Community Pharmacy: Gaining insight into Pharmacy Role Expansion in Developed and Developing Countries

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DECLARATION

This thesis describes research carried out in the Faculty of Pharmacy, the University of Sydney under the supervision of Professor Ines Krass and Dr. Erica Sainsbury, and with the permission of the Dean of Faculty of Pharmacy, Professor Iqbal Ramzan.

The research presented in this thesis is, to the best of my knowledge and belief, original and entirely the product of my own scholarly work, except as acknowledged in the text. This work has not been submitted, either in full or part, for the award of a degree at this or any other university. Full acknowledgement has been made where the work of others has been cited or used.

Signature : _____

Andi Hermansyah

Date : 12 March 2018

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LIST OF ABBREVIATIONS

AHI	Administration, Handling and Infrastructure
APTFI	Asosiasi Perguruan Tinggi Farmasi Indonesia (Indonesia Association of Schools of Pharmacy)
ASAPIN	Asosiasi Apotek Indonesia (Indonesia Community Pharmacy Association)
BPJS Health	Badan Penyelenggara Jaminan Sosial Kesehatan (Social Security Administrator for Health)
BPOM	Badan Pengawas Obat dan Makanan (Indonesia National Agency of Drug and Food Control)
CPA	Community Pharmacy Agreement
CPD	Continuing Professional Development
CPS	Cognitive Pharmaceutical Services
DAA	Dose Administration Aids
DAGUSIBU	Dapatkan, Gunakan, Simpan dan Buang Obat (Campaign on Self-management of Medicines)
DMAS	Diabetes Medication Assistance Service
GEMA CERMAT	Gerakan Masyarakat Cerdas Menggunakan Obat (Community Awareness Campaign in using Medicines)
GKSO	Gerakan Keluarga Sadar Obat (Campaign for raising Family Awareness in using Medicines)
GP	General Practitioner
GP Farmasi	Gabungan Perusahaan Farmasi (Indonesia Pharmaceutical Association)
HISFARMA	Himpunan Seminat Farmasi Masyarakat (Community Pharmacists Group)
HMR	Home Medicine Review
IAI	Ikatan Apoteker Indonesia (Indonesian Pharmacists Association)
JKN	Jaminan Kesehatan Nasional (Universal Healthcare Coverage)
KFN	Komite Farmasi Nasional (National Pharmacy Board)
LKPP	Lembaga Kebijakan Pengadaan Barang dan Jasa Pemerintah (National Public Procurement Agency)
MoH	Ministry of Health
NGT	Nominal Group Technique
NMP	National Medicines Policy
OTC	Over the Counter
PAMS	Pharmacy Asthma Management Service
PARIHS	Promoting Action on Research Implementation in Health Services
PBS	Pharmaceutical Benefits Scheme
PGA	Pharmacy Guild of Australia
PSA	Pharmaceutical Society of Australia
PUSKESMAS	Pusat Kesehatan Masyarakat (Community Health Centre)
R&D	Research and Development
RMMR	Residential Management Medication Review
SIPA	Surat Ijin Praktek Apoteker (Pharmacist License to Practice)
SKP	Satuan Kredit Partisipasi (Credits for Participation)
STRA	Surat Tanda Registrasi Apoteker (Pharmacist Registration Letter)

GLOSSARY

This glossary is provided to help understanding the underlying concepts and notions of terminologies in this thesis. The definitions are adopted – fully or partially – or developed from literature and published references.

Authority

Government entities responsible for designing the regulatory framework and implementing policies (e.g. ministries, departments, public agencies) (Vogler and Zimmerman, 2013).

Capitation

A form of payment mechanism – paying provider a specific sum of money for the ongoing care of an individual or a person for a particular period of time (Vogler and Zimmerman, 2013).

Community pharmacy

Health care facility that provides pharmacy services including dispensing and other health-care related pharmaceutical/pharmacy services. It is subject to pharmacy legislation with pharmacist is appointed as the owner/person in-charge for the operational of the community pharmacy (Vogler and Zimmerman, 2013). The term “pharmacy” is also frequently used in this thesis.

Community Pharmacy Agreement(s)

A series of five-year cooperative agreements since 1990 between the Australian government and the Pharmacy Guild of Australia that provides remuneration for dispensing Pharmaceutical Benefits Scheme medicines, regulation regarding the location of pharmacies and additional funding for delivery of professional pharmacy services and programs. The agreements also include funding for a Community Services Obligation (CSO) Funding Pool. The CSO Funding Pool ensures that all Australians have ongoing access to the full range of PBS medicines through community pharmacies. It provides financial support to pharmaceutical wholesalers, supplying the full range of PBS medicines regardless of pharmacy location and the relative cost of supply (Department of Health, 2015a).

Cognitive pharmaceutical services

Professional services provided by pharmacists, who use their skills and knowledge to take an active role in patient health, through effective interaction with both patients and other health professionals (Roberts et al., 2006).

Culture-structure-agency approach

An approach that views culture, structure and agency in a coherent relationship. Structure highlights regulations, legislative and policy frameworks constructing and controlling community pharmacy sector; Agency refers to pharmacists and community pharmacies; Culture reflects professional pharmacy practice (Hermansyah et al., 2018a).

Dispensing

To supply a clinically appropriate medicine to a patient or care giver, usually against a written prescription, for self-administration or administration by another professional, and to advise on a safe and effective use. In the Australian and Indonesian legislation, dispensing is the responsibility of a pharmacist. However, in realities in Indonesia, non-pharmacists may provide dispensing although it is against the law (Vogler and Zimmerman, 2013).

Diabetes Medication Assistance Services (DMAS)

DMAS provides a service where a person with type 2 diabetes can have regular visits with the pharmacist and consists of an ongoing cycle of assessment, management and review. DMAS was developed from Pharmacy Diabetes Care Program funded under the 3rd CPA and was piloted throughout Australia as part of the 4th CPA. However, funding for DMAS was ceased after stage 2 of the national pilot program. The service subsequently refashioned into Diabetes Medscheck which has been funded and adopted in community pharmacy since the 5th CPA (Hermansyah et al., 2017b).

Extended or expanded pharmacy services

Services provided by pharmacists beyond the traditional pharmacists' roles (e.g. compounding and dispensing medicines). These services can be considered as an expansion of pharmacists' scope of practice and provided as an adjunct to the conventional pharmacy services. These services may include but not limited to vaccination, wound care management and weight management (Vogler and Zimmerman, 2013).

General Practitioner (GP)

A physician (medical doctor) who does not limit his/her practice to certain disease categories and assumes the responsibility for the provision of continuing and comprehensive medical care or referring to another health professional (Vogler and Zimmerman, 2013).

Healthcare provider

A healthcare provider or health professional is a person who delivers proper health care in a systemic way professionally to any individual in need of health services. This term is interchangeably used with professional (Vogler and Zimmerman, 2013).

Home Medicines Review

Home Medicines Review (HMR) is a comprehensive clinical review of a patient's medicines in their home by an accredited pharmacist on referral from the patient's general practitioner (GP). The patient may choose to be referred to their usual community pharmacy or an accredited pharmacist who meets the patient's needs (Department of Health, 2015b).

Medicines

Substance(s) which potentially heal or prevent disease. The term is often used interchangeably with "drugs" and "pharmaceuticals" in this thesis (Vogler and Zimmerman, 2013).

Medscheck and Diabetes Medscheck

Medscheck is an in-pharmacy, patient centred service that includes a review of a patient's medicines, focusing on their education and self-management and aims to identify problems that the patient may be experiencing with their medicines, help patient learn more about their medicines, improve the effective use of medicines by patients and educate patients about how to best use and store their medicines. Diabetes Medscheck is a Medscheck with a focus on the patient's type 2 diabetes medicines management, monitoring devices, education and self-management (Department of Health, 2015c).

PARIHS framework

The PARIHS framework, developed by Kitson and colleagues is a conceptual framework for understanding and explaining the success or failure of implementation projects. The framework highlights that successful implementation (SI) of research is represented as a function (f) of the nature and type of evidence (E), the qualities of the context (C) in which the evidence is being introduced, and the way the process is facilitated (F); $SI = f(E, C, F)$ (Kitson et al., 1998).

Planes of analysis framework

Developed from Rogoff's planes of analysis, the framework explores three levels of practice in the community pharmacy sector namely micro level (individual pharmacists), meso level (community pharmacy as an institution or network of institution) and macro level (community pharmacy as part of healthcare system) as a holistic and integrated system. The three levels operate interdependently and dynamically with changes in one level affecting the operation of other levels (Hermansyah et al., 2017a).

Pharmacy Asthma Management Services (PAMS)

PAMS is an in-pharmacy service provision which includes series of patient (or carer) education sessions, medication review, assessment of asthma control and spirometry measurement for adults at risk of poor asthma control. Where appropriate, patients were referred to their GP for review. PAMS was developed from Pharmacy Asthma Care Program – a randomised controlled trial funded under the 3rd CPA. PAMS was funded as part of the 4th CPA and intended to be piloted in two stages. However, stage 2 did not eventuate and the pilot program was terminated (Armour et al., 2007).

Physicians

People who hold medical degree and who are practising medicine (Vogler and Zimmerman, 2013).

Pharmacists

A person who have completed studies in pharmacy at university level (granted by adequate diploma) and who are licensed to practise pharmacy. He/she may be either salaried or self-employed pharmacists delivering services irrespectively of the place of service provision (Vogler and Zimmerman, 2013).

Pharmaceutical Benefits Scheme

The Australian government program that provides provides universal access to subsidized medicines for all Australian residents and certain overseas visitors from countries which have reciprocal healthcare agreement with Australia (Department of Health, 2018a).

Pharmaceutical Care

Pharmaceutical care is the responsible provision of medicine therapy for the purpose of achieving definite outcome that improve a patient's quality of life. These outcomes are: (1) cure of a disease, (2) elimination or reduction of a patient's symptomatology, (3) arresting or slowing of a disease process, or (4) preventing a disease or symptomatology (Hepler and Strand, 1990).

Practice change

Changes in the practice of pharmacy as a result of a number of factors from both internal and external of the profession such as demand for expanded roles, changes in patient's expectations, introduction of new pharmacy practice models and development of healthcare and pharmaceutical technology.

Price disclosure

Price reduction policy introduced by the Australian government in 2007. The objective of the policy is to ensure that the prices of government-subsidised pharmaceuticals more closely reflect the prices charged in the market (Department of Health, 2018b).

Professional pharmacy service

An action or set of actions undertaken in or organised by a pharmacy, delivered by pharmacist, or other health practitioner, who applies their specialised health knowledge personally or via an intermediary, with a patient/client, population or other health professional, to optimise the process of care, with the aim to improve health outcomes and the value of healthcare (Moullin et al., 2013).

Policy maker

A person or institution that is involved in policy development and formulation (e.g. public agencies, regulatory bodies) (Vogler and Zimmerman, 2013).

Primary care

Basic or general healthcare focused on the point at which a patient ideally first seeks assistance from the medical care system (Vogler and Zimmerman, 2013).

Pharmaceutical public health

The application of pharmaceutical knowledge, skills and resources to the science and art of preventing disease, prolonging life, promoting, protecting and improving health for all through organised efforts of society (Walker, 2000).

Stakeholder

A person or organisation with a legitimate interest in a topic. Stakeholders related to community pharmacy system in this thesis includes regulatory bodies including government and parliamentarian, organisations representing healthcare professionals (e.g. doctors, pharmacists), patient organisations, insurance companies, school of pharmacy (including academics and researchers), other healthcare organisations (e.g. pharmacy owners group) (Vogler and Zimmerman, 2013).

Universal healthcare coverage

Universal healthcare coverage or sometime called universal coverage means that all people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose to financial hardship (World Health Organization, 2018).

PUBLICATION AND COMMUNICATION

Publications and scientific communication arising from this thesis are presented below.

Peer Reviewed Publications

The current thesis is presented for examination containing published work.

Hermansyah, A., Sainsbury, E. and Krass, I. (2016), Community pharmacy and emerging public health initiatives in developing Southeast Asian countries: a systematic review. *Health & Social Care in the Community*, 24: e11–e22. doi:10.1111/hsc.12289;

Hermansyah, A., Sainsbury, E., & Krass, I. (2017). Investigating influences on current community pharmacy practice at micro, meso, and macro levels. *Research in Social & Administrative Pharmacy*, 13(4): 727-737. doi:10.1016/j.sapharm.2016.06.007;

Hermansyah A, Sainsbury E, Krass I. (2017) The operation of a Research and Development (R&D) program and its significance for practice change in community pharmacy. *PLOS ONE* 12(9): e0184954. <https://doi.org/10.1371/journal.pone.0184954>;

Hermansyah, A., Sainsbury, E. and Krass, I. (2018). Investigating the impact of the universal healthcare coverage programme on community pharmacy practice. *Health & Social Care in the Community*. 26:e249–260. <https://doi.org/10.1111/hsc.12506>;

Hermansyah, A., Sainsbury, E., & Krass, I. (2018). Multiple policy approaches in improving community pharmacy practice: the case in Indonesia. *BMC Health Services Research*. 18(1): 449. <https://doi.org/10.1186/s12913-018-3258-8>.

Hermansyah, A., Pitaloka, D., Sainsbury, E., & Krass I. (2018). Prioritising recommendations to advance community pharmacy practice. *Research in Social & Administrative Pharmacy*. <https://doi.org/10.1016/j.sapharm.2018.02.003>;

Published Abstracts

Hermansyah, A., Sainsbury, E., & Krass, I. (2016). How do the stakeholders perceive the changing situation in Australian community pharmacy? *Research in Social & Administrative Pharmacy*, 12(5), e19-e20. doi:10.1016/j.sapharm.2016.05.052;

Hermansyah, A., Sainsbury, E., & Krass, I. (2016). The Community Pharmacy Agreements (CPAs) and their influence on development of community pharmacy practice in Australia: A qualitative study. *International Journal of Pharmacy Practice*, 24, pp. 15. doi:10.1111/ijpp.12278;

Hermansyah, A., Sainsbury, E., & Krass, I. (2016). Stakeholder's experiences of providing remunerated professional pharmacy services under Community Pharmacy Agreements. *Proceedings of Australasian Pharmaceutical Science Association Annual Conference 2016*, pp. 53;

Hermansyah, A., Sainsbury, E., & Krass I. (2017). Investigating the impact of Universal Healthcare Coverage on the practice of Indonesian community pharmacy: A qualitative study. *Proceedings of Australasian Pharmaceutical Science Association-Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists Joint Scientific Meeting 2017*, pp. 26;

Hermansyah, A., Sainsbury, E., & Krass I. (2017). Scope of practice within Australian community pharmacy and potential opportunities for the role expansion of pharmacists. *Proceedings of the 17th Asian Conference on Clinical Pharmacy 2017*, pp. 85;

Hermansyah, A., Sainsbury, E., & Krass I. (2018). "The Unsung Heroes or the Silent Service?" The value of pharmacy practice in Indonesian community pharmacy (in Indonesian: "Pahlawan tanpa pamrih atau kontribusi yang senyap?" Telaah nilai keunggulan praktek kefarmasian di sektor komunitas). *Proceedings of the Annual Pharmacy Conference Indonesian Pharmacists Association 2018*.

Oral Presentations in Conferences

How do the stakeholders perceive the changing situation in Australian community pharmacy?. Presented at the 2015 Australasian Pharmaceutical Science Association (APSA) – Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) Joint Scientific Meeting, 29 November – 2 December 2015 in Tasmania Australia;

The Community Pharmacy Agreements (CPAs) and their influence on development of community pharmacy practice in Australia: A qualitative study. Presented at the 2016 International Social Pharmacy Workshop Conference, 19 – 22 July 2016 in Aberdeen Scotland;

Stakeholder's experiences of providing remunerated professional pharmacy services under Community Pharmacy Agreements. Presented at the 2016 Australasian Pharmaceutical Science Association (APSA) Annual Conference, 2 – 5 December 2016 in Sydney Australia;

Practice change in Indonesian community pharmacy within the era of Universal Healthcare Coverage program. Invited speaker for pre-conference workshop at the 17th Asian Conference on Clinical Pharmacy, 27 July 2017 in Yogyakarta Indonesia;

Scope of practice within Australian community pharmacy and potential opportunities for the role expansion of pharmacists. Presented at the 17th Asian Conference on Clinical Pharmacy, 28 – 30 July 2017 in Yogyakarta Indonesia;

Investigating the impact of Universal Healthcare Coverage on the practice of Indonesian community pharmacy: A qualitative study. Presented at the 2017 Australasian Pharmaceutical Science Association (APSA) – Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) Joint Scientific Meeting, 5 – 8 December 2017 in Brisbane Australia;

“The Unsung Heroes or the Silent Service?” The value of pharmacy practice in Indonesian community pharmacy (in Indonesian: “Pahlawan tanpa pamrih atau kontribusi yang senyap?” Telaah nilai keunggulan praktek kefarmasian di sektor komunitas). Presented at the Annual Pharmacy Conference Indonesian Pharmacists Association 2018, 19-21 April 2018 in Pekanbaru Indonesia.

AUTHOR ATTRIBUTIONS

The PhD candidate (Andi Hermansyah), referred to as I, has made a substantial contribution to the following published manuscripts presented in the main body of this thesis. The candidate is the corresponding author for all of the listed publications below. In addition to the following attributions, specific author contributions and signed author statements are specified following the chapter overview for the respective manuscripts presented in the thesis.

Chapter 2 section 2.2 of this thesis is published as “**Hermansyah, A.**, Sainsbury, E. and Krass, I. (2016), Community pharmacy and emerging public health initiatives in developing Southeast Asian countries: a systematic review. *Health & Social Care in the Community*, 24: e11–e22. doi:10.1111/hsc.12289”.

The study was conceived and designed by all authors. I conducted the literature search, screened through relevant paper and wrote the drafts. All authors contributed equally to the synthesis and interpretation of the findings and revisions of the manuscript. The final article was read and approved by all authors.

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The study was conceived and designed by all authors. All authors involved in the interviews and contributed to the writing of the drafts, synthesis and interpretation of the findings and revisions of the manuscript. The final article was read and approved by all authors.

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The study was conceived and designed by all authors. I conducted the interviews and translated the transcripts. All authors contributed to the synthesis and interpretation of the findings and revisions of the manuscript. The final article was read and approved by all authors.

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The study was conceived and designed by all authors. I conducted the group discussions and translated the transcripts. All authors contributed to the synthesis and interpretation of the findings and revisions of the manuscript. The final article was read and approved by all authors.

SUPERVISOR ATTESTATION

As the primary supervisor for the candidature upon which thesis is based, I can confirm that the authorship contribution statements above are correct.

Supervisor : Prof. Ines Krass

Signature :_

Date : 12 March 2018

ABSTRACT

Background

The past decades have witnessed significant changes in community pharmacy practice as widely documented in the literature. However, many of these studies have adopted a narrow approach in analysing the process of change by predominantly focusing on the individual practitioner without due consideration of the organisational factors in the community pharmacy itself and the wider system-related influences on practice change. Practice change is arguably a complex and dynamic process. Moreover, the context in which change has occurred plays an influential role in determining the pace of change. As practice change in community pharmacy is a global phenomenon, there is a need to investigate these changes in the context of both developed and developing countries. In fact, there is a strong argument that pursuing such research might be more critical in the context of developing countries where there is a paucity of research concerning practice in community pharmacy.

Aims

The overall aim of this thesis was to investigate changes in the contemporary practice in both Australian and Indonesian community pharmacy. This includes investigation of the factors influencing changes, policy implementation and the role of stakeholders in promoting changes in each country, with the goal of providing a framework for future policy development and implementation particularly for Indonesian pharmacy sector.

Methods

The research was conducted using two qualitative methods: in-depth semi-structured interviews in both countries and nominal group discussion in Indonesia. The Human Research Ethics Committee at the University of Sydney approved this research.

A series of in-depth semi-structured interviews involving key stakeholders in pharmacy and the healthcare system was conducted in Australia and Indonesia. A maximum variation sampling approach was used to enable the selection of a wide range of participants representing practicing

pharmacists, pharmacy owners and managers, academics and researchers, peak pharmacy organisations, medical associations, insurance companies, consumer associations, policy makers, regulators and administrators including government. Potential participants were identified from the network of the researchers and key publications on the issues of practice change in community pharmacy. Participants were contacted via email and once they agreed to participate, time, place and the interview method (e.g. face to face, telephone call and video conference) were then confirmed based on the participant's preference. The sample size was expanded using a snowball method by asking each participant at the end of the interview to nominate other potential candidates for this study.

The interview guide was developed from the existing literature reviews on community pharmacy roles and practice change and discussion within the research team. Each interview was initiated with a broad question about the contemporary situation of the healthcare system and the practice of community pharmacy followed by specific questions to address each objective of this study. The interviews in Australia were conducted in English, while those in Indonesia were conducted in either English or Indonesian. The interviews were audio-recorded and subsequently transcribed verbatim. The transcripts of interviews conducted in Indonesian were translated to English and the translation was reviewed by an independent bilingual translator. Participants in both countries had the opportunity to review the transcripts. An inductive approach was used to derive the structure of analysis involving an iterative process of listening to audio-recordings, reading transcripts and interpreting the data. Several transcripts which were considered to have rich and unique information were thematically analysed by selecting initial coding, followed by sub-themes and themes formation and development of the coding framework. Each researcher created a coding framework which was then discussed to build the main coding framework. The interviews were continued until reaching "saturation".

A group discussion using the Nominal Group Technique (NGT) was conducted during a pre-conference workshop in Indonesia with participants representing pharmacy stakeholders such as practicing pharmacists, academic and researchers, policy makers and government representatives. Participants were assigned into four small groups with each group discussing an area of action which was developed from the findings of the interviews in Indonesia and

Australia. The areas of action were: (1) Individual pharmacist empowerment, (2) Community pharmacy network recognition, (3) Education and scope of practice improvement and (4) Law and regulation enforcement. Each group was asked to provide recommendations based on their areas of action using the NGT format. Once the small group discussion concluded, participants were convened into a large group discussion to vote on the priority of all recommendations. The results were then tabulated to create a ranked list of priorities. The group discussion was conducted in Indonesian. It was audio-recorded and subsequently transcribed verbatim with the transcripts back translated to English. The data were subjected to thematic analysis.

Results

A total twenty-seven key stakeholders in Australia participated in the interviews which were conducted from December 2014 to August 2015. Fourteen participants were interviewed in person, seven over the telephone and the remainder via Skype[®] video conference. The duration of the interview on average was 71 min (range 43-93 min). Participants were from the Eastern part of Australia and represented both gender and urban-rural areas representativeness.

In Indonesia, twenty-nine key stakeholders participated in the interviews which were conducted between February and August 2016. The majority of participants were interviewed in person (n=25) and the rest by telephone. On average, the duration of the interview was 77 min (range 35-116 min). Participants were from several cities in Indonesia, reflecting both gender and urban-rural areas representativeness.

The nominal group discussion was conducted in July 2017 in Yogyakarta-Indonesia and attended by thirty-four pharmacy stakeholders. The duration of the group discussion was 90 minutes. Participants were from the main islands in Indonesia with the majority of participants from Java. Most of the participants were female (n=26).

The Australian studies highlighted the complex and dynamic situation in community pharmacy sector with factors related to the social, economic and policy context influencing the practice at a micro (individual pharmacist), meso (community pharmacy as an institution or a network of institutions) and macro level (community pharmacy as part of healthcare system). These elements are interrelated and changing in the current climate and should be taken account of in

policy making. Participants perceived that community pharmacy has untapped potential to play a greater role in primary care, yet it has been slow to change to address the opportunities available in the current situation.

The interviews in Indonesia revealed that the introduction of Universal Healthcare coverage (JKN) has changed the landscape of the Indonesian healthcare and affected the community pharmacy sector on the three levels of practice (micro, meso and macro level). Despite the good policy objectives of JKN to integrate community pharmacy within the primary care network, it has created some unintended and unpredictable consequences which may be detrimental to community pharmacy practice. Community pharmacy practice is still largely limited to dispensing and continues to be hampered by a number of ongoing issues, mainly pharmacists' absence, lack of clinical competence and limited support from regulation change.

The R&D programs funded under the consecutive Community Pharmacy Agreements (CPAs) have played an important role in the advent of Cognitive Pharmaceutical Services (CPS). The evidence generated by the R&D programs has been viewed as critical for influencing policy formulation, funding and implementation of CPS into practice. However, the overall impact of the programs appears to be minor as contemporary practice is still predominantly focused on dispensing. Notwithstanding the importance of evidence, policy decisions and subsequent implementation of CPS are influenced by other factors associated with context and facilitation.

The key stakeholders in Australia acknowledged that the consecutive CPAs have been essential for business certainty for pharmacy and as a platform for some innovation in pharmacy services. However, the CPAs have been viewed as protecting the interests of the pharmacy owners. In addition, the pace of pharmacy role expansion has been slow since most CPA funding was allocated to the payment of dispensing, with remuneration processes for CPS being highly cumbersome and bureaucratic.

The Indonesian studies identified seventeen policy documents aimed to promote community pharmacy practice in Indonesia. The presence of these policy initiatives within the past ten years highlights the enthusiasm for practice change. However, participants viewed that some of the initiatives were introduced in a piecemeal approach which created conflict and lack of

coordination with other policies. In addition, three notable barriers, namely poor policy enforcement, lack of trust of pharmacy stakeholders and scepticism towards the impact of the policy initiatives have hampered the effectiveness of such policy initiatives. Apart from national policy documents, participants mentioned several local initiatives claimed to improve pharmacy practice but were unable to demonstrate evidence showing their effectiveness.

Four main recommendations targeting professional practice, education, policy enforcement and professional image of pharmacists were proposed by participants in the nominal group discussion to advance the practice of community pharmacy in Indonesia. The complex interplay between pharmacists as an agency, healthcare regulation/legislation as structure and the practice of pharmacy as a culture presents opportunities for pharmacists and pharmacies to develop professional practice and to communicate their competence and roles to different agencies within healthcare system.

This study highlighted several key messages including lessons to be learned from the Australian context for developing pharmacy practice in Indonesia. Community pharmacies and pharmacists are well suited to respond to the healthcare needs of Indonesians. However, this will need some definitive strategies to achieve including creating a shared vision among pharmacy stakeholders, establishing a sense of urgency to change, building coalition, developing systematic plan to upgrade pharmacy graduates, encouraging both top down and bottom up initiatives simultaneously, ensuring good governance, and investing on research and resources.

Conclusions

In conclusion, this study provides evidence of practice change in community pharmacies in the context of developed and developing countries. Challenges occur as pharmacists' professional practice evolves, and these challenges come from inside and outside the profession. The frameworks and approaches used in this study are helpful to navigate and explain changes in both countries' contexts and to support pharmacists through the change process and offer promising avenues for further research.

Keywords: practice change, role expansion, community pharmacy, Australia, Indonesia

THESIS OVERVIEW

This thesis consists of seven chapters as follows (Table 1):

Chapter 1 presents the literature review of practice change in community pharmacy. Chapter 2 sets the context of the study focusing on the community pharmacy landscape in Australia and Indonesia, two neighbouring countries which become the cases for this thesis. A systematic review of Southeast Asian (including Indonesia) community pharmacy development is provided to support the notion of practice change in the region in which both countries are located side by side. Chapter 3 emphasizes why this research is important and significant for community pharmacy practice. Furthermore, this chapter outlines several research objectives with which this thesis is structured. Chapter 4 outlines the research design of this study and provides the rationale for each stage of the research from the selection of research methods to interpretation of the findings. Chapter 5 explains the findings generated from twenty-seven interviews in Australia. Chapter 6 explains the results of the study in Indonesia generated from twenty-nine interviews and a nominal group discussion. Chapter 7 briefly discusses the main findings of this study, presents the main conclusion of this thesis and future directions for advancing community pharmacy practice in Australia and Indonesia.

Table 1. Thesis Structure

CHAPTER 1. LITERATURE REVIEW	1.1.	Practice change in contemporary pharmacy situation
	1.2.	Drivers for practice change
	1.3.	Barriers and facilitators for practice change
	1.4.	Chapter conclusion
CHAPTER 2. SITUATING THE RESEARCH	2.1	The Australian community pharmacy situation
	2.2.	Community pharmacy and emerging public health initiatives in developing Southeast Asian countries: a systematic review (Paper 1)
	2.3.	The Indonesian community pharmacy situation
	2.4.	Chapter conclusion
CHAPTER 3. RATIONALE, AIMS AND SIGNIFICANCE	3.1.	Rationale of the research
	3.2.	Aims and significance
CHAPTER 4. RESEARCH METHODS	1.1.	Qualitative methods
	1.2.	Theoretical frameworks
	1.3.	Chapter conclusion
CHAPTER 5. RESULTS OF AUSTRALIAN STUDIES	5.1.	Investigating influences on current community pharmacy practice at micro, meso and macro levels (Paper 2)
	5.2.	The operation of Research and Development (R&D) program and its significance for practice change in community pharmacy (Paper 3)
	5.3.	Chapter conclusion
CHAPTER 6. RESULTS OF INDONESIAN STUDIES	6.1.	Investigating the impact of the universal healthcare coverage program on community pharmacy practice (Paper 4)
	6.2.	Multiple policy approaches in improving community pharmacy practice: the case in Indonesia (Paper 5)
	6.3.	Prioritising recommendations to advance community pharmacy practice (Paper 6)
	6.4.	Chapter conclusion
CHAPTER 7. DISCUSSION AND CONCLUSION	7.1.	Discussion
	7.2.	Conclusion

ETHICAL CLEARANCE

All empirical research undertaken by the PhD candidate and presented in this thesis has been approved by the University of Sydney, Human Research Ethics Committee (HREC).

The studies in chapter 5.1, 5.2, 6.1 and 6.2 were approved by the University of Sydney in 2014 (**HREC Approval Number: 2014/820**)

The study presented in chapter 6.3 was approved by the University of Sydney in 2017 after modification of preceding ethical clearance (**HREC Approval Number: 2014/820**)

CHAPTER 1. LITERATURE REVIEW

This chapter reviews key factors that relate to practice change in community pharmacy. These include drivers, barriers and facilitators to practice change.

1.1. Practice Change in Contemporary Situation

The practice of pharmacists in the community has been changing within recent decades. Traditionally, pharmacists were known as dispensers of medicines based on prescription orders. Although this function still continues in contemporary practice, pharmacists have been increasingly involved in provision of clinical and primary care services. Pharmacists' roles in providing support for management of chronic diseases, public health promotion and other professional pharmacy services related to the use of medicines and health devices has been widely reported in the literature (George et al., 2010, Agomo, 2012, Perraudin et al., 2016). The expansion of pharmacists' scope of practice also covers new areas including limited prescribing, pharmacy immunization, and integration of non-dispensing pharmacists within general practice (Cooper et al., 2012, Bushell et al., 2013, Polasek et al., 2015).

Role expansion in community pharmacy cannot be separated from its actual and potential benefits to healthcare. First, community pharmacies are located in the heart of communities making them the most accessible health setting of all health professionals. The accessibility has also been supported by the fact that consumers have more opportunities to interact with the pharmacists, often without prior appointment and with no fees for consultation. Second, pharmacists are trained and expert health professionals and in some countries are among the third largest healthcare workforce after physicians and nurses making them a relatively untapped resource within the health system (Mossialos et al., 2013). Third, evidence of the value of community pharmacists' interventions is supported by a substantial body of research including their contribution in reducing drug related problems, preventing further hospitalisations and providing continuity of care to patients with chronic diseases (Bunting et al., 2008, White et al., 2012, McMillan et al., 2014b).

The pace of practice change has varied between developed and developing countries. Community pharmacies in developed countries have been at the forefront of pharmacists' role development and the practice change agenda. Several countries in particular USA, UK and Canada, have been working towards integrating community pharmacies within primary care networks (Mossialos et al., 2015). Other countries such as Australia and New Zealand introduced the community pharmacy agreements which have included remuneration for delivery of professional pharmacy services (Scahill et al., 2010, Singleton and Nissen, 2014). Such progress, however, is not without problems.

While there has been a great deal of activity by government, pharmacy organisations and advocacy groups in developed countries in promoting practice change, the majority of community pharmacies still continue to focus primarily on dispensing-related activities (Moullin et al., 2013). In fact, dispensing is still the main income generator in most community pharmacies (Vogler et al., 2014). The over-reliance on dispensing has been partially driven by the fact that provision of professional pharmacy services has not been sustainable and profitable for community pharmacies (Houle et al., 2014, McMillan et al., 2015b). The provision of pharmacy public health services for example, remains small scale, sometimes free of charge and not widely available (Eades et al., 2011). Speedie and Anderson (2017) argued that community pharmacists often considered provision of clinical services as part of the prescription cost and therefore, have not charged additional payment for providing such services. This has made patient care services "episodic, undocumented and not well understood by health systems or payers" (Speedie and Anderson, 2017). In a nutshell, it is not yet the norm for community pharmacists to engage in extended patient care.

Internationally, community pharmacy has been under great pressure to change, to reprofessionalise by expanding the scope of practice into more clinical roles, and to integrate within the primary care system. Despite many campaigns and much advocacy to reprofessionalise in developed countries, readiness to change is still a major barrier within the profession. The profession of (community) pharmacists has been relatively naïve to the agenda for change although policy makers have seen the benefits of expanding roles of pharmacists in healthcare as imperative. A number of studies conducted in the UK (Edmunds and Calnan, 2001,

Scott et al., 2007, Alsaleh et al., 2016), Canada (Paul et al., 2018), Australia (Hoti et al., 2013) and New Zealand (Bryant et al., 2017) highlighted positive views of pharmacists towards implementing enhanced services. However, uptake and action to adopt expanded roles has been slower than expected and often – if it is not largely – influenced by human factors such as poor confidence (Creurer, 2017), unwillingness to leave the comfort zone in the dispensary (Mak et al., 2012) and lack of professional culture (Jacobs et al., 2011).

The situation in developing countries is even more critical. The pace of practice change has been very slow or minimal with community pharmacies struggling even in functioning as suppliers of medicines (Lowe and Montagu, 2009). The roles of pharmacists and community pharmacies have been unrecognized and under-represented in the healthcare system. Practice change can be difficult as a shortage of pharmacists is a major issue in many developing countries (Bates et al., 2018). Practice model in community pharmacy vary significantly between countries (Azhar and Ibrahim, 2018). For example, it is usual for pharmacies in some African and Asian countries to supply medicines without prescription (Miller and Goodman, 2016) or provide only part of the prescribed quantity for patients who are unable to pay for their medicines (Wagner et al., 2014). Dispensing medicines may be conducted by non-pharmacists including physicians (Tiong et al., 2016), pharmacy qualified staff (Kheir et al., 2008, Hasan et al., 2012) or even untrained persons working at the pharmacy (Azhar et al., 2009, Puspitasari et al., 2011). The common perception of community pharmacy is a place to obtain medicines (Basak et al., 2009, Azhar et al., 2009). Sustainability of pharmacy operations has largely relied on the sales of pharmaceuticals. This situation has been intensified by competition among pharmacies leading to price wars (Hassali et al., 2013). The quality of pharmacy services has been deficient and far from acceptable (Smith, 2009b).

The bottom-line of the situation in both developed and developing countries demonstrates that practice change is not an easy task (Elrod et al., 2012). Despite the imperative for community pharmacy to change, pharmacies have struggled to move beyond dispensaries. A number of barriers and facilitators affecting practice change have been identified in the literature, with some strategic solutions offered to aid the transformation of pharmacies (Gastelurrutia et al., 2009). But the current realities show that community pharmacies are still

struggling to continue to be an essential element within primary healthcare (Bryant et al., 2017). This has led to a question: what has actually changed in practice?

Doucette and Koch noted that the underlying concept of practice change in pharmacy is the presence of dual opportunities facing the profession which are “to improve the use of medications in our society while at the same time developing new revenue streams for pharmacies” (Doucette and Koch, 2000). This underscores the need for community pharmacies to take into account both professional and financial aspects when aiming for practice change.

However, practice change arguably is a complex and dynamic process. Community pharmacists are constantly pushed to meet professional standards, provide services and sell products to sustain pharmacy business while at the same time conforming to strict regulations and working within a large bureaucratic healthcare environment (Holiday-Goodman, 2012). It is fair to say that multiple “institutional logics” co-exist and simultaneously affect the community pharmacy operation reflecting the need for further investigation into the process of practice change in community pharmacy (Goodrick and Reay, 2011).

Many studies have explored practice change but they have adopted a narrow approach in analysing the process of change, for example by predominantly focusing on the individual practitioner without due consideration of the organisational factors in the community pharmacy itself and the wider system-related influences on practice change (Rosenthal et al., 2015, Luetsch, 2016). Similarly, some studies have focused on practice change at the community pharmacy level but failed to explain the impact of such changes for the individual and community pharmacy position within healthcare system (Feletto et al., 2011, Hall et al., 2011). Moreover, since context of the country has an influence on practice change, this factor must be considered when researching practice change (Walt et al., 2008). In essence, there is a paucity of research investigating practice change in community pharmacy that has taken consideration of the influences of such complexity, and the dynamic nature and contextual setting in which community pharmacy system has developed.

1.2. Drivers for Practice Change

In general, the need and demand for practice change have been driven by factors from inside and outside the profession. Internally, demand for more patient care and clinical responsibility beyond the supply of medicines have become preeminent drivers to change practice in community pharmacy (Brown et al., 2014). As a result, during the past 60 years, there has been a major shift in how pharmacy students and pharmacists are educated and trained. For example, the curriculum of pharmacy schools has been shifting from pharmaceutical sciences and products/substances knowledge to more emphasis on clinical practice and individualized care (Toklu and Hussain, 2013). In addition, most professional development programs including continuing education for pharmacists have given more attention to clinical knowledge and skills (Foppe van Mil et al., 2004, Langley and Aheer, 2010) along with ongoing campaigns by pharmacy organisations and advocacy groups to change attitudes and values of pharmacists (Zellmer, 2001).

External influences affecting practice change in community pharmacy derived from changes in the social, economic and political context as well as changes in health care systems. Advances in health and pharmaceutical technology, the aging of populations, demand for individualized therapy and medical services, rising health expenditure and cost of pharmaceuticals, changing lifestyles, increased public awareness and education levels are some of the external forces driving transition in community pharmacy practice (Goodrick and Reay, 2011). The progression of change indeed has been largely influenced by these external factors (Holland and Nimmo, 1999).

One of the key external drivers of practice change is the changing landscape of the community pharmacy industry. Over the past decade, the industry has witnessed new competitive forces such as niche pharmacies (e.g. pharmacy in supermarkets, chain pharmacies and discount-style outlets) which in the main offer relatively cheaper prices on a wide variety of items, strong front shop appearance and massive promotion through advertising compared to independent pharmacies (Singleton and Nissen, 2014). This is not to mention supermarkets, retailers and department stores which have become open sellers of Over the Counter (OTC)

products and front-of-store items such beauty and health products (e.g. vitamins at very competitive prices) (Singleton and Nissen, 2014). The changing landscape has forced traditional pharmacy business models to adapt within a competitive environment. These pharmacies are under greater pressure to change and differentiate themselves from competitors (Mossialos et al., 2015).

Ultimately, among the drivers of practice change, the rising cost of healthcare delivery continues to be the main force affecting contemporary pharmacy practice. With the healthcare industry under major turmoil, governments in many countries have re-examined and restructured the traditional roles of healthcare professions as an attempt to reduce costs, maintain quality of care and provide consumers with broader and appropriate access to care (Tootelian et al., 2007). One of the potential and realistic solutions rests on optimizing the roles of community pharmacists within the primary care system.

Several policy documents supporting pharmacy role expansion have been enacted such as *The Blueprint for Pharmacy: The Vision for Pharmacy* in Canada (Canadian Pharmacists Association, 2008), *Focus on the Future* in New Zealand (Pharmaceutical Society of New Zealand, 2004), *The Right Medicine* in Scotland (Scottish Executive, 2002), *Pharmacy in England* in England (Department of Health, 2008), *Remedies for Success* in Wales (Welsh Assembly Government, 2002) and *Project Destiny* in the USA (American Pharmacists Association, 2008). While these documents may vary in specific contents, they share commonalities as follows:

- Recognition that community pharmacy is an easily accessible health setting which is a strength of the health system. In addition, investing in community pharmacy is also making the best use of health funding
- Leveraging pharmacy's accessibility to play a greater role in health promotion, health prevention and medication management aligns with national health policy.
- Recognition that pharmacists' role expansion increases their responsibility and accountability in relation to patients' health outcomes.
- Recognition of the need to redefine the practice model of community pharmacy and therefore, the need for government to allocate funding to help realizing this agenda.

1.3. Barriers and Facilitators for Practice Change

The presence of a myriad of barriers has made practice change very challenging. Most barriers to practice change can be classified under the broad headings of “skills, education, attitudes, resources and systems” (Roberts et al., 2005a). These barriers have been common in much of the published literature and their identification has led to similar conclusions by authors, thus it is necessary to overcome these barriers when addressing the issue of practice change.

Researchers highlighted barriers that have been experienced or have potentially hampered the expansion of pharmacists’ roles (Berbatis et al., 2007b, Lounsbery et al., 2009, White et al., 2012, Jorgenson et al., 2014, Rosenthal et al., 2016). However, most reported research is based primarily on pharmacists’ perceptions and often no clear distinction is made between perceived and actual barriers influencing the failure or success of change.

Lack of role definition, lack of support, lack of confidence, lack of orientation, lack of time, lack of reimbursement and other types of “lacking conditions” have been described in many studies as barriers (Berbatis et al., 2007b, Nunan and Duke, 2011, Carter et al., 2012a, Jorgenson et al., 2014, Hamrosi et al., 2014). However, since most studies involved pharmacists’ perceptions of current practice, it has been argued that these perceived barriers might have been overrated by the pharmacists. For example, although remuneration has frequently been described as a barrier, the allocation of money for professional services has not necessarily resulted in robust uptake of new services (Feletto et al., 2010a).

At the same time, Rosenthal et al. (2010) have argued that the ultimate barrier for pharmacy practice change is the “*pharmacist’s own psyche and culture*”. They noted that pharmacists often lack confidence, fear new roles, are stuck when faced with ambiguity, always need approval and are risk averse. These internal characteristics of pharmacists hinder the progress of change. These “personality traits” also may influence the way pharmacists work with other health care providers, thus making it more difficult to integrate them into the health care team. In line with this research, several other studies (Rosenthal et al., 2011, Mak et al., 2012, Braund et al., 2012) found that a majority of pharmacists expressed a reluctance to change and move away from their comfort zones although they know that it is imperative for pharmacy and

pharmacists to change. Pharmacists appear to be supportive and interested when discussing potential future roles and expanding scope of practice. However, they were also satisfied with their current role as “dispenser of medication” and hesitated to undertake new roles if it involved giving away dispensing to a non-pharmacist (Mak et al., 2012).

Surprisingly, pharmacy organizations as advocacy bodies that should play an essential role in facilitating change are not acting as agents of change. A Canadian survey found that the majority of pharmacy organizations (17 of 22 organizations surveyed) considered that Knowledge Translation (translating evidence based research into best pharmacy practices) is not part of their remit but rather the responsibility of faculties/universities or other advocacy bodies (Truong et al., 2010). Despite their prominent role in advocating the value of patient centred services with high evidence, their reluctance appears to reflect the problem of “*pharmacist’s own psyche and culture*” (Rosenthal et al., 2016). Perhaps, the unwillingness for pharmacists to change is the paramount barrier in community pharmacy practice (Rosenthal et al., 2010).

Lack of recognition from the general public about provision of extended services by pharmacists in a community pharmacy setting is another common barrier in practice. For example, Krska and Morecroft (2010) reported that only 23% of consumer survey respondents (n=300) considered community pharmacy to be an appropriate setting to seek general health advice. Even for frequent users of pharmacy, they would not use pharmacy as a source to obtain public health advice. The public continue to view general practice as their preferred setting to obtain general health advice. Further the study mentioned that the lack of awareness of pharmacists’ capacity may be one reason for the public to hold this notion. Despite frequent use of services and contact with pharmacists, pharmacists have not been seen as health experts. In addition, there has been concern about privacy and confidentiality as there is often no private space available for consultation with pharmacists (Rapport et al., 2009, Thompson and Bidwell, 2015).

The expansion of the pharmacist’s role has also been variably received by other healthcare colleagues. For example, initiatives by pharmacy organizations to seek extension of pharmacists’ scope of practice to include prescribing rights have raised concern and objections

from Medical Associations in some countries (Emmerton et al., 2005, Hoti et al., 2011, Nissen, 2011). This initiative is seen as a threat to the monopoly of doctors in the prescribing of medicines. Furthermore, it may represent a significant threat to the authority of the medical profession and the dominance of doctors as healthcare providers (Motulsky et al., 2011, Cooper et al., 2012).

Pharmacists and community pharmacies in developing countries may face additional barriers to practice change compared to their counterparts in developed countries. There are a number of factors impeding practice change in developing countries. First, the combination of underdeveloped health systems, lack of professional regulations and lack of access to evidence has made it very difficult for pharmacists to provide even the most basic effective and evidence-based pharmacy services (Babar and Scahill, 2014, Lowe and Montagu, 2009). The manifestation of these factors can be wide-ranging such as lack of remuneration, lack of universal healthcare coverage, accessibility and affordability of medicines and poor recognition of pharmacists' role and position within the wider health system (Wagner et al., 2014, Miller and Goodman, 2016). Second, pharmacy practice in most developing countries is in a state of infancy. There are limited guidelines, standards and professional development strategies in pharmacy practice (Miller and Goodman, 2016). This has made delivery of pharmacy services sub-optimal, unclear and questionable (Smith, 2009b). Third, lack of investment in pharmacists' education and professional training has limited the number of trained and competent pharmacists. While education and professional development are the key to improving pharmacists' competence, they have not been adequately designed, directed and implemented to address health issues and population needs (Kheir et al., 2008, Ghani et al., 2010). As a result, a shortage of pharmacists is common, and many licensed pharmacists have limited skills and knowledge to perform clinical services.

Despite the studies on barriers, there have been a number of attempts to identify the role of factors that can facilitate change (Roberts et al., 2006, Berbatis et al., 2007b, Roberts et al., 2008, Gastelurrutia et al., 2009). The term "facilitator" describes the aspects or elements of practice that can assist pharmacy and pharmacists to overcome barriers to change.

According to van Mil et al. (2004), professional experience and academic training of pharmacists are essential facilitators for change. Roberts et al. (2005a) identified two major types of facilitators: experiential facilitators and potential facilitators. Experiential facilitators refer to those elements that are actually experienced by pharmacists when changing their practice (e.g. environment of the pharmacy, remuneration, workforce and use of pharmacy technicians), while potential facilitators are those factors that may assist pharmacists to overcome barriers of change (e.g. advertising, proven benefits of services and legislation). Further in 2008, Roberts et al. (2008) described individual and organizational influences as facilitators of change. Pharmacists' competence, training, skills, knowledge and autonomy have been the positive drivers for individual pharmacists to change, while organizational change relates to the physical environment of the pharmacy, work culture, manpower, delegation of tasks etc. that affect the operation of the pharmacy. Similar facilitators have been identified in Spanish studies of pharmacy practice change (Gastelurrutia et al., 2009). Remuneration for services has been consistently identified as one of the most crucial elements (Roberts et al., 2005b, Roberts et al., 2008, Feletto et al., 2010b, McMillan et al., 2015b).

Another facilitator that supports pharmacy practice change is acceptance by patients and healthcare professionals of an expanded health care role for pharmacy (Lea et al., 2012). Recognition has become the essential point to boost pharmacy services because being recognized means having greater opportunities to show the value of the pharmacist's contribution. However, as White (2014) stated, recognition is not a gift, it is a process, and pharmacists must earn it. Public recognition will occur when the pharmacist's role and contributions are both demonstrated by the profession as a whole and positively valued by other health professionals and the public. For example, the Australian Medical Association strongly favour locating pharmacists in general practice because "pharmacists working in general practice would assist in areas such as medication management, patient education, and by supporting GP prescribing with advice on medication interactions and newly available medications" (Australian Medical Association, 2015) but at the same time, they oppose the idea of pharmacists administering vaccinations mainly due to the perception that pharmacists do not have adequate skills and knowledge to administer vaccinations (Waterford, 2013).

1.4. Chapter Conclusion

This chapter highlights that practice change in community pharmacy has been a global phenomenon. It has been an oft-repeated message that community pharmacy should shift the practice paradigm from a mere technical and conventional supply role towards professional practice attributing clinical, humanistic and economic benefits. While there has been an imperative for community pharmacy to change, the current realities demonstrate that changing practice is often challenging. The lack of resources and motivation are potential reasons for the slow pace of change, but this is not new and not unique to pharmacy. On the other hand, several factors facilitating practice transformation have been identified, however, it is not yet clear whether these factors – some of which were perceived factors – can provide significant impetus to advance practice. Given that pharmacy practice is evolving, perhaps a starting point for understanding the process and encouraging practice change would be to investigate the contemporary situation within and beyond community pharmacy system.

CHAPTER 2. SITUATING THE RESEARCH

This chapter comprises three main sections. The first section describes the landscape of community pharmacy in Australia. The second section presents a systematic review of emerging public health pharmacy initiatives in developing Southeast Asian countries including Indonesia. This neighbouring region has been the strategic partner of Australia within the past few decades. The third section explains the community pharmacy situation in Indonesia, a country next door to Australia, representing the case of developing countries.

2.1. The Australian Community Pharmacy Situation

The structure of the community pharmacy sector in Australia previously has been dominated by pharmacist-owned pharmacies. Pharmacists who work in pharmacist-owned pharmacies will generally be responsible for the whole operation of the business, both as full-time pharmacist and a business manager. In addition, the legislation has allowed pharmacist owners to have direct interest in building another pharmacy within any one jurisdiction. However, in recent years, there has been a major change in the industry with the increasing prominence of banner groups and a new retailer format such as larger super chemists and discount or warehouse style outlets (Richardson A, 2013).

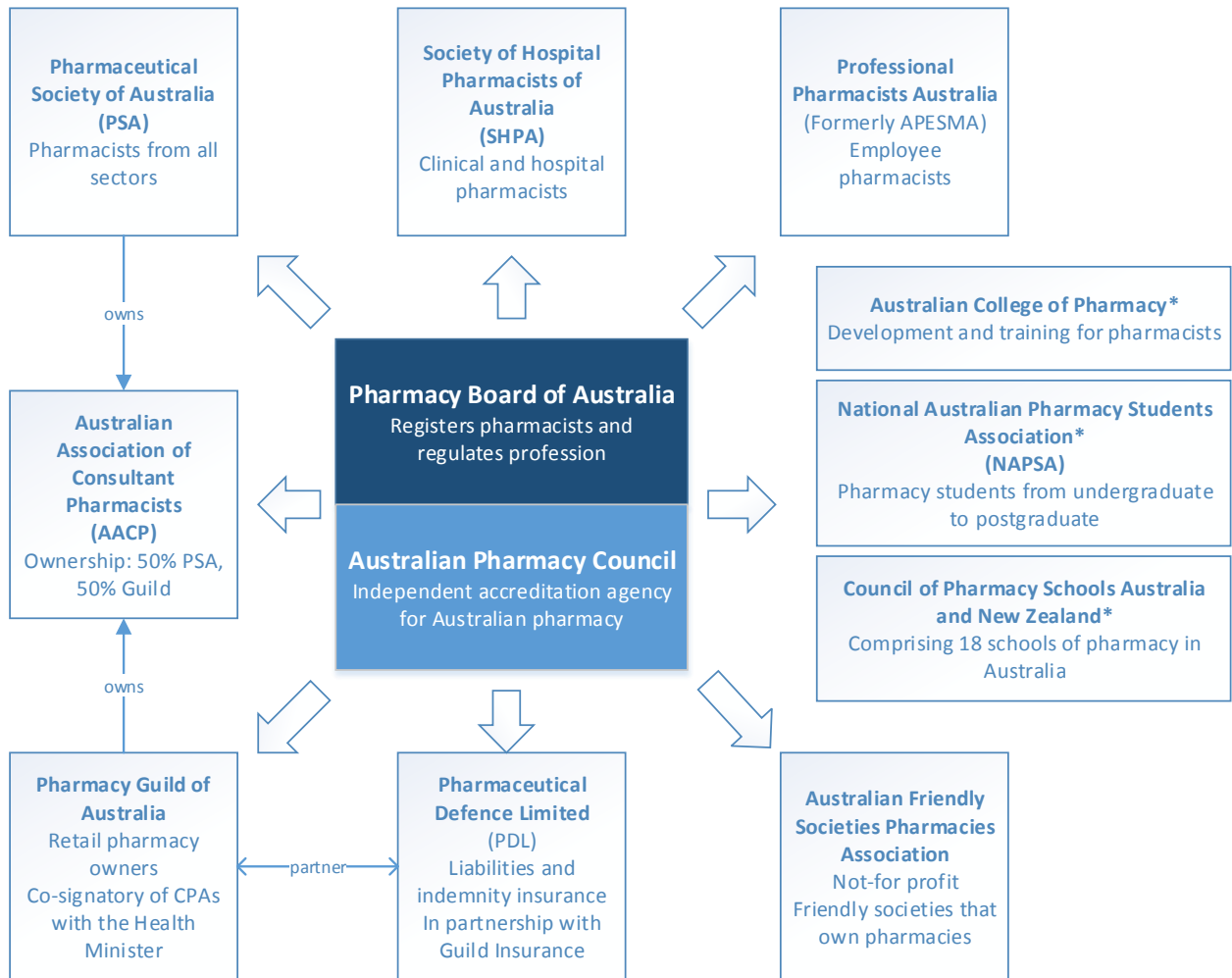
As of November 2016, there were 5,587 community pharmacies in Australia with a large majority (95.4%) operated in non-remote areas (Pharmacy Guild of Australia, 2016). It was estimated that there were more than 20,000 community pharmacists working in community pharmacy sector, assisted by approximately 43,000 pharmacy assistants (Pharmacy Guild of Australia, 2014a). Community pharmacy is the principal deliverer of Pharmaceutical Benefits Scheme (PBS) medicines and other health-related services including provision of a range of Cognitive Pharmaceutical Services (CPS).

The PBS provides access to subsidized medicines for all Australian residents and certain overseas visitors from countries which have reciprocal healthcare agreements with Australia (Department of Health, 2018a). Expenses in the PBS are uncapped which leads to increases in costs when new pharmaceuticals are added or demand for pharmaceuticals increases. Therefore,

over the years, the government has made a series of changes to the PBS through PBS reform aiming to ensure that the PBS remains economically sustainable in the future (Sweeny, 2013). One change was the introduction of the Price Disclosure Policy which has had a considerable impact on community pharmacy income and practice such that there is concern that it may affect the long term survival of pharmacies (Watson, 2013).

Community pharmacies in Australia are also encouraged to provide Cognitive Pharmaceutical Services (CPS). There are a number of remunerated CPS provided in community pharmacy namely Home Medicine Reviews (HMRs) and Residential Medication Management Reviews (RMMRs), Dose Administration Aids (DAAs), Staged Supply, Clinical Interventions, Medscheck and Diabetes Medscheck. In addition, some pharmacies also provide other professional pharmacy services alongside the remunerated CPS including vaccinations, smoking cessation services, weight management, wound care and opiate substitution treatment (Berbatis et al., 2007b, Benrimoj et al., 2010).

The integration of CPS into daily practice has been endorsed by pharmacy organizations and the Australian government. In particular, two peak national pharmacy organizations, the Pharmacy Guild of Australia (PGA) and the Pharmaceutical Society of Australia (PSA) have each played a role in advancing pharmacy practice. The PGA is an employers' organization with community pharmacy owners as members while PSA represents pharmacists in general, including community pharmacists with its the main agenda focused on pharmacists' continuing education, development of professional pharmacy practice standards and advocacy. Figure 1 illustrates the major stakeholders representing the profession of pharmacy.



*These organisations are not directly involved in the practice of pharmacists and pharmacy

Figure 1. Stakeholders in Australian Community Pharmacy Sector

The remuneration for community pharmacy to dispense PBS medicines and delivery of CPS has been formalized since 1990 under a series of five-year cooperative arrangements between the Australian government and the PGA, known as the Community Pharmacy Agreements (the CPAs). Despite the changes in objectives in each successive CPA, there are several elements of the agreement that are relatively unchanged as shown in Figure 2.



Figure 2. Elements of the Community Pharmacy Agreements

The 1st CPA (1990-1995) secured the basis for regular funding whereby approved pharmacies were remunerated for dispensing prescriptions (Pharmacy Guild of Australia, 2012). A location rule was introduced to reduce the number of pharmacies and re-distribute them to achieve a more consistent population to pharmacy ratio. In tandem with ownership restriction, pharmacy location rules remain in place under the current 6th CPA, and are still the subject of debate regarding their effects (Kurti et al., 2010). The 2nd CPA (1995-2000) provided more space for the improvement of pharmaceutical services with the Residential Management Medication Reviews (RMMRs) as the first funded professional program. The 2nd CPA also marked the start of formal funding for Research and Development (R&D) in community pharmacy although the funding was largely reliant on residual funds of the agreement (see Table 6 for funding details). One of the funded research projects in this agreement was the Sugarcare project (Armour et al., 2004). The research showed that individual specialised services by pharmacists (e.g. consultation and monthly follow up) resulted in significant improvement in glycaemic control in patients with

type 2 diabetes. Funding for pharmacist services for type 2 diabetes have continued in subsequent CPAs.

The transition in community pharmacy practice was expanded under the 3rd CPA (2000-2005) with pharmacists involved in reviewing medication use in the domiciliary setting, known as Home Medicines Review (HMR). The 4th CPA (2005-2010) represented a significant increase in the scope of the professional role of community pharmacists. Professional programs funded under the 3rd CPA were continued including HMRs and RMMRs (Urbis Keys Young, 2005, Campbell Research, 2010). The Diabetes Pilot Program and the Asthma Pilot Program were two national trials under the 4th CPA. Unfortunately, at the conclusion of the 4th CPA, neither program was funded for further implementation. The 5th CPA (2010-2015) provided specific funding for medication review activities through payment for Medscheck and Diabetes Medscheck. The 5th CPA also provided incentives for delivering a range of services under the Pharmacy Practice Incentive (PPI) scheme such as Dose Administration Aids (DAAs), Clinical Interventions and Staged Supply services. There has been an increase in the total funding allocated under the 6th CPA (2015-2020). Total funding of \$1.26 billion – double that of the 5th CPA – has been invested in continuing the successive CPS funded under the 5th CPA (Pharmacy Guild of Australia, 2015). Other significant changes in the 6th CPA were the removal of funding for Research and Development which then shifted to fund the Pharmacy Trial Program (PTP). The PTP will enable pharmacies to trial a range of new services to support involvement of pharmacists within primary care. In addition, there have been major changes in pharmacy remuneration with the Administrative, Handling and Infrastructure (AHI) fee introduced to replace the pharmacy mark-up. Further details and information about the CPA can be viewed on the CPA website (www.6cpa.com.au).

Until recently, research and investment under the CPAs have played a significant role in the development and introduction of new services in community pharmacies in Australia. There were a number of Research and Development (R&D) activities that contributed to the introduction of remunerated CPS under the CPAs. Such research in community pharmacy provides room for innovation and an impetus for practice transformation (Patwardhan et al., 2014). However, notwithstanding evidence of both clinical and cost-effectiveness, there have

been questions about whether the research has been successfully translated into practice and ultimately changed the way community pharmacy practices (Crespo-Gonzalez et al., 2017). In fact, even following implementation with remuneration, some services have struggled for sustainability in the longer term (Pharmaceutical Society of Australia, 2014).

For example, the importance of medication review which forms the rationale of the current HMR services has been highlighted in a number of studies (Gowan, 2006, Hilmer et al., 2010, White et al., 2012, Carter, 2012, Brandt and Hahn, 2012). These studies demonstrated that HMR is a cost-effective way to resolve, manage, or reduce medicine related problems for a wide range of patients. While HMR was initially remunerated under the 3rd CPA and maintained uninterrupted funding under the CPAs ever since, there have been a number of problems following its implementation particularly prior to the conclusion of the 5th CPA. This includes the introduction of a capping policy of HMRs services in response to a budget blowout which was attributed to underfunding of the program and the “unscrupulous behaviour” of some pharmacists who used the services as a revenue stream driven by volume rather than need or quality (Pharmacy Guild of Australia, 2014b). The program continues to operate under a capping policy in the current 6th CPA. Similarly, other remunerated CPS such as Medscheck, Diabetes Medscheck and Clinical Interventions were capped at the end of the 5th CPA. Although these programs have continued under the 6th CPA, there has been concern regarding their effectiveness as there is no robust evidence for any clinical and cost benefits of the services to the health system (PricewaterhouseCoopers, 2015). Accordingly, these programs continue to be under a cost-effectiveness evaluation in the 6th CPA. The impact of the funded R&D program under the CPAs is further described in the chapter 5.2.

Despite the environment in community pharmacy appearing ready for change, there is concern whether individual pharmacists are prepared to change. A study published in 2013 investigated pharmacists’ readiness for change before and after implementation of PAMS (Pharmacy Asthma Management Services, a nationally funded trial under the 4th CPA) (Feletto et al., 2013). The study highlighted that pharmacists’ perception of readiness for change was high before implementing the PAMS service. However, the experience after implementation showed the opposite suggesting “a lack of in-depth understanding of managing a practice change”. This

study showed a gap between pharmacists' willingness and readiness for change and actually implementing the change. A number of external, internal and individual factors affecting the process of change were identified reflecting the need to recognize and facilitate these factors during the implementation of new services.

The results from the aforementioned study align closely with previous Australian research exploring practice change. For example, Roberts et al. (2006) outlined that awareness of the imperative for practice change was not necessarily the factor encouraging pharmacists to start implementing changes. The motivation, either driven by professional satisfaction or business pressure or both, is an important predictor of pharmacy's success in implementing changes. Mak et al. (2012) added that pharmacists "very strongly and uniformly expressed" lack of awareness about their current and future roles. The study showed that a majority of pharmacists did not perceive any changes from their current supply roles, with no alternative model of practice on offer to replace retailing as the dominant business model in contemporary practice. Mak et al. (2012) concluded that Australian pharmacists were not well prepared to change. McMillan et al. (2013) suggested that despite the availability of funding for adopting CPS, support and policy guidelines were needed for community pharmacies to incorporate CPS into practice. The study suggested that this is perhaps the reason pharmacists were less clear about "the how to change" despite strong belief that they can change. It can be said that community pharmacies in Australia are under constant pressure to change as driven by multiple factors mainly from government policy, financial pressure, competitive business environment, and research and practice impetus.

The presence of the CPAs has served as a platform for changes in Australian community pharmacies. The increased amount of investment and emphasis for provision of CPS since the 3rd CPA reflects a commitment particularly from the government to transform community pharmacy practice (Australian National Audit Office, 2015). At the same time, community pharmacies are experiencing declining profits largely as a result of PBS reform, specifically price disclosure (Quilty, 2014). The viability of pharmacy is further under jeopardy due to the emergence of the discount pharmacy model which has led to intense competition among pharmacies.

It has been argued that the delivery of cognitive services by community pharmacists has not been effective in Australia given the fact that community pharmacists have never been fully integrated with other health disciplines in the wider health system (Gadiel, 2008). There are issues about the quality of services being delivered under the CPA, yet some services are still delivered as a “way of recouping losses from PBS reforms” (Lingam, 2013). The implementation of services such as HMR, RMMR and Medscheck does not essentially change the practice of community pharmacists; in reality pharmacists continue their “normal practice” and supplement it by documenting these activities and claiming the incentive payments. In addition, the audit on the administration of the 5th CPA revealed that there was “limited basis for assessing the extent to which the 5th CPA has met its key objectives including the achievement of \$1 billion in expected savings” (Australian National Audit Office, 2015).

The contribution of CPS to community pharmacy income in fact has been relatively small and not sustainable (Chapman and Braun, 2011, Moullin et al., 2016). Therefore, it is not surprising that the majority of pharmacies continue to rely on dispensing as their predominant activities. This situation to some extent has been preserved by the fact that a large proportion of CPA funding is allocated to remuneration for dispensing activities. Such a funding model has encouraged pharmacists to focus on delivering an efficient dispensing process and to treat it as a merely technical process of supplying medicines with minimum professional advice and interaction with patients (Pharmaceutical Society of Australia, 2014). The increased pressure for change, along with other issues such as low pharmacists’ wages (Fair Work Commission, 2017), have become the main reasons for pharmacists’ disillusionment and burnout leading to some pharmacists leaving the profession (Mak et al., 2013).

The contemporary situation in Australia demonstrates two relevant lessons for this study. Firstly, Australia has an advanced system of community pharmacy practice within a unique healthcare system underpinned by universal access to health services and medicines. This provides an excellent opportunity for community pharmacy role expansion marked by delivery of remunerated professional services. In addition, government support, the use of technology, the quality of pharmacy education and graduates, and the educated and trained pharmacists’ workforce have been facilitators to meet existing and future demands of the practice. However,

secondly, a shift in practice has been hindered by strong reliance on a dispensing and retail business model. Notwithstanding the investment in research and development, robust evidence for the ongoing effectiveness of CPS is lacking and the funding of CPS has not been sustainable. Practice change towards patient care orientation has proven difficult although the supporting systems are available, and the environment is ready for change. This emphasizes that practice change is a complex and dynamic process which warrants further investigation to understand the process of change comprehensively based on the contemporary situation in community pharmacy.

2.2 Community Pharmacy and Emerging Public Health Initiatives in Developing Southeast Asian Countries: A Systematic Review

This section comprises the following publication:

“Hermansyah, A., Sainsbury, E., & Krass, I. (2016). Community pharmacy and emerging public health initiatives in developing Southeast Asian countries: a systematic review. *Health & Social Care in the Community*, 24(5): e11-22. doi:10.1111/hsc.12289”

This publication aimed to systematically review community pharmacy and public health initiatives in several developing Southeast Asian countries including Indonesia, and to assess the evidence associated with the services provided in the selected countries. This publication was submitted in March 2015, accepted for publication in July 2015 and available online in August 2016. The published version of the paper is presented in appendix 6.

Community pharmacy and emerging public health initiatives in developing Southeast Asian countries: A Systematic Review

Andi Hermansyah, Erica Sainsbury, Ines Krass

What is known about this topic

- Community pharmacies have both the opportunity and the potential to play a role in public health
- Earlier research has shown that despite their potential, community pharmacies have been underutilized in the provision of public health care services

What this paper adds

- Community pharmacies in Southeast Asia have attempted to expand practice in public health
- However, the pace of the expansion has been slow and lacking evidence for its sustainability in everyday practice
- Fundamental policy change is needed to overcome the ongoing barriers which have limited progress

Keywords: *community pharmacy services, public health initiatives, Southeast Asia*

ABSTRACT

The development of health and health care systems in Southeast Asia has influenced the practice of community pharmacy. Over the years, community pharmacy in the region has striven to expand services beyond dispensing to encompass more involvement in public health issues. Searches were conducted in Scopus, EMBASE, MEDLINE and PubMed for articles published between January 2000 and December 2014, with twenty-one studies in five countries meeting the inclusion criteria. The findings showed increasing interest in research into the delivery of pharmacy services and public health initiatives. Overall the review found that provision of some health services in pharmacies was common, however most public health initiatives appeared to be poorly implemented, had limited evidence and were not demonstrated to be sustainable

across the sector. This indicates that the practice of community pharmacy in the region has not significantly changed over the past fourteen years with respect to the scope and the quality of pharmacy services provided, and fundamental policy changes are necessary to improve this situation.

INTRODUCTION

Health care systems in Southeast Asia have dramatically changed over past decades as a result of rapid social and economic development and considerable population growth (Chongsuvivatwong et al., 2011). Health care in the region is at a crossroads, having to deal concurrently with both a rising tide of chronic conditions and ongoing issues with infectious diseases. Moreover, the diversity of cultures, languages and geographical landscapes continue to be daunting challenges to providing equitable access to health care services (Acuin et al., 2011). While lack of health care facilities and ongoing shortages of providers, especially doctors and nurses, have remained intractable problems over many years (Kanchanachitra et al., 2011), the increasing number of community pharmacies in the region creates unexplored opportunities for delivering public health services. In Vietnam, pharmacist numbers have nearly doubled from 7,800 to 13,900 between 2000 and 2008 (Le et al., 2010). In Malaysia and Indonesia, pharmacist numbers have exponentially increased over the last decade as universities have graduated more pharmacists annually (Chee et al., 2009, Shafie et al., 2012).

With strategic location in the heart of the community, extended opening hours and no appointment required for seeking health care advice, community pharmacy has great potential as a setting in public health. Moreover, pharmacy in the region has often become patients' first point of health care contact (Chalker et al., 2005, Ngorsuraches et al., 2008, Chua et al., 2013). These benefits provide a platform for more proactive involvement of community pharmacy in addressing gaps in public health services and programs.

As elsewhere, community pharmacy practice in Southeast Asia has evolved in response to the changing health care environment. Significantly, provision of a range of health care services beyond traditional dispensing has been trialled in community pharmacies across the region. Although relatively new, such services include blood pressure monitoring, chronic disease

screening, smoking cessation, and weight management programs (Chua et al., 2013, Dhippayom et al., 2012, Nimpitakpong et al., 2010, Phimarn et al., 2013). However, there is a dearth of evidence on the extent of implementation of these services in everyday practice and their impact on public health.

In this paper we report the findings of a systematic review of the published literature on pharmacy services and public health initiatives in five Southeast Asian countries: Indonesia, Malaysia, The Philippines, Thailand and Vietnam. These countries were selected because they are the most populous countries of the region, they are representative of developing countries, and they have introduced privatization in health care which provides an avenue for community pharmacy partnership in public health (Ramesh and Wu, 2008, Lowe and Montagu, 2009). This review is guided by the research question: *What is known about the role of community pharmacy of this region in public health services?* To address this question, this paper briefly reviews the scope of practice and services provided in community pharmacy, then evaluates the evidence for the provision of community pharmacy public health care services, and finally identifies barriers to their provision.

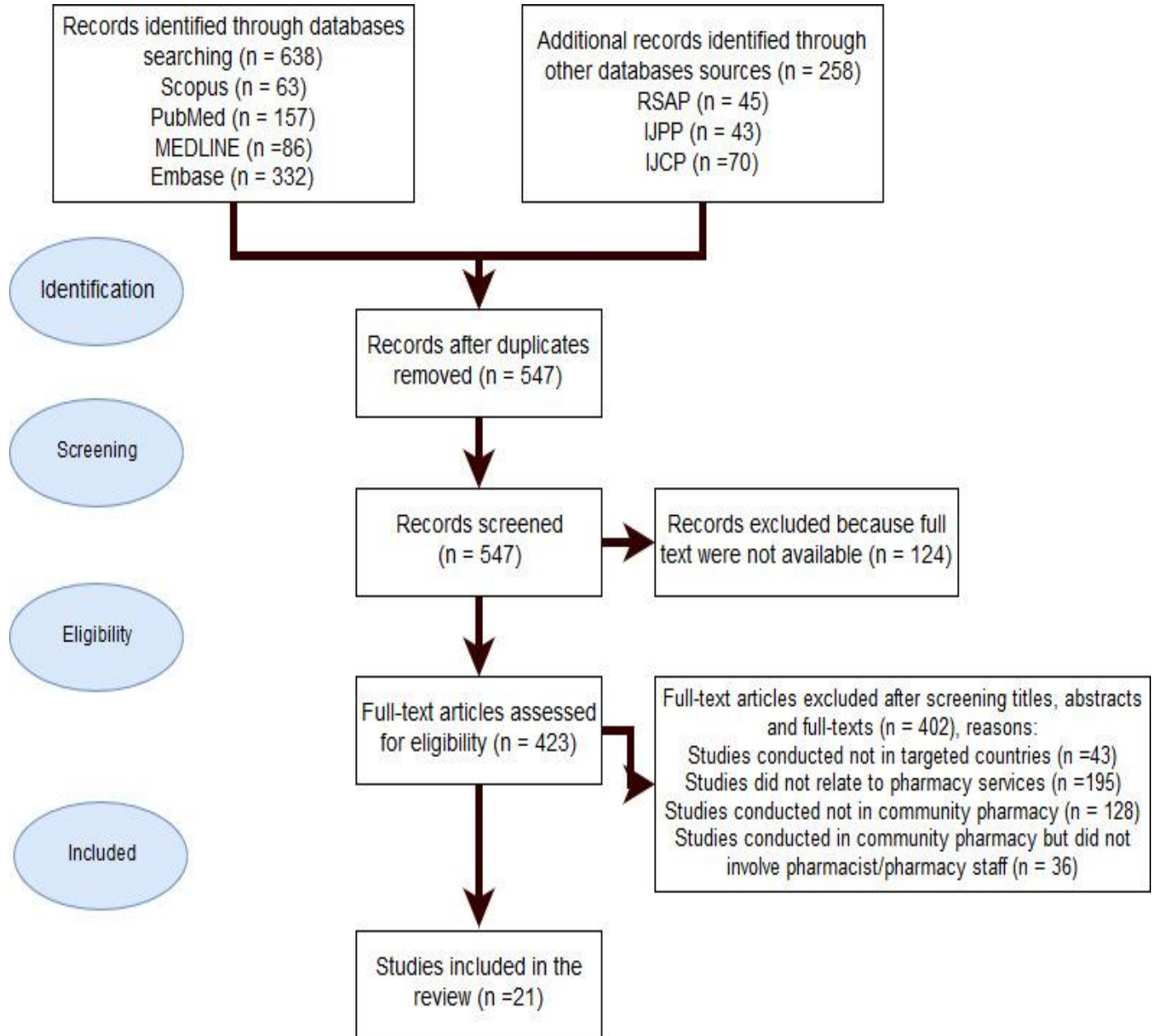
METHOD

The literature search was conducted in Scopus, EMBASE, MEDLINE and PubMed. The database search was also supplemented with electronic searches in relevant journals and/or publications.

Search terms included keywords such as community pharmacy\$, pharmacy service\$, pharmaceutical care, cognitive service\$, pharmacy practice\$ in combination with Southeast Asia or country name (Indonesia, Malaysia, Thailand, Vietnam, Philippines). The period covered 1 January 2000 to 31 December 2014. This review was based upon full text original research articles written in English.

The screening used three inclusion criteria: studies that (1) reported services provided including public health activities in community pharmacy, (2) were conducted in at least one of the five selected countries, and (3) involved community pharmacists and/or pharmacy workers. Studies were excluded if they: (1) were not conducted in a community pharmacy setting or (2)

were investigations of patient/student’s perceptions, attitude, knowledge, or satisfaction etc. conducted in community pharmacy. Details of literature search and screening process are shown in Figure 3.



*RSAP: Research in Social and Administrative Pharmacy; IJPP: International Journal of Pharmacy Practice; IJCP: International Journal of Clinical Pharmacy

Figure 3. Flow diagram of paper selection process using PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)

Community pharmacy in this paper was defined as a health care facility that operates under the full responsibility of a registered pharmacist and provides pharmacy services to the community. These services may include but are not limited to dispensing of prescribed medicines, self-medication advice and other roles providing consumer assistance in the use of pharmaceutical products. In relation to the public health role of pharmacy, this paper adopted Walker's definition of pharmaceutical public health described as "the application of pharmaceutical knowledge, skills and resources to the science and art of preventing disease, prolonging life, promoting, protecting and improving health for all through organised efforts of society" (Walker, 2000).

Selected studies were evaluated for the scope and quality of pharmacy services and public health initiatives. The evaluation also classified the level of evidence of each study using a grading system adapted from the public health literature (Anderson et al., 2004, Agomo, 2012, Neville et al., 2015):

Level A: Evidence from meta-analysis or systematic reviews

Level B: Evidence from randomised controlled trials (RCTs)

Level C: Evidence from quasi-experimental studies

Level D: Evidence from observational studies or quantitative surveys

Level E: Expert opinion, case reports, focus groups, or qualitative studies

RESULTS

In the end, 796 articles were identified through the search process. After eliminating duplicates, titles and abstract screening and reviewing full text articles meeting the inclusion and exclusion criteria, twenty-one studies were included for analysis. Details of the twenty-one studies are presented in Table 2.

Table 2. Details of eligible studies

Author and Country	Level of Evidence	Aims/Objective	Study Design	Primary findings/conclusions
Management of minor ailments				
Chua et al. – Malaysia (Chua et al., 2006)	Level D	Assessment of community pharmacy response to patient with back pain symptoms	Simulated patient; 100 randomly selected pharmacies in Klang Valley, Malaysia	Pharmacist’s assessment and counselling were considered suboptimal. Only 3 and 5 out of 13 elements for assessment and counselling were addressed by pharmacists, respectively
Saengcharoen and Lerkiatbundit – Thailand (Saengcharoen and Lerkiatbundit, 2013)	Level D	Management of migraine in community pharmacy	Simulated patient and interview; 142 randomly selected pharmacies in South Thailand	33% and 53% of pharmacy staff appropriately dispensed medication for patients presenting with mild and moderate migraine, respectively. Pharmacists showed higher knowledge than non-pharmacists in history taking, yet their level of knowledge was still not sufficient as on average they only achieved half of the full score. Fewer than 30% of pharmacists gave the appropriate advice to the “patients”
Provision of smoking cessation services				
Thananithisak et al. – Thailand (Thananithisak et al., 2008)	Level D	Assessment of pharmacists' involvement, their perception and barriers in smoking cessation services	Mail survey and interview; 83 pharmacists participated in the survey, 13 early adopter pharmacists interviewed in Bangkok, Thailand	51% of surveyed pharmacists provided smoking cessation services. Their perception of the services was positive yet barriers such as lack of demand, lack of educational materials, lack of smoking cessation products, lack of knowledge and skills and lack of follow up visits have hindered their services. Only 4 out of 13 early adopters still delivered the services by the third month due to these barriers
Nimpitakpong et al. – Thailand (Nimpitakpong et al., 2010)	Level D	Evaluation of smoking cessation services and training in community pharmacy	Mail survey; 1,001 randomly selected pharmacies nationwide	71% of pharmacists provided smoking cessation services but only 15% provided comprehensive services. 29% of pharmacists attended cessation training and they were more likely to provide comprehensive services than those who were not trained
Provision of weight management program				
Phimarn et al. – Thailand (Phimarn et al., 2013)	Level B	Involvement of community pharmacists in weight management program	Randomized Controlled Trial; 66 patients, 1 selected pharmacy	Although there is a potential role for pharmacist involvement in weight management programs, particularly in influencing eating behaviours and knowledge of obese patients, there was no significant improvement in clinical outcomes such as weight, waist circumference and Body Mass Index in the experimental group

Author and Country	Level of Evidence	Aims/Objective	Study Design	Primary findings/conclusions
Prevention and management of infectious diseases				
Lönnroth et al. – Vietnam (Lönnroth et al., 2000)	Level E	Assessment of knowledge and dispensing practice of anti-tuberculosis drugs	Interview; 147 randomly selected pharmacies in Hanoi, Vietnam	The majority of the pharmacy staff members had adequate knowledge about Tuberculosis and National Tuberculosis Program. 58% of pharmacies dispensed anti-tuberculosis drugs and 24% had sold them without prescription in the previous 4 weeks
Chuc et al. – Vietnam (Chuc et al., 2001)	Level D	Management of childhood acute respiratory infections	Interview and simulated patients; 60 randomly selected pharmacies in Hanoi, Vietnam	In actual practice, 83% of pharmacy dispensed antibiotics at the first encounter while only 20% of them stated in the interview that they would dispense antibiotics. Only 36% of pharmacy encounters were managed according to the guidelines
Chuc et al. – Vietnam (Chuc et al., 2002)	Level B	Evaluation of multiple interventions in the case of acute respiratory infection, sexually transmitted disease, prednisolone and cephalixin request.	Randomized Controlled Trial; 68 randomly selected pharmacies in Hanoi, Vietnam	Multiple interventions comprised of regulatory enforcement, education and peer influence significantly improved the practice of community pharmacy in terms of reducing dispensing of antibiotics and steroids without prescription, increasing history taking and advice to patients and increasing consultation with physicians
Saengcharoen and Lerkiatbundit – Thailand (Saengcharoen and Lerkiatbundit, 2010)	Level D	Management of childhood diarrhoea in pharmacy	Simulated patient and questionnaire; 115 randomly selected pharmacies in South Thailand	Only 5% of pharmacies correctly dispensed ORS for “simulated patients” and 52% of pharmacies responded inappropriately by dispensing antibiotics as the first line therapy. In contrast, the majority of pharmacies stated they would dispense ORS as the first line therapy in the questionnaire
Vu et al. – Vietnam (Vu et al., 2012)	Level D	Detection of suspected TB patients in pharmacy	Simulated patient and interview; 138 randomly selected pharmacies in Hanoi, Vietnam	Almost half of the pharmacists were dispensing drugs for suspected TB patients and did not directly refer patients to healthcare facilities. No differences were found between accredited and non-accredited pharmacies in the case study
Minh et al. – Vietnam (Minh et al., 2013)	Level D	Evaluation of training and supervision in childhood diarrhoea and emergency	Questionnaire and simulated patient; 734 randomly selected pharmacies in five provinces in Vietnam	Pharmacists’ knowledge and practice in terms of providing more information about drugs and offering ORS for diarrhoea were significantly increased after a sequence of training and supportive supervision

Author and Country	Level of Evidence	Aims/Objective	Study Design	Primary findings/conclusions
		contraceptive provision		
Screening for chronic diseases				
Pongwecharak and Treeranurat - Thailand (Pongwecharak and Treeranurat, 2010)	Level C	Screening for pre-hypertension and cardiovascular risk	Screening program; 350 people in 1 selected pharmacy in Songkla, Thailand	Community pharmacy can play a role to identify people at risk of hypertension and cardiovascular disease
Sookaneknun et al. – Thailand (Sookaneknun et al., 2010)	Level C	Comparison of screening programs for diabetes and hypertension	Screening program; 457 people in 2 selected pharmacies in Maha Sarakham, Thailand	Community pharmacy screening program resulted in a higher rate of detection of new patients and higher success rate for referral, with reasonable cost compared to same services provided by primary care unit. However, the study had high dropout rate (98%) as only 6 out of 457 clients came back for follow up meaning that only these 6 patients were actually referred to doctors. No particular reason was described for the low uptake
Pongwecharak and Treeranurat - Thailand (Pongwecharak and Treeranurat, 2011)	Level C	Screening pre-hypertension and cardiovascular risk	Screening program: 400 people in 1 selected pharmacy in Hat Yai, Thailand	Community pharmacy can detect patients at risk of hypertension, diabetes and/or dyslipidaemia
Dhippayom et al. – Thailand (Dhippayom et al., 2012)	Level C	Opportunistic screening of diabetes in community pharmacy	Screening program; 397 people in 7 selected pharmacies in Bangkok, Thailand	The program was effective in detecting half of the participants who were at high risk of diabetes. However, 91% of participants (11 people) with suspected diabetes refused to see physicians despite frequent reminders. The main reason was that it was not convenient to visit a medical practice in a hospital setting
Harm reduction activities				
Pankonin et al. – Vietnam (Pankonin et al., 2008)	Level E	Exploration of pharmacy harm reduction activities	Interviews; 5 conveniently selected pharmacies in Hanoi	Community pharmacists could contribute to harm reduction programs and prevent the spread of HIV infections by providing sterile syringes and health education to injecting drug users

Author and Country	Level of Evidence	Aims/Objective	Study Design	Primary findings/conclusions
Other identified studies				
Chalker et al. – Thailand and Vietnam (Chalker et al., 2005)	Level B	Effectiveness of multi-component intervention on dispensing steroids and antibiotics	Randomized Controlled Trial; 68 randomly selected pharmacies in Hanoi, 78 pharmacies in Bangkok	Multi-faceted intervention improved dispensing behaviour of pharmacies in Hanoi but only improved it slightly in Bangkok
Babar and Awaisu - Malaysia (Babar and Awaisu, 2008)	Level E	Investigation of generic drugs supply and substitution practice in pharmacy	Interview; 40 randomly selected pharmacies in West Malaysia	Branded drugs were more widely available at community pharmacies and only 40-60% of pharmacy stock was generic drugs. 73% of pharmacists agreed with the concept of compulsory generic substitution. Generic substitution was more driven by consumer demand than pharmacist initiative
Ping et al. – Malaysia (Ping et al., 2008)	Level D	Evaluation of generic substitution practice by community pharmacist	Self-completed questionnaire; 34 randomly selected pharmacies in Penang, Malaysia	47% of pharmacies discussed the substitution with prescribers and a majority of doctors (84%) contacted agreed to substitution. 88% of consumers accepted the substitution and this could save 61% of their expenditure on drugs
Chong et al. – Malaysia (Chong et al., 2011)	Level D	Assessment of generic substitution practice among community pharmacists	Mail survey; 157 randomly selected pharmacies nationwide	85% pharmacists recommended generic substitution, yet only 13% consulted about this practice with physicians. According to pharmacists, 89% of patients accepted the recommendation for substitution, which could save 57% of patient's expenditure on drugs
Puspitasari et al. – Indonesia (Puspitasari et al., 2011)	Level D	Evaluation of community pharmacy workers' response to antibiotic request	Simulated patient; 88 randomly selected pharmacies in Surabaya, Indonesia	Antibiotics were dispensed without prescription in the majority (91%) of pharmacies. Few (2-8%) pharmacies assessed patients' suitability for antibiotics, and information about the medicines was mostly given when requested by the "patients". The most frequent information provided were indication, dosing, duration and direction for use

Scope and quality of services

The studies covered a range of topics related to public health services.

Management of minor ailments

Two studies examined the role of community pharmacy in managing minor ailments such as back pain (Chua et al., 2006) and migraine (Saengcharoen and Lerkiatbundit, 2013). Both employed simulated patient methods to investigate pharmacy responses when presented with a “patient” with specific symptoms. The Malaysian study (Chua et al., 2006) did not distinguish between responses given by pharmacists or other pharmacy staff, while the Thai study (Saengcharoen and Lerkiatbundit, 2013) compared the responses of pharmacists and non-pharmacists. In general, the majority of “simulated patients” were actively asked by pharmacy staff members about their symptoms, especially in the Thai study where pharmacists asked more questions than non-pharmacists in relation to migraine. However, the services provided in both studies were considered suboptimal and inappropriate. The Malaysian study found that the pharmacist’s assessment and counselling activities only covered 3-5 elements of a total of 13 elements which constituted appropriate service. Likewise, only 30% of 142 pharmacists in the Thai study had given appropriate advice to the migraine “patients”.

Provision of smoking cessation services

Two Thai studies highlighted the role of pharmacy in smoking cessation programs. A mail survey was employed in both studies to assess pharmacists’ perceptions and practice in providing smoking cessation services. The first study (Thananithisak et al., 2008) also included an interview to gather the opinion of early adopter pharmacists about smoking cessation services, while the second study (Nimpitakpong et al., 2010) was more focused on a nationwide survey to evaluate the program and the effectiveness of cessation training.

The studies found that more than half (51% and 71% respectively) of pharmacies surveyed were actively providing smoking cessation services. However, in the first study only four of thirteen early adopters consistently provided the services after the third month. Barriers to

continuation included insufficient demand, educational materials, smoking cessation products, knowledge and skills and follow up visits.

Although the provision of the services was higher in the second study, only 15% of 1,001 participating pharmacies provided comprehensive services which covered the standard 5As (ask, advise, assess, assist and arrange follow up). Almost half of pharmacists only provided brief interactions such as advice about the risks of smoking, giving leaflets or suggesting smoking cessation products. This finding was associated with the fact that only 29% of surveyed pharmacists had received smoking cessation training, and it was this group which was more likely to provide comprehensive services.

Provision of weight management program

One study from Thailand (Phimarn et al., 2013) examined pharmacists' role in weight management. A randomized controlled trial with 66 obese patients investigated clinical outcomes such as weight loss, waist circumference and Body Mass Index between a control group (attended one-hour advisory session every four weeks) and experimental group (received comprehensive treatment including routine monitoring) for 16 weeks after the initial advisory session. Even though pharmacist interventions were observed to improve patients' healthy eating behaviours and knowledge, the findings showed no significant improvement in clinical outcomes in the experimental group.

Prevention and management of infectious diseases

The region has long struggled with communicable diseases, prevention and management of infectious diseases, and this was reflected in six studies, five from Vietnam and one from Thailand, which addressed different types of infectious diseases including tuberculosis (TB) (Lönnroth et al., 2000, Vu et al., 2012), acute respiratory infections (Chuc et al., 2001, Chuc et al., 2002) and diarrhoea (Saengcharoen and Lerkiatbundit, 2010, Minh et al., 2013). Four studies (Lönnroth et al., 2000, Chuc et al., 2001, Saengcharoen and Lerkiatbundit, 2010, Vu et al., 2012) explored services provided in pharmacy associated with the diseases, while two studies (Chuc et al., 2002, Minh et al., 2013) were aimed at improving practice by introducing multiple interventions.

Overall, the four studies which explored pharmacy services targeted to management of infectious diseases showed negative outcomes. In the case of TB, both studies conducted in Hanoi (Vietnam) showed that pharmacists dispensed drugs for suspected TB patients without a prescription. In the earlier study (Lönnroth et al., 2000), 58% of 147 pharmacies had dispensed anti TB drugs in the last 4-week period, and 24% of this number without prescription. In the more recent study (Vu et al., 2012), almost half of 138 pharmacists dispensed anti TB drugs without prescription and did not refer patients to doctors or healthcare facilities, thus delaying appropriate diagnosis and treatment. In the management of childhood diarrhoea, only 5% of 115 pharmacies correctly responded to symptom presentations by simulated patients (Saengcharoen and Lerkiatbundit, 2010). A “mystery shopper study” using an acute respiratory infection scenario revealed that community pharmacies in Vietnam commonly dispensed antibiotics without prescription, and only 36% of 60 pharmacies managed the case appropriately according to the guidelines (Chuc et al., 2001).

Two Vietnamese studies reported attempts to improve practice in pharmacy by introducing multiple interventions such as regulatory enforcement-education-peer influence (Chuc et al., 2002) and training-supportive supervision (Minh et al., 2013). Both studies concluded that multiple interventions significantly improved the practice of community pharmacy in managing infectious diseases. Chuc et al. (2002) demonstrated that these interventions could reduce the frequency of dispensing of antibiotics and steroids without prescription in the management of acute respiratory infection and sexually transmitted diseases, while Minh et al. (2013) concluded that training and supportive supervision improved pharmacists’ knowledge, and their dispensing patterns became more appropriate according to the guidelines for presentation of “patients” with diarrhea.

Screening for chronic diseases

The escalating rates of chronic disease have focused attention on the need for early detection of those at risk. Four studies in Thailand investigated screening programs conducted in community pharmacy. Two focused on hypertension and the risk of other cardiovascular diseases (Pongwecharak and Treeranurat, 2010, Pongwecharak and Treeranurat, 2011), one investigated

diabetes screening (Dhippayom et al., 2012), and one compared a screening program conducted by pharmacy and a primary care unit (Sookaneknun et al., 2010).

All studies demonstrated a potential role for community pharmacy in the detection of people at risk of hypertension, diabetes and predisposing factors such as dyslipidaemia. In addition, community pharmacy screening programs generated higher detection and referral rates compared to similar services provided by the primary care unit (Sookaneknun et al., 2010). However, two studies reported a poor uptake of referral by customers detected as at high risk of chronic disease (Sookaneknun et al., 2010, Dhippayom et al., 2012). Reasons for the poor uptake were that customers felt healthy (Sookaneknun et al., 2010), and that it was not convenient to visit a hospital for follow-up (Dhippayom et al., 2012)

Harm reduction activities

One Vietnamese study (Pankonin et al., 2008) investigated the role of community pharmacy in the supply of sterile syringes for Injecting Drug Users (IDU). The five pharmacies in the study sold on average 93 syringes per pharmacy to IDU in a one-week period. The study demonstrated that the participating pharmacists had a solid understanding and strong commitment to taking part in HIV prevention activities through selling sterile syringes and providing educational materials for IDU. Therefore, the authors suggested that pharmacists might potentially play a role in the provision of harm reduction services.

Other identified studies

Five studies related to the safe supply and distribution of medicine, namely the role of pharmacists in dispensing antibiotics and steroids, and the practice of generic substitution in pharmacy. Three studies carried out in Malaysia (Babar and Awaisu, 2008, Ping et al., 2008, Chong et al., 2011) focused on generic substitution practice and drew similar conclusions that the majority of pharmacies were engaged in generic substitution, however fewer than half of pharmacists discussed this practice with prescribers. Interestingly, these studies revealed that generic substitution was driven more by patients than by pharmacists. Since doctors in Malaysia have dispensing rights, however, the number of prescriptions actually dispensed in pharmacy represented only a fraction of the total. In the other two studies, in Indonesia (Puspitasari et al.,

2011) and in both Thailand and Vietnam (Chalker et al., 2005), dispensing antibiotics and steroids without prescription was commonly found. In Indonesia, inappropriate dispensing was compounded by a lack of adequate patient assessment and counselling. Chalker et al. (2005) found that a multi-faceted intervention which comprised regulatory enforcement, education and peer review was able to improve dispensing practice significantly in Hanoi but only slightly in Bangkok.

The strength and level of evidence

The level of evidence demonstrated by the twenty-one studies ranged from B to E (see table 2). Three studies generated level B evidence, four with level C evidence, the majority (11) produced level D evidence, and three generated level E evidence. The level B studies involved randomized controlled trials evaluating the effectiveness of multiple interventions to improve dispensing practice in the management of diseases, and the role of pharmacists in weight management programs. Level C evidence focused on opportunistic screening and early detection of chronic diseases in pharmacy. The majority of studies producing level D evidence employed simulated patient methodology to assess the actual practice of pharmacy service provision, while a minority used surveys. Studies with level E evidence employed interviews as a means to explore the knowledge and perception of pharmacists about current services, in particular dispensing anti TB drugs, harm reduction services and generic substitution practice.

Across the range of research undertaken in the region, the overarching limitation was a lack of broad generalizability, since most studies were preliminary or pilot studies employing small sample sizes, were conducted in a narrow area of research and employed non-random sampling techniques. In addition, only two studies were carried out nationwide (Nimpitakpong et al., 2010, Chong et al., 2011). As a consequence, it is not possible to extrapolate any of the reported findings to the wider community pharmacy setting even within the same country. In addition, most studies reported poor quality and low success rates for public health services provided in pharmacy which may indicate structural and systemic barriers for provision of these services.

Given the variability in context within Southeast Asia, it is also not possible to extrapolate evidence from one country to another. Despite finding that an intervention is successful in one country, it may not work in another. A good example is the study conducted both in Thailand and Vietnam (Chalker et al., 2005). While there was strong improvement in practice in Hanoi, the same was not the case in Bangkok. This suggests that while much can be learned from other countries in designing pharmacy public health interventions, they must be replicated and evaluated in different settings in order to build and strengthen the evidence base. This paper argues that cross-country learning is critical in implementing the best strategies for improving pharmacy public health services in developing countries.

Barriers to provision of services

A number of barriers that have hindered the provision of public health services are highlighted in this review. Lack of knowledge and skills have been reported as contributing to inappropriate response in some chronic diseases (Chuc et al., 2001, Thananithisak et al., 2008, Saengcharoen and Lerkiatbundit, 2010, Puspitasari et al., 2011, Saengcharoen and Lerkiatbundit, 2013). Lack of confidence (Chong et al., 2011) and adequate training (Nimpitakpong et al., 2010) have been documented as barriers in the case of generic substitution and smoking cessation services. External to the pharmacy environment, barriers that have impeded the uptake of pharmacy services and public health initiatives include lack of policies (Babar and Awaisu, 2008, Chong et al., 2011), low patient demand (Pongwecharak and Treeranurat, 2011), poor recognition within the health care system (Ping et al., 2008, Dhippayom et al., 2012) and patients' reluctance to use pharmacy services (Sookaneknun et al., 2010).

DISCUSSION

To the best of our knowledge, this is the first systematic review of community pharmacy practice and public health initiatives in developing Southeast Asian countries. This review is important because a move into public health services is reflective of the expanding potential of community pharmacy as a service provider. Identification and evaluation of current pharmacy services in public health highlight opportunities that exist at the present time, as well as suggesting areas for future growth. The findings have also documented a range of barriers to

implementation and have outlined key reasons why they have not been introduced more appropriately, adequately and widely in the community.

The core finding of this study was that provision of a range of pharmacy public health services has been researched in the region, and these services can be clustered into seven topics as presented in the results. On the positive side, it is apparent that Southeast Asian pharmacy practice is moving in similar directions to the international context and following the patterns of developed countries (Anderson et al., 2004, Agomo, 2012). However, the review has also revealed limited evidence of the efficacy, effectiveness, generalisability and sustainability of such services at the current time.

The majority of the reviewed studies were not designed to produce a high level of evidence, thus suggesting that the majority of the research was still proof of concept rather than knowledge translation. Where randomized controlled trials were undertaken, interventions to improve practice generally showed only limited success. The agenda for public health practice in pharmacy has remained at the level of vision rather than actively directed by sound evidence-based health policy.

This review has furthered and strengthened the findings of previous reviews of pharmacy services in developing countries by Smith (2009a) and Smith (2009b), who reported that private pharmacies in African, Central and South American and Asian countries (including Thailand, Vietnam and Indonesia), played an important role in the supply of pharmaceuticals and had the potential to contribute more in primary care and public health. They also highlighted that the quality of services in pharmacies was far from acceptable.

Despite the differences between the geographical scope and year of publication, common and consistent themes are evident in this review and the two previous reviews in that community pharmacy generally provided similar types of services. Despite the rapid growth in the region, the evidence reveals that community pharmacy services in Southeast Asia have not changed significantly in the last 5 years, suggesting that barriers identified earlier continue to limit their uptake in day-to-day community pharmacy practice.

Unlike the earlier reviews which focused only on scope and quality of pharmacy services, in this review we also explored the level of evidence for pharmacy public health initiatives in the targeted countries. The use of level of evidence allows a more fine-grained analysis of the findings and informs their interpretation. Research with higher levels of evidence is more likely to provide an explanation of why the services were effective or ineffective (Rychetnik et al., 2002), and thus guide strategies for improvement. Few of the reviewed studies employed RCTs, thus highlighting the need for more robust research to strengthen the evidence base. However, it should also be recognized that public health interventions are complex and context dependent and not always amenable to RCTs. Observational (level D) or qualitative studies (level E) may also provide important and relevant information about the services. In the search for effective pharmacy public health services, stakeholders in the region must decide on an acceptable level of evidence on which to base broad implementation.

It is apparent that barriers associated with service provision, many outside the pharmacist's control, have constrained successful introduction of high quality programs. If community pharmacists in these countries aspire to expand their role and contribute more effectively in the health care system, then resolving the barriers at all levels is critical. The approach must be multi-faceted and include both a willingness on the part of pharmacists to become more involved, as well as policies which recognise and utilise the potential of community pharmacy to provide expanded services. This review has identified the need for fundamental structural and policy change to encourage and facilitate delivery of high quality services by pharmacy. Furthermore, it has highlighted fundamental anomalies within the health system: demand for public health services is increasing but there is limited capacity of the health system to meet this demand; the number of pharmacies has increased but they are underutilized. This is exacerbated by the fact that community pharmacy in this region is effectively independent of the mainstream health care system and is not defined as a health care provider in some jurisdictions. Significant policy reform founded on a fundamental rethinking of the role and value of community pharmacy is needed.

Countries in the Southeast Asia region might reflect on how developed countries have re-established their roles in the public health system over recent years. Regardless of the context, a common thread through the experience of these countries is the need to engage with the government in order to be recognised as a legitimate public health provider (Mossialos et al., 2013), and to be recognised by the public as a useful and accessible source of public health services. The process of achieving this is not an easy task and requires sustained efforts over a period of years.

Aside from policy change, attention must be directed to increasing public awareness of both service provision and pharmacists' roles in public health. Lessons from the UK and Australia show that public understanding is critical to enhancing the uptake of novel services. Although there is evidence of increasing recognition of the expanded services among the general public in both the UK (Taylor et al., 2012, Saramunee et al., 2014) and Australia (White et al., 2012), it takes many years to change entrenched community perceptions. Studies in both countries illustrate that the key barriers to uptake have mostly been related to lack of consumer awareness of the services and of pharmacists' skills to deliver them. Lack of demand and poor perceptions of pharmacists have been consistently reported (Krska and Morecroft, 2010, Eades et al., 2011). When consumers (and health care providers) are not aware of the breadth of the pharmacist's role and expertise in delivery of services other than dispensing medications, they will not seek those services in pharmacy and will remain unaware. As a result, despite significant uptake by pharmacists, the services are still underutilized. Addressing these barriers is therefore likely to increase utilization of the services.

The presence of these barriers is exacerbated by the perception of pharmacy as a retail business (Babar and Scahill, 2014). In order for pharmacy to be regarded as a key player in the provision of public health, patients must come to view the pharmacist as someone who can assist them to remain healthy, rather than purely as someone to be consulted in the context of illness. Pharmacists have a key role to play in promoting themselves and their profession directly to the patients with whom they come in contact, and this will in turn help to promote credibility with governments which is necessary to stimulate regulatory change.

There are some signs of progress, albeit relatively small, in some Southeast Asian countries. In Malaysia, although pharmacies still lack support for a monopoly over dispensing, the Community Pharmacy Benchmarking Guideline has facilitated the initiation of health promotion services in pharmacy, in particular for smoking cessation and weight management (Ministry of Health Malaysia Pharmaceutical Services Division, 2011). In 2003 the Thai Pharmacy Council introduced an accreditation program for service quality, and since 2005 has trained pharmacy to provide smoking cessation services in collaboration with the Thai Pharmacy Network for Tobacco Control (Thananithisak et al., 2008, Nimpitakpong et al., 2010). Vietnam has implemented an accreditation system to improve practice in pharmacy (Vu et al., 2012). Indonesia is moving forward to a policy of re-certification and licensure that is aimed at improving pharmacists' presence and capacity to work in pharmacy (Ikatan Apoteker Indonesia, 2014b). These initiatives highlight the growing opportunity for community pharmacy to play a more prominent role in public health in the region.

Almost half of studies reviewed in this paper were published more than five years ago. Although they do provide the framework for understanding overarching public health practice, they also highlight the dearth of research on current practice. As public health achieves greater focus in pharmacy services, research is increasingly critical as a vehicle for understanding the process of change. Studies in the delivery of pharmacy public health should continue to investigate this process and its outcomes.

This review thus has important implications for future research and policy in community pharmacy practice. To date there is insufficient high-level evidence to support a role for pharmacy in public health practice in Southeast Asia. Future research is needed to improve the quality of evidence, which will in turn provide a basis for rational health policy change to foster the significant potential contributions of community pharmacy to public health initiatives in the region.

Despite the significant contribution of this review, the decision to include only articles published in English may have limited the findings as some potentially relevant non-English language articles may not have been identified. Furthermore, only original published research articles were evaluated, and additional information available from the grey literature may need to be considered in order to provide a broader perspective.

CONCLUSION

Over the past fourteen years, attempts have been made to expand the scope of community pharmacy practice in Southeast Asia through piloting the introduction of new services in both pharmacy and public health practice. However, the pace of such expansion has been relatively slow and is not supported by a strong evidence base for pharmacist involvement in public health. Several notable barriers internally and externally to the pharmacy environment such as lack of knowledge, lack of confidence, poor recognition from the general public and lack of supportive policies have constrained progress. There remains considerable scope for community pharmacy to extend their practice into public health care initiatives, but this will require clear and planned efforts to address the barriers identified in this review. These efforts should focus on a coordinated approach to change in both public perceptions and the regulatory environment in order to realise the significant potential of community pharmacy as a legitimate resource for the delivery of public health services.

REFERENCES

References are provided in consolidated list at the end of the thesis.

2.3. The Indonesian Community Pharmacy Situation

Community pharmacy in Indonesia is mostly situated in the private sector and ranges from small independent pharmacies to networks of large chain pharmacies. In 2017, Indonesia had 25,339 community pharmacies of which around 60% were located in Java (Ministry of Health Indonesia, 2017b). Ownership of pharmacy is not restricted to pharmacists however non-pharmacist owners must employ pharmacists prior to opening a pharmacy.

As in many other countries, pharmacists hold the main authority and sole responsibility for the operation of community pharmacy such that the pharmacy requires the presence of pharmacists at all times. However, in practice, pharmacists' absence is common. The majority of operating pharmacies only utilize pharmacists on a token basis. Studies have indicated only 14-23% pharmacists work on a full-time basis with pharmacy services being delivered particularly by pharmacy assistants (Purwanti et al., 2004, Kartinah et al., 2015, Dominica et al., 2016). This has been an ongoing issue and a concern of the Indonesian Pharmacists Association (IAI) and other pharmacy stakeholders (Figure 4). Initiatives to attract pharmacists to practice have been introduced including by government and advocacy groups, yet there has been no evaluation to determine whether these efforts have been effective in implementation. Further details about contemporary situation, multiple policy initiatives in the current practice and role of stakeholders in the Indonesian community pharmacy sector are presented in Chapter 6.1, Chapter 6.2 and Chapter 6.3, respectively.

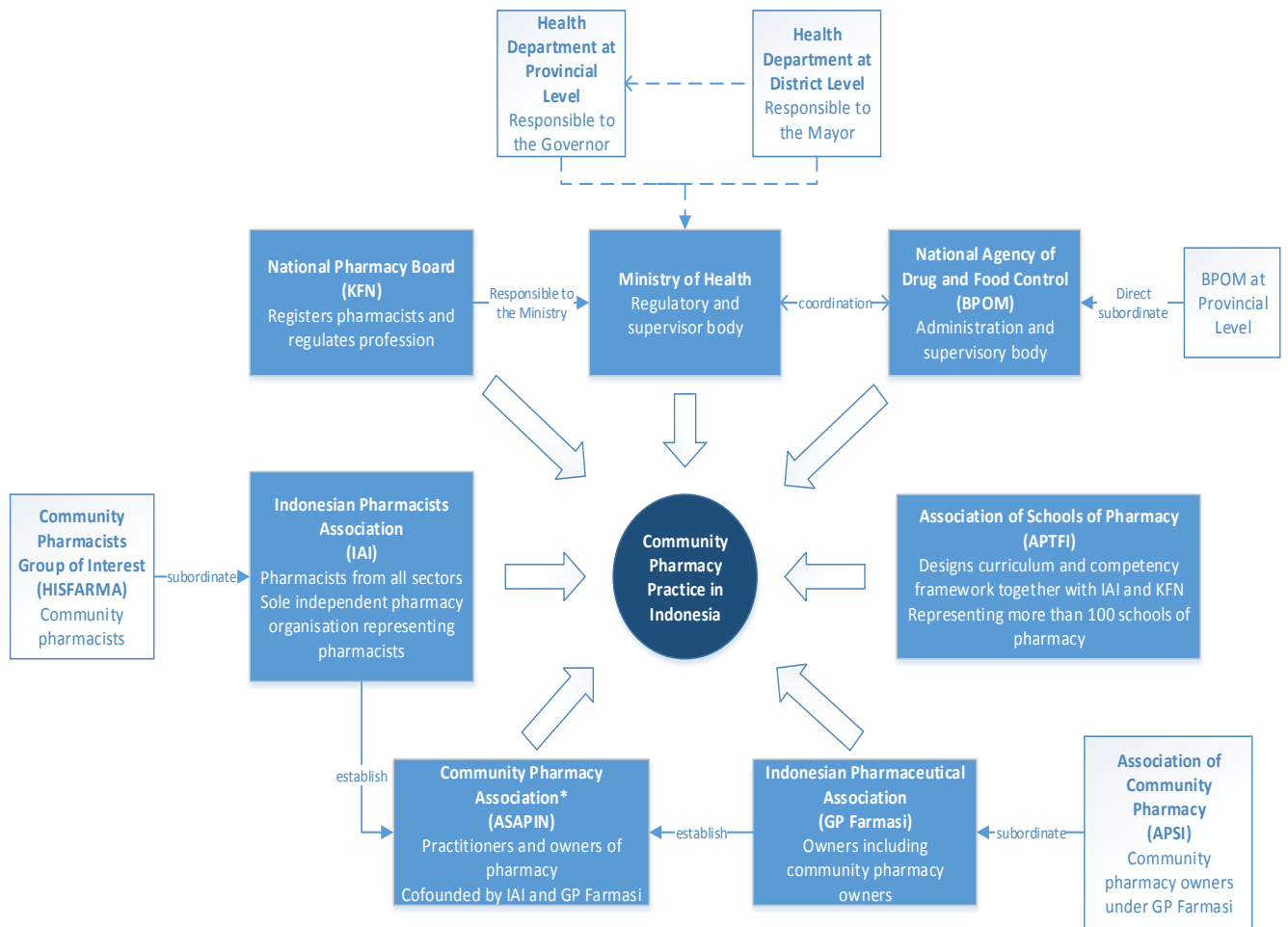


Figure 4. Stakeholders in Indonesian Community Pharmacy Sector

Community pharmacies derive their income from general pharmacy business and sales such as dispensing prescribed medicines, providing pharmacy and over-the counter medicines, and other healthcare and retail products (Hermansyah et al., 2012, Tri Murti Andayani and Satibi Satibi, 2016). However, under JKN (Universal Healthcare Coverage program) which was launched in 2014, community pharmacies have the opportunity to be involved in two schemes: 1) as a pharmacy affiliated with the primary care network (Apotek Jejaring) and 2) as a pharmacy contracted by BPJS Health (Apotek Rujuk Balik). These two schemes provide different scopes of service under different contractors, yet an individual community pharmacy can apply to become either or both (see Figure 9).

Limited interaction between pharmacists and patients has been reported in several studies (Hermansyah et al., 2011, Hermansyah et al., 2012, Wiryanto et al., 2014). Some authors argue the reason may be that pharmacists are often absent making it impossible to build rapport with patients. However, the presence of pharmacists in a pharmacy does not always translate into improved care since they are occupied by other activities associated with running the business (Hermansyah et al., 2012) such as management of inventory, accountancy, marketing and sales. This has been worsened by public perception about community pharmacy and pharmacists. Community pharmacists have been portrayed as drug sellers by the general public with the pharmacy perceived as a grocery store which sells pharmaceuticals and health products (Hermansyah et al., 2012). Patients often do not recognize the person who served them. In fact, they do not really care whether the person who dispenses drugs may have lower qualifications than a pharmacist or no formal training. Interestingly, it has been documented that patients feel confident about seeking medical advice from pharmacy and they are satisfied with the services given by pharmacy staff regardless of the qualifications of the personnel (Setiawan et al., 2010, Wathoni and Rahayu, 2014).

In recent years, community pharmacy development in Indonesia has been largely driven by the enactment of regulation in the community pharmacy sector. Among these regulations, the Pharmacy Practice Act 2009 and the Community Pharmacy Decree 2017 have been pivotal in supporting community pharmacy practice in Indonesia.

The first and currently the highest order of legislation governing pharmacy practice in Indonesia is the Pharmacy Practice Act 2009 (Government of Indonesia, 2009). The Act, which can be considered the main policy framework, defines the scope of pharmacy practice regardless of the setting, with the pharmacist appointed as the sole authorised professional for pharmacy practice. On the other hand, the Community Pharmacy Decree 2017 is specific legislation regulating community pharmacy operation and services including ownership (article 3), “location rules” (article 5), workforce (article 11) and provision of a range of pharmacy services (e.g. drug education and counselling, home care services, and drug surveillance and monitoring) (article 16) (Ministry of Health Indonesia, 2017a). Specific to the latter point, while the decree requires

community pharmacy to provide these services, no remuneration is allocated for pharmacists and pharmacies.

There is no specific and formal funding provided by the government or other sponsors for R&D in the community pharmacy sector. Research in community pharmacy has been predominantly conducted by academics and researchers from universities funded under competitive grants allocated for higher education research. Although there has been increasing interest in pharmacy practice research, the number of publications is still very low reflecting limited evidence in community pharmacy (Tri Murti Andayani and Satibi Satibi, 2016).

There are some examples of research activities designed to improve the way community pharmacy practices. However, there is a paucity of information reporting the impact of this research on practice change and policy-making in the Indonesian community pharmacy sector. For example, a 2015 study on smoking cessation training revealed that the majority of pharmacists were able to perform smoking cessation counselling (Kristina et al., 2015). However, there was no further information about whether such initiatives have been adopted into everyday practice in pharmacy. Similarly, several other studies highlighted the positive impact of pharmacists' counselling for patients with chronic diseases (e.g. hypertension, asthma and diabetes) such as increased patient compliance and improvement in the clinical outcomes (Wati et al., 2015, Widayati et al., 2018, Wibowo et al., 2016). Although the research findings suggested a potential for pharmacists' involvement in primary care, the studies were mainly conducted in a single area and involved small sample sizes (e.g. up to ten pharmacies) which limits their generalizability. More importantly, the quality of evidence and strength of the recommendations generated by these studies has been limited as they were designed as observational studies, not RCTs. Ultimately, there have been no reports or publications confirming that such pharmacy services have been widely and sustainably implemented in community pharmacies. In essence, it is not yet the norm in Indonesia for research to inform public policy making.

Apart from regulation and research, the attempt to change practice was also initiated through improvements in the education system. Subjects related to delivery of cognitive services have been incorporated in the curriculum of pharmacy education. In addition, since 2017

pharmacy graduates must undertake a national competency test prior obtaining a license to practice (Ikatan Apoteker Indonesia, 2016). The test has been standardized across the nation to ensure that graduates have met the minimum standard to become a pharmacist. The IAI has also encouraged pharmacists to undertake Continuing Professional Development (CPD) as a requirement to renew their license (Ikatan Apoteker Indonesia, 2014d). However, there are a number of problems hampering pharmacy education in Indonesia such as a lack of practical experience, the focus of education has been on pharmaceutical science rather than pharmacy practice and the lack of proper facilities to educate students (Kristina et al., 2014, Herman and Handayani, 2015, Ristiono et al., 2015). One of the contemporary issues that has drawn attention from pharmacy stakeholders is the explosion of the number of schools of pharmacy within the past ten years and particularly after the introduction of JKN. Unfortunately, the majority of these new pharmacy schools were poorly accredited which in turn may affect the quality of the graduates (Langley and Aheer, 2010, BAN-PT, 2017). Further details about multiple approaches to improve community pharmacy practice in Indonesia are presented in Chapter 6.2.

2.4. Chapter Conclusion

In summary, there are two contrasting situations which structure this thesis. One context is Australia which is among the frontrunners in the development of community pharmacy practice. The Australian situation reflects a mature context where community pharmacy practice has moved towards role expansion of pharmacy marked by the nationwide implementation of remunerated CPS and other pharmacy services as well as an established culture of professional pharmacist practice. The experience with practice change, however, has been challenging. Despite the high adoption rate of CPS, there is a lack of evidence confirming their effectiveness on the health of communities. The over-reliance on the dispensing funding model has continued although there have been ongoing threats to pharmacy profitability due to multiple factors affecting community pharmacy operation. The provision of CPS as an alternative funding stream for pharmacies is not reliable and sustainable.

In contrast, Indonesia has a pharmacy practice landscape undergoing major changes. If we observe the regional situation, Indonesia is located in Southeast Asia in which community pharmacy practice is in a state of infancy. The findings in chapter 2.2 showed that despite a body

of research over the past fourteen years designed to expand pharmacy scope of practice in the region by piloting new services in community pharmacies, there is limited evidence this has led to widespread implementation in practice. This highlights the fact that most of the research was proof of concept. In fact, some of the countries within the region have encountered serious problems related to delivery of pharmacy services such as the absence of separation between dispensing and prescribing (Tiong et al., 2016, Saleem and Hassali, 2016), lack of guidelines and indicators with respect to quality use of medicines (Nguyen et al., 2012) and shortage of pharmacists' workforce in almost all countries, leading to the provision of pharmacy services unsupervised by pharmacists (Kanchanachitra et al., 2011, Bates et al., 2018). This situation, to some extent, may have an influence on practice change in Indonesia.

Despite lagging behind Australia in its development of community pharmacy service, Indonesia has a strong structure of regulations and supportive pharmacy stakeholders, two essential factors for facilitating practice change. In fact, there are some experiences and values with respect to pharmacy practice that are common to both countries. This is particularly related to the involvement of community pharmacy in primary care as a provider of medicines. In addition, more recently there have been moves to develop community pharmacies' role in Indonesia such as contracting pharmacies under the JKN scheme and making CPD mandatory for pharmacists. Despite these initiatives, progress in advancing practice has been slow. Whether pharmacy is up to the challenge remains to be seen.

Therefore, the investigation of practice change in contemporary pharmacy situation may offer benefits for the two countries. It offers insight for Australia on how to maximise the opportunities that exist to improve pharmacy practice and how this might be achieved within the complex and dynamic situation in community pharmacy. On the other hand, Indonesia can draw lessons from the Australian experience to assist further development, scale up of current pharmacy practice and more importantly to reinvent ways to overcome the perpetual barriers in practice.

CHAPTER 3. RATIONALE, AIMS AND SIGNIFICANCE

This chapter addresses the rationale for conducting this research, the aims and objectives of the studies and their significance.

3.1. Rationale of the research

As outlined in chapter 1 and 2, the changing nature of community pharmacy has been investigated and described in a growing body of literature. The focus of changes has been directed towards pharmacists' involvement beyond a dispensing service to a broader and more strategic role in primary care and community health particularly through provision of professional pharmacy services and health related services. The provision of such services in the current community pharmacy sector has been limited and generally free for patients. Provision of expanded pharmacy services however has not been considered to be sustainable in daily practice due to barriers which are both internal and external to the pharmacy profession.

Many of the studies in pharmacy practice change have focused on one particular level of practice either at individual pharmacist, community pharmacy setting or community pharmacy position within the healthcare system. An examination of each level individually does not provide a holistic view of the potential barriers and facilitators to change and their interaction. The factors affecting practice change cannot be confined to a particular level as they occur and influence all levels simultaneously. In addition, the contextual situations (from local, regional to country context) in which community pharmacy operates vary between level and change over time. This plays an influential role in shaping the process of change which has been underrepresented in the current literature.

The introduction of the Community Pharmacy Agreements (CPAs) since 1990 in Australia has provided a platform for practice change in community pharmacy. Within the agreements, there has been a quantum of money invested to support practice change including payment for dispensing PBS medicines and remuneration for several professional pharmacy services (Sclavos, 2010). Despite the fundamental contributions of the consecutive CPAs to pharmacy practice, there is a paucity of research investigating practice change in contemporary Australian

community pharmacies and the extent to which remunerated professional pharmacy services have been effectively adopted in daily practice. This has raised a question whether community pharmacies have really changed their practice under the era of CPAs (Gilbert, 2009).

At the same time, the situation of the healthcare and pharmacy system in Indonesia has also changed. The introduction of Universal Healthcare Coverage (JKN) in 2014 has changed Indonesian healthcare (Mboi, 2015). The implementation of JKN has provided opportunities for community pharmacy to be integrated with primary healthcare networks. However, there is a dearth of information reporting the roles of community pharmacy under the JKN era leading to a question as to whether the new system has been beneficial in supporting practice change.

Practice change is a complex and dynamic process. The lack of information about practice change in current community pharmacy highlights the need for more in-depth research on this topic and provides the rationale for this PhD thesis. As practice change in community pharmacy is a global phenomenon, there is a need to investigate these changes in the context of both developed and developing countries. In fact, there is a strong argument that pursuing such research might be more critical in the context of developing countries where there is a paucity of research concerning practice in community pharmacy.

3.2. Aims and significance

The overall aim of this thesis is to investigate changes in the contemporary practice in both Australian and Indonesian community pharmacy. This includes investigation of the factors influencing changes, policy implementation and the role of stakeholders in promoting changes in each country, with the goal of providing a framework for future policy development and implementation particularly for Indonesian pharmacy sector.

The specific objectives were to:

1. Investigate the perceptions, awareness and experiences of stakeholders regarding changes in contemporary practice of community pharmacy in Australia and Indonesia;
2. Explore the role of Research and Development (R&D) program in community pharmacy and its impact on practice change in community pharmacy in Australia;

3. Evaluate the role of key policy initiatives and stakeholders in the community pharmacy sector in promoting practice change in Australia and Indonesia and;
4. Develop recommendations to advance community pharmacy practice in Australia and Indonesia.

The significance of this study is twofold. First, this study is intended to provide a better understanding of the process of change including the related factors – whether they constrain or facilitate changes – and the role of pharmacy stakeholders as agents of change in contemporary practice. Second, the information generated in this study will be critical in assisting future planning and development of community pharmacy practice particularly in Indonesia. The intended audience for this thesis is academics, researchers, practitioners and policy makers who are interested in the topic of pharmacy practice, social and administrative pharmacy and those who are concerned with the evolution and role development of pharmacists as a profession and community pharmacy. This thesis was created to explore the process of change particularly in Australia and Indonesia based on the contemporary situation in community pharmacy and more importantly this thesis presents suggestions about how to navigate changes in community pharmacy especially in Indonesian setting.

CHAPTER 4. RESEARCH METHODS

This chapter discusses the overall research methods utilized in this study. As presented in Figure 5, two main qualitative approaches were used to address the aims of the thesis. This chapter is organized into two sections. The first section describes an overview of qualitative methods used in this study (section 4.1). The second section highlights the theoretical frameworks which underpin the analysis of findings in this study (section 4.2).

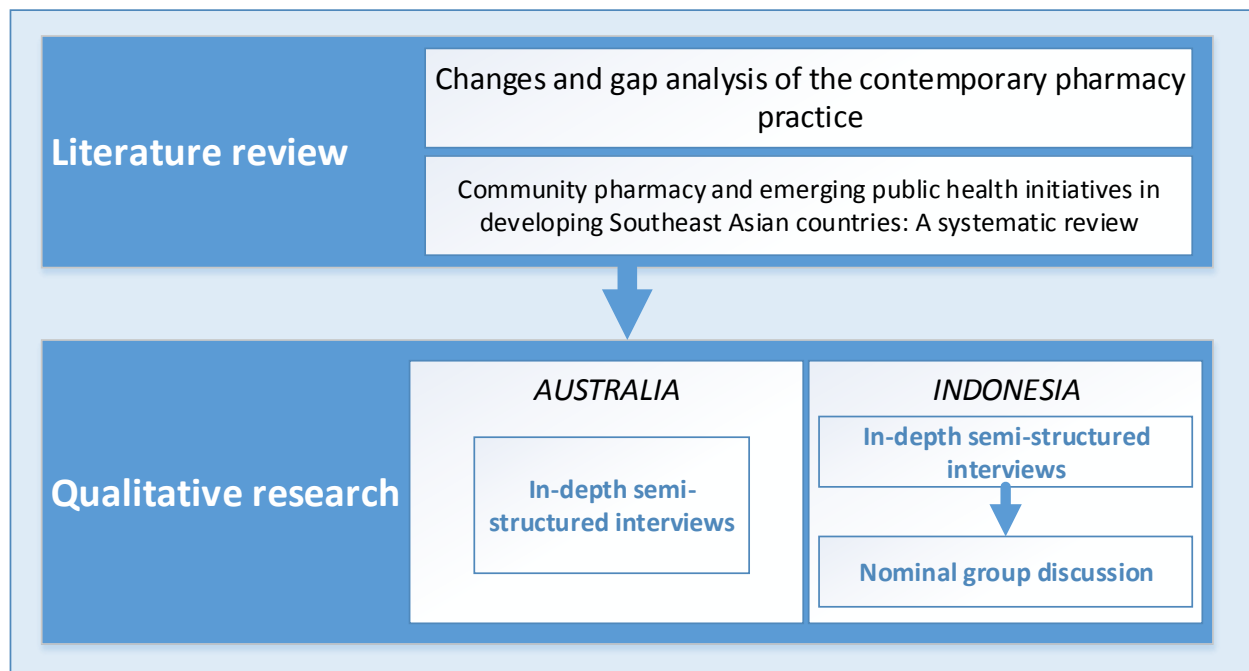


Figure 5. Research Design of the Thesis

4.1. Qualitative methods

This research employed two types of qualitative research methods; semi-structured interviews and nominal group discussion. The Australian studies used a series of in-depth semi-structured interviews to explore practice change in Australian community pharmacy. The Indonesian studies used two qualitative research methods to investigate changes in community pharmacy practice. First, a number of semi-structured interviews were conducted to obtain information about practice change in Indonesian community pharmacy. Second, a nominal group

discussion was used to select and prioritise several recommendations which were developed from the findings of the interviews. A summary of the research design is presented in Table 3.

Table 3. Summary of research design

Description of methods	Qualitative study		
	AUSTRALIA Semi-structured interviews	INDONESIA Semi-structured interviews	INDONESIA Nominal group discussion
Literature review	<ul style="list-style-type: none"> Reviewing the contemporary situation, drivers, barriers and facilitators for practice change in community pharmacy from a global perspective Reviewing the contemporary situation and practice of pharmacy focusing on the context in Australia and Indonesia Developing systematic review of community pharmacy role expansion in regional context: Chapter 2.2 – Community pharmacy and emerging public health initiatives in developing Southeast Asian countries (see appendix 6) 		
Objectives	Preliminary findings to investigate state of change in the contemporary community pharmacy practice		Proposing recommendations to advance community pharmacy practice
Preparation of guide	The interview guide was developed from reading the literature, understanding the contemporary situation in the community pharmacy sector and discussion among researchers (see appendix 3 and appendix 4)		The guide was developed from findings of the interviews
Ethical consideration	The studies were approved by the Human Research Ethics Committee of the University of Sydney (2014/820). Participants were required to provide consent prior to data collection (see appendix 1 and appendix 2)		
Sampling			
Sampling design	Purposive sampling with maximum variation of participants and expanded using snowball method; Participants representing key stakeholders in community pharmacy and healthcare system.		Purposive sampling; Participants representing community pharmacy stakeholders.
Participants' background	<ul style="list-style-type: none"> Practicing pharmacists and managers; Other healthcare professionals; Academics and researchers; Policy makers and administrators; Consumer representatives; Insurance providers. 	<ul style="list-style-type: none"> Practicing pharmacists; Pharmacy managers; Other healthcare professionals; Academics and researchers; Policy makers and administrators; Consumer representatives; Insurance providers. 	<ul style="list-style-type: none"> Practicing pharmacists; Peak pharmacy organisations representatives; Academics and researchers; Policy makers and administrators.
Data Collection			
Time period	2015	2016	2017
Methods of delivery	<ul style="list-style-type: none"> Face to face; Over the phone; Skype video call. 	<ul style="list-style-type: none"> Face to face; Over the phone. 	Face to face
Number of participants	27 individuals	29 individuals	34 individuals

Description of methods	Qualitative study		
	AUSTRALIA Semi-structured interviews	INDONESIA Semi-structured interviews	INDONESIA Nominal group discussion
Recording and transcription	Audio recorded and subsequently transcribed verbatim. Interviews conducted in Indonesian were back-translated to English and reviewed by a proof-reader for the quality of translation (see appendix 5 for translation certificate)		
Data Analysis			
Method for analysis	Inductive approach involving thematic analysis		
Software for management of data	NVivo 10		
Results (and theoretical frameworks used to explain the results)	Chapter 5.1 – Investigating influences on current practice at micro, meso and macro levels (The planes of analysis theory) See appendix 7	Chapter 6.1 – Investigating the impact of the universal healthcare coverage program on community pharmacy practice (The planes of analysis theory) See appendix 9	Chapter 6.3 – Prioritising recommendations to advance community pharmacy practice (Culture-structure-agency approach) See appendix 11
	Chapter 5.2 – The operation of the Research and Development (R&D) program and its significance for practice change in community pharmacy (The PARIHS framework) See appendix 8	Chapter 6.2 – Multiple policy approaches in improving community pharmacy practice: the case in Indonesia (The planes of analysis theory) See appendix 10	

4.1.1. Rationale for the use of qualitative methods

In general, there are two research paradigms used by researchers to answer a question(s). A quantitative method seeks to answer a research question by collecting data related to the size, commonness and frequency of a problem. Qualitative methods seek to explore a phenomenon in-depth by focusing on “why” and “how” a problem can happen (Pope and Mays, 2006). For example, if a researcher wants to investigate barriers experienced by pharmacists when delivering professional pharmacy services, using the quantitative approach, the researcher can discover the type of barriers and quantify how commonly the barriers occur in practice. On the other hand, using a qualitative approach, the research not only explores “what are the barriers?” but also addresses “why and how do the barriers occur?” which provides more opportunities to delve into the nature of the barriers from the perspective of participants.

Although quantitative methods have been widely used in pharmacy practice research, there has been an increasing trend towards the use of qualitative methods within recent decades (Varela Dupotey and Ramalho de Oliveira, 2009). This has been fuelled by the desire of researchers to explore social interactions within community pharmacy settings and gain an understanding of the human experience and behaviour of the actors including pharmacists, pharmacy staff and patients as well as the underlying factors influencing their behaviour (Almarsdóttir et al., 2014).

The strength of qualitative studies lies in their ability to elucidate an in-depth understanding of a problem. By using participants' perspectives as a lens to explore a phenomenon it generates greater richness of data in real life settings as experienced by participants especially when the participants are experts or have experience of a particular topic. It can also be a very efficient yet effective method to address the objectives of a study. In contrast to quantitative studies, the qualitative approach typically involves small numbers of participants. Qualitative methods are not designed to represent the voices of a population as generalisability is not the primary objective. However, qualitative methods can be used to obtain the full spectrum of experiences across a population. A qualitative study can apply maximum variation sampling to include a wide range of respondents – sometimes the extreme opposites such as the oldest vs the youngest respondents, the most experienced vs least, or the richest vs the poorest – rather than seeking the views of average respondents (Palinkas et al., 2015). In addition, the exhaustion of a population's perspectives can be achieved through the concept of "data saturation" whereby the researcher continues data collection until no new information is being generated from participants (Fusch and Ness, 2015).

However, there are a number of methodological limitations (Ercikan and Roth, 2016). First, the usability of qualitative methods relies on the sampling procedure. As the nature of a qualitative study is rooted in a phenomenological paradigm, the opinions collected from the participants construct the reality and define the situation of those studied. This means selection of participants is crucial as it determines the overall conclusions generated by the study. Second, as qualitative research is more concerned with understanding social phenomenon from the participants' perspective, the process of collecting information (e.g. interviews and focus group

discussion) relies heavily on the ability of interviewer or group facilitator to draw out details from the participants. Third and relatedly, qualitative research requires researchers to become immersed in the participants' situation which may contribute to bias as a consequence of the researchers' interest. Fourth and accordingly, the process of analysing data and drawing conclusions from the findings requires researchers to be neutral and disengage their interest in order to avoid bias while also interpreting participants' perceptions. Researcher bias may be minimized by planning and pretesting the phases of the studies and analysing the findings together with other research members.

Practice change is complex and dynamic and cannot be quantified based only on what has occurred. Uncovering explanations and causes of the current state of changes is better explored using qualitative methods. The presence of multi-level decision making associated with pharmacy stakeholders' behaviour and experiences of practice change is another reason for using qualitative methods as multiple meanings about practice change might be anticipated from the participants' perspectives.

There are several ways to collect data using qualitative approaches including observations, interviews and focus group discussions. The next section will only focus on in-depth interviews and focus group discussions as these methods were used in this research.

4.1.2. Interviews

Interviews are the most commonly used qualitative technique in pharmacy practice research. Through interviews, researchers can investigate subjective understandings, feelings, ideas, and experiences of participants relevant to the areas of research. In principle, interviews involve a conversation between researchers with one or more interviewees in a manner which is designed to obtain as much information as possible from the interviewee(s) (Smith, 2010a).

Interviews are commonly classified into three types: structured, unstructured and semi-structured interviews. The major difference among the three types is the technique for delivery of interview questions and whether the researcher has control over the direction of conversation. A structured interview is characterized by researchers asking questions based on interview guides with no deviation, often with categories of answers, which allows the researcher to steer the

direction of the conversation (Smith, 2010a). In contrast, unstructured interviews avoid full control of researchers in a certain direction which allows participants to talk freely, in-depth and to determine the flow of the interview. The most commonly used interview form which was also used in this study is the semi-structured interview. Semi-structured interviews allow researchers to ask questions according to the interview guide which may comprise both, structured and open questions, relatively few but specific. However, the order and the weight of the questions depend on the responses of the participants with researchers able to probe participants' answers to get a better understanding of the issue. In this way, researchers can more deeply explore the perspective of the participants without losing control of the interview.

A limitation of the interview is that the respondent may not give a true account of actual behaviours and events. If researchers wish to investigate actual behaviour of the participants, other approaches such as observation are more suitable.

Development of an interview guide

The interview guide is a list of questions which structures the conversation within the interview process and is crucial in the semi-structured interview. A combination of open-ended questions to stimulate rich responses from participants and closed questions to emphasize specific issues or perspectives is recommended. The questions in the guide can be developed from a variety of sources. This includes literature reviews, expert knowledge and theories.

Sampling

Selecting sampling units from the population is crucial for any study. In general, there are two classifications of sampling design: Probability and non-probability sampling. Probability sampling highlights that each sample has an equal chance of being selected. Probability sampling involves random selection of samples to minimise researchers' bias in selecting samples or observation units. Probability sampling allows researchers to extrapolate the findings based on the sample to the population (Aparasu, 2011).

In qualitative research non-probability sampling is the norm. Therefore, researchers need to put much effort into understanding the characteristics of the population prior to sampling.

There are four common types of non-probability sampling: purposive sampling, convenience sampling, quota sampling and snowball sampling (Suri, 2011). This section will only focus on purposive sampling and snowball sampling which were used in this study.

Purposive sampling is a nonprobability sampling strategy which requires researchers to have a strong understanding of the target population and develop selection criteria to determine the characteristics of the sample. Subjectivity plays an important role in purposive sampling as the decision to select a sample lies with the researchers. Another form of purposive sampling is maximum variation sampling which is characterized by researchers selecting a diverse representation of participants. The logic of using maximum variation sampling is to include a broad range of subjects from which this study can obtain rich information across variations. Maximum variation sampling is not aimed to select “average participants” but rather recruit a number of different groups of participants representing a high proportion of the population (Kaae and Traulsen, 2015).

However, it may be the case that one participant has multiple roles. For example, a government officer working in a regulatory body in Indonesia such as the Ministry of Health can practice as a community pharmacist, own a community pharmacy, teach in college as an academic and be the official of the Indonesian Pharmacists Association which is the peak pharmacy organization in Indonesia. Similarly, Australian participants may be pharmacy owners, practicing pharmacists and an office bearer in a peak pharmacy organization such as the Pharmacy Guild of Australia. While it is not always possible or indeed necessary to ask participants to wear a particular hat during the interview, it is important to distinguish the perspective adopted when responding to questions during the interview.

Snowball sampling is an effective method used to identify a sufficient sample of participants who are difficult to recruit for a study (Noy, 2008). The principle is that the sampling starts with a small number of initial participants who are relevant to the research topic and the researcher asks these participants to identify other potential candidates to be recruited for the study. In this way, researchers can recruit more respondents whose perspectives are critical for the study, and access participants beyond their own networks.

Another issue is the sample size. As mentioned before, “saturation” occurs when no new themes, information or explanations emerge from the interviews (Mason, 2010). Theoretically, the sample size can be predicted from other previous studies. For instance, Creswell proposed that interviews using a grounded theory approach would require 20-30 participants (Creswell, 2013), while Morse suggested 30-50 participants to meet saturation (Morse, 1995). However, this might be different in practice. Ideally speaking, the research team must discuss when it is the right time to conclude recruitment.

Conducting interviews

Conducting an interview requires considerable skills on the part of the interviewer to be interactive and sensitive to the verbal and non-verbal expression of the interviewee, allowing participants to express their ideas while at the same time managing the conversation fit to the agenda of the interview. It is vital for an interviewer to respond to changing circumstances during the interview, control flow and pace of the interview and be flexible within the discussion. This is particularly important as there is potential for misunderstanding of terminology, questions posed and participants’ responses (Britten, 2006).

Both interviewer and interviewee should engage in a mutual discussion and therefore first impressions are crucial to start this engagement process. The interviewer can start with open-ended, simple yet encouraging questions at the beginning of the interview. The process continues with other types of questions (e.g. closed questions) and combined with probing (or prompting) to elicit more information from the interviewees. It is also likely that the interviewer is asked questions by the interviewee during this process. In these circumstances, researchers should take care not impose their own opinions during the interview. As an interview is an active mutual process, the interviewer may respond to such questions with a refusal to answer, tactfully answer the questions or provide the answer after the interview is concluded (Britten, 2006). Each option has its consequence which must be acknowledged by both parties.

Field and Morse (1996) identified some common pitfalls during the interview process such as “outside interruptions, competing distractions, stage fright, awkward questions, jumping from

one subject to another and temptation to counsel interviewees". A researcher must be aware of these pitfalls and develop ways to manage when encountering such situations.

Once a candidate has consented to participate in the study, a preferred time, place and technique for the interview should be arranged to ensure that the interview is convenient and comfortable. Three interview formats may be offered to participants: face to face, telephone or video conference, with face to face interview the most preferred format. Each format has advantages and disadvantages (Rosenthal, 2016). A face to face interview offers the benefits of building rapport and direct contact with the interviewee. It allows researchers to conduct the interview in a private environment with minimum distractions. In addition, the interview can also take place in a natural setting allowing researchers to understand contextual information relevant to the participant. However, distance, travel time and costs as well as limited coverage of participants due to geographical area are drawbacks of face to face interviews. To overcome these shortcomings, researchers can use telephone interviews and video conferencing. However, these are not without drawbacks. The primary issue with these formats is they limit the verbal and non-verbal interaction between interviewer and interviewee. Other issues are related to the use and setting of the equipment (e.g. telephone, computer availability and internet connections). For example, video conferencing was not an option in the Indonesian studies given the lack of internet coverage and poor quality of internet connections in this country.

There are various ways for recording interviews. This includes taking notes (at the time and/or after the interview), audio recording and video recording. The recording files are stored and subsequently transcribed verbatim.

Analysing interview data

The process of analysing interviews generally involves three steps: *data management, description and explanation* (Liz et al., 2014). This process is flexible and non-linear, such that the researcher can go forwards or backwards between data and emerging interpretations. The analysis is started whilst the data are being collected. This means researchers do not wait until all interviews have been completed but commence analysis once they have completed each

interview. The use of transcripts and field notes are important to provide descriptions, but researchers still need to interpret them as these sources do not provide explanations. Constant comparison between transcripts, audio-recording and researchers' field notes is conducted to explore and interpret data. Non-verbal expressions such as laughter, crying, lengthy pauses can affect the interpretation of the data (Lapadat and Lindsay, 1999).

Interpretation of interview data can be conducted deductively – by incorporating a framework or theory at the beginning or part way through the analysis – or inductively, where the researcher gradually derives the interpretation from the data (Kaae and Traulsen, 2015). Deductive analysis is less common in analysing interviews but it can be used as a way of approaching data for example using a framework approach. Therefore, the focus of this section is to explore the inductive approach used in this study.

A qualitative study is often conducted when there is a lack of existing theory to adequately explain a phenomenon of research interest. Therefore, analysis of a qualitative study generally involves an inductive process. The inductive process requires researchers to build concepts, hypothesis or theories from the findings of the study rather than deductively testing theories with the data (Ritchie et al., 2014). The process typically starts with researchers collecting data, building data toward concept, theory or hypothesis and continues to derive the structure of analysis by forming, combining and ordering data into themes or categories about a particular aspect of practice (Figure 6). Constant comparison plays a vital role in exploring across existing data. However, the inductive process does not mean researchers have a blank mind or absence of any thoughts regarding the phenomenon under study. Researchers still need to have a concept in mind to derive the structure of analysis (Pope et al., 2006).

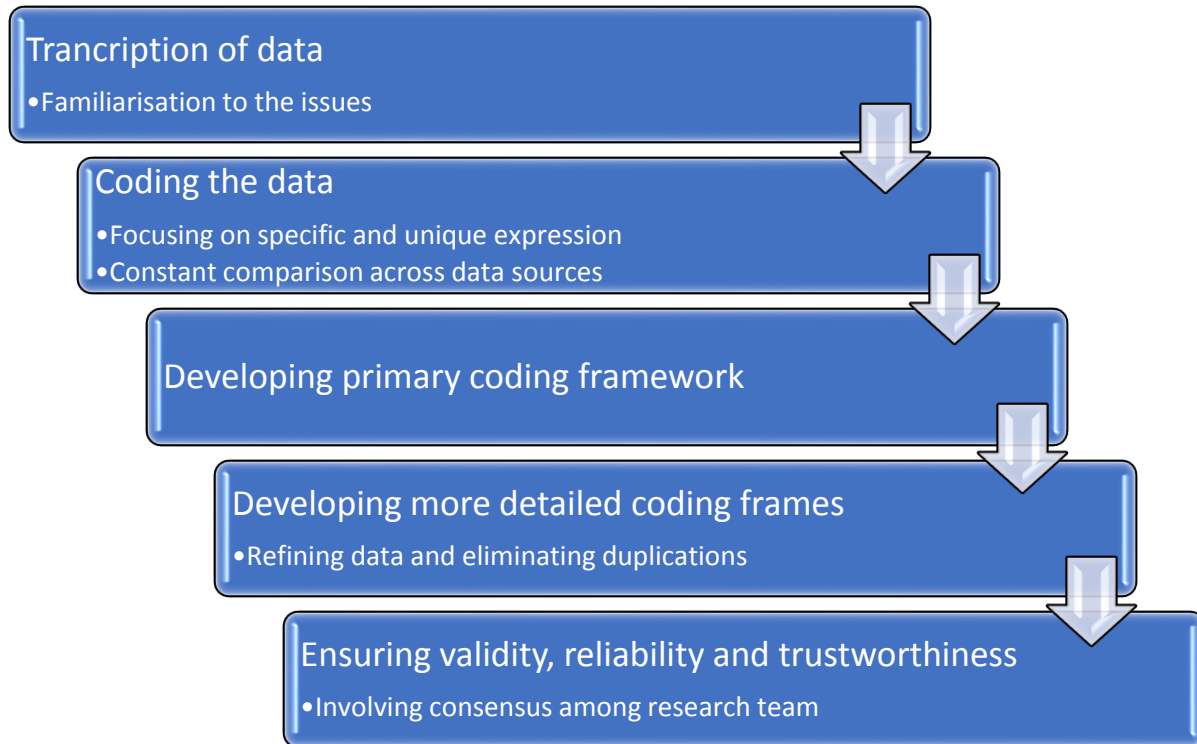


Figure 6. Typical Process of Analysing Interview Data

While there is variety of analytical approaches in the inductive process, this study described three general approaches: grounded theory, thematic analysis and discourse analysis (Liz et al., 2014). Each has a different style which may influence the interpretation of the findings.

Grounded theory, first developed by Glaser and Strauss (1967), relies on the analysis of the text. This approach focuses on developing theory which emerges or is “grounded” in the data. In practice, the process of analysing interviews using grounded theory is usually a mixture of induction and some deduction involving the shifting between data and the theory. The analysis begins with *open coding*, that is examining data to create as many relevant codes as possible. The coding is then developed into categories. Within this process, researchers constantly and critically examine categories, their importance and how the data would be generated into a theory. *Axial coding* is used to identify the relationship between codes and *selective coding* to develop the existing codes into an analytical category. The categories are then organized to create the central elements of the analysis. Grounded theory is a useful method to integrate relevant theories about the data while at the same time testing the emerging ideas of the

interviews. However, the flexibility of the analysis often requires a process of re-analysing the data which can take a long time (Starks and Brown Trinidad, 2007).

Thematic analysis is the most common analytic technique in qualitative studies perhaps because it is much simpler than other forms of analysis. The process of analysing interview data using thematic analysis can be very similar to grounded theory with the researchers grouping and building the data into codes, developing codes into specific themes and identifying the relationship between themes to structure the central themes of the interview (Braun and Clarke, 2006). Unlike grounded theory, thematic analysis does not involve the process of testing the emerging theories from data. However, it is possible to anticipate a particular central theme as sometimes the connection between themes is obvious.

As a method of analysing interview data, discourse analysis emphasizes the role of language to convey the meaning and experiences and authentic intention of participants (Starks and Brown Trinidad, 2007). Discourse analysis examines how language and words can shape and reflect social reality. The general method for analysing data using discourse analysis is fairly similar to other approaches, however, researchers must understand the use of language in a given situation and remain cognizant that the interviewee's selection of words may have different meanings. Therefore, the coding and analysis should include for example the comparison of technical language or professional jargon.

Software for analysis

The use of software has become common in facilitating the management of interview data. Several software programs are available in the market such as NVivo, Atlas Ti, HyperResearch and CAQDAS (Computer Assisted Qualitative Data Analysis Software) (Pope et al., 2006). Computer-assisted analysis software can help researchers in analysing especially large datasets which include audio, video and photographs that make preparation of data as a written text unnecessary. Computer software also offers several analytical functions such as gather, sort and retrieval functions, indexing terms and codes, identifying and combining common codes which may reduce laborious analysis of data (Pope et al., 2006). However, computer software is not designed to do the analysis. These software programs do not provide researchers with an

analytical framework or particular methodologies. They only help researchers with analytical processes, primarily organizing, accessing and displaying data. It is the researchers themselves who analyse and interpret the data.

4.1.3. Nominal Group Technique

Another form of qualitative method which is commonly used is the Focus Group Discussion (FGD). FGD provides opportunities for researchers to obtain opinions from a number of participants in a single forum. Within the FGD, there is interaction between researchers as facilitators – or in some cases other persons on behalf of researchers to minimise researchers’ bias – and participants and among participants. FGD enables researchers to collect more information and ideas in a more efficient fashion than in a single interview. However, dominant personalities can influence the discussion such that the findings might not cover all participants’ voices. In addition, prioritization of ideas may not be achieved due to the influence of dominant participants (Harvey and Holmes, 2012). Researchers can apply consensus methods in order to reduce the limitations of FGD while trying to achieve a general agreement around a particular topic. One of the more widely used consensus methods is the Nominal Group Technique.

The Nominal Group Technique (NGT) is a group discussion aimed to elicit participants’ opinions and generate consensus or convergence of opinion over a number of issues. NGT provides equal opportunities for participants to express their ideas and be involved in the problem solving or decision making around the topic of the discussion. NGT is characterized by three features. First, it is a group process in which each participant has the opportunity to work individually but in the presence of other participants. Second, it allows interaction and brainstorming between participants. Third, it involves a ranking and ordering process to prioritise ideas (McMillan et al., 2016).

Despite its potential for obtaining group consensus, the NGT has a number of issues. For example, van Teijlingen et al. (2006) expressed concern with the role of the facilitator as there is a high potential for bias in leading or directing the group discussion. They recommended that the facilitator should be someone who is “a topic expert or non-expert who has credibility with the participants” that facilitates and does not lead or direct the group. As a group discussion, the NGT

may generate a wealth of information and recommendations to address the topic or the question. However, Potter et al. (2004) warn that the fact consensus is achieved among members does not always mean “the correct answer has been found”. They suggest that the nature of the recommendations might be exploratory, lead to other solutions or perhaps requires further testing and validation. Although NGT is a more time-efficient method to achieve consensus than FGD or a Delphi study, conducting NGT and reaching consensus may also be time-consuming as there are several stages in the protocol and diversity of opinions (Hugé et al., 2018). Lack of time to reach consensus was reported in some studies (Andrew and Delbecq, 1974, Hutchings et al., 2010, Fasih et al., 2016). Again, the role of facilitator is important to keep the NGT manageable within the time limit.

Development of a data tool

Similar to interviews, the central questions for the NGT can be developed from a number of sources. However, as a consensus development method, NGT aims to “raise a potential solution or answer to a question which then can be prioritized or agreed upon” (McMillan et al., 2016). Therefore, only a few questions – generally one or two questions – are discussed within the group. This also means NGT is often conducted as a follow up of former studies from which prior information and findings were employed to develop the central question of the NGT.

Recruitment strategy

As NGT aims to seek consensus from the members over a problem, participants must be familiar with the problem. Black (2006) stated “the key issue when selecting participants is that they represent the target audience for the output”. Therefore, purposive sampling is the appropriate sampling strategy for conducting NGT. Unlike a Delphi study which only comprises “experts” in the discussion process, NGT can be attended by heterogeneous groups from lay people to specialists or experts. The selection of individual experts in a Delphi study may be pragmatic as the panellists can be individuals who have interest and involvement in the topic being explored. This may tend to “centralise opinion” about the objectives of the study (van Teijlingen et al., 2006). In contrast, NGT may produce more diversity of opinion and ideas which can be useful for prioritisation. However, a researcher must be aware of the gradient of expertise

and experiences between participants as it influences the quality of the discussion (McMillan et al., 2016). The NGT can be conducted in a single data collection event through a highly structured meeting (face to face is preferable), but a Delphi study is better organised in several stages with participants not needing to meet up (van Teijlingen et al., 2006).

Apart from other important stakeholders such as researchers, educators, users (patients and clients) and payers, practitioners and policy makers are often central to the change process. This is perhaps due to their ability to initiate and implement changes. Studies observing practice change in community pharmacy have often included practitioner and policy makers highlighting the importance of these two actors as agents of change (Roberts et al., 2008, Gastelurrutia et al., 2009, Elrod et al., 2012). Since the central aim of the NGT used in this study was to propose recommendations for advancing community pharmacy practice in Indonesia, practitioners and policy makers were selected as the main participants with additional participants representing other backgrounds.

Although the sample size is variable, generally an NGT session involves five to fifteen participants (Gastelurrutia et al., 2009, McMillan et al., 2014c, Fakhri et al., 2016). Fewer than five or more than fifteen participants might reduce the effectiveness of NGT. A smaller sample size might be inadequate to represent consensual agreement and also limit the range of ideas generated from the group. In contrast, a larger sample size may complicate the process of NGT which can be frustrating for participants and facilitator(s).

Conducting nominal group discussion

The process of NGT normally involves four stages (McMillan et al., 2014a). Stage one is silent generation of ideas, during which the facilitator asks individual participants to write their ideas to a defined question with no discussion permitted until all ideas have been listed. Stage two is round robin, during which each participant shares their ideas in turn within the group. The ideas are recorded, and the process is continued until no new ideas are generated from the group. During this process, no discussion is allowed. Stage three is clarification and discussion. The facilitator allows group members to ask questions to clarify the ideas on the list and to discuss their merits and deficits. Ideas or items which have similar meanings can be combined and

duplication of ideas is removed. The last stage is ranking or voting, in which participants are asked to select their top preferences from the listed ideas. The number of items selected by the participants is dependent on the topic, but commonly consists of the ranking of five ideas with the idea/item with the highest priority assigned the highest score. The score for each item/idea is tabulated and presented to the group. The step-by-step process of conducting the NGT in this study can be viewed on Chapter 6.3

The time to conduct an NGT depends on the number of participants, number of questions asked, and the type of participants involved. It can vary from 2 hours for one question to half a day for two questions and may even be followed up with another day for discussion of results (McMillan et al., 2016). While it is common that one group can be led by one facilitator, it is also possible to employ more than one facilitator depending on the function of each facilitator. For example, a group session can involve three or four facilitators with primary facilitators controlling the discussion and the others being responsible for recording or taking notes, tabulating the results and helping participants to familiarize themselves with the NGT process.

Analysing group discussion data

NGT can generate both quantitative and qualitative data. The quantitative data can be in the form of Likert scale scoring or rating and therefore it is necessary to translate this data into a qualitative judgement. A critical factor of analysing NGT data is “how strict a definition of consensus is used” (Black, 2006). For example, a consensus is achieved when there are top five ideas or recommendations generated from the tabulation of quantitative results. However, the situation may not be clear if in practice there are more than five ideas which have similar scores. Therefore, it is important for the facilitator to explain and address such practical issues beforehand. The qualitative data of the NGT mainly revolves around the discussion between participants. Researchers can apply a number of approaches similar to analysing interview data.

As the aim of NGT in this study was to generate recommendations for advancing practice in Indonesian community pharmacy, the ranking system was used to achieve the consensus. This means that the recommendations which generated the highest scores were assigned the top priority from the group discussion. A thematic analysis was used to describe major patterns of conversation between participants.

4.1.4. Validity, Reliability and Trustworthiness of the Qualitative Research Findings

Validity and reliability of data are important whatever methods are used. Potential threats to validity and reliability occur in all stages of research from the design to interpretation and presentation of the findings.

Validity refers to “the extent to which the findings of a study are a true reflection of phenomena under study. Do the instruments (e.g. question in an interview) actually measure what they are designed to measure?” (Smith, 2010b). Potential problems in validity are often concerned with the development of instruments and during data collection, yet ensuring validity includes every step of the research. As a qualitative study deals with phenomena, there is always a question of how the instruments can identify the phenomena and serve to generate valid reflection of the actual conditions experienced by the interviewees. To ensure validity of qualitative works, researchers can employ several approaches (Morse, 2015, Noble and Smith, 2015, Leung, 2015): (1) during data collection, researchers may use data to argue with respondents’ viewpoint (e.g. acting as devil’s advocate), (2) after data analysis, researchers can collect additional data to verify a hypothesis or ask the respondents to clarify whether the findings have accurately represented the experiences and perspectives of the respondents, (3) researchers can also compare their findings with relevant theories or other studies to assess the validity of the findings. However, researchers must be aware that their assumptions, experiences and ideas about the respondents and respondents’ perspectives may affect the credibility of the findings and be a source of researcher bias. As a result, researchers need to keep a “distance” from the data and the interviewee and avoid influencing the response of the interviewee.

Reliability refers to “the extent to which procedures, measures and data are reproducible or internally consistent” (Smith, 2010b). Reliability in qualitative studies has been associated with the analysis of data and considered of little relevance with data collection due to the uniqueness and richness of each interview. During data analysis, researchers must ensure that they employ similar concepts and explanations in the coding of an interviewee’s responses. This can be conducted in several ways. For example, each researcher independently develops their own coding framework from the raw data which is then compared with other researchers’ coding framework (Noble and Smith, 2015, Leung, 2015). This is close to the concept of inter-rater reliability which is similar in quantitative research. Another way is that the researchers can conduct the coding together and generate consensus about the potential problems arising from the data. However, the concept of involving other researchers for verification and validation is also contested as the nature of qualitative research is subjective (Morse, 2015).

Another important element in ensuring the quality of qualitative research findings is rigor and trustworthiness. Qualitative research has been criticized for lacking rigor, transparency and justification of data collection and methods of analysing being used. This has implications for the integrity of the findings. Guba (1981) constructed four criteria in the pursuit of a trustworthy study. These are credibility (related to internal validity, the “truth” of the findings), transferability (related to external validity/generalizability, the findings can be applicable in other contexts), dependability (related to reliability, the findings are consistent and could be repeated) and confirmability (related to objectivity, the findings show a degree of neutrality and not researcher bias, motivation or interest). Of the several possible provisions to address Guba’s criteria, peer scrutiny of the project and provision of background data to explain the context of the study were adopted in this thesis (Shenton, 2004).

The last essential task with a qualitative study is interpreting and building explanations from the findings. After researchers have generated the coding, refined the concepts of data and recognized the central theme of the findings, it is time to explain the meaning of the findings. Building explanations is a difficult process. Researchers must be familiar and knowledgeable about the data and able to think laterally about relevant theories or other important studies. There are two main approaches to writing up the findings of qualitative research (Rosenthal,

2016). First, researchers can report key findings under each theme or category by displaying some quotes to illustrate the findings. This is then followed by separate discussion in relation to the findings. Second, the discussion can be incorporated into the findings. This means findings and discussions are combined into one narrative.

4.1.5. Reflexivity: Researcher's Position towards the Research

Reflexivity is increasingly used in qualitative research and accepted as a methodological tool to define the researcher's position including views, beliefs and experiences and his/her influence towards the research and potential bias which may arise from researcher's attitude (Patnaik, 2013). While reflexivity can span from "how researchers shaped and how they were shaped by the research process" (Palaganas et al., 2017), there is avenue to value reflexivity based on "the individual researcher's ability to construct an overall sense of congruence in their research practice" (Attia and Edge, 2017). The term congruence entails "the expression of personal values, along with the use of personal skills in professional lives and vice versa" (Attia and Edge, 2017). This is the concept which is used in this section.

This thesis (and the PhD journey) draws on my long-vested interest in community pharmacy practice. Therefore, this section is particularly important to represent my position and views about the research.

I graduated from the Bachelor of Pharmacy program and gained certification as pharmacist in 2006. I started my career as community pharmacist in a pharmacy which is located next to a main city road. Our pharmacy was very famous within the neighbourhood. The customers were not only the surrounding people but also employees from several companies since the pharmacy was contracted by these companies to supply pharmaceuticals for their workers. The good thing about working in this pharmacy was that we had a pharmacist on duty at all times, which might not be the case in many other pharmacies. However, my role as a community pharmacist was mostly confined to compounding and dispensing of medicines with minimal interaction with patients due to the considerable volume of the prescriptions and customers. In addition, there was little opportunity (and time) to evaluate and improve the services as we were really tied up with activities in the dispensary.

In 2008, I started a new career as academic and researcher in a university. I was assigned in the Department of Pharmacy Practice which covers the area of research in community pharmacy policy and practice. The experience of practicing in community pharmacy was really useful in the process of teaching and research in the department. However, over years in researching community pharmacy practice, I started to realise and accept the fact that progress of community pharmacy practice in Indonesia has been slow with no significant change in the way pharmacists practice in the community. The lack of pharmacist's presence is a chronic problem for the profession. Additionally, community pharmacy operates under uncertain conditions in terms of regulation support and enforcement, despite the fact that pharmacy is often considered a highly regulated health institution. For example, community pharmacy was scrutinised by the authorities for their actual and lawful roles in dispensing and providing medicines, yet there were no measures or penalties were given against those distributing medicines illegally or beyond their scope of practice (e.g. drug stalls, drug distributors and non-pharmacist professional). Literally, anyone can supply medicines. My first international publication (Hermansyah et al., 2012) underlined my huge concern about contemporary practice in pharmacy.

I was aware that the poor practice was also influenced by the problems from inside the profession. I also understood that such a situation cannot be resolved unless there is recognition and real demand from policy makers, patients and other health professionals for professional pharmacy services. But what might be interesting and thought provoking at that time was the fact that Indonesia is going to implement universal healthcare coverage, an era which reflected a "point of no return". It remained to be seen whether pharmacy would join the band or be kicked out of the wagon. This left me wondering about what can be offered to move the profession forward and to integrate with the rest of primary care sector.

When I embarked on this PhD, there was scant research investigating practice change in developing countries and the lessons these countries can learn from their counterparts in developed countries. Literature from developed countries are almost one-way direction by imitating, comparing and benchmarking studies from countries such as UK, USA, Canada and Australia as if there are limited shared lessons (or lessons learned) from developing countries. During the PhD life, I started to realise and accept that the context of each country is decisive for

pharmacy development. Nevertheless, I still have faith that there are insights that can be shared between these “two different worlds” in which developing countries can learn from developed countries and developed countries can avoid the “classic” pitfalls occurring in developing countries.

This is how I came to design the thesis and the study. I cannot ignore my interest to learn more about Australian pharmacy practice and I cannot entirely remove my thoughts and ideas of improving the system in Indonesia which perhaps have influenced the way I asked questions during the interviews and directed the group discussion. However, I completely understand that objectivity, credibility and truthfulness are the keys for successful qualitative studies. Therefore, within the research team, I was often reminded of wearing the researcher’s hat to reduce potential for bias. We worked together to resolve issues and looked for the best strategy to improve the quality of the study. In essence, I strove to adhere to the scientific and ethical requirements for conducting the research and presenting this thesis.

4.1. Theoretical frameworks

This section describes the theoretical frameworks which were used in this study. The use of a theoretical framework is helpful in the interpretation of studies. A theoretical framework also provides focus and boundaries for research studies. Equally this can serve as a limitation because it excludes other potential variables beyond the boundaries. Therefore, the use of a theoretical framework must be “conceptually appropriate and practically useful” (Scahill, 2013). A summary of the theoretical frameworks used in this study is provided in Table 4.

Table 4. Summary of theoretical frameworks

Description	Rogoff's planes of analysis	The PARIHS framework	Culture-Structure-Agency approach
Key concept	The modified theory explores three levels of practice (micro, meso, macro level) in the community pharmacy sector as a holistic and integrated system. The three levels operate interdependently and dynamically with changes in one level affecting the operation of other levels.	Successful implementation of research into practice is a function of evidence, the context in which evidence is taking place, and facilitation	Practice change is influenced by the structure in which pharmacies are operated, the culture supporting professional practice and ultimately the roles of agency to drive changes and maintain interaction between culture and structure
Unit of analysis	Individual pharmacists (micro level), community pharmacy (meso level) and healthcare system (macro level)	Research and development in community pharmacy	Structure highlights regulations, legislative and policy frameworks constructing and controlling community pharmacy sector; Agency refers to pharmacists and community pharmacies; Culture reflects professional pharmacy practice
Features for analysis	Foregrounding and backgrounding approach	Guide and matrix for evaluation	Coherent relationship between the three elements
Strengths	The holistic view offers the possibility to understand change by focusing on each particular level without losing attention on the operation and the impact in other levels	Simple, clear and easy to use. It can fit with other theories and useful for both ongoing and retrospective projects	The interplay between the three elements can help in the identification of conditions and factors supporting or impeding the implementation of change
Limitations	Deeper understanding of each level and the whole system is necessary to analyse changes. It is difficult to consistently determine micro, meso and macro levels in a complex system such as healthcare	The concept may be too broad and diffuse. It may lack clarity in defining the operationalisation of the elements and sub-elements. It may also lack validated measurement tools	It is sometimes difficult to define culture and structure in the real case experience since the two elements are co-existent and may influence agency in similar ways

4.2.1. Rogoff's planes of analysis

The broad scope of change operating at the micro, meso and macro levels of the community pharmacy system presents challenges in selecting the appropriate unit of analysis as “the smallest object of analysis in a study” (Matusov, 2007). Previous studies have considered each of these three levels separately, with each level considered to operate independently from the others (Vygotsky, 1978, Dopfer et al., 2004, Kapiriri et al., 2007, Ong et al., 2014). Analysing changes in community pharmacy requires comprehensive understanding of the operation of these three levels as one cohesive system rather than treating each level separately. In doing so, this study used and modified Rogoff’s planes of analysis.

The theory developed by Barbara Rogoff was originally designed to understand the developmental process of learning using a sociocultural approach. Rogoff proposed the observation of development in three planes of analysis corresponding to personal, interpersonal and community processes (Rogoff, 1995). These three levels are “inseparable, mutually constituting planes comprising activities that can become the focus of analysis at different times but with others necessarily remaining in the background of analysis” (Rogoff, 1995). Rogoff illustrated her theory “By analogy, the organs in an organism work together with an inherent interdependence, but if we are interested in foregrounding the functioning of the heart or the skin, we can describe their structure and functioning, remembering that by themselves the organs would not have such structure or functioning. Similarly, we may consider a single person thinking or the functioning of a whole community in the foreground without assuming that they are actually separate elements” (Rogoff, 1995).

Rogoff’s planes of analysis was modified in this study by substituting the context of human development for the community pharmacy sector, namely micro level (individual pharmacists), meso level (community pharmacy as an institution or network of institution) and macro level (community pharmacy as part of healthcare system). Details of information about the modification of Rogoff’s theory to this study are provided in chapters 5.1 and 6.1.

The strength of the framework is in its ability to include three different levels of operation as the unit of analysis. Although the framework only focuses on one particular level as the centre

of attention, the “foregrounding and backgrounding” concept allows researchers to consider the operation and the impact of other planes. In addition, the framework offers the option to remove boundaries between levels as it views the three levels as interrelated and working together. This view asserts that the existence of one level cannot be excluded from the context of other levels. In other words, the operation of one level cannot be understood without understanding the holistic nature of the system. This has become the key concept of the framework to understand change in community pharmacy: that practice change is a comprehensive process involving activities within three levels by which a change in one level can lead to change in all levels. Such concept offers that the actors or stakeholders within the system do not only engage in the activities within three levels but are also shaped by the three planes. This provides direction for pharmacists and pharmacies to lead change by engaging and contributing in each plane. The holistic view, however, is also the weakness of the framework. The approach relies on a deeper understanding of not only one plane but all planes which makes the discourse of understanding transformation more complicated. In addition, it is difficult to consistently apply the metaphor of micro, meso and macro level given that the nature of the healthcare and pharmacy system is heterogeneous and non-linear.

4.2.2. The PARIHS Framework

One of the issues with practice change and pharmacy role expansion is the extent to which research and development in community pharmacy can be effectively and sustainably translated into everyday practice. Knowledge obtained from the research program may be of little value unless it is successfully adopted into practice. Knowledge Translation (KT) has emerged as a paradigm to increase the use of research evidence and accelerate the process for research adoption into practice. KT involves a complex process and therefore, it implies the need for a tool to understand such a process (Glasgow and Emmons, 2007). This study utilized the PARIHS framework as a tool to understand KT in community pharmacy sector.

The PARIHS (Promoting Action on Research Implementation in Health Services) Framework, developed by Kitson and colleagues (Kitson et al., 1998), is one of the more widely used conceptual frameworks for understanding and explaining the success or failure of implementation projects. The framework highlights that successful implementation (SI) of

research is represented as “a function (f) of the nature and type of evidence (E), the qualities of the context (C) in which the evidence is being introduced, and the way the process is facilitated (F); $SI = f(E,C,F)$ (Kitson et al., 1998). In essence, a successful implementation of research is likely to occur when (a) the research generates solid scientific evidence aligned with professional consensus and patients’ preferences, (b) the context is receptive to change which includes a sympathetic culture for change, strong leadership and presence of a system for monitoring and evaluation, and (c) there is an appropriate mechanism to facilitate change from both internal and external facilitators. The application of the PARIHS framework to this research is explored in chapter 5.2.

Ullrich et al. (2014) noted that the use of three elements in the PARIHS framework has become the primary rationale for researchers to select the framework. The three elements have been considered “accurate in describing factors important to implementation”. For example, the facilitation element has been seen as crucial in encouraging an action-oriented approach to implementation and it is often the focus in implementation science. The second rationale for using the PARIHS framework is its ease of use. The framework often conceptually fits with and thereby supplements/complements other theories that make it useful for both ongoing and retrospective projects. Overall, the framework has been described as “simple, sensible, clear and easy to use and apply” (Ullrich et al., 2014). The simplicity of the PARIHS framework, however, has become a weakness as it can be too broad and diffuse. The PARIHS elements and sub-elements are poorly defined which limits the use and operationalization of the framework for specific projects such as designing and measuring interventions. In fact, the lack of validated measurement tools is the major weakness of the framework (Helfrich et al., 2010).

4.2.3. Culture-Structure-Agency Approach

An empirical key to understand the process of change can be identified from the presence of structure that supports the shift of (social) culture within a society which has clear definition and mission towards a change (Rubinstein, 2001). In the field of social science, these three elements have been portrayed to have strategic importance in the construction of social change. This study, therefore, utilized the culture-structure-agency as a theoretical framework to explain the process of change in community pharmacy.

The term “structure” has often been posited as “structuring” the aspect of social existence or a power that determines, strives and constitutes social life (Hays, 1994). This implies “structure” as a rigid, hierarchical form that constrains nature by ruling or regulating a society (Archer, 2005). On the other hand, apart from different usage of the word in the academic discourse, the concept of “culture” can resemble an “aspect of social life that must be abstracted out from the complex reality of human existence” (Sewell, 2005). Culture in this sense has been perceived as flexible and concerns beliefs, values and ideologies. The interaction between “structure” and “culture” is sometimes perceived as contradictory in some papers, but they can be equally compatible and coherent with a possibility to influence each other as described in other research (Dutta, 2011). The key to this interaction is the role of “agency” which may include individuals, group of individuals, and group of organisations or government (Walt and Gilson, 1994). “Agency” is the force behind social action as they are the ones who have capacity to plan and initiate action (Onyx and Bullen, 2000). Such capacity may include power, access to information, diverse intellectual capital and wisdom which makes possible to respond and transcend crisis and produce a desired effect (Newman and Dale, 2005).

There is a dearth of research in pharmacy practice that contextualizes the relationship between structure, culture and agency. However, in the literature each element has been individually used in reference to the philosophy and vision of practice change. Under this notion, this study adopts the framework by viewing pharmacists and community pharmacy as a group agency within the structure of the healthcare system. The culture of practice which is developed during the interaction between pharmacists, community pharmacy and the health system structure reflects the opportunity for change. Further application of this framework is presented in chapter 6.3.

The strength of the framework lies on its views about structural, cultural and agential conditions being developed or intended to develop to support changes. The interplay between these three elements has been critical to explain “what was experienced and observed at the levels of the empirical and the actual” (Boughey, 2013). Since each “agency(ies)” would experience change in different and unique ways, these experiences would be important to determine for example which structural mechanism has been developed by the agencies to

trigger social change or what cultural conditions have emerged as a result of particular individuals/groups exercising agency. The elusive terms of the elements, however, has made the discursive complex and tends to be “unstable”. This is an important drawback as the three elements co-exist in many cases, with some elements being more or less dominant at any one time. The distortion of interpretation for example of structure as rules or culture as rules may lead to failure to identify important areas in the endeavour of change. This may lead to inaccurate understanding of what is defined as successful or effective change.

4.3. Chapter Conclusion

This chapter outlines the preferred method to address the aims of the study as presented in Chapter 3. Qualitative study design in the form of in-depth semi structured interviews was selected to explore key stakeholders’ opinion and perspectives regarding practice change in community pharmacy in both countries. The interviews were conducted with purposively selected participants representing stakeholders in community pharmacy and the healthcare system in Australia and Indonesia. A nominal group discussion was chosen as a method for obtaining consensus among Indonesian participants. Three theoretical frameworks – the planes of analysis, the PARIHS framework and the culture-structure-agency approach – were employed to provide a particular theoretical perspective in explaining or examining the findings of the study.

The findings of this study were presented in two separated chapters as seen in the subsequent sections following the rationale that the study was conducted in two different countries. Such separation, however, does not mean that there is no connection between the results in each country. The chapter separation reflects the notion that each country case is unique despite the possibility that there might be some lessons that can be learned among the two countries.

CHAPTER 5. THE AUSTRALIAN STUDIES

This chapter comprises two publications which report the findings of Australian studies. A number of in-depth semi structured interviews were conducted involving twenty-seven a wide range key stakeholder across Australia. The interview guide can be viewed in appendix 3. The results were discussed in these two publications, each with specific topic regarding practice change in Australian community pharmacy sector.

The first publication (chapter 5.1) focuses on analysing the contemporary situation in Australian community pharmacy and the second publication (chapter 5.2) was designed to evaluate the impact of the Research and Development program in supporting practice of community pharmacy.

5.1. Investigating influences on current community pharmacy practice at micro, meso and macro levels

This section comprises the following publication:

“Hermansyah A, Sainsbury E, Krass I (2017) Investigating influences on current community pharmacy practice at micro, meso, and macro levels. *Research in Social & Administrative Pharmacy* 13(4) pp. 727-737. <https://doi.org/10.1016/j.sapharm.2016.06.007>”

The publication reports on the investigation of the nature of contemporary practice in Australian community pharmacy and the potential for community pharmacy to play a greater role in the healthcare system. This article was submitted in March 2016, accepted without further review and available online in July 2017. The published version of the paper is presented in appendix 7.

Investigating influences on current community pharmacy practice at micro, meso and macro levels

Andi Hermansyah, Erica Sainsbury, Ines Krass

Abstract

Background The nature of Australian community pharmacy is continually evolving, raising the need to explore the current situation in order to understand the potential impact of any changes. Although community pharmacy has the potential to play a greater role in healthcare, it is currently not meeting this potential.

Objective To investigate the nature of the contemporary practice of community pharmacy in Australia and examine the potential missed opportunities for role expansion in health care.

Methods In-depth semi-structured interviews with a wide-range of key stakeholders within and beyond community pharmacy circles were conducted. Interviews were audio-recorded, transcribed verbatim and analysed for emerging themes.

Results Twenty-seven key informants across Eastern half of Australia were interviewed between December 2014 and August 2015. Several key elements of the current situation representing the social, economic and policy context of community pharmacy have been identified. These elements operate interdependently, influence micro, meso and macro levels of community pharmacy operation and are changing in the current climate. Community pharmacy has untapped potential in primary health care, but it has been slow to change to meet opportunities available in the current situation.

Conclusions As the current situation is complex, interrelated and dynamic with often unintended and unpredictable consequences, this paper suggested policy makers to consider the micro, meso and macro levels of community pharmacy when making significant policy changes. The framework proposed in this study can be helpful tool to analyse the processes operating at these three levels and their influences on practice.

Keywords: current situation; community pharmacy; macro, meso and micro level influences

Introduction

For many years, community pharmacy has been described as being in a state of transition with a body of international research highlighting the inevitability of practice change (Roberts et al., 2008, Feletto et al., 2013). Significant historical transitions in community pharmacy have been marked by the loss of three of its four traditional mainstays. Community pharmacies were originally focused on procuring, preparing and evaluating their own drug products (Anderson, 2001). However, the rise of pharmaceutical industries took over these activities leaving only dispensing – a role which is usually associated with the distribution and sales of pharmaceuticals (Traulsen and Bissel, 2004). In recent decades, in Australia, dispensing has been the core of the business model and the major contributor to remuneration in contemporary community pharmacy (Berbatis et al., 2007a).

However, the ongoing Pharmaceutical Benefits Scheme (PBS) reforms along with the changing landscape of the Australian healthcare system have greatly affected the income that community pharmacy can derive from their dispensing role. Community pharmacy viability is under threat if the business model continues to rely on dispensing. In addition, the over-reliance on dispensing has discouraged community pharmacy from adopting a more active role in health care through providing Cognitive Pharmaceutical Services (CPS) such as medicines management, health promotion and screening, and chronic disease support (Pharmaceutical Society of Australia, 2014). It has been a concern of policy makers that the role of community pharmacists, as highly trained professionals, remains narrowly focused on dispensing medicines. Policymakers are calling for a greater contribution from pharmacists to healthcare, a challenge to which community pharmacy must respond (Lingam, 2013). Accordingly, community pharmacy again faces inexorable societal and economic pressures to change.

It must be recognized that a community pharmacy is not simply a business entity. Although as with any business, a community pharmacy must be profitable, it also has a responsibility to meet the healthcare needs of the public (Chaar et al., 2005). One perspective of community pharmacy is that it is a setting for an individual pharmacist to apply their professional duties in healthcare (Rosenthal et al., 2015), whilst, at a broader level it has been increasingly seen as an effective instrument to control rising healthcare and pharmaceuticals expenditure

(Emanuel et al., 2012). These intertwined roles imply that the operation of community pharmacy encompasses multiple-levels such as the pharmacist as an individual practitioner (micro level), community pharmacy as institution (meso level) and community pharmacy as part of healthcare system (macro level).

This study therefore sought to investigate the nature of the contemporary practice of community pharmacy in Australia, in particular the impact and the interaction of influences on practice at the micro, meso and macro levels. Secondly, this study examined the potential missed opportunities for Australian community pharmacy to assume an expanded role in health care.

Community pharmacy in Australia

There are approximately 5,450 community pharmacies across Australia, comprising mostly small and medium sized businesses. It is a \$12 billion industry employing more than 63,000 persons with around 78% of registered pharmacists working in community pharmacy (Health Workforce Australia, 2014). Over the years, community pharmacy has been a major facilitator of National Medicines Policy which aims to ensure that life-saving and vital medicines are distributed in a timely manner throughout Australia.

Community pharmacies in Australia are seen as highly accessible, therefore it is not surprising that 94% of Australians, particularly those with chronic illnesses, visit community pharmacy every year. Although representing only 14% of the total population, the elderly account for 80% of pharmaceutical consumption (Korda Mentha, 2014). Dispensing of PBS medicines represents up to 60% of community pharmacy profit with the remainder derived from Over-the-Counter (OTC) medicines and other general retail products (Korda Mentha, 2014).

While community pharmacists are still predominantly focused on their dispensing role, they may also participate in the provision of remunerated CPS including Home Medicine Reviews, Residential Medication Management Reviews, and Medschecks which are essentially medication management programs delivered in a patient's home, at aged care facilities and in-pharmacy store, respectively (Pharmaceutical Society of Australia, 2011a, Pharmaceutical Society of Australia, 2011b, Pharmaceutical Society of Australia, 2012). In addition, under the Pharmacy Practice Incentive program, community pharmacies may receive payment for delivering Dose

Administration Aids and Staged Supply services for patients who are at risk for potential medication misadventure (Pharmaceutical Society of Australia, 2007, Pharmaceutical Society of Australia, 2011c).

Internationally, there is growing trend for incorporating community pharmacy in primary care groups to provide services that meet the needs of local population through collaborative work with other members of the primary care team particularly in countries such as UK (Brown et al., 2014, Alsaleh et al., 2016) and Canada (Perepelkin and Manfrin, 2012, Jorgenson et al., 2014). In Australia, inclusion of a pharmacist in a GP practice has recently been proposed as a new model of delivering team care in medication management. However, it is yet to be trialled and implemented (Page and Somers, 2015, Polasek et al., 2015).

Methods

Study design and setting

This study employed a qualitative design which provides the opportunity to collect rich, in-depth information and to uncover “hidden information” about the topics of interest. To address the objective of this research, in-depth semi-structured interviews with a wide-range of key stakeholders within and beyond community pharmacy circles were conducted. These provided sufficient flexibility to explore the topics and concepts while still being guided by a specific interview framework (Anderson, 2010).

Sampling and recruitment

Purposive maximum variation sampling was used to select potential participants across the Eastern half of Australia. Participants were chosen to include wide-range representation of stakeholders from pharmacy practitioner, pharmacy owner, General Practices (GPs), academics and researchers, professional peak organisations related to pharmacy and the healthcare system, consumer groups, private insurers, and government representatives. Participants were also chosen to represent both genders, metropolitan and rural areas, pharmacy and non-pharmacy backgrounds, different pharmacy backgrounds (individual proprietor, banner groups and discount pharmacy) and different states (New South Wales, Victoria, Queensland, Australian

Capital Territory and South Australia). The involvement of participants from different backgrounds is critical in ensuring perceptions are gained from various points of view.

Potential participants were identified in two ways. Firstly, the research team listed known influential key stakeholders relevant to community pharmacy practice. The names of the stakeholders were obtained from the researchers' professional networks and key publications on the issues around practice change in community pharmacy. Secondly, a snowball sampling method was applied after the conclusion of each interview whereby participants were asked to nominate other candidates who were potentially suitable to the study, but who may not have been identified by the research team.

Invitation letters including an information sheet and consent form were sent electronically to potential participants. Participants who did not respond to the e-mail were contacted by telephone. Once participants agreed, the interview was then arranged based on their convenience. Face to face interviews were the preferred method, however geographical and time constraints for some participants resulted in both telephone and Skype® interviews as alternatives. Consent was obtained from the participants before conducting the interview. Prior to the commencement of this study, ethics approval was obtained from Human Research Ethics Committee the University of Sydney.

Data collection

An interview guide was developed from the literature on practice change in pharmacy, understanding of the latest developments in Australian pharmacy and discussions among the researchers (Appendix 3). The guide was piloted with three stakeholders with research and practice experience and refined based on feedback.

The interview commenced with a broad, open ended question about participants' experience, their role, and with regards to community pharmacy operation. Participants were then asked to describe their perception of the current situation of community pharmacy practice in Australia and the contribution of community pharmacists to the public and the healthcare system. Social, economic and policy contexts in healthcare and pharmacy were explored, and participants were encouraged to express their thoughts on all issues related to community pharmacy, the arguments behind the issues and possible strategies to resolve the issues.

Two researchers AH/IK or AH/ES conducted the interviews. All interviews were audio-recorded and transcribed *ad verbatim*. Interviews were conducted until saturation of themes was reached. Saturation was reached after 27 interviews, when no new themes emerged from the data (Mason, 2010).

Data analysis

Complete transcripts of the interviews were prepared and iteratively analysed together with the audio recordings of the interviews. Several transcripts of interviews which were considered have the richness of information were initially used to create a coding framework. Thereafter an inductive approach was used to explore the data and construct themes without pre-defined conceptions about the topics. The analysis broadly involved categorizing interview data based on initial coding, then clustering the code into categories, and finally merging them into themes and subthemes (Thomas, 2003).

All researchers were involved in creating the coding framework. NVivo 10[®] was used to assist the coding process and management of data. The remaining transcripts were then read and thematically analysed using the initial framework. This technique allowed the authors to compare the data with the initial transcripts and find repeated key themes and subthemes. New themes were added to the framework where they gave different perspectives or did not fit to the existing themes.

Further in-depth analysis of the data was then undertaken using a modified framework developed by Rogoff known as the “planes of analysis”, a framework developed to assist in the analysis of human interactions within their social context. Rogoff views “context and individual as jointly producing psychological events”(Rogoff, 1982), with which she argued that there is interdependence between individuals and their environment. For empirical practice, Rogoff developed “a three-fold analytic distinction between individual, group and community” that she describes as planes of analysis (Rogoff, 1997). While Rogoff proposed that each of these three planes cannot be described in isolation, she approached the exploration of each plane as a “current focus of attention” (Rogoff, 1997), with the plane of focus seen as foregrounded against the background of the other two. Using this approach, the analyst can “zoom in” on one plane at a time without losing the comprehensiveness of the whole. In other words, this concept offers

the perspective that three levels “are separable in practice but in principle not reducible to each other” (Sawyer, 2002).

This paper modified the concept of planes of analysis by defining a different set of three planes, namely the micro level (individual pharmacist), meso level (community pharmacy as an institution or network of institutions) and macro level (community pharmacy as a part of healthcare system). This approach distinguishes the particular aspects of each plane while still maintaining the dynamic interdependence of the whole system. These three levels are neither hierarchical nor independent; rather the three are mutually interdependent and all are necessary to understand the operation of each.

Results

A total of twenty-seven in-depth interviews were conducted from December 2014 to August 2015. Fourteen participants were interviewed in person, seven over the telephone and six via Skype. On average, the duration of the interview was 71 min (range 43-93 minutes). The characteristics of the participants are provided in Table 5.

Table 5. Characteristics of participants (Australian studies 1)

Characteristics	n = 27
Male	20
Background of profession	
Pharmacy practitioners and managers	8
Other healthcare professionals	1
Academics and researchers	3
Policy makers and administrators	13
Consumer representatives	1
Insurance providers	1
State	
Australian Capital Territory	3
New South Wales	12
Queensland	4
South Australia	2
Victoria	6
Urban area	24
Method of interview	
Face to face	14
Over the phone	7
Skype® video call	6
Average duration of interview (min)	71 min (range 43-93 min)

From the interviews several key themes emerged which characterized the nature of influences on contemporary Australian community pharmacy practice, representing the social, economic and policy context of community pharmacy. These influences operate interdependently, and can be explored at the micro, meso and macro levels to generate a broad understanding of the ways in which community pharmacy operates and is changing in the current climate.

SOCIAL INFLUENCES

VALUE OF COMMUNITY PHARMACY TO SOCIETY

Participants consistently expressed the view that community pharmacy offers substantial value to the community such as high accessibility to the public, being a first port of call for a health problem and as a source of unbiased healthcare information from highly trained professionals. These values are distinct from other healthcare providers and have resulted in a high degree of public trust.

*We're very readily accessible. You don't need an appointment. You can walk in and get access to and advice from a trained healthcare professional, in many instances seven days a week over extended hours. We are the only healthcare professional that you can actually do that. Everyone else you have to make an appointment. Nine times out of 10 the advice is free. **Value of Community Pharmacy** (P05_FP)*

Participants also observed that possession of these unique attributes confers responsibilities on the community pharmacist and community pharmacy and compels them to act in certain ethically responsible ways. Therefore, in responding to societal healthcare needs, they are increasingly providing a range of CPS.

OPPORTUNITIES FOR EXPANDING ROLES IN HEALTHCARE

Demographic changes within the society characterized by an aging population and a higher prevalence of chronic illnesses have created a need for broader access in healthcare. Participants acknowledged that there are opportunities for community pharmacies to move beyond dispensing as they are ideally located to meet this changing societal-healthcare need.

*We're involved in lots of health-related things, we're involved in screening programs, we're involved in compliance checks, (and) we're making sure that people have the information. I think there's a lot of opportunity for pharmacists to do lots of things in community pharmacy. **Expanded Professional Services** (P14_FP)*

Although contemporary practice has shifted towards role expansion, a number of participants felt there were unmet needs in the society which necessarily required more effective use of pharmacist's skills and knowledge. For instance, one participant highlighted the potential for community pharmacy to play a role in the transitions of patients post discharge from hospital. *I don't think there is enough focus on transitions of care...from the community into hospital, or the hospital into the community, or hospital into the nursing home...there is a big opportunity to reduce medication errors and discrepancies in transitions of care to reduce errors and referrals at a higher levels of care...they [pharmacists] can take a structured and systematic approach for medication reconciliation, and review and coordinate and collaborate with other health professionals...I think that pharmacists underutilise in what they're specifically trained to do and can deliver a lot of benefit but it's something that slips through the cracks. **Under-utilisation of Pharmacist's Skills and Knowledge** (P03_MP)*

POOR EXPECTATION AS A BARRIER

A key factor cited by many participants as hampering the expansion of community pharmacy's involvement in healthcare service delivery is low expectations of pharmacy and pharmacists by other stakeholders.

*Consumers really don't understand a large part of what pharmacists do and...is reflected also in the way for example our politician and their government authorities feel about pharmacist. They don't really understand the role and it is only few general practitioners who are really supportive about this role. In my practice, there are many opportunities for GPs to be doing more with their time...GPs just don't have high expectation about what we can do either. I think all that background is related, that low expectation is really holding us back fundamentally. **Poor Expectation** (P23_MP)*

CROSS-SUBSIDISATION OF EXPANDED SERVICES FROM DISPENSING

Whilst there is an impetus for providing expanded services, community pharmacy encounters difficulties for sustaining the services because the payment is not sufficient to make these services profitable.

*The thing is in pharmacy there's been this notion that everything is cross-subsidised by the profit that being marked up but that's no longer the case. You can't cross subsidise these services. So the model is changing but it still hasn't changed fast enough to make it sustainable. That whole concept has been lost in translation...we (are) just not, it is disappeared and it could threaten the viability. **Cross-subsidisation of CPS** (P10_MP).*

ECONOMIC INFLUENCES

THE RISE OF A NEW BUSINESS MODEL

Despite the aforementioned challenges, the industry continues to grow particularly with the rise of the discount model pharmacy within the past five years. Some participants viewed community pharmacy in Australia as becoming increasingly polarised between discount model pharmacies which focus on cost leadership strategies and service model pharmacies that emphasise the delivery of CPS.

On the one hand, the rise of discount pharmacies has been seen as advantageous by consumers as they offer a wide range of products at cheaper prices. On the other hand, as noted by the majority of participants, their expansion has put a lot of pressure particularly on small and independent pharmacies. In addition, a small number of participants indicated that discounters' advertising campaigns which focus on their low-cost strategy has damaged the professional image of community pharmacy.

*...these kinds of movement of discount pharmacy which is difficult because they are becoming quite large and powerful in their advertising and their marketing to Australian consumer...which (is) very much about the cost and so it is making people focus more on that type of aspects. You can't compete with that so you have got to try doing something different to draw people back to your pharmacy. **Inter-pharmacy Competition** (P07_FP)*

To remain viable over the longer term, independent and non-discount community pharmacies must differentiate themselves by adopting a more service-oriented health care model rather than relying on supply model.

*I think that there'll be models like discounters who are just plain straight suppliers. Come here, get your medicines, whatever you pay you pay, and then I think there'll be specialised pharmacies...there'll be a service driven model of pharmacy that are pharmacies that provide various services...whether they're a diabetic specialist, an asthma specialist, a wound care specialist, aged care specialist. But I think that model will probably be the future of pharmacy. **Emerging Business Model** (P27_FP)*

FINANCIAL VIABILITY UNDER THREAT

Some participants acknowledged that a number of pharmacies have had reduced incomes due to intense inter-pharmacy competition. One participant clearly indicated that her pharmacy had experienced significant loss, forcing them to find other ways to offset the losses.

I know our boss has said that he has a cut in income of the pharmacy about \$40,000 last year and that's probably a pharmacy that's going very well so financially that's quite difficult because that's a huge cut in income and the challenge is to try to find other incomes from other places, so that's one kind of challenge that gets tougher I suspect.

Shrinking Community Pharmacy Income (P07_FP)

One of the easiest ways to recover the loss is through rationing wages including that of employee pharmacists. One participant argued that employee pharmacist wages have diminished in real terms over the years and he felt that this is common throughout Australia.

When I was managing community pharmacy 10 years ago, my staff pharmacists in Canberra were on \$43 to \$45 an hour. Ten years later, as a staff pharmacist, I'm getting \$35 an hour, so the wages have actually gone down over the last 10 years, that's in Canberra, which I'm sure would be very similar to a lot of capital cities. There's still a bit more money to be made in rural and remote areas if you're prepared to travel, but in the cities, it's becoming pretty brutal.

Declining Individual Wages (P10_MP)

The declining wages in tandem with the increasing pressures in the working environment have been a source of growing dissatisfaction for employee pharmacists. The respondent in the previous quote continued to express his concern about pharmacists leaving the profession due to dissatisfaction with the current situation in community pharmacy.

*Well, there's this group in Canberra, they've lost nine pharmacists this year from this group...Most of them have left pharmacy, they've joined department of health, not as a pharmacist, just as part of the bureaucracy, because they're just fed up with the low wages and the poor conditions and the pressure to churn, so the cracks are there. **Pharmacists***

Leaving the Profession (P10_MP)

In addition, one participant expressed the view that many pharmacy graduates were not satisfied with their career development particularly the difficulty of owning their own pharmacy and some others opted to pursue education of another major for better career enhancement.

I talk a lot with pharmacists okay and I see a lot of disgruntled recent graduates and they aren't ever going to own a pharmacy so they'll always be an employee. They're very intelligent people. They get out of University and they go,

*“Is this all there is?”...And there’s a number of pharmacists I’ve worked with in public health who’ve gone and got public health qualifications and have taken their skills somewhere else. So the pharmacy agreement unfortunately doesn’t allow for career developmental and also role enhancement. **Lack of Opportunities for Career Development** (P21_MNP)*

POLICY INFLUENCES

PRICE DISCLOSURE

Whilst community pharmacies operate in a hypercompetitive market, their profitability is also under external pressure from PBS reforms, particularly the Price Disclosure policy. The policy, which was introduced in 2007 and gradually accelerated in 2013 has been viewed by all participants to have had a great impact on the income of community pharmacy. Some participants indicated that dispensary profit will start to decline as price disclosure reduces the cost of PBS medicines to an extent whereby the Government will need to subsidise fewer medicines in the longer term. However, although Price Disclosure is generally seen as hurting pharmacy, some participants also felt that the policy actually acts as a driver of change to restructure business toward a service focused model.

Let’s be realistic, we had a great time before, and it was inevitable this was going to happen and why would the Government pay the same price for generics which we were paying significantly less as an owner pharmacist, why would they continue to pay us the same price as they would for the innovators...So price disclosure and the continual eroding of prices of drugs is just a fact of life and pharmacy needs to restructure and that’s what everybody’s scrambling to do, is to restructure so that we can afford to continue to provide the services that we’ve always done.

The Impact of Price Disclosure (P27_FP)

COMMUNITY PHARMACY AGREEMENTS (CPAs)

Participants in this study acknowledged the key role of consecutive Community Pharmacy Agreements (CPAs) as the underpinning policy framework in Australian community pharmacy. Under the agreements, community pharmacy receives funding for dispensing and providing CPS. The agreements since 1990, according to the majority of participants, have provided a stable basis for the operation of community pharmacy at least for the next five years. Within this continuum, community pharmacy owners have the certainty to run, redesign or expand their business. More importantly, the agreements have ensured timely and reliable access to PBS

medicines through the community pharmacy network as a key plank of the National Medicines Policy. This role is vital as no other business model can cover such a wide range of areas throughout Australia. In addition, the agreements have contributed to some innovation in community pharmacy as there have been investments in Research and Development in pharmacy practice particularly within the last three agreements (3rd, 4th and 5th CPAs).

*Absolutely, it gives certainty to the industry...there are billions of dollars of privately invested funds within the community pharmacy network...It allows you to recapitalize your business...It allows you to sign leases...you have access to the pharmaceutical benefit scheme and in my belief is that no other groups, no other organizations could provide those services to the level of community pharmacy does. If everyone wants to play on that games, Coles, Woolworths, everyone but they won't provide that services in Brewarrina [an indigenous town in New South Wales], (that means) they won't provide that service at Fitzroy Crossing [a small town of indigenous population] in Western Australia that community pharmacy does. **The Benefits of the CPAs** (P20_MP)*

However, concern about the shortcomings of the CPAs was also expressed. According to several participants the agreements have limited the opportunity to obtain funding from other sources since the Government and health insurance providers consider that all funding for community pharmacy is provided in the “bucket” of CPAs. The agreements, according to one participant, have lacked flexibility and have constrained the development of other services that are not listed in the agreement. This is because the funding has been capped for certain services within the five years of the CPA. In addition, some participants described their concern that the agreements have preserved the over-reliance on the dispensing model as the largest portion of the funding is allocated for payment for dispensing of PBS medicines with only a small portion dedicated to professional pharmacy services.

*The problem would always be whenever we inform the government about what pharmacy can do, “oh no we [government] have done pharmacy, (and) we have got the CPA signed for five years so we don't need to think about it”. So you don't have any other opportunities to try to get other new areas of funding because they think that they [the funding] are all in here [the CPA]. Whilst, it is great that there is guaranteed funding pharmacy through the CPA, it is also a detriment for other events or opportunities. **Limited Flexibility of the CPAs** (P07_FP)*

Discussion

The findings of this study highlight the complex, and dynamic nature of Australian community pharmacy practice today and the interrelatedness of influences operating at the individual practitioner level (micro level), the community pharmacy (meso level), and the healthcare system (macro level). Without an in-depth understanding of such a complex, interdependent and dynamic process, it is difficult to propose a holistic policy approach as the system in community pharmacy is composed of heterogeneous and interacting entities. For example, it is inappropriate to focus only on the price disclosure policy at the macro level without consideration of its negative impact on the salaries of individual pharmacists working at the micro level. Moreover, to assume that the establishment of the CPAs at the macro level has been responsible for a broad expansion of the health care role of community pharmacy at the meso level is not supported by the evidence. The aim of this paper was to demonstrate that changes at any one level have significant potential to, and have had, unintended and unpredictable consequences on practice.

The framework used to analyse the data provides a plausible explanation of the slow pace of practice change in community pharmacy. Moreover, it can be used as a means to analyse the processes operating at three levels, which are mutually interdependent.

A helpful starting point for the analysis is the operation of community pharmacy (meso level), which as many participants agreed provides unique opportunities to serve the community at both an individual and healthcare (macro) level. The respondents described potential roles that can be played by community pharmacy in healthcare which accord with previous findings (Brown et al., 2012, Blalock et al., 2013), and include those facilitated by the CPA such as remuneration for medication management services (Carter et al., 2012b, White et al., 2012) and Pharmacy Practice Incentives (PPI) program (Haaywood et al., 2011, Krass et al., 2011a). The government (macro) has acknowledged that, with the challenges faced by the health system from an aging population and increases in prevalence of chronic disease, there is a genuine need to maximize the potential of community pharmacy (meso). Whilst there is some evidence of role expansion in community pharmacy as a result of successive CPAs, this has been offset by pharmacist (micro) dissatisfaction with the ways in which the agreements have been

administered and the limited extent to which they have benefited the profession (meso). Since the largest proportion of the money is allocated to dispensing of PBS medicines, the CPAs have continuously preserved a reliance on the supply model. In this sense, the CPAs – notwithstanding their benefits – have discouraged a shift to provision of expanded services, and thus indirectly inhibited the very progress that they were designed to promote. In other words, the cross-subsidization of CPS by profits from dispensing - which is intrinsic to the CPA - has a significant impact on the capacity of community pharmacy (meso) to deliver and maintain the viability of its professional services.

At the same time, increases in healthcare expenditure, including the cost of subsidizing PBS medicines, have become an impetus for PBS reforms in terms of the price disclosure policy at the macro level. Since community pharmacy (meso) has been surviving on the profits from supplier discounts over many years, price disclosure represents a key policy change that has generated ongoing concern surrounding the financial viability of community pharmacy. Moreover, tension at this meso level has been exacerbated with the emergence of the discount model pharmacy making the business landscape more competitive. Consumers may prefer to visit discount pharmacies as they offer cheaper prices. At this level, price disclosure (macro) together with inter-pharmacy competition and capped funding through the CPAs have significantly reduced the incomes of pharmacies, particularly small and independent pharmacies. The erosion in incomes has motivated some change of direction among some community pharmacies. Whilst changes might be difficult for the majority, there are examples of pharmacies that have been able to successfully transform their business by leveraging opportunities provided by the CPAs through funded CPS such as Home Medicine Reviews, Medscheck, Dose Administration Aids etc., as well as implementing innovative services addressing the health care needs of their local community.

However for most pharmacies, the shrinking of income has led to significant cuts in operation including funding of pharmacist wages at the micro level. In addition, the legislative restrictions of pharmacy ownership (macro) which have remained mostly unchanged over decades limit the opportunity for graduates to open their own pharmacy (meso). Both of these outcomes have contributed to growing dissatisfaction among practitioners and have led some

pharmacists (micro) to depart the profession. This decision to leave the profession has the potential to affect the capacity of community pharmacy (meso) to meet changing societal needs (macro). In a nutshell, the implementation of policies at the macro level have affected individual pharmacists at the micro level in relation to their professional responsibility to the public and community pharmacy role at the meso level in the sense of fulfilling government expectations (macro). Changes at the meso and micro levels have also interdependently impacted the system at the macro level as shown in the case of CPAs and price disclosure.

It is important to recognize, however, that much optimism was expressed by the participants, in addition to their reflections on the current situation. This study has demonstrated that there is opportunity, and indeed willingness, for community pharmacy to play a greater role in healthcare. For example, several respondents' views on opportunities to become a primary care provider and health hub destination are consistent with other findings (McMillan et al., 2013, Roberts, 2014). Nevertheless, this paper analysis of the current situation has clearly demonstrated that responding to these opportunities will involve more than simply implementing isolated policy and funding changes at the macro level. A number of previous studies have identified and highlighted barriers to change (Berbatis et al., 2007b, Mak et al., 2012) including poor public awareness and expectations of pharmacist's expanded role and lack of fund models to support provision of the expanded services. These barriers which are consistent with this study have been persistent within the practice of community pharmacy, indicating that the contemporary policy approach is insufficient to offer a potential solution. This paper argues that in a complex, interrelated and dynamic system such as community pharmacy, any policy and funding decisions will influence all three levels in an interdependent fashion, and therefore there is a need to consider the mutual impacts at each level in the formulation and implementation of policy. In other words, it is not sufficient to identify barriers, facilitators or drivers to practice change without an in-depth analysis of their mutual interdependence. This may result in the need for in-depth modelling using an analytical framework such as the one which is utilized in this paper.

This study was not without limitations. This paper used a purposive and snowball sampling strategy which if repeated with a different group of participants may yield different results. However the interviews were continued until data saturation was achieved. As context plays an influential role the findings of this study, they may not be extrapolated to other cultures. Finally, despite their increasing impact within the industry, this study was not able to attract participants from warehouse-style or discount pharmacy. The researchers invited and followed up on a number of key informants with this background but none responded to the invitation. This may be taken into consideration for conducting the future research. To compensate the absence of key persons from the discount pharmacy model, this study interviewed other stakeholders who closely worked and understood how discount pharmacy operates.

In addition, there have been some policy changes since the completion of data collection for this study. The administration of the 6th CPA which took effect on 1 July 2015 is likely to change the picture. Likewise, the proposal of the Pharmaceutical Society of Australia (PSA) and the Australian Medical Association (AMA) to put non-dispensing pharmacists into GP practices is likely to have a significant impact on the role expansion of pharmacists outside dispensary practice (Pharmaceutical Society of Australia, 2015). Furthermore, the latest policy adopted in January 2016 that allows up to one-dollar discount on the patient co-payment for eligible PBS medicines is likely to influence the business viability of pharmacy. Whilst the outcome of these policies has not been evaluated, they will undoubtedly have an impact on the three levels.

Conclusions

The current situation in Australian community pharmacy is complex, interrelated and dynamic with several key elements from the social, economic and policy context impacting on the micro (individual pharmacist), meso (community pharmacy) and macro level (healthcare system) of community pharmacy. Although community pharmacy has untapped potential in primary health care, it has been slow to change to meet opportunities available in the current situation, and if not addressed, this will continue to hinder the development of pharmacy as a key player in health care. In order to optimise the potential of the system, future policy decisions must consider the impacts at the micro, meso and macro levels in a holistic manner.

The findings and analysis presented in this paper contribute not only to “knowing what is going on” in the current state of community pharmacy, but they also provide a means of exploring and understanding the complexities, interrelatedness and dynamics of the practice in Australian community pharmacy both now and into the future.

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None declared

References

References are provided in consolidated list at the end of the thesis.

5.2. The operation of the Research and Development (R&D) program and its significance for practice change in community pharmacy

This section comprises the following publication:

“Hermansyah A, Sainsbury E, Krass I (2017) The operation of a Research and Development (R&D) program and its significance for practice change in community pharmacy. PLOS ONE 12(9): e0184954. <https://doi.org/10.1371/journal.pone.0184954>”

The publication evaluates the operation of Research and Development programs funded under the consecutive Community Pharmacy Agreements and the extent to which the programs have influenced practice in community pharmacy. This publication was submitted in January 2017, accepted for publication and available online in September 2017. The published version of the paper is presented in appendix 8.

The operation of a research and development (R&D) program and its significance for practice change in community pharmacy

Andi Hermansyah, Erica Sainsbury, Ines Krass

Abstract

Background: Community pharmacy practice in Australia is changing and Research and Development (R&D) in community pharmacy plays an important role in contributing to the changes. A range of Cognitive Pharmaceutical Services (CPS) were developed from R&D programs, yet their implementation has been minimal indicating slow practice change within community pharmacy. Given the vital role of R&D, little is known about the operation and the extent to which it has been effective in supporting practice change in community pharmacy.

Methods: In depth, semi-structured interviews were conducted with 27 key stakeholders in the pharmacy and healthcare system in Australia. All interviews were audio-recorded, transcribed ad verbatim and analysed using an inductive approach.

Results:

Participants perceived that the R&D program has played an important role in the advent of CPS. Furthermore, they considered that evidence generated by the R&D projects is a critical influence on policy formulation, funding and implementation of CPS into practice. However, policy decisions and subsequent implementation are also influenced by other factors associated with context and facilitation which in turn foster or inhibit effective Knowledge Translation (KT) in the community pharmacy sector.

Conclusion: While R&D programs have been viewed as essential for supporting changes in community pharmacy practice through development and funding of CPS, the overall impact has been small, as contemporary practice continues to be predominantly a dispensing model. Given the complexity and dynamic nature of the community pharmacy system, stakeholders must take into account the inter-relationship between context, evidence and facilitation for successful KT in community pharmacy practice.

Introduction

Community pharmacy practice is under pressure to change. Over recent years, the revenue generated from dispensing prescriptions has become constrained, profit margins are falling and the sales of non-pharmaceutical products are diminishing (Brooks et al., 2008, Scahill et al., 2010, Anscombe et al., 2012, Singleton and Nissen, 2014). There is a clear imperative for community pharmacies to change their business model beyond dispensing and sales of pharmaceuticals (Richardson and Pollock, 2010, Chapman and Braun, 2011, Singleton and Nissen, 2014). Internationally, there is a growing body of evidence which shows that community pharmacy has increasingly turned to providing expanded health-related services as a revenue stream to offset the losses from traditional dispensing practice (Roberts et al., 2005b, Hopp et al., 2006, Feletto et al., 2010b).

With regards to the practice change paradigm, Research and Development (R&D) in community pharmacy has been increasingly acknowledged as a driver for the development of new Cognitive Pharmaceutical Services (CPS). In Australia, R&D in community pharmacy has been funded through the consecutive Community Pharmacy Agreements (the CPAs) which are five-year agreements between the Australian government and the Pharmacy Guild of Australia. Commencing in 1990, the agreements have provided funding of over \$45 billion to support a viable network of community pharmacies throughout Australia including funding support for the R&D program (Table 6) (Australian National Audit Office, 2015).

Table 6. Proportion of funding under the consecutive CPAs

	1 st CPA (1990-1995)	2 nd CPA (1995-2000)	3 rd CPA (2000- 2005)	4 th CPA (2005- 2010)	5 th CPA (2010- 2015)	6 th CPA (2015- 2020)
Total funding ^a , (% increase from previous CPA)	\$3.286 billion	\$5.497 billion (↑67%)	\$8.804 billion (↑60%)	\$12.158 billion (↑38%)	\$15.610 billion (↑28%)	\$18.886 billion (↑21%)
Funding for Pharmacy Remuneration ^b , (% within the CPA)		Not Available	\$5.6 billion (63%)	\$11.1 billion (91%)	\$13.8 billion (89%)	\$14.8 billion (78%)
Funding for CPS, (% within the CPA)	Not Available	Available	\$114 million (1.29%)	\$241 million (1.98%)	\$427 million (2.77%)	\$368 million ^c (1.94%)
Funding for R&D, (% within the CPA)		\$5 million (0.1%)	\$15 million (0.17%)	\$19 million (0.16%)	\$11 million (0.06%)	\$50 million ^d (0.26%)

^aActual expenditure under each agreement was not publicly reported. These numbers were obtained from the Audit Report on the Administration of the 5th CPA;

^bFunding that was related only to payment for supplying the medicines (e.g. dispensing fee, pharmacy mark-up, premium fee dispensing incentives, extemporaneous preparation etc.);

^cApproximately \$613 million was invested in the 6th CPA under funding for Community Pharmacy Programs. However, only half of this funding was allocated for provision of professional pharmacy services as indicated in Appendix B of the agreement. Additional funding up to \$600 million will be provided based on the recommendations of the Health Technology Assessment Body after evaluating the outcome of the Pharmacy Trials Program.

^dFunding for the R&D program was ceased in the 6th CPA and shifted to fund the Pharmacy Trial Program.

The R&D program funded two types of projects (Figure 8): Investigator Initiated Grants (IIGs) and Commissioned projects. In the IIG, researchers designed projects aligned with their own research or interests within each CPA. On the other hand, Commissioned projects were announced for public tender with the research program already pre-determined by an Expert Advisory group encompassing key stakeholders in pharmacy (Calder et al., 2006, Pharmacy Guild of Australia, 2010a).

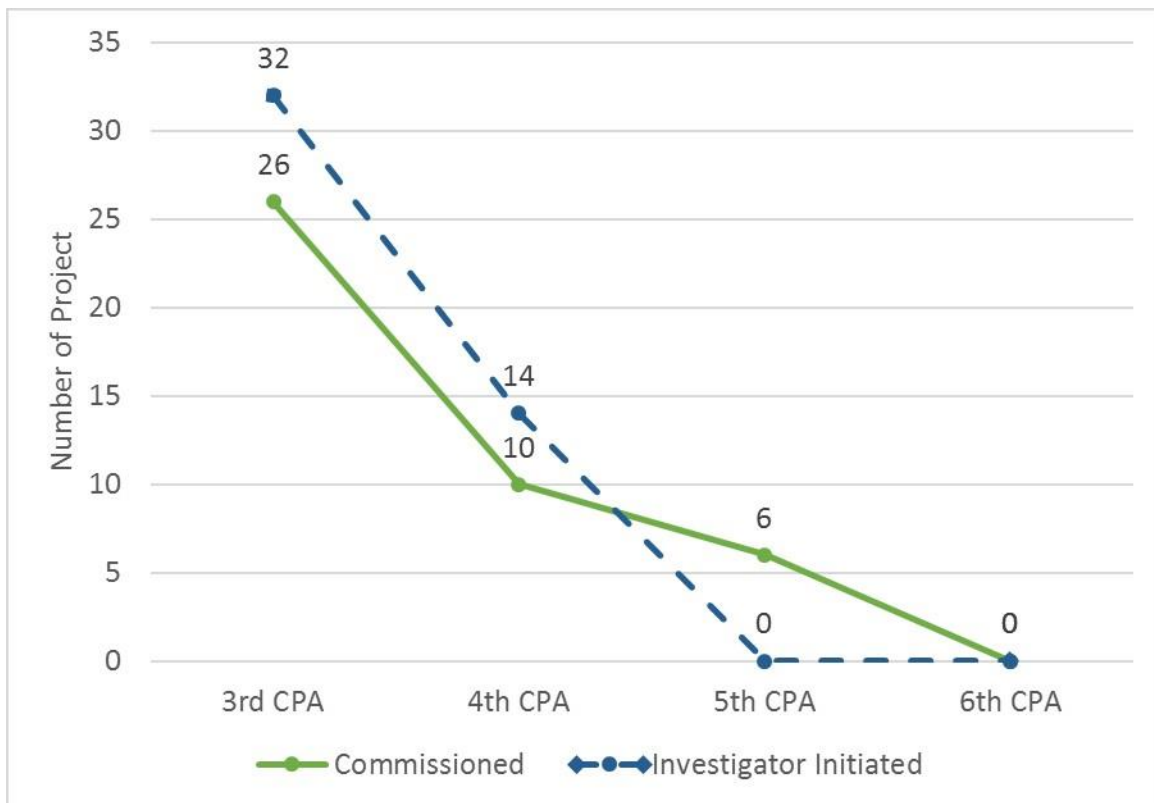


Figure 7. Distribution of R&D Projects under the CPAs

Despite the importance of the R&D program, there has been concern expressed about the way the program has been funded, operated and its effectiveness in supporting practice change in community pharmacy. For instance, only a very small proportion of the total CPA funding was invested in the R&D program with the majority having been allocated to fund the supply of medicines including the allocation for dispensing fees of Pharmaceutical Benefits Scheme (PBS) medicines (Table 6). In fact, the amount of funding for R&D fell steadily from the 3rd CPA onwards, and was ceased in the current CPA (the 6th). However, there was funding provided to trial new and expanded community pharmacy services under the Pharmacy Trial Programs. Furthermore, there was a trend within the most recent agreements towards funding Commissioned projects which limited opportunities for independent innovative research in the community pharmacy sector (Figure 8).

From research to practice: The case of DMAS, PAMS and HMR

The implementation of CPS involves a long and complex process from the design and development of the research, to evaluation of the impact on clinical, humanistic and economic outcomes of a variety of CPS, dissemination of the research findings to stakeholders, to the adoption and implementation which leads to sustainable delivery of CPS in community pharmacy. In the R & D phase of previous CPAs there was scant attention paid to development of a strategy to achieve knowledge translation using principles of implementation science.

Within this section, we describe three case studies of pharmacy services funded under R&D program of the consecutive CPAs. They are Diabetes Medication Assistance Service (DMAS), Pharmacy Asthma Management Service (PAMS) and Home Medicines Review (HMR). These services were trialled using rigorous research designs (e.g. randomized controlled trials), thereby providing a body of sound evidence of benefit in community pharmacy. While these benefits supported the possibility for larger scale implementation, the policy decision was not to proceed with the implementation of these services in community pharmacy reflecting the long process and complexity for developing R&D in community pharmacy.

The Diabetes Medication Assistance Service (DMAS) and Pharmacy Asthma Management Service (PAMS) were two research projects examining the clinical and cost effectiveness of chronic disease management support services provided by community pharmacists for patients with type 2 diabetes and asthma respectively (Mitchell et al., 2011, Saini et al., 2004). These services were initially funded as small trials, and subsequently tested in randomized controlled trials in the 3rd CPA. Under the 4th CPA, the funding for DMAS and PAMS was continued for national pilot programs. Despite the success of the pilot programs, funding for neither of these CPS was continued in the 5th CPA.

When it was funded for small trials as part of the Pharmacy Diabetes Care Program under the 3rd CPA, DMAS was found to be operationally and clinically effective (Krass, 2005, Krass et al., 2007). Under the 4th CPA, the service was then rolled out for a two-stage pilot program, first to 90 pharmacies and then 800 pharmacies across Australia. In the first stage, the benefit of DMAS was demonstrated in terms of improved clinical outcomes and acceptance by patients, pharmacists and GPs (Department of Health and Ageing, 2010, Krass et al., 2011b, Mitchell et al., 2011). However, the uptake of the service in stage 2 was limited. The evaluation of stage 2 DMAS identified operational problems such as poor interaction with other health professionals including GPs, difficulties in recruiting patients which were predominantly related to lack of interest from patients, limited time and capacity of pharmacists to provide the services and mixed patient health benefits with only marginal improvement in clinical outcomes and lifestyle factors (Hales et al., 2010). As a result, continuation of DMAS in its original form was not considered to be necessary or economical (Hales et al., 2010).

In the 5th CPA, DMAS was modified into Diabetes Medscheck, a one-off meeting with a pharmacist to review the medication and management plan for a patient with type 2 diabetes (Pharmaceutical Society of Australia, 2012). The modification removed the most valuable part of DMAS which was patient support and monthly monitoring to facilitate better self-management for patients with established diabetes (Krass, 2010). The Evaluation report on Medscheck and Diabetes Medscheck demonstrated mixed perceived benefits. Although there was an increase in consumers' knowledge about their medication regimens, the programs may not have reached their targeted patients such as high-risk patients, patients with chronic diseases, and patients

taking multiple medications. In addition, in contrast to DMAS and PAMS there was no evidence demonstrating clinical and cost-effectiveness of these services to justify their funding (PricewaterhouseCoopers, 2015).

Research for PAMS originated from the Pharmacy Asthma Care Program (PACP), also funded under the 3rd CPA. The research demonstrated significant improvement in asthma control and quality of life of patients with asthma and the service was found to be cost effective (Armour et al., 2007). The project was rolled out as PAMS for a pilot program under the 4th CPA and involved several consultations with the pharmacist in the pharmacy over a period of 6 months. The service included assessments of asthma severity, inhaler technique, medication adherence, the use of spirometry, patient counselling on asthma triggers, goal setting and referral to GPs as appropriate (Saini et al., 2011, Emmerton et al., 2012). The pilot was initially designed in two stages. The evaluation of stage 1 which involved 100 pharmacies showed that clinical outcomes and substantial economic efficiencies would be achieved if PAMS were implemented in a broader community pharmacy setting (Wallace et al., 2010). However, after stage 1 was concluded, a decision was made by the Department of Health, in consultation with the Pharmacy Guild, not to proceed with stage 2 (Wallace et al., 2010). There was no explanation publicly available concerning the reason for not continuing the PAMS project.

Even the implementation of reasonably well-established CPS such as Home Medicines Review (HMRs) has not been without problems. HMRs have been part of CPS in Australian community pharmacy since 2001 and have proven to be sustainable to date. HMRs are provided jointly by doctors and accredited pharmacists specifically for patients who may benefit from a medication management plan. Research on HMRs has shown that it is an evidence based and cost-effective service that prevents and resolves medication related problems (Roughead et al., 2003, Gowan, 2006, Hilmer et al., 2010). In addition, there is evidence that HMRs are cost saving to the healthcare system (Stafford et al., 2009).

Funding for HMRs was initially allocated under the 3rd CPA, however the increasing uptake of the services since 2002 has resulted in growth in demand significantly outstripping the funding allocation (Tenni, 2011, Gilbert, 2014). This was particularly evident during the 5th CPA, when funding for HMRs was exhausted before the conclusion of the Agreement. The decision not to

provide additional funding for the service reduced the effectiveness of the service, affected particularly vulnerable patients and threatened the sustainability of medication management programs in the future (Gilbert and Rigby, 2013, PricewaterhouseCoopers, 2015).

Stakeholders' thoughts and opinions about the operation of the R&D program and its significance for practice change have not yet been explored in the literature. Therefore, this study aimed to analyse the operation of the R&D program funded under the Community Pharmacy Agreements and its impact on knowledge translation in Australian community pharmacy practice.

Materials and Methods

In-depth, semi structured interviews with a wide range of key stakeholders within and beyond community pharmacy were employed to address the aim of this study. The participants represented multiple actors in pharmacy and the healthcare system including practicing pharmacists, professional peak pharmacy and medical organizations, GPs, consumer organizations, private insurance companies and the government. The participants also represented both genders, different States within the eastern half of Australia (Queensland, Australian Capital Territory, New South Wales, Victoria and South Australia), various pharmacy backgrounds (banner pharmacy group, discount chemist and sole proprietor) and metropolitan to rural areas.

The participants were firstly selected using purposive sampling and the snowball sampling method was used to expand the initial sample; at the end of each interview, participants were asked to nominate other potential candidates for the study. Face to face interview was the interview method of choice, but a number of participants were interviewed by telephone and Skype video. Written consent was obtained from participants prior to the interviews. This study was approved by the Human Research Ethics Committee of the University of Sydney.

The interview was based on a series of key questions that were developed from the literatures on R&D and implementation science, the contemporary situation of pharmacy practice in Australia and discussions among investigators. Several literatures highlighted the complexity and variation in the implementation process including the presence of both

opportunities and challenges from which the investigators developed the interview guide (Dobrow et al., 2004, Glasgow and Emmons, 2007, Maher et al., 2014, Almarsdóttir et al., 2014). The guided questions were piloted with three different key stakeholders and revised based on their feedback. There were no changes concerning the content of the interview questions. Improvement was made in relation to wording, order of the questions and how to probe respondents' comments. The guided questions asked about stakeholders' perceptions and experiences of the R&D program under the CPAs and the contribution of the program to community pharmacy practice and the healthcare system (see appendix 1). Each interview was conducted by two investigators, AH/ES or AH/IK. All interviews were audio-recorded and transcribed verbatim. The interviews continued until data saturation was reached, when no new themes or information emerged.

Complete transcripts of the interviews were analysed iteratively together with the audio recordings. This study employed an inductive approach to the meaning of the data, and themes were constructed without pre-determined topics. Several transcripts that were considered to have particular richness of information were selected to create the coding framework, which was constructed collaboratively by all investigators. Data were initially broadly categorized into an initial coding scheme, the codes were clustered into categories, and the categories classified into themes and sub-themes. This technique allowed the investigators to modify the coding framework and add new themes as they emerged from the data.

Theoretical Approaches

There are numerous models, theories or frameworks analysing variable factors contributing to successful implementation of an intervention or research (Ellen, 2012, Patwardhan et al., 2014, Moullin et al., 2015). However, the application of such models, theories or frameworks depends on the objective, context, interaction of actors and the complexity of the system in which the research is conducted. The Promoting Action on Research Implementation in Health Services (PARIHS) framework was developed as a tool to explain the success or failure of implementation programs (Kitson et al., 1998, Harvey and Kitson, 2016) and was considered

appropriate for analysis of the multi-dimensional elements of knowledge translation in community pharmacy practice.

The PARIHS framework suggests that successful implementation of Evidence Based Practice (EBP) is a function of the relationship among Evidence (E), Context (C) and Facilitation (F). Evidence in the PARIHS framework can be derived from a variety of sources particularly research, clinical experience, patient experience and local data/information. Context refers to the environment or setting in which the research is to be implemented which is influenced by economic, social, political, historical, fiscal and psychological factors. Furthermore, the PARIHS framework defines culture, leadership, monitoring and evaluation as central to determining the context for change. Facilitation in the PARIHS framework relates to processes which enable the implementation of evidence into practice. Within the facilitation element, facilitators, who can be individuals or teams, from internal or external sources, play key roles in affecting the context in which the research is implemented and with their skills, knowledge and roles, help other individuals, teams or organisations to apply the evidence into practice.

The three core elements (E, C, F) are dynamic, equal and simultaneously interrelated. Each element encompasses a range of potentially applicable conditions or sub-elements that determines the status of the three core elements on a weak (low level) to strong (high level) continuum. The framework uses a three dimensional matrix to show that the three core elements can influence the implementation in either a positive (high: H) or negative (low: L) way (Kitson et al., 1998). Assuming that high quality evidence is available, (notwithstanding that low evidence may be useful in conditions where other elements are favourable), the matrix demonstrates that successful implementation of an innovation is most likely to occur when the context is supportive of change and there is strong facilitation for change. In contrast, less successful implementation is most likely when the context is not receptive to change and there is inadequate facilitation. In a condition when one of the two elements, for instance, context, is low, it may be overcome by the appropriate facilitation or vice versa. This implies that improvement, for example, in infrastructure may be required to change the context or staff development and training is perhaps needed to ensure appropriate facilitation of the innovation.

Results

A total of twenty-seven key stakeholders participated in the interviews between December 2014 and August 2015 (Table 7).

Table 7. Characteristics of participants (Australian studies 2)

Characteristics	n = 27
Male	20
Background of profession	
Pharmacy practitioners and managers	8
Other healthcare professionals	1
Academics and researchers	3
Policy makers and administrators	13
Consumer representatives	1
Insurance providers	1
State	
Australian Capital Territory	3
New South Wales	12
Queensland	4
South Australia	2
Victoria	6
Urban area	24
Method of interview	
Face to face	14
Over the phone	7
Skype® video call	6
Average duration of interview (min)	71 min (range 43-93 min)

Three broad themes were identified from the interviews: the value and role of R&D, the operation of the R&D program, and the uptake and challenge for effective implementation.

The Value and Role of R&D

Participants expressed the view that investment in the R&D program under the CPAs was essential for developing and strengthening community pharmacy practice. R&D has been recognized as an important element for driving innovation and the long term incremental quality improvement of services provided in community pharmacy.

“All services that we have today have the seed planted maybe 20 years ago with some R&D. You just don’t wake up and roll out that service so I think there has to be the seed somewhere, it has to be developed and it has the fruit so I would say R&D is integral part of the long-term strategy” (P01_MP). Value of R&D in driving innovation.

More importantly, the R&D program generated evidence that was critical to demonstration of the efficacy of changes in community pharmacy, and thus to act as a driver of change.

“Unbelievably important. I mean it’s what we use as the reason why we make a decision to implement a service...We need to show evidence of, particularly when it’s not widespread and we don’t have it across every pharmacy in Australia, we need to continue that research and development” (P06_MP). **R&D as driver for change.**

The Operation of R&D program

A range of views was expressed about the way the program operated, and particularly how the funding model changed across successive agreements. Several participants in this study expressed concerns about the small quantum of money allocated for funding R&D especially under the 5th CPA. Moreover, the trend towards funding commissioned projects was criticized as it limited opportunities for innovation.

“We haven’t seen the development of new services or better way of doing things as a result because they have tailored, also we have seen net reduction in amount of investment in R&D as a total proportion of the funding and that very much has been tailored to answering questions that the stakeholder on the agreement wants to know rather than what might be something that is more useful broadly and might be needed” (P02_FP). **Shifted funding towards Commissioned project and small proportion for funding R&D**

Some participants expressed their disappointment with the discontinuation of funding under the 6th CPA. One participant questioned the source for pharmacy to innovate and change practice in the future when there is no funding available for R&D.

“I think it’s disappointing. It doesn’t appear to be in the agreement. I think over the successive agreements R&D has been one of the key drivers of improvement and the evolution of new services and it’s very disappointing it’s not there so where does funding for research into pharmacy then come from” (P08_FP). **Discontinuation of R&D program under the 6th CPA**

However, according to one participant, rather than continuing to fund new R&D, the purpose of the 6th CPA is to generate high level evidence to facilitate implementation of CPS which have already been developed through R&D in previous agreements.

“This agreement has ceased funding for the research and development program. However, instead of doing the R&D program, that’s where the \$50 million trial programs are going to come into play...under the Sixth Agreement what you might actually do is continue on with that work, but rather than funding it as an R&D project, you might actually fund it as an implementation pilot and trial” (P25_MNP). **Funding trial of R&D projects under the 6th CPA**

The Uptake and Challenge for Effective Implementation

The majority of participants perceived that CPS had been widely adopted by community pharmacy in daily practice but that the quality and consistency of provision have been variable. Few participants claimed to know whether the provision of CPS led to better health outcomes for patients.

“If you measure the signup rate then they were really well adopted because every pharmacy is registered to record clinical interventions, to receive payment for Dose Administration Aids and so on. If you think about whether they are regularly and genuinely delivering services like Medscheck and making a difference to the people who they are delivered to, I think that is a different question and I am not sure we can answer the question with data we have available” (P02_FP). **Uptake of R&D into practice**

Some participants stated that provision of CPS has contributed to more income for their pharmacy, however, the income gained from providing CPS is much smaller than income from dispensing.

“The more you drive the professional income, the bigger your wages budget you'll get...but it is still a very, very small part compared to dispensing, and in a lot of our business we have a strong, very strong retail offer but compared to our dispensing it is still very small part” (P22_FP). **Profitability for delivering CPS**

Furthermore, a number of factors that act as barriers to implementation were identified. One participant mentioned the lack of patient demand, pharmacists' ability to deliver, and funding as barriers that need to be addressed, and pointed out that all were important in the successful implementation of CPS.

“There's an implementation barrier... You need the patient demand, you need a pharmacist's ability to deliver on that demand, and then you need a funding for that position, or the owner that will take the lead and do that. So you could have the two of those and without the third it's not going to happen. So yeah, we could have the funding, we could have the pharmacist ready to deliver, but if you don't have the patient demand yeah, I guess we're not going to see that” (P06_MP). **Barriers in Effective Implementation**

Reflecting on the case of DMAS and PAMS, where the demonstration of high quality evidence provided a strong argument in favour of ongoing funding, the difficulties associated with service practicalities were raised by some participants as a key counter argument to continuation of funding.

“With those two particular programs, there was a strong case that they were valuable services. However, I think in their conception they were over engineered. There was a reliance with the DMAS on absolute cooperation with GPs, with HbA1C readings. If you couldn't engage with the doctors, then you couldn't access the doctors. So it was in some

*ways the design was a fail. The principle behind it was very good. The same with the Asthma thing that involved some spirometry and some training” (P20_MP). **Practicability of R&D project***

The majority of participants argued that R&D projects must be able to demonstrate cost savings along with the improved clinical outcome to justify further implementation. One participant involved in HMR research posited that HMR was adopted for implementation as it has evidence of both clinical benefits and cost savings for government.

*“We did that original research (and) we are able to demonstrate there is benefit that outweighs the cost and that’s the reason they got out. And sure that was good thing for pharmacists to do but ultimately for government they looked at the benefit outweighing cost, they’re looking for savings. So to me the fact the way I actually did that work and we’re able to demonstrate the value was just, was probably the factor that allows us to get up” (P09_MP). **Cost***

Saving value of R&D Project

Furthermore, some participants suggested that patient acceptance was a determining factor for whether a R&D project was funded for widespread implementation. Patients were often unaware of the role of pharmacists in delivering the new CPS and the benefit gained from the provision of the CPS, and thus chose not to access the services.

*“There’s been examples of failed programs where the program has looked great on paper, but there’s actually been very low consumer subscription because they don’t necessarily perceive that as being the role of a pharmacy or as a pharmacist” (P25_MNP). **Patient’s acceptance***

In the end, the majority of participants indicated that political commitment had the greatest influence in deciding whether a CPS achieved ongoing funding or not. Despite strong research evidence of efficacy, it was essentially political agreement among the involved stakeholders within the decision-making process that determined whether or not further implementation occurred.

*“I think at the end of the day it came to what the Minister was more interested in. Although that’s not what they’re saying now but the reality is that how it was...I don’t believe that it’ll be totally evidence based now, I reckon it’s going to be money driven as well. But the other thing is that it’s negotiated by two parties, the Guild and the Government, and unless there’s perceived to be a groundswell interest the warmth of the Guild to negotiate for anything is going to sort of drive what happens. If the Guild doesn’t perceive that pharmacy is interested in doing it, then they’re not going to argue for it and in my experience the Government has not yet ever said well this is what we need to do” (P27_FP). **Political supports in decision making process***

Discussion

This study confirms that the R&D program under the consecutive CPAs has played an important role in driving some changes through innovation and development of new services in Australian community pharmacy. The CPS generated from the R&D program have created an impetus for role expansion of community pharmacy, and in general, stakeholders had positive views about the value of R&D programs and their benefit to community pharmacy practice. Without R&D projects, it was perceived to be very difficult for community pharmacy to generate evidence that demonstrates value for money of the CPS which is critical to securing funding within the CPAs. Whilst the provision of CPS provides an additional revenue stream to that provided by dispensing PBS medicines, to date, the revenue has been insufficient to foster a major overhaul of the pharmacy business model based on dispensing to a health services focus.

Using the PARIHS framework described earlier in this paper, the influence of the multiple factors at play (evidence, context, facilitation) in determining which CPS are implemented and in what manner is explored. According to this framework, evidence plays a key role in determining the effective implementation and this is a central element in our findings. With respect to evidence, participants described it as a critical factor for successful adoption of research into practice. The fact that several CPS funded under the CPAs were generated from the R&D program has supported this notion. However, at the same time there is a range of factors relating to context and facilitation, which shape the ways evidence is – and is not – translated into general practice including practicability, incentives for delivery of CPS, patient acceptance, cost saving and value to healthcare and political support for implementation as identified in this study. The PARIHS framework provides an excellent tool for explaining the interplay of these three factors.

Evidence collected under carefully controlled conditions, such as in the R&D programs, is therefore essential for supporting practice change. However, the views of participants were strongly supportive of the notion that evidence should not be restricted to that described in research or controlled trials alone. Practical evidence as a means to explore practicability of research which involves exploration and consideration of both clinical and patient experiences of a particular service, is also vital in determining the likelihood of successful implementation. With particular reference to DMAS and PAMS, it is clear that the research evidence that was generated

indicated that the programs resulted in clinical, economic and humanistic outcomes being met when the context was supportive. Within small scale-controlled trials, the impact of many practical variables was able to be minimized, and the support and facilitation provided by the research team was instrumental in maintaining the necessary incentive to continue. However, wider scale rollout resulted in more variability within the context, and a dilution of the effect of facilitation as pharmacists were required to maintain their own motivation to continue. With respect to the DMAS a lack of interest from patients in combination with time and capacity constraints of the pharmacists, rather than any deficiency in the program itself, was responsible for the lower than expected uptake of the service (Hales et al., 2010). Likewise, despite high level satisfaction among pharmacists and patients with PAMS research, the decision to cease funding for further PAMS research also played a key role in undermining the potential for knowledge translation (Wallace et al., 2010). Therefore, participants in this study viewed that knowledge translation resulting from the R&D program was critically dependent on context and facilitation, rather than on the evidence alone, as outlined in the PARIHS model.

Importantly however, the participants also identified a wider range of aspects of context and facilitation, consistent with prior research, contributing to the translation of evidence into practice. A number of studies into the broad area of practice change in community pharmacy have highlighted enthusiasm both from pharmacy stakeholders and policy makers as fundamental to the adoption of changes in practice. (Noyce, 2007, Mossialos et al., 2013, Strand and Miller, 2014, Mossialos et al., 2015). This is consistent with the PARIHS framework, since high commitment and receptivity to change are key contextual facilitators, and these were very apparent in the initial phases of both DMAS and PAMS where many pharmacists eagerly signed on to participate in both stages of the national pilot. However, our findings also highlighted a range of barriers to practice change in pharmacy, from both internal and external contexts, as reported in many other studies. These include lack of pharmacists' capacity due to increased workload (Lounsbury et al., 2009), poor patient demand (Carter, 2012), limited practicability of the research (Peterson et al., 2009), and lack of incentive for providing the services (McMillan et al., 2013). In addition, transformation of DMAS into Medscheck suggested that while an evidence-based CPS may be refashioned, it is fundamental to maintain its core components – the

aspects with proven effectiveness – in any new services. The core components must be implemented with high fidelity and remain untouched while allowing for adjustment for non-core components to adapt with the context or local needs. Furthermore, the small investment in R&D programs and remuneration for CPS under the consecutive CPAs has corresponded to slow practice change in most community pharmacies. As a result, participants perceived that to date, provision of CPS has not been able to significantly contribute to the viability of community pharmacies which remain highly reliant on income from dispensing. This highlights the need for *a priori* funding of research based on principles of implementation science to inform a strategic approach to knowledge translation of evidence-based CPS.

Perhaps an important aspect contributing to facilitation and context is the political commitment from peak pharmacy organisations and the government supporting practice change. For instance, the Pharmacy Guild of Australia and the Australian government influenced practice change through negotiation of the successive CPAs within which billions of dollars have been invested including for the R&D program and payment for delivering CPS. However, the community pharmacy sector is a complex and dynamic system with influential elements interacting at the micro, meso and macro level (Hermansyah et al., 2017a). In this type of system, indirect or less obvious facilitators must also be taken into account. For example, despite not being involved directly in the negotiation for the CPAs, other organisations have been able to push their change agenda in parallel. One example, is the role of the Pharmaceutical Society of Australia in facilitating community pharmacy change through education and targeted practice programs which may or may not receive recognition from the policy perspective. Within this complex system the activities of different pharmacy groups, have been influential, albeit often indirectly or weakly (Zellmer, 2001). Gauging their relative influence on practice change is difficult, however, what is clear is that in order to be effective the various pharmacy organisations need to work in unison with other health professions and the consumer to drive practice change (Ferguson, 2000, Zellmer, 2001).

A further impact of government policy as facilitator and constraint can be seen in several programs that have been funded in recent CPAs, and which have little or no research evidence to support them. This has been particularly apparent in the decision to fund CPS such as

Medscheck, Diabetes Medscheck (in itself a much abbreviated version of DMAS) and Clinical Interventions, despite these services not being supported by any solid evidence for better health outcomes in the context of the Australian healthcare setting (Gilbert, 2014). Although like HMR, these services were capped near the conclusion of the 5th CPA, their introduction clearly demonstrates that evidence is not the only factor considered by policy makers.

This study clearly identified that in the contemporary context, all three aspects of the PARIHS model must be taken into account when attempting to understand why some programs are successfully adopted and others are not. The use of the PARIHS framework demonstrates that change is a process resulting from the interaction of evidence, context and facilitation, and provides a plausible explanation of the current situation. Despite sound evidence of the potential for efficacy from the DMAS and PAMS research programs, constraints tended to exceed facilitators within a context which was already resistant to change. Political policy based on pressure to create financial savings, poor patient understanding of the potential roles of pharmacists in broader health care, limitations associated with pharmacists themselves, the siloed nature of the health care system, and a willingness of policy makers to downplay the value of evidence combined to overshadow evidence. These multiple factors demonstrated that decision making for adopting research into practice is a “complex, messy and demanding task” (Rycroft-Malone, 2004).

One of the lessons of this study is that policy makers might be more willing to favour funding of CPS when there is evidence of significant potential savings to the healthcare system such as reduced medication costs (e.g. reduced claims of PBS dispensing), reduced number of hospitalizations, or reduced number of doctors’ visits. With rising healthcare expenditure, governments are concerned to curb the growth in expenditure without adversely affecting health outcomes. However, for the research to be successfully translated and services to be delivered by pharmacists, it is also important to take account of the economic/business implications for pharmacies and whether or not pharmacists perceive that they have the capacity to implement the CPS. In other words, pharmacists need to believe that implementing practice change to focus on delivery of CPS is going to be economically beneficial to ensure the sustainability of the practice, the investment for the pharmacy and income of the individual pharmacist(s).

The PARIHS framework has often been used to analyse knowledge translation in a small-scale setting such as a company, organization or work division. The utilization of the PARIHS framework in a broader context as proposed in this study is a novel discussion and some important insights were gained when the framework was used to meet the aim of this study. Furthermore, this study used empirical data in the form of opinions from the stakeholders to seek to explain the relationship between the framework and the real-world situations. It confirms that utilization of the PARIHS framework might be applicable as a strategy for analysing actual cases.

Strengths and Limitations

This study included a wide range of key stakeholders with particular experiences and views about the R&D program in community pharmacy. While we may not necessarily have captured the full spectrum of behaviours, attitudes and influences in policy making and implementation, the diversity of opinions elicited nevertheless reflected the complexity and multifactorial nature of influences on knowledge translation in community pharmacy, a topic which has not been widely explored in the current pharmacy literature. There have been some policy changes since the completion of data collection for this study, including the commencement of the Pharmacy Trials Program under the 6th CPA and the ongoing review on pharmacy remuneration and regulation, which to some extent have raised questions about the contribution of R&D programs to community pharmacy services. Nevertheless, these two policies were excluded from consideration as they took effect after 1 July 2015. These policies undoubtedly will have an impact in the future implementation of R&D funded services in community pharmacy.

Conclusion

This paper summarizes the perceptions and experiences of key stakeholders regarding the operation of an R&D program funded under the CPAs in Australian pharmacy, and its significance in fostering practice change. While R&D programs have been viewed as essential for supporting changes in community pharmacy practice through development and funding of CPS, the overall impact has been small, as contemporary practice continues to be predominantly a

dispensing model. The utilization of the PARIHS framework in this study also served to shed light on the complex relationship between evidence, context and facilitation and CPS funding policy decisions and subsequent knowledge translation into community pharmacy practice.

References

References are provided in consolidated list at the end of the thesis.

Supplementary file

Interview guide

1. How do you view the current situation in Australian Community Pharmacy?

Delivery of CPS in community pharmacy

2. What are your opinions on each of the following CPS funded under the CPA:

- a. Home Medicine Reviews;
- b. Dose Administration Aids;
- c. Medscheck and Diabetes Medscheck;
- d. Clinical Intervention?

3. How well the CPS have been adopted?

4. What do you think of the way they are structured?

5. What do you think of the contribution of CPS to practice of community pharmacists and viability of community pharmacy? What about the impact to healthcare system?

The administration of R&D program under the consecutive CPAs

6. What do you think of the key argument to actually fund specific CPS in the CPA? How important to have evidences for these services?

7. What is your opinion about funding for R&D under the CPA? Do you think it has been effective to support evidence for professional services?

8. What do you think of the relevance between R&D and practice?

9. What do you think of programs which have been trialled such as DMAS and Asthma services? What were the reasons they were not funded for further implementation?

10. Specific for DMAS, how do you compare DMAS and Diabetes Medscheck today? What are the reasons DMAS becoming truncated into Medscheck Diabetes?

5.3. Chapter Conclusion

This chapter provides the results of the interviews involving key stakeholders in Australian community pharmacy and healthcare system. The findings informed two important topics namely practice change in the contemporary pharmacy situation and the operation of funded R&D program and its significance to practice change in pharmacy.

Overall, community pharmacies in Australia were and have been under pressure to change. The planes of analysis framework used in this chapter informed the complexity, interrelation and dynamic of community pharmacy sector and more importantly the pressures to change within the contemporary situation. The current situation has affected the micro, meso and macro level of community pharmacy system and reflecting a need for future policy decisions that considers these three levels in a holistic manner.

Accordingly, this chapter also provided evaluation on the operation of funded R&D programs under the CPAs which have been an essential platform for practice change in Australian community pharmacy. The R&D programs have been vital to help decision makers in formulating policy for the development of community pharmacy. However, the operation of R&D program has not succeeded in driving widespread practice change in community pharmacy. Using the PARIHS framework, this chapter provides insight on how to successfully translate research into practice by considering the complex relationship between evidence, context and facilitation.

CHAPTER 6. THE INDONESIAN STUDIES

This chapter comprises three publications which discuss the findings of the Indonesian studies. The first publication (chapter 6.1) discusses the introduction of the Universal Healthcare coverage program and its impact on the community pharmacy sector, the second publication (chapter 6.2) evaluates of the current policy initiatives in community pharmacy and the third publication (chapter 6.3) proposes recommendations to advance community pharmacy practice in Indonesia.

Data in the first (chapter 6.1) and the second (chapter 6.2) publication were collected through a number of in-depth semi structured interviews involving twenty-nine key stakeholders in Indonesian community pharmacy and healthcare sector. The interview guide can be viewed in appendix 4. The third publication (chapter 6.3) reported the results of a nominal group discussion involving thirty-four participants representing key stakeholders in Indonesian community pharmacy system.

6.1. Investigating the Impact of the Universal Healthcare Coverage Program on Community Pharmacy Practice

This section comprises the following publication:

“Hermansyah A, Sainsbury E, Krass I (2018) Investigating the impact of the universal healthcare coverage programme on community pharmacy practice. *Health & Social Care in the Community*. 26:e249-260. <https://doi.org/10.1111/hsc.12506>”.

In this study, we reported the impact of the new Indonesian health financing system in the form of the Universal Healthcare Coverage program (JKN) on community pharmacy practice. This study was submitted in March 2017, accepted for publication in September 2017 and available online in March 2018. The published version of the paper is presented in appendix 9.

Investigating the Impact of the Universal Healthcare Coverage Program on Community Pharmacy Practice

Andi Hermansyah, Erica Sainsbury, and Ines Krass

ABSTRACT

The introduction of Universal Healthcare Coverage (JKN) in 2014 has changed the landscape of the Indonesian healthcare and affected the community pharmacy sector. This paper investigates perceptions of healthcare and pharmacy stakeholders about the impact of JKN on the practice of pharmacists and pharmacy in both public (Puskesmas) and private (Community or Retail pharmacy) settings. In-depth semi structured interviews were conducted from February to August 2016 involving twenty-nine participants representing key stakeholders from different provinces in Indonesia. While JKN was actually designed with good policy objectives for pharmacy integration within primary care network, it has created some unintended and unanticipated distortion in the healthcare system which may be detrimental to the community pharmacy sector. In fact, community pharmacy practice is still limited to dispensing and continued to be hampered by ongoing challenges mainly pharmacists' absence, lack of clinical competence and limited support from regulation changes. It is a missed opportunity for pharmacists to play a greater role in primary care services indicating the need for an overhaul to pharmacy education and policy system.

Key words: Universal Healthcare Coverage, Community pharmacies, Pharmacists, Indonesia

What is known about this topic:

- Indonesia implemented Universal Healthcare Coverage (JKN) since January 2014
- Changes in the health financing system have always had impact to healthcare and affected the community pharmacy sector

What this paper adds:

- While policy implementation of JKN has been designed to reform healthcare, it did not address key ongoing problems within the community pharmacy sector

- Community pharmacy practice in Indonesia has not moved significantly beyond dispensing practice even after the introduction of JKN
- Community pharmacy continues to be hampered by structural and fundamental issues which in the main, do not relate to the policy changes provided by JKN

INTRODUCTION

Community pharmacy has long been recognized as an important community setting for healthcare delivery. It is often the first port of call for patients with minor ailments. In addition, community pharmacists are authorised to manage pharmaceuticals which constitute a significant proportion of healthcare expenditure. Therefore, changes in a healthcare system will inevitably influence the practice of community pharmacy and pharmacists (Mak et al., 2012).

On January 1st, 2014 Indonesia introduced Universal Healthcare Coverage (*Jaminan Kesehatan Nasional*- JKN) with an ambitious intention, to cover all Indonesians under a single health insurance program by 2019 (estimated at 270 million people) (Jung, 2016, Plummer and Boyle, 2016). After a long delay since the initial passing of the law in 2004, the roll out of JKN has raised many concerns about the ability and commitment of Indonesia to implement such large-scale changes in its healthcare system (Pisani et al., 2017). The introduction of JKN was marked by three significant changes: expanded insurance coverage to the whole population; reconfiguration of the primary care network; and integration of multiple health insurance schemes into a single payer for health care (Mboi, 2015, Sparrow et al., 2017). Notably, the new national insurance provider, BPJS Health, has included community pharmacies as an integral part of the primary care network. Pharmacists, comprising the fourth largest health profession in Indonesia, are viewed as highly trained professionals yet they are underutilized (Ministry of Health Indonesia, 2016a). The integration of pharmacists within the JKN scheme may create opportunities to embrace primary care roles which is a novel approach in Indonesia and evidence supporting this role is limited. The next section provides an overview of the relevant changes in Indonesian healthcare and community pharmacy.

A new landscape of Indonesian healthcare and community pharmacy

Indonesia is a vast archipelago of more than 17,000 islands, and the fourth most populous country in the world (260 million people). The country is divided into 34 provinces composed of 514 districts and municipalities, each with its own administrative function, including budgeting and legislating for health, as a result of a decentralization policy introduced in the late 1990's. Classified as a Lower Middle Income country, GDP per capita is US\$ 3,491 with 2.9% of the GDP invested for health expenditure (United Nations, 2017).

Prior to JKN, the Indonesian healthcare system was characterized by a mix of public and private management on the supply side, and a mix of public and private financing with a significant portion of out of pocket payment on the demand side (Bambang Brodjonegoro et al., 2015). On the supply side, private General Practitioner (GP), specialists, health clinics, government-owned community health centres (*Puskesmas*), small or large hospitals owned by private or public companies co-existed and were accessible to patients. A sick patient could go to their facilities of choice regardless of the level of care. In practice, the large hospitals were often inundated by patients who perceived that hospital treatment was better and more comprehensive even for minor illnesses compared to treatment in *Puskesmas*. Thus, the *Puskesmas* were under-utilized (Rokx et al., 2009).

On the demand side, various public and private insurance providers existed to service customers with very similar types of benefits albeit with different premiums. The system was quite fragmented with different public insurance providers only covering certain groups of people particularly based on their profession. For instance, ASKES only covered civil servants, JAMSOSTEK covered formal private workers, ASABRI covered the armed forces, TASPEN covered pensioners, and insurance for poor people came under the umbrella of the social security net program (JAMKESMAS). This did not include a number of healthcare protection programs funded by provincial and district governments (Holzhacker et al., 2016). Moreover, the proportion of out of pocket payments was high as insurance coverage was limited and people preferred to pay as they go. It was estimated that more than 30% of Indonesians were not insured, which contributed to extremely high out of pocket expenditure and led to further impoverishment of very poor families (Sparrow et al., 2013).

With the introduction of JKN, reorganization of the primary care system has been the main priority (Figure 9). *Puskesmas*, GPs, Dentists and primary clinics now hold strategic responsibility as the gatekeepers of primary healthcare delivery (Ministry of Health Indonesia, 2013). This means they are the first point of contact for patients and act as a referral point to specialized healthcare services. Furthermore, various public insurance schemes and providers both at the local and national level have been unified under JKN and are operated by BPJS Health as the sole agency responsible for the management of healthcare coverage, recruitment of insurees and paying for healthcare (Jung, 2016). In addition, membership in JKN has been opened to cover others such as informal workers and individuals who must pay premiums on a regular basis.

As a means of controlling the quality and the cost of pharmaceuticals, the government through the Ministry of Health introduced the National Formulary containing a list of approved drugs covered under JKN (Ministry of Health Indonesia, 2016b). Only a small number of registered pharmaceuticals (586 of 13,564 marketed drugs), claimed to represent safe, effective, quality and affordable medicines for JKN insurees, were approved. In addition, healthcare facilities providing pharmaceuticals, including community pharmacies, *Puskesmas* and hospitals, are required to purchase medicines through an e-catalogue purchasing system. The system, managed by the National Public Procurement Agency (LKPP), aims to improve the accountability, transparency and efficiency of pharmaceutical purchasing (Ministry of Health Indonesia, 2014a).

Pharmaceutical services in the community in Indonesia are delivered by two main institutions: *Puskesmas* and community-based pharmacy (hereafter called community pharmacy). They differ in ownership, operation and scale yet under JKN, there are some activities which are common to both institutions. The Ministry of Health launched standards for good pharmacy practice in both *Puskesmas* (Ministry of Health Indonesia, 2014b) and community pharmacy (Ministry of Health Indonesia, 2014c) described minimum standards for pharmaceutical services in both settings.

Most patients treated in *Puskesmas* are likely to receive medicines at the end stage of the service cycle. Therefore, the pharmacy unit in *Puskesmas* plays an important role in ensuring the availability of pharmaceuticals and provision of pharmacy services. However, only 17.5% of 8,980

Puskesmas in Indonesia have a pharmacist-in-charge with the remainder employing either pharmacy assistants or non-pharmacy workers (Badan Penelitian Depkes RI, 2012).

Community pharmacy in Indonesia is mostly situated in the private sector and ranges from small independent pharmacies to networks of large chain pharmacies. Ownership of pharmacy is not restricted to pharmacists however non-pharmacist owners must employ pharmacists prior to opening a pharmacy. As in many other countries, pharmacists hold the main authority and sole responsibility for the operation of community pharmacy such that the pharmacy requires the presence of pharmacists at all times. However, in practice, pharmacists' absence is common – studies indicated only 14-23% pharmacists work on a full-time basis – with pharmacy services being delivered particularly by pharmacy assistants (Purwanti et al., 2004, Kartinah et al., 2015, Dominica et al., 2016). Community pharmacies derive their income from general pharmacy business and sales such as dispensing prescribed medicines, providing pharmacy and over-the counter medicines, and other healthcare and retail products (Hermansyah et al., 2012, Tri Murti Andayani and Satibi Satibi, 2016). However, under JKN, community pharmacies have the opportunity to be involved in two schemes: 1) as a pharmacy affiliated with the primary care network (Apotek Jejaring) and 2) as a pharmacy contracted by BPJS Health (Apotek Rujuk Balik). These two schemes provide different scope of services under different contractors, yet an individual community pharmacy can apply to become either or both. An affiliated pharmacy (Apotek Jejaring) is an independent community pharmacy which is partnered with a primary care provider such as GPs, Dentists or Clinics. Under this scheme, the community pharmacy is responsible for the supply of medicines prescribed by the primary care providers. They receive a portion of the capitation payment which is paid by BPJS Health through the provider. The level of payment may vary between affiliated pharmacies and is dependent on negotiation with the primary care provider as their contractor, but predominantly it covers the cost of medicines and a small fee for dispensing services.

Unlike an affiliated pharmacy, a pharmacy which is contracted by BPJS Health (Apotek Rujuk Balik) provides more limited services. They are only responsible for providing pharmaceutical services for patients discharged from secondary care providers such as hospitals or specialists, by dispensing medicines for up to 30 days of supply for patients suffering certain

chronic diseases (BPJS Health, 2014). These pharmacies can claim for their provision of pharmaceuticals and services directly from BPJS Health.

Despite the increasing number of community pharmacies formally engaged with JKN, they only represent a very small fraction of total community pharmacies in Indonesia (8.5% of 25,339 community pharmacies) (BPJS Health, 2015, Ministry of Health Indonesia, 2017b). The large majority of pharmacies are operated independently outside JKN.

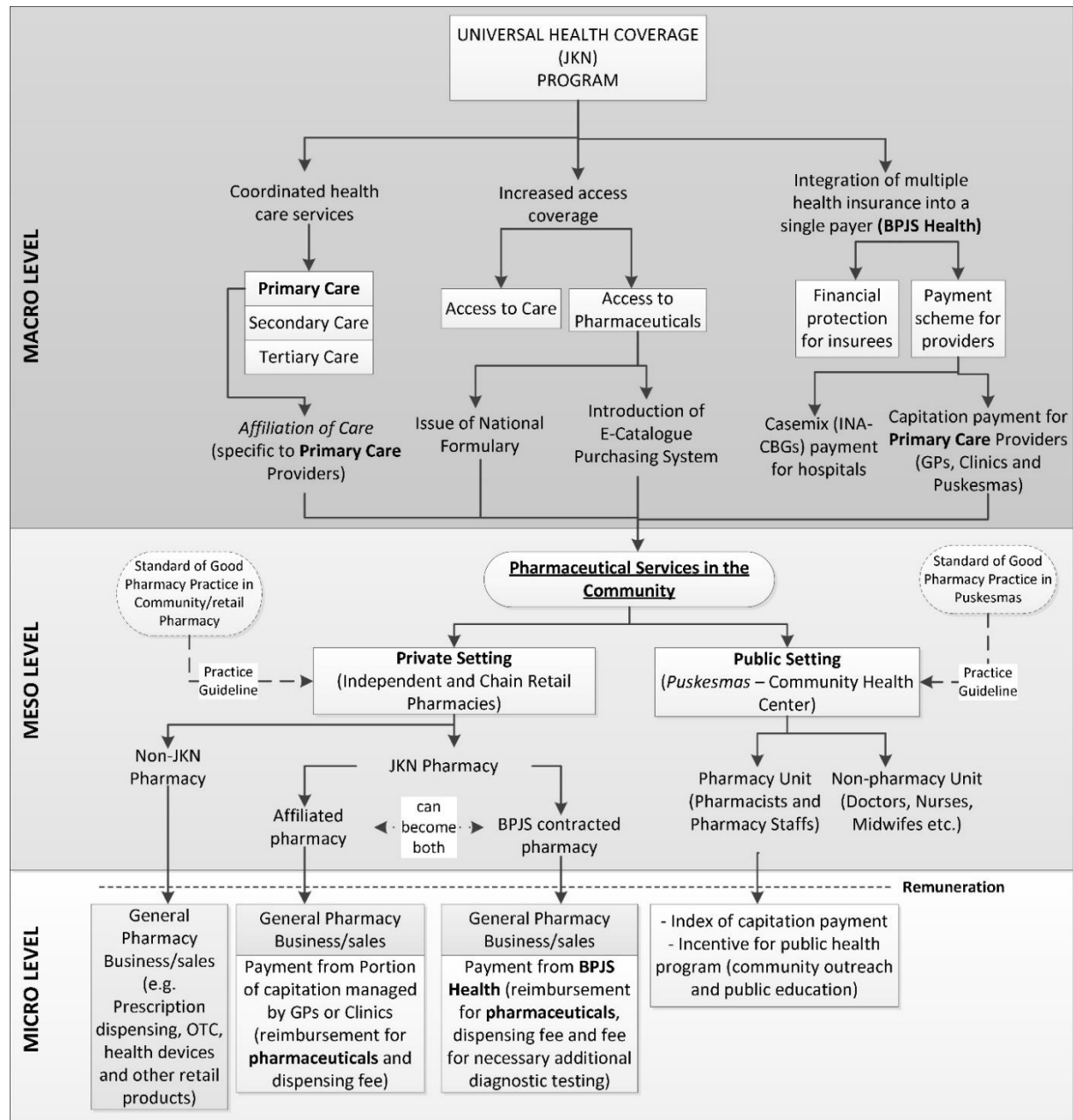


Figure 8. Summary of the changes in community JKN pharmacy sector after the introduction of JKN

Given this background, it is evident that the introduction of JKN affects the operation of community pharmacy and the professional practice of pharmacists in Indonesia. However, no studies to date have critically examined this impact. The objective of this study was to investigate perceptions of health care and pharmacy stakeholders about the impact of JKN on the role and practice of pharmacists and pharmacy in both public and private settings.

METHODS

A qualitative study design using in-depth semi structured interviews was developed to gain understanding of key stakeholders' perceptions of the current practice of community pharmacy under JKN. Ethical approval was obtained from the authors institute prior to data collection.

The study included a wide range of key stakeholders from practicing pharmacists in both community pharmacy and *Puskesmas*, peak pharmacy organizations, consumer groups, medical associations, BPJS Health to local and national health authorities. A purposive sampling strategy was undertaken to ensure maximum variation of the sample based on gender, role within pharmacy, and geographical representativeness. This study selected potential participants both from the most populous regions of Indonesia (e.g. Java island including Greater Jakarta, East Java and Yogyakarta) and the least developed regions outside Java island (e.g. Central Sulawesi). Contact with initial participants was obtained from the network of the researchers and experts in the community pharmacy sector. Participants were firstly contacted in person, via email or telephone, and informed about the research and the expected duration and the method of the interview. Candidates who declined to be interviewed were asked to nominate other potential candidates or were substituted by another participant with similar characteristics. Candidates who agreed to be interviewed were provided with the Participant Information Statement and consent form and their signed consent was obtained prior to the interview.

The interviews were conducted either in Bahasa Indonesia or English, using face to face, over the telephone or video conference via Skype[®]. The study sample was expanded using the snowball method by asking each participant to nominate other suitable candidates. The interviews were continued until data saturation was reached in that no new themes emerged

from the data analysis. A sample size of at least 20-30 individuals is recommended to achieve theoretical saturation (Creswell, 2013). Despite the different backgrounds and work settings of the respondents, they can be considered a relatively homogenous group given their interest and affiliation to community pharmacy sector.

The interview guide was developed from the review of the literature, exploration of media coverage on current issues and discussions within the research team. The interview guide in general comprised of a series of open ended questions regarding the healthcare system before and after the implementation of JKN, its impact on the current practice of community pharmacy, the challenges and enablers for practice within the current situation, strategies to advance practice and expectations for the future. Several pilot interviews were conducted to test and refine the interview materials and technique.

The interviews were audio-recorded and subsequently transcribed verbatim. Interviews conducted in Indonesian were back-translated to English by the lead investigator and a proof-reader was engaged to check the quality of the translation. The transcripts were iteratively checked against the audio recordings to ensure the completeness of information. NVivo 10 software was used to assist the management of the data.

Data analysis

An inductive approach was used to analyse the data. Initially, several interview transcripts which were considered to have richness and “uniqueness” of information were used to build the coding framework. Each investigator was asked to structure their own coding framework. The framework was then discussed within the research team. In this way, a coding framework was developed based on consensus among the team to ensure the internal consistency of the findings. The analysis of the data continued along with data collection. Similar content from different transcripts was grouped together under sub-themes which were then aggregated into a main theme. A new theme was created if a selected content did not fit an existing theme. The progress of the analysis was reported in regular research team meetings to ensure reliability and to determine when data saturation occurred.

Theoretical Framework

Changes in healthcare systems including in the community pharmacy sector have been variously described as complicated, dynamic, non-linear and often leading to unpredictable and unintended consequences (Hermansyah et al., 2017a). One approach that has been considered useful in elucidating the impact of change in health systems is to consider the impact in each level of the system; the individual or smallest element of the system (micro level), (e.g. patients, healthcare professionals or carers); the organization or group including hospitals, primary care providers, GPs network including community pharmacy network (meso level) and the larger healthcare system in which individuals, group and organization are embedded (macro level).

Accordingly, the “planes of analysis” framework has been applied in the analysis of the data to explain the operation of changes in each level, zooming in to unique or specific effects, yet without losing the bigger picture in which the changes occur as a whole (zooming out). The “planes of analysis” approach was developed by Barbara Rogoff to investigate human interactions within their social context (Rogoff, 1997) and classifies the interaction of individuals within their environment in a three-fold analytic distinction between individual, group and community. Rogoff described each plane as interdependent rather than isolated, with each plane able to be the focus of particular attention without losing the coherence and dynamic interdependence of the whole system.

RESULTS

A total of twenty-nine key stakeholders were interviewed from February to August 2016 (Table 8).

Table 8. Characteristics of participants (Indonesian studies 2)

Characteristics	n = 29
Male	18
Background of education:	
Pharmacists	25
Non-pharmacists	4
Background of profession:	
Practicing pharmacists	10
Other health care professionals	1
Academics and researchers	4
Pharmacy managers	3
Policy makers and administrators	8

Characteristics	n = 29
Consumer Representatives	1
Insurance providers	2
Province	
Greater Jakarta	8
Yogyakarta	6
East Java	14
Central Sulawesi	1
Metropolitan/Urban City	23
Method of interview	
Face to face	25
Over the phone	4
Average duration of interview (min)	77 min (range 35-116 min)

The impacts of JKN on community pharmacy practice were analysed in three planes, namely: (1) individual pharmacists (micro level); (2) organisational context of pharmacy (meso level) and (3) external pharmacy environment (macro level). Illustrative quotes for each level are provided in Table 9.

Table 9. Illustrative quotes of participants reflecting the themes of the study

Topic	Puskesmas	Community/retail Pharmacy
Individual Pharmacists (micro level)		
<i>Scope of practice</i>	<p>“Pharmacist handles more than 150 outpatients a day...Most of what they do now are technical tasks, such as taking records, managing stock, and writing reports. They have very little communication and consultation with patients; (P03_MP). Too many administrative and technical tasks “We often go to Posyandu (Integrated Healthcare Post) for elderly people and educate the elderly about medicine use. We also teach patients for CBIA (Active Individual Learning Method) and Prolanis (Management of Chronic Diseases Program)” (P024_FP). Puskesmas pharmacists involved in health promotion and education</p>	<p>“I think pharmacist’s role is inconsistent. If the pharmacy has full time pharmacists, they can give counselling especially for those with chronic diseases. Some pharmacists even visit a patient house...they monitor drug use and check the random blood glucose levels...but there are lots who do nothing for the patient” (P029_MP). Variation in pharmacy services “We have a quality assurance department to ensure pharmaceutical services are correctly delivered. We have many tools for supervising and reporting whether services are correctly provided or not...” (P01_FP). Pharmacists role in chain pharmacy</p>
<i>Perception of pharmacists</i>	<p>“At Puskesmas, patients always ask for pharmacists. If I do not appear, they look for me...initially there was resistance from doctors. Now he often asks about dose, asks why this why that, therefore he often comes to pharmacy” (P024_FP). Puskesmas pharmacists viewed positively for their professional roles</p>	<p>“..., usually I only meet the staff member who gives me the medicines. I know that person is not pharmacist but sometimes she consults with the pharmacist and go out with another recommendation” (P023_MNP). Pharmacists perceived as “invisible” healthcare professional in community pharmacy</p>

Topic	Puskesmas	Community/retail Pharmacy
Remuneration	<p><i>"Pharmacists can breathe a bit more freely because they're given fees...for service provision and promotion-prevention initiatives during health education sessions."</i> (P03_MP). Puskesmas pharmacists received increased remuneration</p>	<p><i>"People consider pharmacy is a business that will survive in the present economy because everyone thinks people will always need medicine"</i> (P02_FP). Pharmacy perceived as profitable business</p> <p><i>"For the first five months, all the prescriptions from clinic went through to my pharmacy. But after five months, they didn't send patients at all. The clinic purchased medicines directly (from supplier) so the contract is useless, it is just a formality"</i> (P013_MP). Community pharmacy experienced reduced profitability within affiliation of care</p>
Organisational Context of Pharmacy (meso level)		
Workforce availability	<p><i>"The reality is, many Puskesmas are lacking pharmacists. Therefore, Puskesmas employs non-pharmacists to assist in the services...Ironically in Yogya, the universities produce thousands of (pharmacists) graduates every year but it is quite difficult to recruit pharmacist. T"</i> (P011_FP).</p> <p>Shortage of pharmacists in Puskesmas</p> <p><i>"There is no increase in the number of Puskesmas staff...I asked some pharmacists in Puskesmas and they said "I can't do my other roles. I can't give counselling, there is no time because I am tied up with dispensing"</i> (P027_FP). Understaffing of pharmacists constraining pharmacy services.</p> <p><i>"Pharmaceutical practices at Puskesmas are mostly assisted by non-pharmaceutical personnel..."</i> (P03_MP). Puskesmas pharmacists were often assisted by non-pharmacy personnel</p>	<p><i>"In franchise pharmaciesthey each have their own pharmacists; so no pharmacist no service. In independent pharmacies, most of them have pharmacists' names listed but no actual person who goes by those names. Almost 90% of them commit this forgery"</i> (P03_MP). Discrepancy of Pharmacists' attendance in independent pharmacies and chain pharmacies</p> <p><i>"Every pharmacy has an actual real pharmacist. We have APA (First pharmacist-pharmacist in charge) and 2 AA (technicians) and also APING (second pharmacist) who is also the vice"</i> (P018_FNP). Pharmacists presence in chain pharmacy</p>
Position of pharmacy within the primary care system	<p><i>"Although the government regulation 51/2009 article 21 point 2 clearly states that pharmacy practice and dispensing can only be conducted by pharmacists, ..not every Puskesmas has pharmacists. Government does not invest in recruiting more pharmacists although the mandate on the regulation is clear"</i> (P029_MP). Lack of policy awareness to employ more pharmacists for Puskesmas</p>	<p><i>"When everything goes on track, a doctor will prescribe and the pharmacy dispenses the medicines. However, within one year of JKN, there are pharmacies which receive all the prescriptions, there are others receiving none...there is a case of a GP affiliated with a pharmacy that is far from his practice. Due to the distance, patients don't want to travel to the pharmacy, and they can't obtain medicines from the closest pharmacy because it is not affiliated with the GP. GP then dispenses the medicine to the patient"</i> (P05_MP). Violation to contract within affiliation of care</p>

Topic	Puskesmas	Community/retail Pharmacy
		<p>“Government said BPJS Health would only involve pharmacies that were previously affiliated with ASKES. They don’t require additional pharmacies. This statement has let us down, it’s as though we are denied an opportunity to serve in JKN” (P02_FP).</p> <p>Limited number of pharmacies contracted by BPJS Health</p>
	<p>External pharmacy environment (macro level)</p>	
<p>Access to pharmaceuticals</p>	<p>“Due to limited stock, a pharmacist ends up having to save drugs; so they reduce the quantity from 10 to 5, for example if a geriatric patient is meant to receive 3 daily dosages for 2 weeks, they reduce it to one week” (P03_MP). Shortage of pharmaceuticals in Puskesmas</p>	
	<p>“The main problem is pharmacy often runs out of medicines because there is delay on the procurement, in the e-catalogue purchasing...we can do nothing for the procurement because it is completely managed by the local health office...” (P024_FP). Problem of procurement in Puskesmas</p> <p>“Sometimes the price of medicine is not matched with e-catalogue price; sometimes the price is good but the item is not available; sometimes the price is good, the item is available but the supplier is troublesome. Sometimes, there is a new (pricing) regulation but its conditions differ so I often get confused” (P017_FP). Structural issues with e-catalogue purchasing system</p>	
<p>Policy enforcement</p>	<p>“On one hand, pharmacy is a legal setting, there is a pharmacist and they are restricted with so many regulations. But on the other hand, there are many people selling medicines in the drug stalls...many healthcare professionals also feel responsible for managing medicines” (P017_FP). Lack of law enforcement for illegal medicine selling</p> <p>“Many pharmacists caught behaving illegally turn out to be staff of [name of Indonesian authorities] which means they’re supposed to be the regulators...I feel ashamed seeing my colleagues like this” (P03_MP). Collusive enforcement</p>	
<p>Pharmacy competence and education</p>	<p>“There is one school in [name of a city] which has 400 students...In public universities, we only receive 150 students and are already stretched with these numbers; how can they deliver courses to 400 students? A few days ago, I became evaluator for graduates’ competency examination and I was shocked. I said to them “you have to learn, there is plenty of time to learn because you actually know nothing about medicines in pharmacy, you don’t know about drugs” (P027_FP). Shortcoming in the graduate’s competence</p> <p>“Previously only a few good universities but now there are 120 universities offering B. Pharm and only 29 universities offering Apothecary [only faculties which are accredited A and B can offer an apothecary program]...the remainder of 29 universities have poor quality students...there is a wide discrepancy between education and practice ...the education system does not create pharmacists to be pharmacists. The education system is overloaded with too many science courses” (P015_MP). Mismatch between education and practice</p>	

Individual Pharmacists (micro level)

The improvement in the referral system has made *Puskesmas* a first choice for care among many patients and has resulted in a significant increase in patient visits. This in turn has increased the workload of all healthcare personnel including pharmacists. In contrast, despite their inclusion in the primary care network, pharmacists in community pharmacies have not experienced any substantial change in their daily activities. In fact, this study revealed that pharmacy affiliation to primary care has not translated into improvements in profitability or to any enhancement in their professional role.

Scope of practice

Participants highlighted the commonalities of pharmacists' activities in *Puskesmas* and community pharmacy which are predominantly focused on the preparation and dispensing of pharmaceuticals. The increase in patient visits to *Puskesmas* has contributed to an increase in workload and reduced the opportunity for pharmacists to interact with patients. Nevertheless, JKN offers an opportunity for pharmacists to educate the community through health promotion and education programs, which take place in community settings. In contrast, pharmacists' practice in the community pharmacy varies depending on the availability of a pharmacist and their individual interest in delivering care to patients. In general, participants reported a wide variation in services delivered by small independent pharmacies. Some pharmacies have been very proactive in providing services beyond dispensing such as home visits and continuous chronic disease monitoring. However, this is not the case among the majority of community pharmacies.

Perceptions about pharmacists

There were mixed perceptions of the pharmacist's role and position under JKN. Pharmacists in *Puskesmas* were generally perceived more positively than their counterparts in community pharmacy. Participants mentioned that pharmacists in *Puskesmas* were often sought for consultation about medications by patients and doctors. In contrast, pharmacists in community pharmacy were described as an "invisible" healthcare professional because they only

appear outside the dispensary if there is a problem. This may also relate to the other findings in this study which highlight the common absence of a pharmacist on duty during pharmacy hours, which has become a significant issue over the past years. Moreover, the public often focuses on community pharmacy as a profit-making business which in turn degrades the professional image of pharmacists.

Remuneration

Some participants commented on the improved remuneration in *Puskesmas* under JKN. They receive more income due to increased patient numbers and additional payments for providing health promotion and education programs. In community pharmacy, JKN has provided no equivalent impact on remuneration. In fact, being an affiliated pharmacy has not necessarily been profitable for community pharmacists and pharmacy because the involved parties, especially GPs and clinics, tend to maximize their own share of the capitation fund by directly purchasing and dispensing their medicines, thereby bypassing community pharmacies. As a result, remuneration for affiliated pharmacies is decreasing as are the number of prescriptions dispensed.

Organisational context of pharmacy (meso level)

The introduction of JKN has brought in new ways of working for community pharmacies such as becoming an affiliated pharmacy or BPJS contracted pharmacy. Interestingly, the majority of participants in this study considered that JKN had not changed the practice of pharmacy because of some structural issues which discourage pharmacy involvement within primary care. In addition, traditional issues such as the poor record of pharmacists' presence in the community pharmacy and shortages of pharmacists were identified by most participants as obstacles to effectively integrating pharmacies and pharmacists within the primary care network. The introduction of JKN has not been able to solve these structural problems.

Pharmacy workforce

Pharmacy practice in *Puskesmas* has been hampered by a shortage of pharmacists. Despite the increasing workload under JKN, under-staffing of pharmacists has been responsible for their minimal involvement and contribution to patient care. Pharmacists in *Puskesmas* spend most of their time dispensing medications. They are even assisted by non-pharmacy personnel to cope with the overwhelming workload. This differs from practice in community pharmacy where the perennial issue of poor attendance of pharmacists in pharmacy persists and is unrelated to JKN. It was noted that the majority of pharmacies, particularly independent pharmacies, are operated without regular pharmacists' attendance.

Position of pharmacy within primary care

Participants ascribed the lack of pharmacists in *Puskesmas* to be a consequence of governmental attitudes to the limited value of pharmacists in the health care team and a low level of priority attached to increasing pharmacy staff. As a result, recruitment of pharmacists in *Puskesmas* is quite limited. Some participants also noted that being an affiliated pharmacy had not benefited community pharmacy operation. Violation of the affiliation contract, particularly in the form of doctor dispensing, is widespread and has jeopardized the relationship of community pharmacy with both general practice and patients. In addition, BPJS Health as the sole payer for JKN only contracted pharmacies which previously worked with ASKES (prior version of BPJS Health) for providing discharge referral services, which in turn has limited the opportunity of other pharmacies to participate in JKN.

External pharmacy environment (macro level)

Most participants perceived that JKN has not had a significant impact on the industry and was not designed to resolve the ongoing issues such as shortages of pharmaceuticals and poor law enforcement. Participants implied an imperative to tackle these persistent issues as a precursor to the effective implementation of JKN in the macro level.

Access to pharmaceuticals

The increased demand for pharmaceuticals as a consequence of health coverage expansion has not been accompanied with sufficient availability of pharmaceuticals. Participants mentioned that *Puskesmas* often run out of medicines due to limited stock or delays in procurement. In addition, procurement of medicines is undertaken by the local health office leaving *Puskesmas* with limited options to buy medicines directly. Likewise, procurement of medicines in community pharmacy is also problematic because the e-catalogue system does not work efficiently.

Policy enforcement

Participants expressed concern that despite the massive changes brought by JKN there has been no serious attempts through enforcement to tackle the problem of illegal selling of medicines. In fact, the introduction of JKN may have created another issue for policy enforcement; namely the illegal dispensing of medicines by some primary care providers especially GPs, notwithstanding their contractual obligations to a particular pharmacy. In addition, participants felt that the lack of enforcement may occur as a consequence of collusive relationships and conflicts of interest between practicing pharmacists and regulatory bodies. This may pose a dilemma for authorities who may be reluctant to impose punishment on their own close colleagues.

Pharmacy education

There was an expectation among participants that pharmacists could play more prominent roles under JKN. In this sense, education and pharmacists' competence are pivotal to enable pharmacists to engage with healthcare changes. However, some participants argued that pharmacists were not prepared for the changes. Participants were concerned with that while there are many universities offering pharmacy courses, only a few schools of pharmacy have received high level accreditation, indicating that the majority are not appropriately qualified to deliver pharmacy courses. This has influenced the quality and the competence of graduates of these programs. Moreover, the current curricula of pharmacy courses are very heavily weighted

towards science content with limited content addressing clinical knowledge and practice skills development. As a result, current pharmacy education does not produce enough pharmacists with the competencies required to deliver patient-centred pharmaceutical care in practice.

DISCUSSION

The impact of JKN on community pharmacy practice has highlighted three key issues. Firstly, the policy making process of JKN did not adequately consider the role and the professional practice of pharmacists especially in the community or retail pharmacy setting. Secondly, the implementation of the new funding model through capitation payments to primary care networks has set up unintended consequences and additional problems, leading to concerns about the ongoing viability of the community pharmacy network and pharmacists' contribution. Thirdly, the changing system under JKN did not address key ongoing problems within the pharmacy sector such as shortages of pharmaceuticals and illegal selling of medicines. A helpful starting point to discuss these three points is to analyse the situation from the organizational level (meso level) with which the individual (micro level) and healthcare system (macro level) are interdependent.

Within the era of JKN, *Puskesmas* appear to have been revitalized and currently play a central role in primary care services particularly as gatekeeper and referral for higher level care. This study found that the strengthening of *Puskesmas* has significantly increased pharmacists' workloads and provided opportunities to deliver more value in patient care. However, the policy changes did not take into account the fact that *Puskesmas* were understaffed with pharmacists, and pharmaceutical supply is undependable. Likewise, the introduction of affiliated and BPJS contracted pharmacies was perceived to be an initiative to integrate community pharmacy within the primary care network. The scheme appeared to have encouraged a more multidisciplinary approach with the possibility for pharmacists to play a greater role in delivering pharmaceutical care to patients within the network. However, given the fact that only a very small portion of community pharmacies are funded under JKN, there are doubts as to whether the initiatives were genuinely intended to provide access to a more comprehensive multidisciplinary service. The small number of pharmacies engaged with JKN shows that despite the outcomes sought by the

policymakers (i.e. wider access to care), JKN has not adequately invested in the community pharmacy network and in the quality use of medicines.

The introduction of capitation payments to GPs and other primary care networks under JKN was touted as a mechanism for constraining healthcare costs. Under a typical contract with BPJS Health, GPs and primary care networks received funding to be administered regardless of the amount of services provided. In addition, the capitation funding includes all professional services provided to patients spanning a range of providers from GPs to affiliated pharmacies. In this way, efficiency in healthcare funding and flexibility of delivery might be achieved as the new model shifted financial risk to providers, and providers have the freedom to address patients' needs, respectively (Lagomarsino et al., 2012). Furthermore, contracting out private health care providers can improve access to primary care services as highlighted in several countries implementing universal healthcare coverage (Liu et al., 2008). On the one hand, the new funding model has meant that the role of pharmacists in the management of prescribed medication should become more important. This also means the role of the community pharmacy network should be even more critically important particularly to manage the supply and the administration of medicines to patients. However, in practice, shifting funding administration to healthcare providers has somewhat backfired for affiliated pharmacies. Firstly, in some cases, it has stimulated illegal doctor dispensing as the doctor controls the finance. It is appealing to doctors to protect their income by reducing other expenses such as for pharmaceutical services notwithstanding the violation of contractual obligations to the affiliated pharmacy. Secondly, as the control for negotiating the amount of payment shifted to providers, an affiliated pharmacy may receive varying amounts depending on their ability to negotiate with their contractor. Thirdly, it adds administrative complexity especially for GPs and may increase GPs workloads. Several studies have shown that only 13-35% of the capitation payment was used to pay for pharmacy and pharmacists' contribution within the primary care network suggesting that community pharmacies may not always obtain a significant financial benefit from participation in JKN (Dewa Ayu Putu Satrya Dewi et al., 2015, Wasis Budiarto and Lusi Kristiana, 2015). Our findings suggest that changes in the funding model which were actually designed with good policy

objectives, may have created some unintended and unanticipated distortion in the healthcare system which may be detrimental to the community pharmacy sector.

Prior to JKN, the pharmacy sector in Indonesia was already tainted with ongoing issues such as shortages of pharmaceuticals, illegal selling of medicines and collusive enforcement. While the introduction of JKN provided momentum to improve healthcare delivery, it did not address these existing problems. As a result, these challenges continue to hamper achievement of JKN's goals of providing quality care for patients. The community pharmacy network which is at the forefront of pharmaceutical services has been hardest hit by these challenges. Evidence from international studies emphasises that medicines are the crucial piece to promote health and achieve sustainable development under universal health coverage schemes (Wagner et al., 2014, Wirtz et al., 2017). Therefore, access to essential medicines must be the priority in the healthcare needs of the population. Governments must ensure that the population receive safe, effective and affordable medicines and obtain the best outcome of the use of the medicines, and these are the domain of pharmacists and community pharmacy. This study concluded that Indonesian community pharmacy has the potential to address such demand, yet there is a need for thorough examination of the policies to recognize and develop solutions for the entrenched problems.

The findings of this study, on the one hand, have confirmed the importance of pharmacists becoming members of the primary care team which is consistent with many international studies (Silcock et al., 2004, Bradley et al., 2008, Jorgenson et al., 2014, Dosea et al., 2017). With a health system moving towards an interprofessional approach to primary care, pharmacists may contribute value to the team by delivering comprehensive medication management, providing health education and drug information for team members, patients and populations, and enhancing system efficiencies through cost-effective and quality use of medicines (Dolovich et al., 2008). For this reason, implementation of JKN can be a lever to promote such integration.

However, on the other hand, there are at least three paramount barriers to be overcome. Firstly, the common practice of operating a pharmacy without a pharmacist is a serious problem from both a legal and professional standpoint. Legally, the presence of a pharmacist is

mandatory, and professionally the absence of a pharmacist leads to poorer quality care being delivered by non-pharmacists. We argue that this is a huge opportunity loss for the profession to advance to the next level. Pharmacists have been shown to be effective in improving patient outcomes through successful collaborative care within the healthcare team. For example, pharmacist-led intervention has been able to identify patients at risk of chronic diseases and improve detection of drug related problems (Avery et al., 2012, Tan et al., 2014, Tsuyuki et al., 2016). Furthermore, the introduction of pharmacists into GP practice has inspired by the role development of clinical pharmacists in hospital settings has been increasingly advocated by pharmacy stakeholders to facilitate pharmacists' accessibility and contribution to primary care services. Indeed, this is under trial in a number of countries including the UK, Canada and Australia (Farrell et al., 2008, Freeman et al., 2012, Tan et al., 2013).

Secondly, the education of pharmacists has not kept pace with increasing clinical opportunities, meaning that Indonesian pharmacists currently have a limited clinical capacity to embrace expanded roles. Unfortunately, this is a common barrier to pharmacy role development in many developing countries and requires a significant overhaul of pharmacy education (Kheir et al., 2008, Miller and Goodman, 2016). Whilst improvement of pharmacists' skills can be achieved through training and continuing professional development, the root cause lies in the University curricula which currently do not fully prepare pharmacists for clinical practice. For example, several Indonesian studies found poor communication skills among pharmacists, specifically in relation to gathering information about symptoms and providing drug information to patients. Critically, the pharmacists' skills were not significantly different from those of other staff members. (Puspitasari et al., 2011, Brata et al., 2015). Although poor communication cannot be solely attributed to deficiencies in education, these studies nonetheless demonstrated the need for inclusion of increased social and clinical content in the pharmacy curriculum.

Thirdly, the current legislation and regulation changes have not supported an expansion of pharmacists' scope of practice. Our findings highlighted that community pharmacy practice in both *Puskesmas* and community pharmacy has not moved significantly beyond dispensing practice even after the introduction of JKN, albeit for different reasons. The current system indeed only focuses on pharmaceuticals and has not invested in developing pharmacy practice

and the pharmacy network. Internationally, changes in the community pharmacy system are not possible unless driven by policy. For example, the governments in UK, Australia, Canada and New Zealand have been proactive in implementing major reforms in community pharmacy through a number of policy documents (Ministry of Health New Zealand, 2007, Department of Health, 2008, Commonwealth of Australia and Pharmacy Guild of Australia, 2015), reports (Canadian Pharmacists Association, 2011, Australian National Audit Office, 2015) and reviews (Anderson et al., 2003, Department of Health and Pharmacy Guild of Australia, 2017) highlighting the current and future roles for community pharmacy. In addition, professional organisations have also published visions and roadmap documents outlining themes of change for community pharmacy within the primary care sector (Pharmaceutical Society of New Zealand, 2004, Canadian Pharmacists Association, 2008, Pharmacy Guild of Australia, 2010b). The changes in the policy and regulatory framework have been critical in creating opportunities for pharmacists to overcome classic barriers including lack of time, limited funding, low public expectation and inadequate pharmacists' clinical competence which are found in the current study. This study strongly suggests that community pharmacy and professional bodies in Indonesia need to advocate compellingly for community pharmacy development as a means of promoting better healthcare outcomes.

To our knowledge, this is the first study that has explored changes in the community pharmacy sector since the introduction of JKN in Indonesia. In addition, the framework applied in this study provides a way to focus on particular issues within the system without neglecting their mutual interdependence with other aspects. Nevertheless, there are several limitations to this study. Firstly, the views expressed by participants cannot be assumed to be representative of all stakeholders in community pharmacy and the health sector in Indonesia, and the purposive selection of the respondents may have limited the breadth of the perceptions presented. The respondents, however, were selected to represent a broad range of stakeholders working in or affiliated with the community pharmacy sector from which we sought complementary views regarding the operation of community pharmacy within the early years implementation of JKN. Secondly, this study only involved stakeholders residing in four provinces, raising the question whether the impact of JKN might be different in other provinces. However, JKN is a nationwide

program and delivery of the program is managed by BPJS Health at the national level irrespective of policy in the local area, therefore implementation of JKN is expected to be consistent across the country. Thirdly, taking into account policy decentralization in Indonesia, there is a caveat that there might be local policies regulating community pharmacy which have not been identified and included in this paper.

CONCLUSION

The introduction of JKN has brought changes in the way community pharmacy operates and pharmacists practice. Pharmacy and pharmacists in *Puskesmas* have experienced significant changes with respect to active participation in the delivery of pharmaceuticals, better remuneration and positive recognition for their roles. In contrast, despite changes which were introduced to integrate community pharmacies within the primary care network, community pharmacy continues to be hampered by structural and fundamental issues which in the main, do not relate to the policy changes provided by JKN. It is imperative for the profession of pharmacists and community pharmacy network to work to improve this situation.

REFERENCES

References are provided in consolidated list at the end of the thesis.

6.2. Multiple policy approaches in improving community pharmacy practice: the case in Indonesia

This section comprises the following publication:

"Hermansyah, A., Sainsbury, E., & Krass, I. (2018). Multiple policy approaches in improving community pharmacy practice: the case in Indonesia. *BMC Health Services Research*. 18(1): 449. <https://doi.org/10.1186/s12913-018-3258-8>."

In this study, we reviewed a number of policy approaches aiming to improve Indonesian community pharmacy sector and evaluated their effectiveness based on the perspectives of pharmacy and healthcare stakeholders in Indonesia. This study was submitted in November 2017 and available online in June 2018. The published version of the paper is presented in appendix 10.

Multiple policy approaches in improving community pharmacy practice

Andi Hermansyah, Erica Sainsbury, and Ines Krass

Abstract

Background

Health reform has been on the main agenda in many countries with community pharmacy is increasingly gaining attention for contributing to healthcare improvement. In Indonesia, multiple policy approaches were introduced to improve community pharmacy practice yet no studies evaluated their effectiveness. Therefore, the first objective of this study was to identify and collate information on approaches intended to improve practice in Indonesian community pharmacy. The second objective was to examine the perceptions of key stakeholders in healthcare and community pharmacy about these approaches and the extent to which they have affected community pharmacists as a profession and resulted in practice change.

Methods

This study reviewed grey literatures related to community pharmacy policy approaches published by government and pharmacy organisations in Indonesia since 2009 and broadened with other relevant databases searches. In-depth semi structured interviews were also conducted to wide range of key stakeholders in pharmacy and healthcare between February and August 2016 to evaluate these policy approaches.

Results

Seventeen policy documents were identified with the majority published by Indonesian Pharmacists Association (8 documents) and Ministry of Health of Indonesia (6 documents). Most documents (15 documents), either updated or new policy, were published since 2014 indicating recent enthusiasm of pharmacy stakeholders to improve community pharmacy practice. Twenty-nine key stakeholders participated in the study highlighted three main themes: barriers to effective policy implementation, expectation to policy changes and strategies to cope with policy

challenges. Poor policy enforcement was commonly expressed by participants as a major challenge with participants expected a unified stakeholder vision to improve the current situation. Interestingly, despite lack of evidence for their outcome, participants mentioned several local initiatives claimed to improve practice of community pharmacy and pharmacists.

Conclusion

The introduction of policy initiatives within the past ten years has highlighted the enthusiasm of policy makers and pharmacy stakeholders to improve community pharmacy practice in Indonesia. However, some of the initiatives were conceived and enacted in a piecemeal, sometimes conflicting and uncoordinated way. Overall, fundamental and entrenched barriers to practice need to be overcome to create a more professional climate for the practice of pharmacy in Indonesia.

Keywords

Community pharmacy practice, policy approaches, policy evaluation, Indonesia

Background

Governments around the world face increasing pressure to provide effective, efficient and equitable healthcare services to their populations. Health reform has been on the main agenda in many countries with similar approaches applied to improve access to health care and the overall performance of the health system within the constraints of needing to curb the growth in health expenditure (Kruk and Freedman, 2008). One reform that is increasingly gaining attention is to incorporate community pharmacists within the broader healthcare system. Community pharmacists have the potential to not only contribute to improving patients' outcomes through safe and effective use of drugs, but also to reduce the cost of healthcare by resolving drug related problems and promoting public health issues (Keen, 2009, Matzke, 2012).

At the same time, the nature of pharmacy practice and community pharmacy is also changing. Over the past four decades, scholars have acknowledged a shift in community pharmacy practice beyond dispensing activities to provision of a broader array of health services (Mossialos et al., 2015). These simultaneous changes have resulted in complexity for all

stakeholders, requiring them to adapt to rapidly evolving circumstances. As a result, community pharmacists have consistently been challenged with pressures to meet professional standards, to provide patient-centred services, and to work with other healthcare professionals within the large healthcare system while keeping profitable in a highly-regulated environment.

Policy makers also face complexity in attempting to encompass both an increase in the utilization of community pharmacists, while maintaining some control over the increasing health care budget. Policy documents since the Nuffield report in 1986 (Clucas, 1986), including more recent blue prints or road maps for the future of pharmacy, highlight the multiple approaches and strategies that have been directed towards harnessing a greater contribution by pharmacy to health care (Canadian Pharmacists Association, 2008, Pharmacy Guild of Australia, 2010b). The Nuffield report in particular has become a key stimulus to a movement for pharmacists' role transition towards much more clinically and patient-focused role. The report concluded that "the pharmacy profession has a distinctive and indispensable contribution to make to health care that is capable of still further development" (Clucas, 1986). The years after the report was published showed a significant progress in the attempts to extend pharmacists' roles including the famous pharmaceutical care concept described by Hepler and Strand (Hepler, 2004).

Despite the growing number of initiatives to improve the practice of community pharmacy, the literature on policy evaluation is sparse. In addition, much less attention has been directed to determining how stakeholders in community pharmacy perceive the impact of these policy statements and initiatives on pharmacy practice. Furthermore, policy development in expanding the role of community pharmacists has not always been supported by relevant policy evidence which in turn has raised questions about the extent to which these policies have been appropriate, effective and sustainable particularly for stakeholders in community pharmacy (Mossialos et al., 2015).

The lack of policy evaluation has been common in both developed and developing countries. However, the situation is arguably more acute in developing countries. There is limited capacity among stakeholders, particularly government, to fund and produce quality research which examines the practice of community pharmacists and pharmacy. Furthermore, regulatory

evaluation is also constrained by a myriad of factors encompassing limited government staff, small budgets, fragmented delivery of healthcare and pharmacy practice, poor control over the regulation and the absence of a regulatory evaluation framework which may not be the case in developed countries. Thus, there is an urgent need to evaluate the impact of various policy or program initiatives designed to influence pharmacy practice in developing countries. This paper aims to address this using Indonesian community pharmacy as a case study.

The Indonesian health system has undergone significant changes over the past decade including the establishment of a decentralization policy in 2001 and the recent introduction of universal healthcare coverage (JKN) in 2014. With respect to community pharmacy, multiple approaches and regulations intended to advance the practice of community pharmacy have been enacted within the past decade. These approaches include legislation, incentivization policies, campaigns and education. Prior to critically examining the effectiveness of these multiple approaches, it is important to contextualize the policy and practice environment in Indonesia in order to understand the nature of the system and challenges to implementation.

Policy environment of Indonesian community pharmacy sector

Community pharmacy practice in Indonesia is regulated under the Ministry of Health (MoH) at the national level, and the Local Health Department office as the extension of MoH at the provincial and district (Kabupaten/Kota) level. In addition, the 2001 decentralization policy transferred the responsibility for services delivery and fiscal autonomy, including health, from the central government to the local government. At the same time, the operation of community pharmacy is supervised by BPOM (Indonesia National Agency of Drug and Food Control) as the government agency responsible for the administration and control of food and drugs. Further, the authority for overseeing drugs and therapeutic products in the market is also part of the duty of the police. The police with or without BPOM often conduct surprise inspections of healthcare facilities including pharmacy particularly when they suspect illegal activities such as selling of prescribed medicines without a doctor's prescription, selling of expired medicines and selling of unlicensed medicines. Importantly, it should be noted that there is no legal restriction preventing pharmacists who work in regulatory or supervisory bodies from also practicing in community

pharmacy, despite the potential for a conflict of interest to arise. However, the chairman of BPOM recently issued a directive to BPOM staff prohibiting them from working in any facilities under the supervision of BPOM including community pharmacy (BPOM Indonesia, 2016). As a result, the majority of the staff have resigned from their employment in any pharmacy settings in order to retain their position in BPOM (BPOM Indonesia, 2017).

From the professional practice point of view, the Indonesian Pharmacists Association (IAI) is the sole peak pharmacy organization representing pharmacists, with the main role being to maintain pharmacists' competence, advocate for pharmacists and advance the profession. Within the IAI, there are several peer groups based on work setting and professional interest including a group of community pharmacists (HISFARMA) which is responsible for coordinating and advancing the practice of pharmacists in the community as defined by IAI. Another important body is the Indonesian Pharmaceutical Association (GP Farmasi) whose membership includes business owners in the pharmacy sector comprising pharmaceutical industries, wholesalers, pharmacies and retail drug outlets. Since the ownership of community pharmacy in Indonesia is not restricted to pharmacists, members of GP Farmasi representing community pharmacy include non-pharmacists. Responding to the introduction of JKN in 2014, both IAI and GP Farmasi worked together to establish a community pharmacy association (ASAPIN) as an organization to represent the whole community pharmacy network in the negotiation of tariffs within JKN. However, despite its vital mission, the MoH to date has not included ASAPIN in the legislation of healthcare facilities negotiating for JKN. Consequently, pharmacists and the community pharmacy network are underrepresented in the JKN payment scheme. Another organization which has a role in determining the quality and competence of pharmacists is the National Pharmacy Board (KFN) which manages the registration of pharmacists and oversees the Association of Schools of Pharmacy (APTFI) which deals with the development of pharmacy education curricula and competence of graduates.

The foregoing discussion has highlighted the complexity of the management and oversight of community pharmacy and pharmacists in Indonesia. Multiple regulators and professional organisations play overlapping, and sometimes conflicting roles in influencing the practice of pharmacy, and the way it is evolving. Each of these institutions has advocated top-

down policies, standards and legislation which are parallel to the mission of other institutions. Therefore, the first objective of the current study was to identify and collate information on initiatives intended to improve practice in Indonesian community pharmacy. The second objective was to examine the perceptions of key stakeholders in community pharmacy about the multiple approaches advocated by the government and pharmacy organisations, and the extent to which these approaches have affected community pharmacists as a profession and resulted in practice change.

Methods

Document collection and analysis

We searched websites of relevant government departments and professional organisations in particular the websites of the Ministry of Health of Indonesia, BPOM, IAI, GP Farmasi, APTFI and KFN. These websites were searched for relevant information, reference publications and databases describing pharmacists' role and responsibility and community pharmacy practice. The search process was broadened to include grey literature obtained from databases of other government institutions. As most government documents and professional organizations' policies were published in the Indonesian language, this study used the following combination of search terms in the Indonesian language: apotek OR apotik OR farmasi (meaning: community pharmacy); apoteker OR farmasis OR tenaga AND farmasi (meaning: pharmacists); praktek OR praktik OR pekerjaan OR pelayanan AND farmasi (meaning: pharmacy practice or pharmacy services); kebijakan OR peraturan OR hukum OR keputusan OR standar OR pedoman OR rencana AND farmasi (meaning: legislative framework in pharmacy); peran OR kinerja OR tanggungjawab AND apoteker AND apotek OR apotik (roles and responsibility of pharmacists or pharmacy). In addition to the web search, investigators contacted key personnel in government agencies and professional organizations for further information/clarification and to request copies of relevant documents if necessary. This study purposively selected grey literature, and used an exploratory approach because there has been limited research published in the peer reviewed literature, in the field of policy evaluation of community pharmacy practice in Indonesia.

In terms of the inclusion and exclusion criteria, this study only included formal and legal documents from official authorities such as policy documents, legislative frameworks, standards and directives. We limited the search for documents published in the Indonesian language from 2009 onwards. The 2009 start date was selected because this was the year in which Health Law 2009 was issued. It was the first law accommodating the practice of pharmacy in Indonesia (article 108). The implication of this law was the enactment of the Pharmacy Practice Act 2009 which became the main policy framework underpinning the practice of pharmacy including community pharmacy in Indonesia. Details of literatures search and screening process are shown in Figure 10.

The study retrieved 60 documents, of which 17 contained relevant information on policies and strategies aimed to improve pharmacy practice in Indonesia. The selected documents were reviewed based on their objectives and relevance to the support of community pharmacy practice either by: (1) providing a legal framework for practice, (2) reducing barriers in practice, (3) increasing the role and recognition of pharmacists, (4) promoting the uptake of pharmacy services, (5) contributing to the sustainability of community pharmacy operation. The criteria used to review the documents were developed from the recommendations of several systematic reviews reporting on pharmacy practice in developing countries (Lowe and Montagu, 2009, Smith, 2009a, Smith, 2009b, Miller and Goodman, 2016, Hermansyah et al., 2016b).

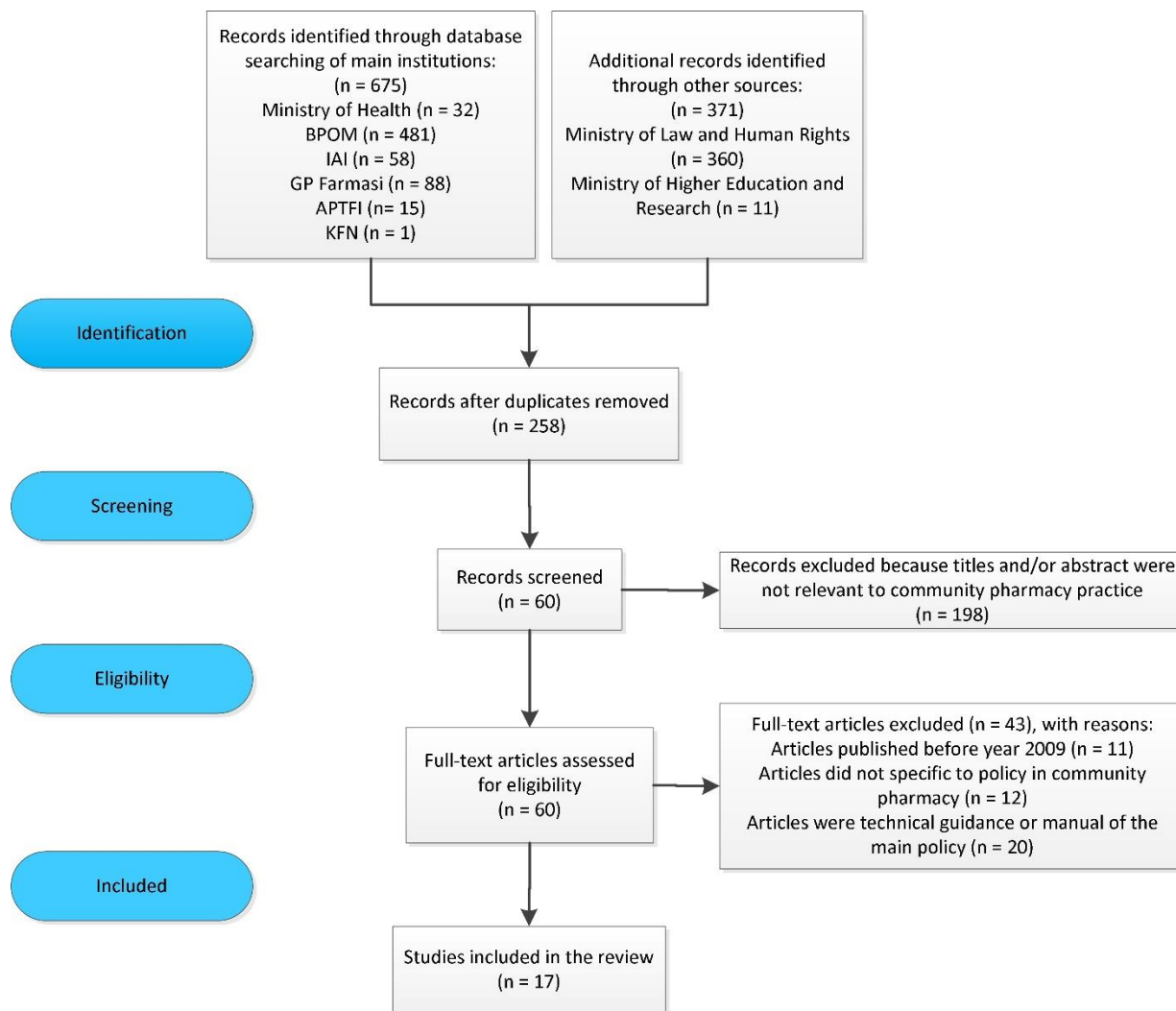


Figure 9. Flow diagram of articles selection process using PRISMA

Stakeholder collection and analysis

Between February and August 2016, in-depth semi structured interviews were conducted with a wide range of key stakeholders in pharmacy and healthcare representing community pharmacists, physicians, peak pharmacy and medical organisations, insurance companies, consumer group associations and governments in the local and national setting. Ethics approval was obtained from the authors institute prior to data collection. Purposive sampling was used to select the initial respondents and expanded using the snowball method. Candidates who agreed to participate were required to provide signed consent prior to the interview. The respondents were asked questions primarily focused on the current situation of healthcare and the

community pharmacy sector, approaches introduced by governments and pharmacy associations to cope with the changes and challenges of the current situation, their expectations and strategies to adapt to the challenges. All interviews were audio-recorded and transcribed verbatim. Content analysis was performed to analyse the findings. Each investigator initially developed a coding framework from some of the transcripts which were considered unique and “rich of information”. Subsequently, the main coding framework which included themes and sub-themes was mutually agreed. The interviews were continued until data saturation was achieved. NVivo 10 was used to assist data management.

Results

Collation of documents

Of the 17 documents which were eligible for inclusion, the majority were published by IAI (8 documents) and the Ministry of Health of Indonesia (6 documents). The remainder were issued by KFN (1 document), the Presidential office (1 document) and a group of organisations – IAI, APTFI and KFN (1 document). According to the hierarchy of legislation in Indonesia, the Presidential Act is the highest level of legislation, followed by Ministry of Health decrees, and professional organizations’ regulations as subsidiary legislation, respectively. This means most of the approaches collated in this study were applied in a narrow setting and have limited legislative power. For instance, the initiative to set minimum remuneration for pharmacists enacted by several branches of IAI was only applicable to pharmacists within the region covered by the branches.

Most documents concerned approaches which were commenced from 2014 onwards (15 documents). However, some of these were updated versions of previous legislation (6 documents). This means that some approaches have changed over a long period of time. For example, the Community Pharmacy Decree was first introduced in 1953, and subsequently revised in 1965, 1980, 1993, 2002 and currently in 2017. It is also important to note that some approaches have certain degree of overlap with other approaches. For example, drug use campaign programs such as Gema Cermat, Dagusibu and GKSO were in essence devised to convey similar public educational messages surrounding self-management and basic education

on the use of medicines although they were initiated by different organisations. As a result, community pharmacists may undertake one single public education activity and offer it as part of all three programs, thus gaining multiple CPD credits for the same activity. Some approaches also form part of the process of other policy initiatives. For example, pharmacists who wish to renew their practice license must deliver practice as defined by standard of pharmacy practice and pharmacy services, participate in CPD programs and collect a certain amount of credits. Table 10 is a compilation of the multiple approaches advocated by government and professional organisations in Indonesia.

Table 10. Multiple approaches to improve community pharmacy operation and practice of pharmacists

Approaches (initiating bodies, year introduced/updated); References	Objective	Process to achieve objective
<i>Type of approaches: Incentivization</i>		
Minimum rates for pharmacists' remuneration (branches of IAI ^a , introduced in 2015); (Ikatan Apoteker Indonesia-East Java, 2015, Ikatan Apoteker Indonesia-South Sumatera, 2015, Ikatan Apoteker Indonesia-Jakarta, 2016)	Ensuring pharmacists receive adequate and fair income	Pharmacy employer must pay employee pharmacists based on the minimum rate. The amount and composition of the income must be validated by IAI and become the consideration for issuing recommendation letter for pharmacists to practice
Payment for pharmacy services (MoH, updated in 2016); (Ministry of Health Indonesia, 2016d)	Reimbursing pharmaceuticals and incentives for pharmacy services	Community pharmacies working under the JKN ^b scheme receive payment for dispensing prescribed medicines and incentives for delivering pharmacy services. The method for distribution, the amount and the coverage of the payment can vary depending on the classification of pharmacy (e.g. pharmacy affiliated with primary care providers, contracted by BPJS Health or both).
<i>Type of approaches: Campaigns and communication</i>		
Gema Cermat - Community awareness campaign in using medicines (MoH, introduced in 2015); (Ministry of Health Indonesia, 2015)	Raising peoples' awareness on proper use of medicines	National campaign including workshops, group discussions and distribution of information (e.g. books, posters, modules and audio-videos). Certain pharmacies and community pharmacists are invited to deliver public education such as talks, lectures and community outreach.
Dagusibu - Pharmacists campaign on self-management of medicines (IAI, introduced in 2014);	Public education on self-management of medicines	Community pharmacies are encouraged to provide educational materials such as leaflets, brochures and posters in the pharmacy. With the phrase "Ask your pharmacist", consumers are educated to obtain, use, store and dispose of medicines as advised by

Approaches (initiating bodies, year introduced/updated); References	Objective	Process to achieve objective
(Ikatan Apoteker Indonesia, 2014a) Gerakan Keluarga Sadar Obat (GKSO) - Campaign for raising family awareness in using medicines (IAI, introduced in 2014); (Ikatan Apoteker Indonesia, 2014a)	Raising family awareness on self-management of medicines	pharmacists. Participating pharmacists are rewarded with credits (SKP ^c) for license renewal. Run in tandem with Dagusibu program, GKSO targets the health of family through lectures, simulation and role play, CBIA ^d (active individual learning), training of pharmacists as trainers and recruitment of family members as health advocates. Topics for learning also include safe and proper use of cosmetics, food, beverages and narcotics/psychotropics. Participating pharmacists are rewarded with credits (SKP) to count towards their license renewal.
Image building of pharmacists (IAI, introduced in 2014); (Ikatan Apoteker Indonesia, 2014e)	Increasing pharmacists' recognition	Pharmacists are encouraged to wear pharmacist coat and name badge during practice in community pharmacy. The pharmacy must also display a sign board showing pharmacists' names and practice hours. Credits (SKP) are awarded for pharmacist's license renewal.
<i>Type of approaches: Standard, policy and regulation</i>		
Registration, certification and licensure of pharmacists (MoH, updated in 2016); (Ministry of Health Indonesia, 2016c)	Ensuring that pharmacists practice in a professional and ethical manner	Community pharmacists are required to obtain four legal documents to practice; certificate of competence and recommendation letter issued by IAI, registration letter (STRA ^e) from the National Board of Pharmacy (KFN ^f) and license to practice (SIPA ^g) from the MoH. In order to obtain certificate of competence, new graduate pharmacists must pass a competency exam while registered pharmacists must collect a quantum amount of credits (SKP) during each five years of practice. The certificate is a pre-requisite to obtain STRA. Once the STRA has been issued, pharmacists must apply for a recommendation letter. The letter of recommendation and STRA are part of the application for SIPA. The license is valid for five years and a pharmacist can practice in up to three different pharmacies. Prior to expiration, pharmacists must renew the license by firstly obtaining a new certificate of competence. The updated regulation has allowed pharmacists to practice in up to three community pharmacies.
Collection of SKP (IAI, introduced in 2014); (Komite Farmasi Nasional, 2014)	Indicator for pharmacists' participation in practice	Pharmacists must collect minimum of 150 credits (SKP) during each five years of practice as a requirement for license renewal. In general, the credits are distributed to participation in continuing education program (e.g. CPD, workshop and peer group discussion) minimum 60 credits, undertaking professional practice (indicated by attendance report and record of providing services) minimum 60 credits,

Approaches (initiating bodies, year introduced/updated); References	Objective	Process to achieve objective
Pharmacy Practice Act (MoH, introduced in 2009); (Government of Indonesia, 2009)	Legislating pharmacy practice	involvement in community outreach program (e.g. public campaign) minimum 7.5 credits, and voluntary participation in publishing ideas and knowledge development (e.g. conducting research, writing book and article) maximum 37.5 credits. The Act which underpins pharmacy practice in Indonesia regulates different settings of pharmacy practice from manufacturing and distribution to service provision including community pharmacy. It also classifies the pharmacy workforce into two main groups: pharmacists and pharmacy technicians, with their designated responsibilities. The act legislates that pharmacy practice can only be conducted under responsibility and supervision of pharmacists.
Standard of pharmacy services in community pharmacy (MoH, updated in 2016); (Ministry of Health Indonesia, 2016e)	Setting minimum services delivered in pharmacy	The standard describes two main roles conducted by community pharmacists: management of pharmaceuticals and healthcare devices, and provision of clinical pharmacy services. The first role relates to the management cycle of pharmacy items from planning and procurement to disposal, record keeping and reporting. The second role covers pharmacy services which should be provided by pharmacists such as prescription assessment, dispensing, drug information, counselling, home pharmacy care, drug use monitoring and surveillance for adverse drug reactions.
Standard for pharmacy practice (IAI, introduced in 2014); (Ikatan Apoteker Indonesia, 2014c)	Developing standard for pharmacists to practice	The standard consists of 9 (nine) key activities which must be conducted during practice: (1) providing fundamental pharmacy practice, (2) conducting drug assessment and review, (3) dispensing medicines and health devices, (4) compounding dosage form (specific to pharmacists in the pharmaceutical industries), (5) providing drug information and counselling, (6) delivering health promotion, (7) management of pharmaceuticals and health devices, (8) management of pharmacy settings, (9) maintaining skills and competencies. The standard sets minimum activities for pharmacists in the practice site.
Standard competency of pharmacists (IAI-APTFI-KFN, updated in 2016); (Ikatan Apoteker Indonesia et al., 2016)	Setting the minimum competency of practicing pharmacists	The standard comprises 10 (ten) main competencies which means pharmacists must be competent in: (1) delivering the practice of pharmacy in an ethical and professional manner, (2) optimising the use of medicines, (3) dispensing medicines and health devices, (4) providing information about the medicines and health devices, (5) mastering skills and knowledge of formulation and production of pharmaceuticals, (6) contributing to preventive and promotive community health, (7) management of

Approaches (initiating bodies, year introduced/updated); References	Objective	Process to achieve objective
Community pharmacy Decree (MoH, updated in 2017); (Ministry of Health Indonesia, 2017a)	Establishing regulation for community pharmacy operation	<p>medicines and health devices, (8) delivering effective communication, (9) active involvement in the organization and maintaining inter-personal relationship, (10) striving to improve competency. Graduate pharmacists must meet the minimum competency as defined by the standard.</p> <p>The decree is the main framework regulating the opening, license issuance and operation of community pharmacy. A community pharmacy can be opened by pharmacists with or without investment from other parties (individual, group or organization). An approval from the MoH, which can be delegated to the district government, is required before opening a pharmacy. In addition, district government has the right to manage the location and distribution of community pharmacy. Premises, facilities, and equipment of the pharmacy must meet certain standards and be approved prior to operation. The practice of pharmacy must comply with the regulation as similarly stated in the Pharmacy Practice Act and Standard of Pharmacy Services in Community Pharmacy. Each pharmacy must have a First-pharmacist as pharmacist in-charge for the operation and practice of pharmacy who can be assisted by other pharmacists (as second-pharmacist), technician and/or administrative employee.</p>
<i>Type of approaches: education and training</i>		
Continuing Professional Development (IAI, introduced in 2014); (Ikatan Apoteker Indonesia, 2014d)	Improving pharmacists' competence and knowledge	Pharmacists are encouraged to participate in CPD program. Pharmacists undertaking CPD program are rewarded with credits (SKP) which are essential for license renewal
Pharmacists Competency Examination (KFN, updated in 2016); (Ministry of Health Indonesia, 2011, Ikatan Apoteker Indonesia, 2016)	Entrance to practice as pharmacists	<p>Graduate pharmacists must undertake the Competency Examination comprising a Computer Based Test (CBT) followed by an Objective Structured Clinical Examination (OSCE). The exam assesses pharmacists' knowledge, cognitive skills and professional, legal and ethical decision-making. An alternative was given for pharmacists who graduated before 2011 who did not have a certificate of competence to undertake the OSCE (for pharmacists working in community pharmacy and hospital) or OSPE (Objective Structured Pharmaceutical Examination) for pharmacists working in pharmaceutical industries and wholesalers.</p>

^aIkatan Apoteker Indonesia; ^bJaminan Kesehatan Nasional = Universal healthcare coverage program; ^cSatuan Kredit Partisipasi; ^dCara Belajar Insan Aktif; ^eSurat Tanda Registrasi Apoteker; ^fKomite Farmasi Nasional; ^gSurat Ijin Praktek Apoteker.

Stakeholders' interview

Twenty-nine key stakeholders took part in the interviews between February and August 2016. Characteristics of the interview participants are provided in Table 11.

Table 11. Characteristics of participants (Indonesian studies 2)

Characteristics	n = 29
Male	18
Educational background	
Pharmacists	25
Non-pharmacists	4
Professional background	
Practicing pharmacists	10
Other health care professionals	1
Academics and researchers	4
Pharmacy managers	3
Policy makers and administrators	8
Consumer Representatives	1
Insurance providers	2
Province	
Greater Jakarta	8
Yogyakarta	6
East Java	14
Central Sulawesi	1
Metropolitan/Urban City	23
Method of interview	
Face to face	25
Over the phone	4
Average duration of interview (min)	77 min (range 35-116 min)

Three main themes emerged in the analysis of the data: barriers to effective implementation approaches, expectation for policy changes and coping strategies for the challenges of existing initiatives. Illustrative quotes of the findings are described in table 12.

Barriers to effective implementation

Several barriers to implementation approaches were identified by the participants. One commonly expressed barrier is the lack of enforcement. Participants believed the approaches were created with good intention, yet the practice was not strongly encouraged or enforced. When there is a discrepancy between policies and practice, no firm response has been taken by the authorities to discipline the poor practice. The poor enforcement is also associated with a

lack of trust in the integrity of the regulatory and supervisory bodies, since individuals in these institutions who violate the policies have not been sanctioned for their misconduct. However, on the other hand, professional pharmacy organizations have also been subject to criticism and participants expressed mixed responses towards them. Several participants criticized them as being unable to advocate the interest of community pharmacists, and instead seeking their own power and financial gain. Others mentioned that the establishment of peer groups within the professional organisation is useful although they are still limited in their influence.

One participant who worked for a multi-national chain pharmacy company expressed her concern regarding the lack of accountability around policy implementation. The operation of community pharmacy has been influenced by a number of policies created and supervised by several different organisations. While community pharmacy has traditionally operated under a highly-regulated environment, the involvement of additional organisations in the monitoring and execution of the policies has increased the complexity and diluted the impact of policy decisions. In addition, government which should play a role in facilitating policy implementation has been viewed by some participants as being lacking in the power to play such role. They highlighted several policies which have been created but not enforced, due to a lack of empowerment and support for the practice.

Scepticism about the impact of these approaches was also expressed by the participants in relation to the imperative for pharmacists to participate in the CPD program. One respondent suggested that participation in CPD is merely seen as a way to collect the required credits (SKP) and not as a means to improve or develop as a professional. She referred to the opinion of some pharmacists who viewed CPD as a gathering or reunion of colleagues and peers. They attended CPD to gain sufficient SKP to renew their license without thinking about the essence of CPD to develop pharmacists' knowledge.

Expectation for policy changes

While respondents acknowledged that several policies were still ongoing, there was a general consensus that overall insufficient progress has been made. Therefore, they expected further changes to improve the situation. One major expectation is to have a unified vision of

stakeholders in pharmacy. One participant highlighted the need for collective responsibility to create a vision for the improvement of community pharmacy practice in Indonesia. She urged key stakeholders such as universities, governments and IAI to sit around a table together and create a plan for the advancement of pharmacists. Other participants argued that collection of evidence in community pharmacy is necessary as it is a means to showcase pharmacists' contribution to the healthcare system. One participant regretted the fact that no evidence can be provided to show pharmacists' impact. However, another participant perceived that it is impossible to collect evidence as only a few pharmacists practice regularly. Therefore, some participants highlighted the need to duplicate good practice in some pharmacies and amplify it into a policy action. These participants argued that community pharmacy is lacking good role models, and therefore policy supporting the dissemination of good model practice is required.

The majority of respondents anticipated the need for major changes in the pharmacy curricula which are currently still focused on the pharmaceutical sciences. Participants considered that pharmacists are not ready to interact with the patients as they are trained predominantly in laboratory work, and lack exposure to practical and clinical experience. This was linked to poor pharmacists' attendance in the pharmacy. Some participants highlighted the need for a supportive policy that is intended to make pharmacists and pharmacy as a first point of contact and venue for resolving patients' problem with medication.

Strategies initiated by locals to cope with existing challenges

Despite a number of centrally administered approaches designed to regulate community pharmacy practice, interestingly, some respondents mentioned several local initiatives, led by individuals or local associations, independent of the government and national organization agendas. They claimed that these programs were able to support the role development of community pharmacists, and aimed to increase pharmacists' participation and presence in community pharmacy.

For instance, the IAI and local health office in Yogyakarta have implemented a star rating system to measure the quality and performance of a community pharmacy. Community

pharmacies with the best performance are awarded 4 stars, with the lowest receiving 1 star. This was perceived as an incentive for community pharmacies to increase their performance.

Pharmacy leaders in some regions of East Java have encouraged new pharmacist graduates to open a pharmacy by offering assistance in the procurement of medicines and management of pharmacy. Participants viewed such support as essential to help new pharmacists start professional practice and become competent in the business of pharmacy. Some pharmacy leaders in Jakarta have developed a collective network to help pharmacists in managing their medicines stocks. They also use the network to empower each other, thus pharmacists have a channel to communicate about their practice. In a region outside Java, the leaders of IAI used an interpersonal approach and their leadership to motivate pharmacists to practice while advocating the interests of community pharmacists. In this way, participants expressed that pharmacists are much confident and feel secure as they know that they are supported by their leaders. In addition, participants mentioned the importance of a leader in pharmacy to become a role model for their colleagues, and avoiding unscrupulous and collusive practice.

One participant representing a chain pharmacy business used a quality assurance system to maintain the quality of pharmacy services delivered in her pharmacy and to improve the skills and knowledge of employee pharmacists.

Table 12. Illustrative quotes of the findings

Topic	Quotes
Challenges to policy implementation	<p><i>“When we look at policy changes there are too many hands involved...as you go every layer decisions get diluted, accountability gets diluted, execution gets diluted so there is no strong line for accountability. Who is truly accountable for change of healthcare in Indonesia? Is it the Ministry of health or the police in the region? and you also have very regional influences. You have the region of governance”</i> (P018_FNP). Lack of accountability in the implementation</p> <p><i>“We do have policies, standards, regulations on one hand but on the other hand...we see with our eyes that there is no pharmacist (in pharmacy)...There is no one who pushes the policy, facilitates the policy which means that there is a lack of facilitation especially from government to ensure that the policies are running well. They don’t support it so it is up to pharmacy...”</i> (P029_MP). Lack of facilitation from government</p> <p><i>“We’re only undertaking CPD because we have no choice, it’s not because we want to improve our competence. It’s just because we have the awareness that (collecting) SKP is a prerequisite to continue practicing pharmacy. That is why CPDs and seminars are being treated like reunions...Whether they (pharmacists) practice is another matter. They say, “I</i></p>

Topic	Quotes
	<p>get SKP so I can extend my STRA (registration), I need STRA to get my SIPA (license), and no SIPA means no salary. Whether I show up for work is my business with my employer; IAI should mind their own business" (P01_FP). Sceptical to the impact of the policies</p> <p>"We always look for scapegoats when we do something wrong...The popular excuse when committing violations has been "I can do this because others have done the same and they don't get punished". When violations go unpunished, people end up considering these violations as normal" (P02_FP). Lack of enforcement for successful policy implementation</p> <p>"Many pharmacists from [name of government bodies] work in pharmacy. I ask them to quit but it is difficult to ask people to become good role models in Indonesia...I ask them to be consistent, consistent with their own policies (they created). It is really shameful if individuals from [name of government bodies] should have been present in the pharmacy three times in a week but it turns out he comes only once in every three weeks. It is embarrassing" (P027_FP).</p> <p>"[name of professional organization] cannot become agents of change because there are many people with various interests in [name of professional organization]. There are people who have interests in obtaining official appointments (e.g. becoming a commissioner for a state-owned enterprise, or director for state owned enterprise). Therefore, it is difficult." (P028_MP). Lack of trust in pharmacy stakeholders</p>
Expectations for policy changes	<p>"We were challenged by MoH when we had a coordination meeting. They said "If you could show us the evidence of what can pharmacists do when they practice then we can discuss about their fees". To date, we are unable to show this evidence" (P05_MP).</p> <p>"We can't use the word evidence at the moment because we (pharmacists) don't practice, am I correct? The number of practicing pharmacists is very low...Nowadays, they (pharmacists) only talk about business or sales" (P015_MP). Collection of evidence</p> <p>"We try to look for role models. For instance, IAI [name of region] covers five branches and I asked each branch to look for a community pharmacy which can be role model. Then we can replicate the success to other pharmacies, one becomes two, three and so on" (P027_FP). Search for pharmacy role model</p> <p>"There is a wide discrepancy between education and practice because universities are still polyvalent (of knowledge)...Frankly speaking, the education system does not create pharmacists to be pharmacists. The education system is overloaded with too many science courses...there is no practice values within the course" (P015_MP). Changing pharmacy education curricula</p> <p>"I think they should have collective responsibility but right now they don't talk each other. So, the universities don't exactly know where they want to take healthcare to the next stage. The government policy does not have support what comes out and then the IAI also just kind of, I think they are great in showing best practices but not again not execution. I think there is a little bit of within any political manoeuvring there are the egos, who should be responsible? which other parties should be responsible for?" (P018_FP). Lack of a shared stakeholder vision</p> <p>"(we need) policy that makes pharmacists proud of working in pharmacy, policy that supports pharmacy as the first point of contact with patients, policy that makes pharmacy is a setting to listen to patient's problem related to medication. That's all. It is a great thing if we have those three policies" (P028_MP). Policy advocating pharmacists</p>
Coping strategies initiated by locals	<p>"we have accreditation system by giving pharmacy star rating from 4 to 1 star...the accreditation evaluates the workforces, facilities, legality for practice, service provision and administrative matters. We give different score for each aspect with service provision is the highest...we do it once in every one or two year and we publish the results regularly...the stars must be displayed in the pharmacy" (P016_MP). Pharmacy star rating model – applied in Yogyakarta</p>

Topic	Quotes
	<p><i>“When a pharmacist wants to open pharmacy and they have difficulty in purchasing, I offer them my stock at a cheap price. I don’t take profit. That is to push pharmacist practice. When there is pharmacist who opens a pharmacy, I endorse colleague to guide the pharmacist from the scratch, help them with how to provide good service and even they are not yet sustainable for procurement, they can buy to another pharmacy”</i> (P05_MP). Peer support and assistance – applied in East Java</p> <p><i>“If pharmacist is unable to order medicine such as Imodium (brand name of Loperamide) because the price of one tablet is 6 thousand rupiah (approximately 60 cents)...your pharmacy can buy from me. What important is you have the stock of the medicine. We make a network so we can help other small pharmacies. Other cases, for example your pharmacy can’t sell a medicine. By having network you can distribute it to other pharmacies which may be able to sell it. We can help each other so we can minimize loss due to expired medicines”</i> (P027_FP). Networking and collective approach – applied in Greater Jakarta</p> <p><i>“The head of IAI must be strong character person, with vision and knowledge and a resolve to enforce the regulations...It really depends on the leadership, that’s why he should be above any matters involving conflict of interest.”</i> (P025_MP). Leadership influencer and support – applied in Central Sulawesi</p> <p><i>“We have a quality assurance division to ensure pharmaceutical services are correctly delivered. We have many tools for supervising and reporting whether services are correctly provided or not...Home care needs to be done once a week, and every week 5 Patient Medication Records (PMR) need to be filled out...we have records of how many hours spent for patient consultations...we learn something new every time, we have an update training every 3 months minimum. Our skills are up to date, the system is good”</i> (P01_FP). System of quality assurance – applied in Chain Pharmacy</p>

Discussion

To the best of our knowledge, this is the first study which has collated and evaluated the impact of multiple initiatives designed to influence community pharmacy practice in the context of a developing country. The detailed overview of the major approaches that have been implemented to improve the practice of community pharmacy and pharmacists in Indonesia presents important data to inform the development of future intervention strategies to effect practice change. The findings also contribute to an understanding of policy development and implementation in the Indonesian community pharmacy sector which is currently lacking in the literature.

In collating and summarizing recent policy and other initiatives, it has become apparent that the multiple approaches and regulations introduced into the Indonesian community pharmacy sector over the past ten years reflect an enthusiasm by both policy makers and pharmacy stakeholders to support pharmacists’ role development. Encouragingly, the broad range of the approaches have also demonstrated a significant level of commitment by both

groups to improving the current practice in community pharmacy, and a clear recognition of the untapped capacity and potential for community pharmacy to make a greater contribution to the healthcare system overall. This is particularly important in relation to a developing country such as Indonesia where there is limited acknowledgement of the pharmacy profession and the role of community pharmacy in health care as reflected in the low levels of effort to support practice change (Tri Murti Andayani and Satibi Satibi, 2016).

Our findings demonstrate that a clear legal framework exists for the regulation and enforcement of the practice of community pharmacy and pharmacists, specifically through the Pharmacy Practice Act and Community Pharmacy Decree, which define the core domain of pharmacy practice which is specific and unique to pharmacists' role, expertise and authority. Further legislation reinforces the set of skills required to be mastered by community pharmacists as outlined in the Competency Standards. These may then be translated into a range of pharmacy services as regulated by the Standard of Pharmacy Practice and Standard of pharmacy services. Thus, a template for potential practice change and development is present in a formal and supposedly enforceable sense; however a lack of prior supporting research evidence made it very unclear how well (or if at all) these approaches have achieved their policy objectives or adequately addressed the needs of the profession. Our qualitative study was designed to begin to address this gap.

In relation to the second objective, this study reflects the expressed opinions and attitudes of a sample of stakeholders in Indonesia and has provided an insight into the implementation of multiple approaches to advance pharmacy practice as advocated by government and pharmacy professional organization. A number of specific findings are discussed in this section.

This study has highlighted that a number of the initiatives, while relevant and appropriate in themselves, were conceived and enacted in a piecemeal, sometimes conflicting and uncoordinated way. For example, the requirement for pharmacists to undertake the CPD program has not been effective in achieving its policy objective. While it is widely believed that CPD is an effective avenue for improving pharmacists' competency by targeting both educational and experiential learning for the participants, it is clear that the learnings from CPD among

Indonesian pharmacists have not been translated into practice. As expressed by respondents in this study, even mandatory participation in CPD has not been a pathway for improving practice. It is viewed as a way to accumulate a certain number of the credits required to maintain licensure. Moreover, the CPD activities which are available are knowledge-based rather than skills-based or practice-focused and do not necessarily correlate with the pharmacist's scope of practice. For example, pharmacists working in pharmaceutical industry are able to undertake CPD on the management of hypertension focusing on clinical knowledge more suited to practicing pharmacists in the hospital or community pharmacy setting.

Lack of coordination is also seen in the attempt to set minimum remuneration rates by some local branches of IAI, rather than by the association at the national level. Whilst the reason for the absence of similar initiatives at the national level is unknown, it reflects a lack of consensus regarding minimum remuneration for community pharmacists. Similarly, the initiatives to improve recognition of pharmacists' role in health care are undermined by the continuing poor level of attendance of pharmacists in many community pharmacies (Hermansyah et al., 2012). This latter finding also highlights the lack of enforcement of legislation, which is the second major finding from this study. There are two factors contributing to the lack of enforcement as expressed by participants. Firstly, there is a strong perception that pharmacists who have violated the law will go unsanctioned. Secondly, this perception is reinforced by the observation that some pharmacists working in government authorities whose responsibility it is to enforce the regulation, have also been guilty of its violation and not been sanctioned. Apparently, these two factors – misuse in practice and abuse of power – have not been addressed by current legislative frameworks which demotivates pharmacists from being present in the pharmacy. Whilst recognition of this issue has been put forth in the conception of some approaches such as indicated in the collection of credits (SKP) which includes evaluation for regular attendance, progress is still far from sufficient. The approach of the Chairman of BPOM through a directive prohibiting BPOM staff from working in community pharmacy as mentioned in the introduction of this study might go some way towards redressing the problem.

This study has highlighted a number of key attitudinal barriers to the implementation of practice change approaches, notably strong perceptions of poor policy enforcement, lack of trust in the role of the governing bodies and scepticism towards the impact of the programs. These barriers are not uncommon in developing countries (Lowe and Montagu, 2009, Babar and Scahill, 2014), and therefore there is a need to address all these issues - which are notoriously difficult to change - in order to create sustainable and successful policy implementation influencing practice change.

Relatedly, this study highlights the desire of stakeholders for a shared vision describing best practice in Indonesian community pharmacy. The commitment to a shared vision ranging from individuals, group of individuals to organisations is essential to overcome the preceding barriers. In addition, the presence of a shared vision particularly between peak pharmacy organisations and the government as regulator will facilitate the development of a role model of community pharmacy and support the collection of evidence through research in community pharmacy. In many developed countries, a shared vision has become common sense for stakeholders in the community pharmacy sector to build a mutual understanding of the future of community pharmacy practice (Canadian Pharmacists Association, 2008, Pharmacy Guild of Australia, 2010b, Pharmacy Stakeholders Forum, 2014)

Accordingly, there was a need to design strategies that can be successfully and sustainably implemented in the setting of community pharmacy. However, with top-down approaches, there also needs to be a recognition that programs with good policy objectives may result in unintended and unwanted consequences. Our previous study analysing the contemporary situation in community pharmacy in Australia highlighted that knowing the problem or understanding the mechanism to resolve the problem does not guarantee good implementation of a policy. This is particularly because community pharmacy operates in a complex and dynamic system with several key elements from social, policy and economy context influencing the micro (individual pharmacists), meso (community pharmacy as an institution and network of institution) and macro level (healthcare system) of community pharmacy (Hermansyah et al., 2017a). With respect to Indonesia, community pharmacy continues to face a number of underlying issues such as a shortage of pharmacists, limited clinical competency of pharmacy

staff, counterfeit drugs and illegal supply of medicines available from street vendors to healthcare professionals, which is consistent with the situation in many other developing countries (Fathelrahman et al., 2016). As community pharmacy and the health system are interconnected, the impact of poorly implemented programs in the community pharmacy sector may undermine policy initiatives and create poor outcomes elsewhere in the health system, and therefore policy makers and stakeholders in pharmacy must look at broader scope of the program. This study reinforced the argument that simply adding new policies or strategies will not improve the situation without resolving the underlying problems of the past.

The findings of this study also highlight the potential feasibility of a national scale-up of local interventions. The successful local initiatives described by participants illustrate a range of novel and different ways to enhance pharmacists' roles, tailored to the specific context in which they operate. In addition, these initiatives reflect a desire and willingness of local organisations to address the challenges of policies designed at the national level. Expanding this bottom up approach will undoubtedly require a good understanding of local situations and may be unique in every region. However, some key characteristics of successful approaches have emerged. Most of the local initiatives included in this paper involved a collective approach through networking and mentoring to encourage pharmacists to practice. Others relied on the critical role of leaders in recognising the need to support and encourage individual pharmacists. A few initiatives involved the application of a quality assurance system by ensuring adequate resources for pharmacy operations and maintaining the quality of the services by implementing pharmacy rating star model as a showcase for consumers and patients. While these local strategies were not supported by robust evidence of effectiveness, they may act as catalysts for change whereby local pharmacists' communities work together for a common purpose and for better results. Another lesson is that sustainable changes are often achieved through an understanding of local health care needs. The UK experience in introducing the Healthy Living Pharmacy program which allows an individual pharmacy to tailor services to local needs despite the pharmacy being contracted under the NHS scheme is an example (Brown et al., 2014). This is also similar in Australia where a number of pharmacists under Health Destination Pharmacy program have changed their practice by adopting a bottom up approach where they can be innovative and

adapt to the changing demand in the current state of healthcare (Pharmaceutical Society of Australia, 2017).

Finally, and underpinning all aspects of practice change, is the urgent need to transform the current pharmacy education system which has hitherto primarily focused on pharmaceutical sciences rather than on pharmacy practice. In responding to the changes in pharmacy which focus on the role of pharmacists in medication management and patient centred care, the education system in Indonesia - which consists of four-years undergraduate and one-year apothecary program - must be reshaped to better prepare pharmacists, not only for future changes, but also for the current situation. Reflecting on our findings, it is imperative to devote more time, effort and resources to developing the clinical knowledge and experience of pharmacy students to allow them to face and meet the challenges in healthcare that they will experience during their careers.

The interpretation of the study results should take into consideration a number of limitations. Firstly, the assessment of the policy or program was limited to reporting experience and perception of stakeholders with no quantitative measurement showing quality performance of the policies. While providing such data is also of importance, we were interested to capture the key aspects of the lived experience of program functioning and its impact on community pharmacy. Secondly, the study only identified the approaches delivered by national organizations or central government authorities without including assessment of policy at the lower bureaucratic level such as policies created by local government. Hence, underreporting of strategies within this paper is possible. We did not attempt to analyse the policies or programs at the lower level although they are likely to influence community pharmacy. One of the reasons was due to the scarcity of available information about the policies. However, assessing the national policy agenda has enabled an overarching understanding of the broad spectrum of initiatives that have been undertaken to improve community pharmacy practice in Indonesia. Thirdly, it might be argued that each individual study participant would be expected to have only a relatively narrow and specialized understanding or experience of the Indonesian health care/pharmacy system, however the number and diversity of the participants meant that a wide range of perspectives was obtained. In fact, the breadth of the stakeholder cohort was a strength

of this study since the policies of interest could be interrogated from multiple angles. Finally, new policies have been introduced following the research underpinning this paper, for example, the implementation of a policy allowing pharmacists to work in a maximum of three different pharmacies as regulated under the Decree for registration, certification and licensure of pharmacists. On the surface, it seems unlikely that that this policy will have a significant impact on the practice in community pharmacy, however, it is important to keep tracking such changes to see the impact in the future.

Conclusion

The introduction of a plethora of policies, regulations and initiatives within the past ten years has highlighted the enthusiasm of policy makers and pharmacy stakeholders to improve community pharmacy practice in Indonesia. However, some of the initiatives were conceived and enacted in a piecemeal, sometimes conflicting and uncoordinated way. Despite the good policy objectives of the initiatives, it appears that poor enforcement, lack of trust of pharmacy stakeholders and scepticism regarding the impact of the initiatives have significantly undermined the success of these initiatives, and remain the predominant challenges for successful policy implementation. This study suggested some attempts to resolve these challenges focusing on the need to have a shared vision among peak pharmacy stakeholders defining best practice in community pharmacy. Some local initiatives highlighted the bottom-up approach in the system and potential for scaling up at the national level. Overall, it is clear that some fundamental and entrenched barriers to practice will need to be overcome in order to create a more professional climate for the practice of pharmacy in Indonesia.

DECLARATION STATEMENTS

Ethics approval and consent to participate

This study has been reviewed by, and received ethics clearance from the Human Research Ethics Committee the University of Sydney Number 2104/820. Informed consent was obtained from all respondents prior to participation in the interview.

Consent for publication

Not applicable

Availability of data and material

All data generated or analysed during this study are included in this published article [and its supplementary information files].

Competing interests

The authors declare that they have no competing interests

Funding

Not applicable

Authors' contributions

All authors were involved in the design of the study, data collection, analysis and interpretation of the findings and preparation of the manuscript. All authors have read and approved the final manuscript.

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References

References are provided in consolidated list at the end of thesis.

Interview guide

1. How do you view the current situation in Indonesian Community Pharmacy?
2. Do you acknowledge some changes in the landscape of community pharmacy sector?

Policy framework in community pharmacy

3. What do you think is the main policy framework that underpins the contemporary practice of community pharmacy?
 - a. How influential are the policies or regulations for supporting contemporary practice?
 - b. Have they been enforced adequately? Who does hold the authority for enforcement?
 - c. Are there any other policies influencing the practice of community pharmacy?
4. What do you think are the challenges for implementing the policies as you mentioned?
 - a. Are these barriers common to pharmacy practices? Yes, are they pertinent issues? No, please explain?
 - b. Why do you think these barriers occur? Can they be prevented?
5. What is your effort to cope with the challenges presented by the policy changes?
 - a. Do other pharmacies or pharmacists have the same ideas as yours? **If Yes**, please explain? **If No**, why others don't?

- b. How applicable do you think your solution for other pharmacies/pharmacists?
6. Given the changing nature of pharmacy, do you see any need for establishing new policies to improve the practice of community pharmacy? **If Yes**, why and what are the policies needed? **If No**, why not?
 7. What is your expectation to improve the current practice of community pharmacy? who should be responsible for that and what is your suggestion for them?

6.3. Prioritising recommendations to advance community pharmacy practice

This section comprises following publication:

“Hermansyah, A., Pitaloka, D., Sainsbury, E., & Krass I. (2018). Prioritising recommendations to advance community pharmacy practice. *Research in Social & Administrative Pharmacy*. <https://doi.org/10.1016/j.sapharm.2018.02.003>”.

In this study, we reported the findings of four nominal group discussions attended by nationwide pharmacy stakeholders in Indonesia. These nominal discussions were conducted to identify and systematically prioritise recommendations for advancing Indonesian community pharmacy practice. This manuscript which was submitted in November 2017 and accepted for publication in February 2018. The published version of the paper is presented in appendix 11.

Prioritising recommendations to advance community pharmacy practice

Andi Hermansyah, Dyah Pitaloka, Erica Sainsbury, Ines Krass

Abstract

Introduction The nature of community pharmacy in many countries has changed. Despite the significant efforts made to change practice, there is a paucity of literature that highlights consensus on the approaches that should be prioritised for advancing practice particularly in the context of developing countries.

Objective To systematically identify and prioritise a range of potential recommendations to improve practice in Indonesian community pharmacy from the perspective of pharmacy stakeholders.

Methods Qualitative research using Nominal Group Technique (NGT) was conducted in July 2017 involving 34 nationwide pharmacy stakeholders. Participants were assigned to four nominal group discussions based on the areas for action as developed by researchers. The results were thematically analysed.

Results Nine priority recommendations were generated from the group discussion reflecting four main themes to advance community pharmacy sector, namely improving professional pharmacy practice, reforming pharmacy education, enforcing policy and regulation and enhancing public recognition of pharmacists. The analysis using the culture-structure-agency approach highlights that the top down structure in terms of policy and regulatory framework has not been effectively enforced. In addition, the role of pharmacists as the central agency in delivering pharmacy services has been limited due to their common absence from practice. The approach, however, provides an alternative to advocate changes by locating the role of pharmacists and community pharmacy as central agency within the challenging health system structure.

Conclusions The recommendations generated from and approach used in this study provide an impetus to advance community pharmacy practice in Indonesia. Amongst the important

solutions, there is substantial need to provide evidence of pharmacists' contribution to healthcare.

Keywords: Community pharmacy; pharmacists; nominal group technique; Indonesia

Introduction

The nature of community pharmacy in many countries has changed within recent decades. Community pharmacy has evolved from a place, known as the “chemist”, where people only obtained pharmaceuticals, to a health hub destination where people have the opportunity to consult with a pharmacist on a wide range of health care concerns (McMillan et al., 2013). Increasingly, community pharmacists are offering a range of clinical, diagnostic and public health services targeted to their patient and community base (Pande et al., 2013, Perraudin et al., 2016).

The imperative and rationale for community pharmacy to evolve has been reported in many publications, together with a range of ways of achieving practice change, initiated at individual (pharmacist) level (e.g. behavioural and attitudinal modification) (Awaisu and Alsalimy, 2015), at organisational (pharmacy) level (e.g. change management) (Feletto et al., 2013) and at healthcare system level (e.g. implementation of evidence based practice) (Blalock et al., 2013) and remuneration for professional services (Bernsten et al., 2010). While practice change in community pharmacy has been the agenda in developed countries, the pace of change has been slow in many developing countries (Miller and Goodman, 2016).

There are a number of factors hampering practice of pharmacists in developing countries ranging from an under-developed healthcare system to a lack of professional regulations supporting practice of pharmacists (e.g. they are less well equipped educationally, professionally and economically) (Babar and Scahill, 2014, Hermansyah et al., 2016b). The situation in these countries reflects the need for an overhaul in the healthcare and pharmacy system with some significant efforts required to change practice. Unfortunately, there is a paucity of literature that highlights consensus on the approaches that should be prioritised for implementation particularly in the context of developing countries where community pharmacy and pharmacists are often marginalised and under-recognised within the healthcare system. This paper addresses this gap.

The practice of community pharmacy in Indonesia is changing rapidly, particularly since the introduction of the Universal Healthcare Coverage Program (JKN) in 2014. Under JKN, a small number of community pharmacies are now affiliated with a primary care network and are able to supply pharmaceuticals and provide access to some non-dispensing pharmacy services such as home care pharmacy and disease screening and monitoring. However, the vast majority of pharmacies have not been included in this scheme thereby creating a gap in service quantity, financial benefits and practice quality between the affiliated and unaffiliated pharmacies (Hermansyah et al., 2018b).

We recently conducted a project investigating the impact of the introduction of JKN on practice change in Indonesian community pharmacy (Hermansyah et al., 2018b). Having interviewed a wide range of stakeholders in community pharmacy and the healthcare system, this study identified a number of key issues hampering change in contemporary pharmacy practice (Figure 11). On the basis of these barriers, corresponding areas for action to improve practice in community pharmacy practice were proposed (Figure 12). The areas for action represent the research team recommendations to promote change from the perspectives of pharmacy stakeholders. Our recommendations, however, are broad and require further discussion to help refine the priorities and matching strategies to address each of the identified areas for action. In addition, stakeholders' feedback on the extent to which these recommendations can be sustainable in everyday practice is needed.

ACCESS TO PHARMACEUTICALS AND PHARMACY SERVICES	ROLE OF COMMUNITY PHARMACY IN THE SUPPLY OF MEDICINES
<ul style="list-style-type: none"> • Increased demand for pharmaceuticals and healthcare services • Shortage of medicines and pricing variations • Distribution of pharmacy services is not proportional to population 	<ul style="list-style-type: none"> • Community pharmacy is primary source to obtain medicines • Perceptions to pharmacy are mixed • There are minimum standard for pharmacy services but limited to dispensing only
PARTICIPATION OF PHARMACISTS	REGULATION FOR PRACTICE AND MEDICINES SUPPLY
<ul style="list-style-type: none"> • Pharmacist has the sole responsibility for practice of pharmacy • Absence is common • Pharmacists have limited clinical skills, knowledge and experience • Attempts to improve pharmacists' attendance have been introduced but progress is slow 	<ul style="list-style-type: none"> • Key regulations have been made but enforcement is far from sufficient • Skepticism towards legislation enforcement is high • Illegal supply of medicines is common • Remuneration scheme has not benefited pharmacy operation • No evaluation mechanism in place

Figure 10. Summary of key issues in the practice of Indonesian community pharmacy



Figure 11. Areas for action representing research team recommendation

Community pharmacy in Indonesia: regulation, education and practice

It is important to understand the context of community pharmacy in Indonesia to interpret the findings of this study. Therefore, this section provides an overview of the regulation, educational system and practice of community pharmacy in Indonesia.

Community pharmacy is one of the most highly-regulated sectors in Indonesia. Regulation is complex and is an amalgam of legislation and policy frameworks ranging from the national to the local level, advocated by a myriad of actors including the Ministry of Health (representing government), National Agency of food and drug control (BPOM), community pharmacy organisations and pharmacists' association (IAI). The first and currently the highest order of legislation governing pharmacy practice in Indonesia is the Pharmacy Practice Act 2009 (Government of Indonesia, 2009). The Act, which can be considered the main policy framework which underpins practice in community pharmacy, defines pharmacy practice is under responsibility of pharmacist as the sole authorised profession for the operation of a community pharmacy.

In order to become a pharmacist, a high-school graduate must undertake formal education for at least five years in a school of pharmacy. The five-year program is divided into two education programs: four years for the Bachelor of Pharmacy program (B. Pharm) and one year for the Apothecary program (Apothecary) (Tri Murti Andayani and Satibi Satibi, 2016). There are 162 schools of pharmacy in Indonesia however only 26 schools are eligible to conduct both the B. Pharm and Apothecary programs (BAN-PT, 2017). The remainder, due to their low accreditation rating, are only allowed to offer B. Pharm program. While the B.Pharm program is designed to provide students with skills and knowledge in basic and theoretical pharmaceutical sciences, the apothecary program is focused on developing practical skills and providing experiential learning for final year students (Tri Murti Andayani and Satibi Satibi, 2016).

Interestingly in Indonesia, once a pharmacist receives a license to practice, he or she is eligible to work simultaneously in up to three pharmacies (Ministry of Health Indonesia, 2017a). While the rationale for allowing pharmacists to work in three pharmacies is neither explicitly stated in the regulation nor publicly declared, it is arguably to improve pharmacist accessibility

in rural areas where there is a notable shortage of pharmacists. Unfortunately, the regulation is not limited to rural areas making it possible for a pharmacist in urban areas to be employed in three pharmacies at the same time. A further issue is the potential conflict of interest that is created by the fact that personnel in regulatory or supervisory roles are also permitted to practice in the community pharmacies which they regulate or supervise.

There has been increasing competition between pharmacies in Indonesia as there is no regulation controlling locations of pharmacies. As a result, maldistribution is evident with urban areas oversupplied with pharmacies, while suburban and rural areas experience pharmacy shortages (Hermansyah et al., 2012, Yuniar and Herman, 2013). Community pharmacy has been underutilised as a healthcare setting in which pharmacists are available to provide professional pharmacy services. Generally, patients will go to a pharmacy when they receive prescriptions, yet they may not always interact with a pharmacist as it is common that pharmacies operate without the physical presence of a pharmacist (Hermansyah et al., 2012). The predominant activities in pharmacies have been dispensing prescribed medicines, provision of over the counter drugs and sale of other retail goods. Professional services such as drug advice, counselling and health education are limited and until recently without direct remuneration.

The overview highlighted a gap between education, regulation and practice in the Indonesian community pharmacy sector. This gap has presented ongoing challenges for both pharmacies and pharmacists reflecting the need for achievable recommendations. Therefore, the aim of the study was to systematically identify and prioritise a range of potential recommendations to improve practice in Indonesian community pharmacy from the perspective of pharmacy stakeholders.

Methods

Study design and participants

We used consensus methods as a means of achieving general agreement around potential recommendations for advancing community pharmacy practice in Indonesia. The consensus methods including the Nominal Group Technique (NGT) and the Delphi technique have a relatively long history of use in health and medicine and have been increasingly adopted in

pharmacy practice research (Bradley et al., 2013, McMillan et al., 2014c, Newlands et al., 2018). The consensus methods have similar roots with Focus Group Discussion (FGD) in which participants are invited to brain-storm ideas and opinion. However, they are somewhat different as they involve a structured environment and balanced participation for problem-solving (McMillan et al., 2016).

The study used and modified the NGT as developed by Delbecq et. al for identifying strategic problems and generating potential and innovative solutions for the problems (Delbecq et al., 1975). The technique allows members of the group equal opportunity to express their views, vote for their preferences and engage in a group discussion. With this way, domination of particular individual(s) during the group discussion and undue influence on the results of the discussion may be minimised. Accordingly, the results reflected a balanced consensus achieved by the group. This has become the key strength of the technique as compared to FGD (McMillan et al., 2016). Furthermore, the NGT can be conducted within a few hours, with less resources and may involve lay people such as a wide-range of pharmacy stakeholders who are target participants in this study making it a preferable method for this research as compared to the Delphi technique (McMillan et al., 2016).

An NGT involves a small number of participants, usually between six and fifteen participants with the group discussing one or two questions (Gastelurrutia et al., 2009, McMillan et al., 2015a, Jokanovic et al., 2017). The core process in the NGT generally comprises of four stages: silent generation, round robin, clarification and voting (ranking) (Delbecq et al., 1975). However, modifications to this process have been common depending on the resources and level of consensus wished to be achieved by the research team (Hutchings et al., 2010, Sav et al., 2015, Fasih et al., 2016).

Four nominal group discussions were held in July 2017 during a pre-conference workshop of the 17th Asian Conference on Clinical Pharmacy (ACCP, 2017). The ACCP conference is one of the foremost and best-known conferences in Indonesia covering issues of clinical pharmacy in the hospital and community setting. Information and details about the workshop were advertised through the conference website. Interested individuals registered to participate in the workshop

and were provided with an information sheet explaining the study and asked to sign a consent form prior to attendance.

Overall, 34 pharmacy stakeholders participated and were assigned to four nominal group discussions. The characteristics of the participants are presented in Table 13. The study was approved by the Human Research Ethics Committee of the University of Sydney (approval number 2014/820).

Table 13. Characteristics of participants (Indonesian studies 3)

Characteristic	n = 34
Female	26
Background:	
• Pharmacy organization representatives	6
• Practicing pharmacists	17
• Academics and researchers	10
• Administrator and regulator	1
Domiciliary:	
• Java Island (Jakarta, West Java, Central Java, Yogyakarta and East Java)	24
• Sumatera Island (North Sumatera, Riau, West Sumatera and South Sumatera)	5
• Kalimantan Island (East Kalimantan)	1
• Sulawesi Island (Central Sulawesi and South Sulawesi)	3
• Papua Island (Papua)	1

Procedures

The workshop was conducted in two parts. The first part was a 45-minute presentation describing the key findings of the researchers' project which investigated stakeholder perspectives on pharmacy practice and practice change in Indonesian community pharmacy. The presentation included an overview of the current situation based on the researchers' findings, and challenges to the development of practice in community pharmacy including areas for action as proposed by the research team. The second part was the 90-minute NGT discussion (Figure 13). Participants were invited to join one of four groups according to their interest and assigned with one of the following areas of action for discussion: Group 1 (Individual pharmacist empowerment) consisted of seven participants, Group 2 (Community pharmacy network recognition) had ten participants, Group 3 (Education and curriculum improvement) had eight participants and Group 4 (Law and regulation enforcement) had nine participants. In general, each group composed of participants with mixed professional background, experiences and

location of practice. During the group discussions, the investigator acted as moderator who rotated between four groups.

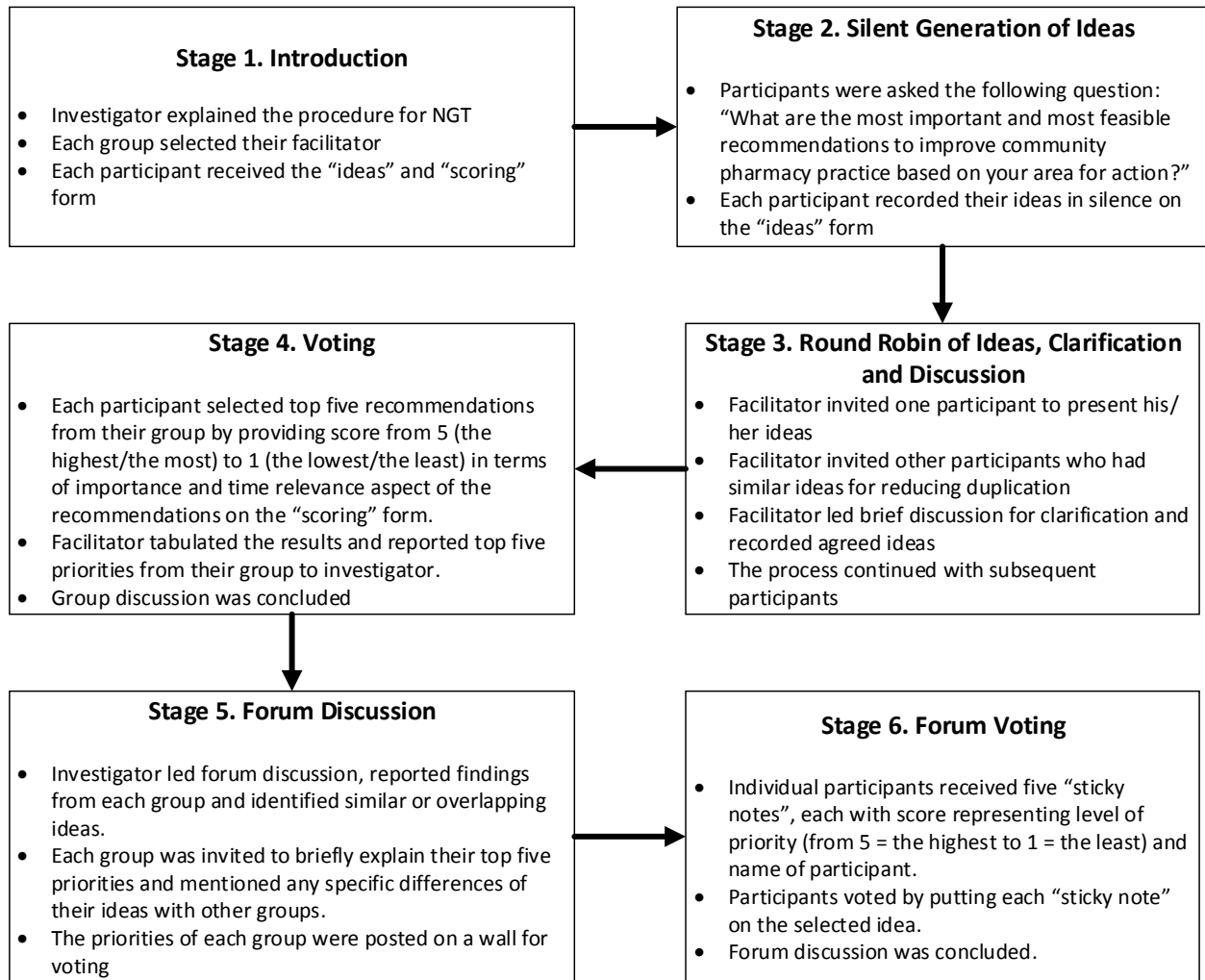


Figure 12. The NGT process

Data Analysis

Both group discussion and forum discussion were audio-recorded and subsequently transcribed verbatim. As the discussions were conducted in Indonesian, the transcripts were back translated to English by the lead investigator and reviewed by research team for the quality of translation.

The lead investigator calculated the total score for each recommendation and created a ranked list of priorities from forum voting (stage 6 of the NGT). The priorities are presented in Table 14. Recommendations that are relatively similar in nature were pooled together into a group of priorities to condense the list with the score was accumulated from each recommendation (Table 15). This has reduced the number of recommendations into priority recommendations. Accordingly, recommendations that generated the highest score (e.g. remuneration for professional pharmacy services) may not reflect the best priority of recommendations. Such prioritisation was deemed possible given the degree of interdependence between recommendations. The list was then reviewed and subjected to thematic analysis.

The thematic analysis began with one researcher (AH) independently reviewing the transcripts and developing an initial coding framework based on the list of recommendations (Table 14). The researcher followed the standard procedure of analysing qualitative data using thematic analysis by coding relevant individual statements, collating codes into potential themes, refining and allocating remaining data into relevant potential themes (Braun and Clarke, 2006). The framework was then discussed within the research team to develop overarching themes and subthemes. During this process, priorities that were deemed closely related were grouped together and aggregated into a new overarching theme. This process was undertaken several times with some revisions required to clarify the research findings. The discussion was also important to resolve any discrepancies among researchers and to ensure that all recommendations were captured in the final framework. A final consensus thematic list was produced reflecting qualitative findings of the study.

Theoretical framework to aid analysis

The study analysed the recommendations from the group discussions by adopting a cultural theoretical approach to explore the relationship between culture-structure-agency (Hays, 1994, Archer, 2005, Dutta, 2011, Moore, 2013). There is increasing interest among pharmacy researchers in exploring the “culture” within the community pharmacy sector. Culture, however, is an elusive term which may cover inherently complex issues such as the cultural competence of pharmacists (O’Connell et al., 2007), the organisational culture of the community

pharmacy and pharmacy as a profession (Scahill et al., 2011, Rosenthal et al., 2017), and the cultural context in which community pharmacy operates (community context) and/or the network of pharmacies is established (country context) (Jacobs et al., 2011, Rosenthal et al., 2011, Scahill, 2013). The term of “culture” has been conceptualised as the opposite to the “structure”. While “culture” has been perceived as flexible and concerns the beliefs, values and ideologies, “structure” has been described as a rigid, hierarchical form that constrains nature by ruling or regulating a society (Hays, 1994). The operation of both “culture” and “structure” has been determined by the role of “agency” which may concern individuals, group of individuals, groups of organisations or government.

By looking at the relationship between culture-structure-agency, this study was able to show how pharmacists and community pharmacy locate “power” and produce their own agency within the structure of the healthcare system. The culture of practice which is developed during the interaction between pharmacists, community pharmacy and the health system structure reflects the opportunity for change. This concept provides a framework for analysing the recommendations generated from the NGT and sheds light on their applicability in practice, as to why these recommendations may or may not be effectively implemented by community pharmacies in Indonesia.

Results

This section is organised into two parts. The first part comprises the quantitative findings of the study, namely the recommendations generated from the NGT, and the second part presents the overarching themes emerging from the group discussions reflecting the qualitative findings of the study.

Quantitative findings

In total, the groups identified twenty recommendations which were believed to be important in answering the nominal question (Table 14). These were then condensed into nine priority recommendations as explained in the data analysis section (Table 15).

Table 14. Recommendations generated from forum voting (stage 6 of the NGT)

No.	Recommendations	Score
1.	Introducing remuneration for professional pharmacy services	63
2.	Establishing pharmacy quality accreditation	52
3.	Enforcing mandatory pharmacists' attendance	43
4.	Developing role model of good pharmacy practice	36
5.	Encouraging peers to deliver pharmacy services	33
6.	Teaching ethics and philosophy of profession for pharmacy students	28
7.	Revising standard for pharmacy premises, facilities and location	22
8.	Extending the duration of Apothecary program	19
9.	Extending the duration of internship program	19
10.	Providing training for preceptor and conducting periodic follow up for preceptorship	18
11.	Enforcing the implementation and supervision of regulation	18
12.	Conducting more periodical pharmacy visits and monitoring by authorities	17
13.	Broadening public campaign on pharmacists' roles in drug safety	13
14.	Setting minimum qualifications for becoming preceptor	12
15.	Promoting more outreach program involving pharmacy and pharmacists	12
16.	Collecting evidence of pharmacists' contribution	12
17.	Improving delivery and variety of topics in Apothecary program	9
18.	Building professional image of pharmacists	9
19.	Developing community pharmacy network	4
20.	Improving drug supply chain by removing sub-distributors in the distribution of pharmaceuticals	3

Table 15. Priority of recommendations

Priority of recommendations	Sum of the score
<i>Recommendation 1. Encouraging pharmacists to practice responsibly</i> Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> • Enforcing mandatory pharmacists' attendance (score 43) • Promoting the role of peers to encourage pharmacists' attendance (score 33) 	76
<i>Recommendation 2. Extending the duration of pharmacy education</i> Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> • Extending the duration of the Apothecary program from one year to two years (score 19) • Longer duration for internship from one semester to four semesters (score 19) • Teaching ethics and philosophy of profession for pharmacy students (score 28) • Improving delivery and variety of topics in Apothecary program (score 9) 	75
<i>Recommendation 3. Establishing pharmacy quality accreditation</i> Major pattern of dialogue within this recommendation: <ul style="list-style-type: none"> • Implementing pharmacy quality assessment (e.g. pharmacy star rating model) (score 52) • Revising standards for pharmacy premises, facilities and location (score 22) 	74
<i>Recommendation 4. Introducing remuneration for professional pharmacy services</i> Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> • Lack of remuneration for pharmacy services (score 63) • No additional payment for working overload 	63
<i>Recommendation 5. Developing the standard model of pharmacy practice</i> Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> • Seeking and disseminating models of good pharmacy practice (score 36) • Building networks of care between community pharmacies (score 4) 	52

Priority of recommendations	Sum of the score
<ul style="list-style-type: none"> Collecting evidence of pharmacists' contribution (score 12) 	
<i>Recommendation 7. Reforming and strengthening policies and regulations</i>	38
Major patterns of dialogue within this recommendation:	
<ul style="list-style-type: none"> Enforcing the implementation and supervision of regulation (score 18) Conducting more periodical pharmacy visits and monitoring by authorities (score 17) Improving drug supply chain by removing function of sub-distributors in the distribution of pharmaceuticals (score 3) 	
<i>Recommendation 6. Improving the quality of preceptorship</i>	30
Major patterns of dialogue within this recommendation:	
<ul style="list-style-type: none"> Training for preceptors and periodic follow up for preceptorship (score 18) Setting minimum qualifications for becoming a preceptor (score 12) 	
<i>Recommendation 8. Involving in public campaign and outreach program</i>	25
Major patterns of dialogue within this recommendation:	
<ul style="list-style-type: none"> Broadening public campaign on pharmacists' roles in drug safety (score 13) Promoting more outreach programs involving pharmacy and pharmacists (score 12) 	
<i>Recommendation 9. Building the nation-wide professional image of pharmacists</i>	9
Major patterns of dialogue within this recommendation:	
<ul style="list-style-type: none"> Branding through social media and participating in government-initiated campaign program (score 9) 	

Qualitative findings

Using thematic analysis, the priorities were grouped into four overarching themes which can be considered important areas for implementing change in the community pharmacy sector: (1) improving professional pharmacy practice, (2) reforming pharmacy education, (3) enforcing policy and regulation and (4) enhancing public recognition of pharmacists.

First theme: Improving professional pharmacy practice

In general, participants recognised the professional roles of community pharmacists and the potential contribution of community pharmacy as a vehicle for improving community health. However, many participants were deeply concerned about pharmacists' common absence from the pharmacy in direct contravention of the regulation. In addition, the current regulation which allows pharmacists to work simultaneously in up to three pharmacies was a common topic in each group discussion with several participants raising concerns about the negative impact of this regulation which also fosters pharmacists' absence at pharmacies. One participant described her experience:

“We have to be strict in ensuring pharmacists’ presence. IAI should withdraw the license if turns out pharmacists are not present...but in reality, it is challenging because some members (of IAI) perceive it as ruining pharmacists’ wealth. We had issue in [name of a city in East Java] with the word “wealth”. There was a pregnant pharmacist who already had one child who applied for practicing in three pharmacies as regulated by the new regulation. She was obviously unable to attend these pharmacies and therefore we did not grant recommendation for her to practice. But she cried desperately and said that it is for her family’s wealth and we could do nothing except give her recommendation”
(Female)

Further, some participants raised the notion that provision of professional pharmacy services is extremely difficult to apply in the current setting as pharmacy is predominantly focused on medicine selling. One participant proposed to change the identity and layout of pharmacy as a means to disseminate professional practice

“If the lay-out of pharmacy is like what we see today, then no wonder retailing is dominant. We need to change the physical lay-out, pharmacist is at the front and medicines at the back. Pharmacy (currently) displays medicines at the front of the shop. With this change, people will look for pharmacists and might not proceed if there is no pharmacist (at the front) and pharmacists will start to think about service” (Male)

Corresponding to this notion, other participants argued the need to revisit the standard for pharmacy premises and location as many pharmacies are adjacent to each other and without careful consideration of safety and quality aspects. One participant argued that changing pharmacy premises is more feasible than any efforts to improve pharmacy practice

“What I see now is there are many pharmacies opened without considering the location particularly after location rules (500 m distance between pharmacies) were lifted. Pharmacies are like merchant stores, like small kiosks. They might not have cooling fridge to store insulin. In [name of a city in East Java], they just put medicines on the display shelf exposed to the sun which I guarantee does not meet the requirements to store medicines. Some pharmacies installed TV for convenience reasons but close to the pharmacy rooftop which may trigger fire as heat meets the electricity and they even don’t have a fire extinguisher. It is actually easier to change pharmacy by improving the premises rather than other efforts” (Female)

Pharmacy accreditation was also perceived as a crucial instrument to improve pharmacy practice. In fact, all participants agreed with the notion that pharmacy must be accredited to ensure the sustainability of good pharmacy practice delivered by the pharmacists and pharmacy. One participant appreciated the initiative conducted by IAI and Health Department to assess pharmacy quality in Yogyakarta.

“The Ministry of Health has what is called an accreditation board and I had experience of working as volunteer for that board. A community pharmacy can request accreditation by the board. Alternatively, pharmacy can adopt the approach in Yogyakarta where IAI and Health Department apply a rating model to pharmacy. It might be pleasant to see a pharmacy get five stars for service excellence” (Female)

While there was no disagreement that professional services must be conducted by pharmacists, the majority of participants highlighted the lack of remuneration for delivering such services. This triggered recommendations for setting remuneration for pharmacists providing professional services.

“Remuneration is crucial as pharmacists have a clear job description. I am often overloaded with work but receive no additional payment. I do health education and health promotion but they are free, then how am I supposed to deliver medication management and follow up to patients (if these are also free)?” (Female)

With respect to remuneration, some participants were aware that payers will not pay pharmacy for nothing. Therefore, they argued that pharmacy needs to develop a strategy to collect evidence of the contribution of pharmacy to community health which is currently lacking as pharmacies have limited capacity for documentation.

“Collecting evidence is important to show the benefits of pharmacy services because there are some good pharmacies. If these pharmacies can document their advice, their patients’ education, clinical outcomes or whatever they do that improves patient’s life then there is potential for recognition. However, the majority (of pharmacists) have not conducted (proper) practice so there is no such documentation” (Female)

Second theme: reforming pharmacy education

Reforming pharmacy education received much attention from participants as they viewed it as fundamental to improving the practice of pharmacy. There was agreement for extending the current five-year program to a six-year program. The justification for this extension is based on the fact that development of clinical knowledge and practical skills are lacking within the current pharmacy curriculum. However, there was mixed response from the participants regarding the format of the proposed education. Several participants proposed the extension of the apothecary program from a one-year course to two years. Others wished that the extension of the apothecary program places emphasis on a longer duration for internships which is currently conducted in one semester (6 month) to four semesters (two years).

One participant who was highly supportive of extending the apothecary program outlined her plan for curriculum reform as follows:

“When I took the apothecary degree, I only did it for 2 semesters. One semester for theory and one semester internship which was also not fully practice based...I propose two years program with first 6 months for theory and 18 months for internship, divided into 6 months general internship to understand the whole pharmacy healthcare system by rotating at industry and clinic – whether in community or hospital, and 12 months focused internship for example students assigned to ward placement for practical experience” (Female)

Several other participants, who preferred an extended internship posited that pharmacy students would have a richer learning experience in developing practical and decision-making skills. Consequently, theoretical courses should be provided in the Bachelor program prior to undertaking the apothecary degree. One participant expressed this recommendation by adding the need to develop a national curriculum as she observed only a few universities have such a program.

“Students must undertake intensive 2 years internship so they become really competent after graduation. This means 4 years of Bachelor program and another 2 years for internship. In addition, there should be national syllabi for internship so it is not only graduates from [name of several A accredited school of pharmacies] who are excellent. Others can be excellent too” (Female)

Extension of the apothecary program would however require many more high-quality preceptors with qualifications. Few such preceptors are currently available within the apothecary curriculum of the majority of pharmacy schools. In addition, one participant proposed the idea that a preceptor could have the authority to direct interns to undertake a competency exam.

“There must be a minimum qualification for becoming a preceptor, for example they have practice experience at least 5 years, their practice is focused on service delivery, they must be knowledgeable and can assist interns because not every practitioner is a good mentor...I suggest the preceptor can issue recommendation for interns to undertake a competency exam” (Female)

Other participants identified the need to maintain preceptorship quality and therefore he suggested issuing guidelines for preceptorship and requirements for preceptors to attend workshops in preceptorship to improve their role in assisting students.

“There should be guidelines in preceptorship and preceptors must attend workshops to enhance their role” (Male)

Apart from the focus on reform of education through improvement of the apothecary program, there was a recommendation to provide better understanding of ethics and philosophy of the profession for pharmacy students. One participant who initially raised this concern argued that the absence of pharmacists is a form of malpractice and negligence which compromises patient safety. Therefore, it is fundamental that students must understand the ethics and philosophy of their profession.

“When pharmacists are not present, they do not conduct professional and ethical roles as well as deliberately letting patients be at risk ...pharmacists are not aware of this issue and therefore, they are taking it lightly to be absent...what they always demand is remuneration but there is a more philosophical problem, they have violated their oath of practice. I suggest we educate the altruistic side first that when you are not present, you have harmed others, you harm your profession” (Male)

Third theme: enforcing policy and regulation

Participants identified that enforcement of policy and regulation is crucial to ensure good pharmacy practice. The discussion about policy and regulation actually occurred across all four discussion groups, primarily relating to pharmacists’ absence, however no new policy frameworks or regulations were proposed by participants to improve the current situation. The fact that policy related recommendation sits in the seventh place in the priority table reflects that policy improvement was not considered as a top priority recommendation. There seemed to be a general satisfaction with the range of policies and regulations enacted in the Indonesian community pharmacy sector, and most of the discussion was about the poor implementation of the regulation in practice. One participant noted the need for more monitoring and site visits by authorities (e.g. BPOM) to minimise pharmacists’ absence. However, she also blamed the authorities for justifying the irresponsible practice given that some staff of BPOM are also working in such pharmacies.

“Of a hundred pharmacies in [name of a city in Central Sulawesi], only four have full time pharmacists in charge...there should be a penalty for that but unfortunately BPOM only audits every three years. In fact, it is difficult because there are BPOM staff working at those pharmacies” (Female)

However, in contrast, another participant commented that the head of BPOM has issued a directive prohibiting its staff from an association with a community pharmacy.

“There was a directive from the head of BPOM which prohibits BPOM staff from being involved in community pharmacy operation either as a pharmacist practitioner or owner. It is effective as in Palembang (a city in Sumatera), BPOM staff are no longer affiliated to community pharmacy” (Female)

These two contradictory arguments highlight that the execution of the policy varies at the practice level and/or between regions indicating the complexity and challenges for regulation enforcement across Indonesia. The problem might be amplified as other institutions such as the police also have the authority to investigate medicines supply at a pharmacy. One participant who holds a prominent position in a pharmacy organization said that police audit is not necessary as it is a form of intervention to the profession. However, he emphasized that to some extent the audit may be effective in encouraging pharmacists to return to the dispensary.

“Many pharmacists complained that they were often visited by undercover police. While I consider it as a form of intervention to the profession, I guess there is “hidden benefit” that many pharmacies were investigated and forcedly closed by the police. I protested (to Police) but to be honest those (pharmacies) were without pharmacists. I actually did not expect police to come but with this way pharmacists are concerned and start to be present during pharmacy hours” (Male)

Rather than focusing on the role of authorities to enforce the regulation, some of the participants highlighted the role of peer groups to endorse pharmacists’ presence. This effort might be more encouraging for pharmacists.

“Pharmacist’s presence must be at the top priority. There are many policies mandating pharmacists to be present. Regulation requires pharmacists to be present (at pharmacy). Ethical profession requires pharmacists to be present...we (peer group) must enforce that absence is not appropriate and it is a disgrace to the profession” (Male)

Fourth theme: enhancing public recognition of pharmacists

Overall, participants agreed that pharmacists must create a better image to improve their role recognition among the public. Part of this recommendation is a suggestion for pharmacists to use a dedicated social media account to interact with the public. However, the participant who raised this idea was aware that pharmacists must develop their own original branding which can be easily and instantly noticed by the public

“I think pharmacy should have a social media account to educate people but not pharmacists as individuals. It can be a team of care collaborating with other (health professionals). What is more important is that pharmacists develop their own branding and be confident with the branding. A public image where people will say “Oh this is the pharmacist. Ask them about medicine” (Female)

One participant recommended community pharmacists be actively involved in public campaigns and outreach programs on medicine use as these programs were often conducted by other professions

“Pharmacists need to conduct more outreach programs, more campaigns on medicine use. It is often doctors who take such initiatives. We need to be confident to say “I am a pharmacist and this (medicine) is my expertise” (Female)

The Ministry of Health actually has promoted a national campaign, aimed to raise community awareness about the appropriate and safe use of medicine, which involves community pharmacists as the main facilitator (Gema Cermat). Similarly, IAI has also introduced Dagusibu which emphasises self-management of medicines by patients under the supervision of pharmacists. However, the majority of participants argued that, despite the importance of these existing programs, their effectiveness is limited due to frequent absence of pharmacists in the pharmacy.

“When people get sick they seek the best doctor but not with the pharmacists. They go to whatever pharmacy. We need to educate people so they look for the best pharmacists. Dagusibu, Gema Cermat are the campaigns for such purposes but it is shameful that pharmacists are not there (at pharmacy)” (Female)

Discussion

This study aims to identify and prioritise potential recommendations for advancing community pharmacy practice in Indonesia. In this paper, we identified nine potential recommendations which were subsequently clustered into four overarching themes: improving professional practice, education, policy and enhancing public recognition of pharmacists. These themes form the basis of the discussion of this study.

The four themes provide a direction that there is a need for careful consideration on how the key recommendations may be effectively implemented within the context of the community pharmacy sector. To assess the applicability of the recommendations in practice a culture-

structure-agency framework was applied. Within this framework, we began our analysis by interrogating the health system (structure), and incorporating the cultural contexts surrounding the everyday practice of pharmacists and the role of community pharmacy and how these two groups found their agency to negotiate and change the structure (culture).

The findings of this study demonstrate that the structure in terms of the regulatory and policy framework has provided a legal basis for community pharmacy and pharmacists in Indonesia to participate within the healthcare sector. This is very important considering pharmacy practice is in the state of infancy in many other developing countries. The fact that there are policy instruments and regulations in place have presented opportunities to promote changes in community pharmacy. However, these findings also highlighted that the top down structure has not been effectively enforced leading to limitations in practice, one of which is the common absence of pharmacists.

Although there is a common perception that community pharmacy is known as a place to obtain medicines, it was found that the dialectical element is missing from the relationship between pharmacists and consumers. As a dialectical space, a prescription and community pharmacy enable pharmacists to engage in conversation with consumers and exchange information about medicines and health-related conditions before making informed decisions regarding treatment options (Weiss and Sutton, 2009, Hattingh et al., 2015). The absence of pharmacists in the community pharmacy creates a space which allows non-pharmacists to undertake the roles of pharmacists. As this situation becomes more prevalent with no immediate solution provided by the profession and the government, communities begin to establish a new culture of viewing and interacting with pharmacists. The public perceives less need to interact with pharmacists as their primary care needs in obtaining medicines have been fulfilled by other agents. As a consequence, pharmacists start to “disappear” from public recognition. In the long term, this may lead to a reduction in the authority of pharmacists in community pharmacy.

The interplay between structure and agency as described earlier suggests that the process for advocating change is particularly dependent on the role of agency to convey the transformation. The discussion below provides an alternative entry to understand how

pharmacists locate their agency and negotiate the structure in everyday roles as both community health advisor and educator as well as health professional. We would further explore how this may be achieved in relation to the four themes that emerged from the NGT.

Breaking down the solutions

The first theme relates to the nature of pharmacy as a setting for professional practice. The recommendations to physically and socially upgrade community pharmacy to accommodate a forward-pharmacist approach appears feasible as it opens up opportunities for interaction with pharmacy clients. This aligns with the findings of Rapport et.al that improving the community pharmacy workspace will enhance “a professional sense of self and meet the demands of the public” (Rapport et al., 2009). Furthermore, the recommendation to revise the standard for premises and facilities and quality accreditation for pharmacy appears to be crucial in order to maintain professional practice. The development of standards, guidelines and accreditation has been highlighted as an attempt to reduce the variation in the qualification of pharmacists and distribution of pharmacies across the country while at the same time promoting “best practice” as both pharmacists and pharmacies have the essential values to optimal patient care (Albanese et al., 2010).

The second theme emerging from the discussions relates to the nature of pharmacists as health professionals. Reforming education is perhaps the most fundamental way to change the culture of a profession. In some developing countries, pharmacy education comprises six years including two years for skills advancement through practice placements (Jamshed et al., 2007, Kheir et al., 2008). While the recommendation to create six years of pharmacy education is common in other developing countries, there are some issues with respect to the Indonesian context. Firstly, extension of the course duration will have an impact on cost both for the schools and more importantly for students. Secondly, the extension will demand longer internships which is problematic as there are relatively few suitable role models who practice at a high professional standard. Existing “good” pharmacies will be overtaxed with too many students and this may further downgrade the quality of preceptorship. Thirdly, a longer course duration for the apothecary program will increase the current bottleneck of graduates at the end of the B. Pharm

program given only a few universities are eligible to conduct the apothecary program. Despite the different country context and practice setting, pharmacy education stakeholders in Indonesia can learn from their neighbouring country, Thailand, by exploring how they transformed a 5-year Bachelor of Science in Pharmacy program into a 6-year PharmD (Doctor of Pharmacy) program in 1999 (Chanakit et al., 2014). The transformation was initiated by collaboration under a US-Thai consortium within which Thai pharmacy educators and practitioners were prepared to develop the first Thai PharmD program. This suggests that a significant transition in pharmacy education in Indonesia requires cooperation between stakeholders within and beyond the country level.

The third theme relates to the strong need to secure a new culture as proposed in the first and second themes. On the one hand, it is essential that professional practice be audited to ensure the quality and safety of services delivered to communities. This approach is common in many sectors including community pharmacy. On the other hand, this may signify an enforcement approach which requires firm and consistent effort by authorities. This is a problematic issue in Indonesia given the people charged with enforcing regulations are practitioners themselves. Previous research demonstrated that good governance that addresses transparency and ensures the framework for action is one step closer towards achieving good pharmacy practice (Kohler et al., 2014, Pastakia et al., 2018). Therefore, separating the role between authorities and practitioners, and thus removing a significant conflict of interest, is indeed necessary in Indonesia for creating control and good governance in the pharmacy sector.

The fourth theme concentrates on the need to broaden the impact of the new culture. Participation in public campaigns and outreach programs as suggested in the group discussion offers a pathway to introduce this identity. In addition, the association of pharmacists (IAI) has mandated that its members wear a pharmacy coat and pharmacist's badge during practice as well as display pharmacists' names and working hours at the pharmacy (Ikatan Apoteker Indonesia, 2014e). This can be considered an effort to introduce pharmacists' identity to public. In so doing, pharmacists must be present at the pharmacy. Therefore, this approach implies that stronger image branding may not necessarily contribute to public recognition unless the pertinent issues as mentioned in the prior themes have been addressed.

The way forward

Good community pharmacy practice cannot be provided without pharmacists (Azhar and Ibrahim, 2018). Indonesian pharmacists should start embracing and actively playing their role as a provider of pharmacy services. Strategic attempts including broadening participation of pharmacy within JKN must be initiated. Alongside this work, there is a need to build evidence-based information and research showing the potential contribution of pharmacists to health. Ibrahim et. al. noted that developing countries have not invested in research, thus leading to a lack of evidence (Ibrahim et al., 2016). The initial steps might involve cross sectional studies with a representative sample of key stakeholders in pharmacy including pharmacists, doctors, and other health care professionals, health policy makers and consumers to provide comprehensive and detailed knowledge of the current situation and the value of pharmacists' presence in practice (Langer et al., 2004). Such a study has never been conducted in Indonesia.

Strengths and limitations

To the best of our knowledge, this is the first study to prioritise recommendations provided by pharmacy stakeholders for advancing the practice of community pharmacy in the context of a developing country. Although based on a small sample, the problems identified in this study are common to many developing countries. This suggests that the recommendations might be relevant for implementation in such countries. Nevertheless, the study does have some limitations. Firstly, it must be acknowledged that the study participants were self-selected with no additional screening concerning practice experience and prerequisite knowledge related to particular topic of the group discussion. However, the interest of participants in choosing to attend the workshop and join particular group discussions demonstrated intention and motivation to improve the current pharmacy situation, a value which is important for understanding practice change. Secondly, the fact that only one investigator conducted the NGT is another limitation. During the 90 minutes, one researcher had to rotate between groups. There is a possibility of researcher bias which may have undervalued some groups and overvalued others. While it is necessary to employ two or more investigators for the NGT rather than relying on ad-hoc facilitators among participants, the investigator strived to minimise this problem

through the help of students' assistants for tabulation and recording process and providing materials about the workshop and the NGT in advance to participants.

Conclusions

This study has identified nine priority recommendations with the potential for advancing community pharmacy practice in Indonesia. The recommendations target improvement in four overarching areas comprising professional practice, education, policy and the professional image of pharmacists. While there is much to be done by Indonesian pharmacy stakeholders to improve the situation, the framework and discussions in this study offer an alternative for pharmacists and community pharmacies to advocate changes within the challenging health system structure. Further work is therefore needed to provide evidence of pharmacists' contribution to healthcare.

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References

References are provided in consolidated list at the end of thesis.

6.4. Chapter Conclusion

This chapter highlights the results of three studies conducted in Indonesia. The first two studies (chapter 6.1 and chapter 6.2) using in-depth semi structured interviews revealed that community pharmacy situation and system in Indonesia have changed particularly after the introduction of JKN in 2014. The changes, however, have not always been positive for pharmacy given that community pharmacy and pharmacists are still under-utilised and marginalised under the JKN. The planes of analysis used in this chapter in fact showed that community pharmacies continue to be hampered by structural and fundamental issues which in the main do not relate to the policy changes provided by JKN. Having said this, there has been enthusiasm of policy makers and pharmacy stakeholders to improve community pharmacy practice given the number of approaches introduced within the past ten years. However, the success of these approaches has been limited due to poor enforcement, lack of trust for pharmacy authorities and scepticism about their impact. Apart from some local initiatives which have tried to improve the situation, it is clear that some fundamental and entrenched barriers to practice will need to be overcome in order to create a more professional climate for the practice of pharmacy in Indonesia.

Accordingly, recommendations for advancing practice are importantly and perhaps urgently needed. A nominal group discussion involving a wide range pharmacy stakeholder identified nine priority recommendations targeting improvement in four overarching areas comprising professional practice, education, policy and the professional image of pharmacists. The culture-structure-agency framework in the third study (chapter 6.3) presents an alternative for pharmacists and community pharmacies to advocate changes within the challenging health system structure. This is a massive effort and might require an overhaul of the system. Nevertheless, a small step such as providing evidence of pharmacists' contribution to healthcare can be a starting point to improve the system.

CHAPTER 7. DISCUSSION AND CONCLUSION

This chapter highlights the main findings of the studies and discusses their implications for practice change and pharmacists' role development in community pharmacy. Conclusions of the studies are presented at the end of the chapter.

7.1 Discussion

7.1.1. Answering the research's aims

The primary aim of this thesis is to investigate changes in the contemporary practice in both Australian and Indonesian community pharmacies, representing the case in developed and developing countries, respectively. The objective included exploration of factors influencing changes, policy implementation and the role of stakeholders in promoting changes in each country, with the goal of providing a framework for future policy development and implementation particularly for Indonesian pharmacy sector.

This study confirmed that the community pharmacy sector in Australia and Indonesia has experienced significant changes within the past decades with a number of issues internal and external to the pharmacy profession impacting on the nature and performance of traditional community pharmacy operating model.

There are many differences between Australia and Indonesia in how community pharmacy is practiced. However, despite the differences in country context and healthcare systems, the current pharmacy business model in both countries still largely focuses on dispensing activities. This is not surprising as dispensing has been the predominant revenue generator for pharmacy over many years (Quilty, 2014, Clarke, 2014). However, this study clearly identifies that there is increasing concern from stakeholders in both countries that over-reliance on a dispensing business model may constrain the capacity of pharmacy and ability of pharmacists to deliver high quality health outcomes and to meet consumer and government expectations. In addition, preserving dispensing as the main pharmacy activity may actually threaten the viability of community pharmacy as government policies change, leading to a reduction in the number of pharmacies (Singleton and Nissen, 2014), pharmacists leaving the

profession (Mak et al., 2013) and damage to healthcare delivery in the long term (Clarke, 2014, McMillan et al., 2015b).

This study has noted that practice change has been an ongoing agenda in both countries with the main pharmacy organisations – the PSA and the PGA in Australia and the IAI in Indonesia – actively advocating and guiding the process of change while at the same time working to protect the foundation and the scope of pharmacy practice. The practice change agenda has been manifested in a range of legislation and programs and is even more exclusive (and protective) in Australia given the implementation of the CPAs and their associated features such as ownership restriction and pharmacy location rules.

Nevertheless, the retail environment, the growing corporatization of pharmacy, the rise of supermarket/discount-style pharmacies and the intense competition between pharmacies impose another limitation on practice change as pharmacies seek to retain profitability and a competitive market edge (Singleton and Nissen, 2014). Despite the rhetoric that pharmacy practice is shifting towards patient-oriented care, this thesis suggests strongly that in the contemporary situation pharmacy has made little progress towards enshrining such a practice model as their primary role.

Thus, there is a disconnect between the current practice of pharmacy and that being envisaged in the practice change related policy objectives and the expectations of pharmacy stakeholders. Surprisingly it is common to both Australia and Indonesia, highlighting that both developed and developing countries struggle with the agenda of practice change. The lesson to be learned here is that, no matter what stage of development a country has reached, challenges to future evolution will always remain (Mossialos et al., 2015).

The tension between professionalism and business continues today with community pharmacy attempting to find the balance point between them. Professional roles such as locating non-dispensing pharmacists in GP practices or as independent consultants specializing in pharmaceutical care are emerging and may offer pathways for moving away from the supply model (Freeman et al., 2012, Hazen et al., 2018); these do not yet appear completely viable in the current situation which is dominated by the retail and supply model.

However, this study provides cause for cautious optimism. The results suggest that there remains a case for retention of the supply role, and that this role is not incompatible with the practice change agenda. Dispensing is arguably the core of pharmacists' function and therefore it should not be entirely removed from the scope of pharmacy practice. This study therefore suggests that dispensing can be conducted in a more professional manner (particularly in Indonesia), which allows pharmacists to engage more fully with patients and their care. Whilst pharmacy remains as a small business, generating profit is fundamental, but pharmacists must be able to expand their revenue sources to ensure sustainability of their business. Practice change to incorporate care models offers one way that this may be achieved. The work reported in this thesis suggests some key elements of the change process including both aspects to be promoted and pitfalls to be avoided.

7.1.2. Adopting planes of analysis to describe contemporary situation

Drawing on the planes of analysis framework, this study has demonstrated the interrelatedness of factors and influences operating at the micro, meso and macro level of practice. Practice change occurs in these three levels simultaneously and interdependently with changes at any one level having significant potential to, and actually having had, unintended and unpredictable consequences on practice. Thus, understanding one particular level is not sufficient. For example, lack of pharmacists' readiness to change has been cited as a prominent barrier in implementing new services (Tootelian et al., 2007, Rosenthal et al., 2010, Rosenthal et al., 2016). While it is true that the individual pharmacist's attributes affect practice change, it should not be regarded as the sole barrier (Luetsch, 2016). This is because an individual pharmacist works under a system which may or may not be supportive for practice change. The value of the approach adopted in this thesis not only lies in its potential to view the practice in a holistic manner but also in its ability to focus on critical aspects of the situation while not losing sight of the whole. This is quite different to other models where the situation is regarded as a complex system and difficult to analyse (Plsek and Greenhalgh, 2001, Jordon et al., 2010, Scahill, 2012), or as a set of disconnected levels (Dopfer et al., 2004, Kafiriri et al., 2007, Ong et al., 2014). To our knowledge, this is the first time such an analysis has been used to explain the interaction of the multiple influences on the change process.

Emerging from this analysis, it is clear that in both countries the process of change is not straightforward and cannot be achieved at once, even in an environment that is “protected” and ready for change such as in Australia. Transforming pharmacy into a health hub destination (McMillan et al., 2013) may even be unrealistic in developing countries such as Indonesia given the limited capacity to resolve fundamental issues such as availability of the pharmacy workforce. Therefore, all countries, but especially developing countries, should critically think and be reflective about their country contexts, the complexities of practice and challenges before adopting successful experiences or stories from other countries. This study confirms that the planes of analysis framework offers the potential for reflective thought and transformative thinking about the complexities of the system and implications for introducing policies in a constantly changing environment such as occurs in the community pharmacy sector.

It is also the case that there may be valuable lessons for Australian community pharmacy from the findings of the Indonesia study. For example, the absence of location rules in Indonesia has led to a maldistribution of pharmacies and intense competition (Nata, 2013, Sukamdi et al., 2015). In addition, the absence of pharmacist-ownership legislation has resulted in the majority of pharmacies in Indonesia being owned by non-pharmacists (Purwanti et al., 2004, Harianto et al., 2006, Supardi et al., 2012). This situation may correlate with the poor quality of services and commercial operation of pharmacy as non-owner pharmacists in fact control the pharmacy (Hermansyah et al., 2012, Dominica et al., 2016). Given the increasing demand to remove location rules and pharmacist only ownership particularly as suggested by a number of reviews concerning pharmacy competition (Wilkinson, 2000, Harper et al., 2015, Department of Health and Pharmacy Guild of Australia, 2017) similar problems may also occur in Australia.

7.1.3. Analysing practice change development using the PARIHS framework

The efforts to transform “common practice” ultimately require evidence to forecast the desired potential impact of expanding pharmacists’ roles. Therefore, investment in R&D in community pharmacy is essential for producing robust evidence supporting the clinical and cost-effectiveness of new pharmacy services. However, the research reported in this thesis has demonstrated that R&D alone is not sufficient to drive change (Hermansyah et al., 2017b).

The Australian experiences as highlighted in chapter 5.2 showed that there has been some success as a result of R&D investment under the CPAs, but it has not necessarily driven practice change as expected. Successfully collecting evidence does not always lead to successful and reliable implementation of the research into practice (Hughes et al., 2015). The PARIHS framework used in this study guided explanation that while the establishment of robust evidence has been a critical reason for implementing evidence-based CPS, the roles of context and facilitation cannot be understated.

The use of evidence in policy making is unquestionably important. However, the context in which the research is translated is also crucial. Ultimately, as policies are not developed in a vacuum, political commitment (or expediency) is often the main facilitator to drive translation of research into practice. Policy makers in Australia have appeared to favour funding of CPS that showed evidence of significant potential monetary savings to the healthcare system rather than their health benefits. Additionally, translating research needs to take account of the economic benefits of CPS to the business of pharmacy including the contribution to the income of individual pharmacist(s) and the capacity of pharmacists to deliver the CPS. In contemporary Australia, the low income-generating capacity of CPS has proven to be a major reason for its limited uptake (Benrimoj et al., 2010, Singleton and Nissen, 2014).

While Australia has dedicated funding for the R&D program in community pharmacy, this is not the case in Indonesia. The fundamental issues in Indonesia are such that R&D in practice development is currently a lower priority than regulatory compliance. The process for creating the opportunity for practice change is structural and hierarchical with policy-makers and pharmacy stakeholders determined to have the policy structure in place before changing practice. While this approach might be relevant in the short term, the investment in R&D should still be included in the agenda for change particularly in the long term as pre-requisites to the introduction of widespread evidence based services.

7.1.4. Potential (missed) opportunities in the current practice

This thesis has presented the process of practice change in Australia and Indonesia. The focus is not on comparing both systems but rather on linking features and arrangements of practice change in both countries and trying to identify (missed) opportunities within each system.

The findings of the Australian studies demonstrated that the consecutive CPAs in Australia have presented an opportunity for community pharmacies to achieve better health outcomes for patients and communities through provision of high quality and sustainable pharmacy services (Hermansyah et al., 2016a). In addition, the CPAs have been useful in providing certainty for the operation of community pharmacy by means of consistency in dispensing income and location and ownership rules that in many aspects have preserved “privileges” for community pharmacy. In a nutshell, the CPAs have been both a conduit to recognition of an expanded role for pharmacists and a strategy to drive practice change. However, the over-reliance on the CPAs – particularly the dispensing revenue – in combination with continuous health system and PBS reform has threatened the viability of community pharmacy operations. With funding for dispensing falling within the last two agreements, community pharmacies are under greater pressure to find other sources of income including from provision of CPS. Unfortunately, the proportion of income from CPS to date has been relatively small and not sufficient to replace potential revenue losses from dispensing. The CPSs have therefore been a double-edged sword in that the revenue certainty from dispensing negotiated every five years has also proven to be a stumbling block for the development of alternative revenue streams (Quilty, 2014, Singleton and Nissen, 2014).

Indonesia, on the other hand, has introduced various policy initiatives and legislation which are not only fundamental in regulating the community pharmacy sector but also reflect enthusiasm and commitment from policy makers and pharmacy stakeholders towards pharmacists’ role development. However, there has been no evaluation of the effectiveness of these regulations in achieving their policy objectives. In addition, the findings of this thesis highlighted that some of the initiatives were introduced using a piecemeal approach which created collateral damage to the health system. For example, the introduction of JKN which was heralded as a “game changer” for community pharmacy sector given the possibility for pharmacy

to become involved in primary care networks has in fact created barriers for pharmacy role advancement.

With a myriad of issues including three notable barriers namely poor policy enforcement, lack of trust of pharmacy stakeholders and scepticism towards the impact of the policy initiatives hampering policy implementation and professional practice of pharmacists, it can be said that the regulations in Indonesian pharmacy sector have failed to engage with the practice realm. Accordingly and not surprisingly, there have been some local initiatives to drive changes reflecting that the top-down approach has been problematic.

7.1.5. Developing culture-structure-agency approach to advance practice

This study used the culture-structure-agency approach to deliver a clear message that navigating practice change in Indonesia must consider the presence and the interdependence of these three aspects. The central assumption of this approach lies in the role of agent(s) to introduce a change of culture under the constrained and challenging healthcare structure. In doing so, the agent(s) – pharmacists and pharmacy stakeholders – must be proactive, self-motivated and dedicated about maximizing control over their practice which currently is lacking due to poor presence of pharmacists in practice (Dominica et al., 2016, Herman and Susyanty, 2012). The role of organisational culture, however, is also crucial in helping to facilitate engagement by pharmacist and pharmacy stakeholders with the rest of healthcare system once the structural change is introduced (Scahill, 2012). The introduction of JKN for example, can be a challenging yet promising avenue to reconfigure community pharmacy position, demonstrate performance and contribution as the focus of the program has been delivering effective healthcare within defined budget cap (Hermansyah et al., 2018b).

Using culture-structure-agency approach, four recommendations were generated from a NGT namely improving professional pharmacy practice, reforming pharmacy education, enforcing policy and regulation and enhancing public recognition of pharmacists. While the importance of these recommendations is outlined in chapter 6.3, there is a necessity to provide conclusive strategies for Indonesia based on the overall findings and comparison with Australian studies.

Learning from other country experiences (Department of Health, 2008, Canadian Pharmacists Association, 2008), there is a need for a shared vision among pharmacy stakeholders which conveys commitment to strengthen the profession and align pharmacy practice with national health priorities. The proactive participation of all stakeholders is without a doubt a prerequisite to deliver a practice change agenda. However, to reach such consensus is also an issue. While IAI is currently the main organization advocating changes in the profession, there is strong call to bring all pharmacy stakeholders to the table. Thus, a recommendation emerging from this research is that the IAI should establish the sense of urgency that change is an imperative and preserving status quo is not an option. Reflecting the initiatives by the PSA (Pharmaceutical Society of Australia, 2010) and the PGA (Pharmacy Guild of Australia, 2010b), a roadmap document to articulate such sense of urgency can be an option for communicating the issue within and beyond the profession. Subsequently, a coalition between these stakeholders – as the experience of the Australian pharmacy stakeholders’ forum (Pharmacy Stakeholders Forum, 2014) – must be established.

The study findings recognised the importance of national government bodies in enhancing pharmacy practice development but concurrent efforts involving local organisations and actors also appear to be feasible and realistic in the context of Indonesia. In other words, both top down and bottom up approach should be simultaneously established and directed to promote sustainable changes in community pharmacy practice. For example, motivating pharmacists to change and persuading them to take action is not necessarily the role of government or professional organizations. A group of pharmacists working together to sort out practice problems can serve as an example to other pharmacists and potentially provide insight and guidance for other pharmacists. The role of peers in supporting and mentoring new pharmacy graduates to face practice change is also a possible way forward. The success of such approach can be scaled up or even replicated to other areas to accelerate the process.

There has been a lot of discussion among Indonesian pharmacy stakeholders about equipping pharmacy graduates with new set of skills focusing on clinical pharmacy (chapters 6.2 and 6.3). The dialogue however has been rhetoric and commentary with little empiric work conducted to change curricula. Furthermore, as Indonesia is also still struggling with the

pharmaceutical system and pharmacists' presence in pharmacy, the movement towards clinical pharmacy roles seems have stagnated. The re-professionalisation agenda appears to be poorly understood even by pharmacists themselves.

The above situation reflects a need for a systematic plan in changing pharmacy education to ensure that necessary clinical competencies are possessed by graduates. Prior to this, stakeholders in pharmacy education must be consistent in adopting and implementing a vision of the future of the profession as mentioned earlier. Schools of pharmacy are indeed in the frontline of creating a momentum for change driven by education (Ferreri et al., 2017). An important consideration, however, is to carefully design the plan and execute it with a clear evaluation strategy given the abundant number of schools of pharmacy in Indonesia and the wide gap between these schools in terms of their accreditation level.

Expanding community pharmacists' roles and introducing professional pharmacy services are difficult – perhaps impossible – under an environment that is tainted by ongoing issues in pharmaceutical management and distribution such as shortage of medicines and counterfeit drugs and poor enforcement such as illegal supply of medicines and collusion over law enforcement (Chapters 6.1 and 6.2). Several papers and reports have confirmed that collusive practice in the pharmaceutical sector including in retail pharmacy is evident. Examples include directing patients to particular brand name products (Hermawan, 2013), over-servicing patients (Sudirman, 2012) and over-charging patients for pharmaceuticals beyond the maximum retailing price (Diack et al., 2010). While a solution to this problem might involve an overhaul to the system, the findings of this thesis suggest that a thorough evaluation of the effectiveness of regulation and consolidation of regulation should be undertaken to improve the access to medicines and better enforcement. The fact that pharmaceutical legislation and regulation in developing countries is “often inadequate and largely un-enforceable” implies the need for such evaluation (Lowe and Montagu, 2009). However, this study acknowledged that part of the reason of this problem is perhaps the government has been short-sighted and ill-informed when devising strategies for pharmacy. This highlights the need for investment in research and resources to better inform the policy making process.

The lack of research evidence means contribution of community pharmacists to patient care is unknown. Thus, it is not surprising that policies and regulations have been developed without any reliable data to provide a rational basis for the policy direction. The study findings emphasize the key role of research in supporting practice change. While pharmacy practice research activities in Indonesia are predominantly conducted by academic institutions (Tri Murti Andayani and Satibi Satibi, 2016), there is strong reason to expand this scope to include community pharmacists in research. Given the scant data around policy effectiveness, consideration should be given to making it mandatory or providing incentives for pharmacists to participate in “routine research” such as audits or service evaluations to develop an evidence-based pharmacy practice. Alternatively, research can be directed towards practice development by testing new services and innovations in pharmacy.

Lastly, investing in resources, whether this be workforce, funding or remuneration, time and infrastructure, is essential in supporting transformation of pharmacy practice. The increased workload, lack of time, lack of pharmacists, inadequate remuneration and limited space for patient interaction have often been identified as barriers in realizing the full potential of pharmacists (Lounsbery et al., 2009, Berbatis et al., 2007b, Agomo, 2012, Mak et al., 2012, McMillan et al., 2015b). However, despite the urgent need to tackle these issues, change takes time and is often dependent on the pharmacy-specific context. Identification and prioritisation over what can be addressed at the macro, meso and micro level is therefore critical.

Taking the success of Pharmacy Health Destination Project in Australia as an example (Pharmaceutical Society of Australia, 2017), the IAI could provide assistance and coaching to build capacity within pharmacies to become service oriented settings while at the same time offering a mechanism to ensure that appropriate infrastructure and resources are in place (meso-micro level). At the macro level, the profession must actively advocate and lobby the government to better utilize pharmacists as untapped resources in primary care. This will open up opportunities for broadening pharmacists’ participation under the JKN. More importantly, effective funding models for compensating pharmacists, that are not GP-centric as currently occurs under the JKN scheme, is likely to increase pharmacy contribution within JKN. The literature has shown that introduction of a remuneration scheme based on a payment for service, stimulates pharmacists

to change (Houle et al., 2014, Breault et al., 2017). There is a case for a unique pharmacy contribution to Indonesian healthcare. However, without significant modification to the health system including funding for pharmacy services and governing system, it seems impossible to expect a broader and sustainable delivery of high quality pharmacy services.

7.1.6. Strengths and Limitations

A key strength of the studies that comprise this thesis lies in the analytical approach taken to consider three different levels of influence on practice simultaneously, interdependently and comprehensively. This means changes in one level will influence the other levels. While it is necessary to focus onto one particular level for deeper analysis, the approach promotes viewing the three levels comprehensively as one interdependent system. In addition, a more nuanced understanding of the contemporary situation offers an insight on how to influence the process of change in community pharmacy. This study used the contemporary situation to represent the starting point from which any change begins. With this approach, pharmacy leaders and policy makers can develop future potential ways of stimulating practice change.

The use of relevant theoretical frameworks incorporated in the discussion of the findings facilitated an in-depth analysis of the current state of practice of pharmacy and the influences affecting its stage of development in each country. In this thesis, several theoretical frameworks were used including planes of analysis (chapter 5.1 and 6.1), the PARIHS framework (chapter 5.2) and culture-structure-agency approach (chapter 6.3). As far as can be determined, this is the first study that has applied these frameworks in the context of practice change in community pharmacy.

This thesis gathered a broad range of views of key stakeholders in healthcare and pharmacy system in each country reflecting rich experiences regarding changes in community pharmacy across different actors in the respective health systems. Another strength is that conducting research in the Indonesian community pharmacy sector has helped to fill a gap concerning pharmacy development in Indonesia. This is undoubtedly a significant contribution for pharmacy research and practice in Indonesia particularly because this study provides evidence regarding the experiences of community pharmacies and pharmacists facing the changing climate in Indonesian healthcare and pharmacy system.

However, there are a number of limitations that need to be acknowledged.

First, a systematic review was conducted pertaining to pharmacy services and emerging public health initiatives in five developing Southeast Asian countries. Given the dearth of such reviews in the context of developing countries, the review presented in this paper addressed this gap by reporting the evidence base of pharmacy role expansion in the public health sector. A systematic review of published literature can be a useful reference to help set and inform the background of a research before it is initiated. In addition, a systematic review is also an important tool for policy makers to support rational decision making. However, the evidence base of a systematic review strongly depends on the quality of the studies included in the review. By limiting the search to articles published only in English, the review may have not covered other important papers and reports published in other languages. In addition, opting for five particular countries may not entirely reflect community pharmacy practice within the region.

Second, the use of a qualitative research method in this study also involves some limitations. With a wide-range of key stakeholders from both countries participating in the studies, the use of interviews was essential to portray the complexity and dynamic of practice change in both countries. While the method was not intended to be generalizable, the decision to include “particular” stakeholders through purposive sampling is an inherent limitation of the method. In addition, the study was unable to capture the perspectives of participants who declined to participate such as discount pharmacies in Australia and GP Farmasi in Indonesia despite their significant role in influencing practice in community pharmacy. Likewise, a nominal group discussion is a useful and effective method to elicit information and prioritise actions or recommendations from participating individuals. However, one of the limitations as highlighted in chapter 6.3 is that the participants in the group discussion might not represent the overall stakeholders and groups in the community pharmacy sector. Coupled with the diverse experiences and backgrounds of the participants, the group discussion may not explore the complete picture of pharmacy practice and accordingly the recommendations generated from the discussion may not tackle some specific issues in the community pharmacy sector for example pharmacy workforce allocation and distribution.

Third and finally, given the evolving state of community pharmacy practice, it is important to consider the contemporary situation prior to applying the findings and the recommendations provided by a number of published papers in this thesis. The studies have emphasized data collection based on the contemporary situation which may change in the future. Therefore, to the extent possible, consideration of other factors such as context, culture and contemporary practice must be acknowledged when navigating future changes using references from this study.

7.1.7. Implications for future research

There are several areas of future research that emerge from the research presented in this thesis. While Australia already has national data about community pharmacists' value, roles and scope of practice (Roughead et al., 2002, Berbatis et al., 2003), there is a paucity of such data in Indonesia. Therefore, the first area for future research is to collect national data regarding pharmacists' activities, workplace structure and function in Indonesian community pharmacies. This research would be best designed as quantitative research in the form of a national survey recruiting pharmacists working in both community pharmacies and Puskesmas. The availability of such information is crucial to map and to provide baseline data about pharmacists' roles, characteristics and positions in everyday practice.

The second area of future research which is relevant to both countries is to collect evidence of pharmacists' contributions to providing professional pharmacy services in terms of Economic, Clinical and Humanistic Outcomes (ECHO). While there has been research examining the impact of HMRs in relation to ECHO, other professional services such as Medscheck and Clinical Interventions have not been supported by robust evidence about their contribution to patients' quality of life – apart from economic benefits obtained by the pharmacy for delivering the services (Paola, 2017). In addition, funding for Medscheck and Clinical Interventions was extended under the 6th CPA with funding for HMRs remaining capped and unclear as a result of a review to the MBS item (Department of Health, 2017). It is therefore important to extend research into these services aiming not only to estimate cost-effectiveness but also to explore continuity of care and conjunction between the existing services to enable pharmacists to provide continuing support to patients. The pharmacy remuneration and regulation review in its interim report has recommended an expanded HMR program which for example can be a

pathway for resolving health issues for high-risk patients initially identified by Medscheck at the pharmacy (Department of Health and Pharmacy Guild of Australia, 2017). While pharmacists in Indonesia have been limited in their provision of expanded services as compared to their colleagues in Australia, future research can be directed to observe and quantify the potential value of pharmacists being present in community pharmacies. This would include designing an action research or case study that explores the quality of patients' lives and the availability of pharmacy resources in a practice setting that employs full-time pharmacists.

More research could also be conducted to seek the possibility of alternative practice models that focus on the delivery of professional services yet offer certainty for viability under the changing climate in the community pharmacy sector. Specific to Indonesia, such research can be targeted to investigate community pharmacies which already provide a high standard of pharmacy practice as a means of fostering role models in practice. The concept resembles the experience of the Health Destination Pharmacy Trial program in Australia where support and assistance were provided for pharmacies to enable them to advance practice (Pharmaceutical Society of Australia, 2017). The application in Indonesia, however, would initially aim to enable pharmacies to consistently achieve a minimum standard of good pharmacy practice as defined by the legislation (Ministry of Health Indonesia, 2016e) and which is currently not fulfilled by the majority of pharmacies in Indonesia.

Finally, there is a need for continuous evaluation and review of the community pharmacy sector. Although Australia has experience with a number of reviews concerning the practice of community pharmacy (Australian National Audit Office, 2015, Harper et al., 2015, Department of Health and Pharmacy Guild of Australia, 2017), there has been no national scale review evaluating pharmacy integration within primary care practice and the extent to which pharmacy acts as link between GPs and hospitals. Likewise, Indonesia is lacking evaluation of a number of aspects such as the effectiveness of policy implementation and evaluation of the roles of community pharmacy.

7.2. Conclusion

For generations, we have heard that “pharmacy is at the crossroads” and “pharmacy is changing” but the critical question is what does this mean for the practice of community pharmacy? In reality, we have seen that the progress of change has been slow with limited provision of professional services beyond the dispensary. Unfortunately, this is true in the contemporary practice of community pharmacy in both developed and developing countries.

This is the first body of research that explores and contrasts practice change in community pharmacy in both developed and developing countries. The studies demonstrated that practice change is driven by a myriad of factors that are both internal and external to the community pharmacy sector and that it is only likely to be successful and sustainable if policies take account of these various influences

There are a number of conclusions generated from this study. Firstly, the contemporary situation in community pharmacy is complex and dynamic with multiple factors influencing changes interrelatedly, and simultaneously operating at micro (individual pharmacist), meso (community pharmacy) and macro (network of community pharmacy within healthcare system) levels of practice. Secondly, the R&D programs funded under the CPAs have had a positive impact on Australian community pharmacy. However, when it comes to implementation of new CPS, there are problems concerning the evidence, context and facilitation. Thirdly, both Australia and Indonesia have introduced several key policy initiatives to support practice change with pharmacy stakeholders playing active roles in advocating such changes. However, what remains a challenge is that the income of pharmacists and pharmacies is still highly reliant on dispensing which represents a missed opportunity for patient care. Fourthly, a number of recommendations have been proposed but their implementation is challenging and to some extent may require an overhaul of the current system.

This is not the first call for community pharmacy and pharmacists to change. However, this thesis provides frameworks and approaches to comprehensively understand the situation in community pharmacy. While the situations in Australia and Indonesia – representing developed and developing countries, respectively – are unique in terms of practice change, these tools can be used to obtain insight on what is occurring and what is needed to initiate the transformation in other countries.

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APPENDICES

Appendix 1. Ethics Approval for Interview



Research Integrity
Human Research Ethics Committee

Thursday, 23 October 2014

Prof Ines Krass
Pharmacy; Faculty of Pharmacy
Email: ines.krass@sydney.edu.au

Dear Ines

I am pleased to inform you that the University of Sydney Human Research Ethics Committee (HREC) has approved your project entitled **"An Investigation to Practice Change in Australian and Indonesian Community Pharmacy: An Insight for the Development of Contemporary Practice in Australia and Indonesia"**.

Details of the approval are as follows:

Project No.: 2014/820
Approval Date: 18 October 2014
First Annual Report Due: 18 October 2015
Authorised Personnel: Krass Ines; Hermansyah Andi; Sainsbury Erica;
Documents Approved:

Date Uploaded	Type	Document Name
8/09/2014	Interview Questions	Interview guide for Indonesian case studies (in bahasa)
8/09/2014	Interview Questions	Interview guide for Indonesian case studies (in english)
8/09/2014	Interview Questions	Stakeholders interview guide for Australian case studies
8/09/2014	Participant Consent Form	Participant Consent Form (in bahasa)
8/09/2014	Participant Consent Form	Participant Consent Form (in english)
8/09/2014	Participant Info Statement	Participant Information Statement (in bahasa)
8/09/2014	Participant Info Statement	Participant Information Statement (in english)
8/09/2014	Recruitment Letter/Email	Invitation for Interview for Indonesian Participants (eng)
8/09/2014	Recruitment Letter/Email	Invitation for Interview for Indonesian Participants(bahasa)
8/09/2014	Recruitment Letter/Email	Invitation letter for Interview for Australian Participants
16/10/2014	Recruitment Letter/Email	Revised Invitation Letter
16/10/2014	Telephone Scripts	Script for informal communication

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CRICOS 00026A

HREC approval is valid for four (4) years from the approval date stated in this letter and is granted pending the following conditions being met:

Condition/s of Approval

- Continuing compliance with the National Statement on Ethical Conduct in Research Involving Humans.
- Provision of an annual report on this research to the Human Research Ethics Committee from the approval date and at the completion of the study. Failure to submit reports will result in withdrawal of ethics approval for the project.
- All serious and unexpected adverse events should be reported to the HREC within 72 hours.
- All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.
- Any changes to the project including changes to research personnel must be approved by the HREC before the research project can proceed.
- Note that for student research projects, a copy of this letter must be included in the candidate's thesis.

Chief Investigator / Supervisor's responsibilities:

1. You must retain copies of all signed Consent Forms (if applicable) and provide these to the HREC on request.
2. It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

**Professor Glen Davis
Chair
Human Research Ethics Committee**

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007), NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007) and the CPMP/ICH Note for Guidance on Good Clinical Practice.

Appendix 2. Ethics approval for Nominal Group Discussion



Research Integrity & Ethics Administration
Human Research Ethics Committee

Friday, 19 May 2017

Prof Ines Krass
Pharmacy; Faculty of Pharmacy
Email: ines.krass@sydney.edu.au

Dear Ines

Your request to modify this project, which was submitted on 15 March 2017, has been considered.

After consideration of your response to the comments raised the project has been approved to proceed with the proposed amendments.

Details of the approval are as follows:

Project Title: An Investigation to Practice Change in Australian and Indonesian Community Pharmacy: An Insight for the Development of Contemporary Practice in Australia and Indonesia

Project No.: 2014/820

Next Annual Report due: 18 October 2017

New Approved Documents:

Date Uploaded	Type	Document Name
27/04/2017	Participant Info Statement	Updated PIS Final (Clean) Version
15/03/2017	Participant Consent Form	Appendix 2. Consent Form
15/03/2017	Questionnaires/Surveys	Appendix 3. Topic guide and format of the discussion
15/03/2017	Cover Letter/Correspondence	Appendix 4. The script for email reminder
15/03/2017	Advertisements/Flyer	Appendix 5. A short description on the website

Please contact the Ethics Office should you require further information or clarification.

Sincerely

Dr Jim Rooney
Chair
Modification Review Committee

The University of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007) and the NHMRC's Australian Code for the Responsible Conduct of Research (2007).

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Appendix 3. Interview Guide for Australian Participants

AN INVESTIGATION TO PRACTICE CHANGE IN AUSTRALIAN AND INDONESIAN COMMUNITY
PHARMACY: AN INSIGHT FOR THE DEVELOPMENT OF CONTEMPORARY PRACTICE IN AUSTRALIA AND
INDONESIA

STAKEHOLDERS' INTERVIEW GUIDE – AUSTRALIA

Basic Information about Participant

Name of participant : _____

Official title : _____

Sex: F: _____ M: _____

Agency/organization : _____

Date(s) of interview: _____

Name of interviewer: _____

INTRODUCTION

I want to thank you for taking the time to meet with me today.

My name is Andi Hermansyah and I would like to talk to you about your views and experiences as stakeholder in the community pharmacy practice, specifically your role in the _____ (name of the organization).

As I have already mentioned in email or telephone, and also it has been stated in the Participant Information Sheet which you have already received that the objective of this study is to explore changes in the community pharmacy practice. These changes encompass the CPS funded under the Community Pharmacy Agreements and R&D in community pharmacy practice. *In addition, the role of your organizations in promoting changes is another key issue which is also crucial to this research.* We are interested in your personal opinion and how your organization views to these issues. Your involvement in this study will inform future development of community pharmacy practice and it is very much appreciated.

The interview takes up to one hour. With your permission I would like to tape the interview because I don't want to miss any of your comments. All responses will be kept confidential.

Before you are agreed to this interview, we are conducting these studies in both Australia and Indonesia with a rationale that Australia as front runner in community pharmacy practice may provide insight which may be applicable for the development of community pharmacy in Indonesia.

I would like to restate that you don't have to talk about anything you don't want to and you may end the interview at any time.

Are there any questions about what I have just explained?

QUESTIONS and PROMPT

v	Question	Response
	<p>Could you please tell me about your experience with community pharmacy? How do you view the current situation in Australia Pharmacy?</p>	
	<ul style="list-style-type: none"> • What do you think of the role of community pharmacist in the healthcare system today? • To what extent does the community pharmacist contribute to healthcare system? • What do you think is the scope of practice today? • Is it too broad or too narrow? 	
	<p>What are your opinions each of the following CPS funded under the CPA:</p>	
	<p>Home Medicine Reviews and RMMRs</p>	
	<p>Dose Administration Aids</p>	
	<p>Medscheck and Diabetes Medscheck</p>	
	<p>Clinical Intervention</p>	
	<ul style="list-style-type: none"> • How well they have been adopted? • What do you think of the way they are structured? • Are these services has been working well, <i>why or why not</i>? • What are the problems/barriers for delivering these services? • What might be the solutions for these problems? 	
	<ul style="list-style-type: none"> • How does the provision of these services contribute to healthcare system? • How is their impact to patient and healthcare system? 	
	<ul style="list-style-type: none"> • Should they be funded, <i>why or why not</i>? • What do you think of the key argument to actually fund specific CPS in the CPA? • Are there any evidence based research to support this argument? • How importance to have evidences for these services? 	
	<ul style="list-style-type: none"> • What do you think of programs which have been trialed such as DMAS and Asthma services? • What were the reasons they were not funded for further implementation? • Specific for DMAS, how do you compare DMAS and Diabetes Medscheck today? 	

v	Question	Response
	<ul style="list-style-type: none"> • What are the reasons DMAS becoming truncated into Medscheck Diabetes? 	
	<ul style="list-style-type: none"> • Do you think that current practice like provision of these services needs to be expanded more, <i>why or why not</i>? • What are main drivers for the expansion? • How do these factors drive change? 	
	<ul style="list-style-type: none"> • What do you know about the CPAs? • What are the impacts of the CPAs on practice? • How relevant is the establishment of the CPAs to community pharmacy practice? 	
	<ul style="list-style-type: none"> • Were you involved in the policy making process within the CPAs? <i>If yes, how?</i> 	
	<ul style="list-style-type: none"> • Whose interests have been served by the successive CPAs? • How does CPA benefit each of the following: patient, pharmacist, government, etc? 	
	<ul style="list-style-type: none"> • What is your opinion about funding for R&D under the CPA? • Do you think it has been effective to support evidence for professional services? • What do you think of the relevance between R&D and practice? 	
	<ul style="list-style-type: none"> • Apart from the CPA which other policies influence the practice of pharmacists in Australia? • What is their influence? 	
	<ul style="list-style-type: none"> • Do you have any ideas or opinion about delivery of pharmacy services in developing countries like Indonesia? • Do you have any ideas on how developing countries like Indonesia maintain their community pharmacy system? 	
	<ul style="list-style-type: none"> • What do you think next major changes in community pharmacy practice will be? • How will they be achieved? • How would you say it is done? • What might that be or they should be? • What are the main concerns of Australia pharmacists? 	

√	Question	Response
	<ul style="list-style-type: none"> • For some years there has had an aggressive health reform. How this is changing Australia Pharmacy? • Are pharmacist happy with this direction? • How about public recognition to pharmacist's role? 	
	<ul style="list-style-type: none"> • What would your organization do differently next time? • How do you think your organization will promote these changes? 	

Appendix 4. Interview Guide for Indonesian Participants (English version)

AN INVESTIGATION TO PRACTICE CHANGE IN AUSTRALIAN AND INDONESIAN COMMUNITY PHARMACY: AN INSIGHT FOR THE DEVELOPMENT OF CONTEMPORARY PRACTICE IN INDONESIA

Name of interviewee : Name of interviewer : Date : Method of interview : Face to Face/Telephone/Skype* Code :	INTERVIEW GUIDE
--	------------------------

I want to thank you for agreeing to take part in the interview and I really appreciate your willingness to support this research. As I have already mentioned in our initial communication, the objective of this study is **to investigate practice change in Indonesian community pharmacy by understanding the contextual situation in community pharmacy, policy framework and role of pharmacy organisations since the introduction of universal coverage in 2014. In addition, this study explores information from stakeholders about the opportunity for community pharmacies to expand their roles in the primary healthcare setting.**

Since the study was also conducted in Australia, I would like to know your view on some scenarios adapted from the situation in Australian community pharmacy and the relevance to the practice in Indonesia. The interview should take less than an hour. The interview will be audio-taped and all responses will be kept confidential. This means that your interview responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent. I would like to restate that you don't have to talk about anything you don't want to and you may end the interview at any time. Are there any questions about what I have just explained?

Questions	Responses
OPENING	
1. Firstly, I'd like to ask you about your experience in community pharmacy/related to community pharmacy. Could you please tell me more about it? Prompt: - The role and responsibility (scope of practice, daily activities) - Characteristics of pharmacy (services, chain vs independent, management of pharmacy) <i>Note: For participant with pharmacy practitioner background, questions will be directed based on the prompt above. For non-practitioner pharmacy background e.g. doctor, BPJS Health, consumer and organization, questions will be directed to the role of organization and the interaction with community pharmacy.</i>	
PHARMACY IN THE INDONESIAN CONTEXT	

Questions	Responses
<p>2. It has been two years since universal healthcare coverage was officially implemented in 2014. How do you compare the situation of the Indonesian healthcare before and after the introduction of universal healthcare coverage will impact to the access to healthcare and medicines? Prompt: - Affordability to access healthcare - Accessibility to basic healthcare services and medicine</p>	
<p>3. With regards to the introduction of universal healthcare coverage, what if any impact has the implementation of current healthcare scheme to the practice in community pharmacy? Prompts: - Operation and viability of community pharmacy - Partnership with BPJS Health/insurance provider - Supply of medicine - Survival of community pharmacy</p>	
<p>4. What in your opinion the roles that can be played by community pharmacy in the era of universal healthcare coverage? Prompts: - Access to medicine - Source of information - Pharmacy and public health services - Primary care provider - Type and characteristics of community pharmacy</p>	
<p>5. Do you think community pharmacies in general have played any of the roles as you mentioned in Q4? Prompt: - If Yes, why? - If No, why not?</p>	
<p>6. How do you view the general public acceptance about the role of community pharmacy? Prompts: - Public view - GP and other healthcare providers view - Government and policy maker view</p>	
<p>7. In individual level, how do you view the remuneration of community pharmacist in the current situation as compared to their professional contribution? Prompts: - Remuneration amount - Remuneration sources - Presence and contribution in pharmacy</p>	
POLICY FRAMEWORK	
<p>8. What do you think is the main policy framework that underpins the contemporary practice of community pharmacy? Prompts: - The National Health Law - The Pharmacy Practice Regulation</p>	

Questions	Responses
<ul style="list-style-type: none"> - The Law of National Social Security System - How influential are those regulations for supporting contemporary practice? - Have they been empowered adequately? 	
<p>9. Do you see any need for establishing new policies to improve the practice of community under the universal healthcare coverage?</p> <p>Prompts:</p> <ul style="list-style-type: none"> - Yes, why? What are the other policies needed? - No, why not? - Ownership and competition rules - Protection for community pharmacy business 	
THE ROLE OF PHARMACY ORGANISATION	
<p>10. What do you think is the role of peak pharmacy organization in influencing the practice of community pharmacy?</p> <p>Prompt: - Advocacy for professional development</p> <ul style="list-style-type: none"> - Promoting best practice - Have they strived enough for improving practice? 	
<p>11. What do you think should be their priority of work with regard to optimisation of community pharmacy role under the universal healthcare coverage era? Why?</p> <p>Prompt: - What might be their challenge?</p> <ul style="list-style-type: none"> - Collecting evidence in practice 	
<p>12. Apart from the pharmacy organization, who do you think should promote community pharmacy role? Why?</p> <p>Prompt: - University</p> <ul style="list-style-type: none"> - Government 	
SCENARIOS IN AUSTRALIA	
Please take your time for a while to read and understand the snapshot of community pharmacy practice in Australia.	
<p>There are approximately 5,450 community pharmacies across Australia, comprising mostly small and medium sized businesses. It is a \$15 billion industry employing more than 63,000 persons with around 78% of registered pharmacists working in community pharmacy. Community pharmacy practice in Australia is highly regulated through state and territory Pharmacy and Pharmacists Acts. Over years, pharmacies and pharmacists have been the main suppliers of medicines for the Australian population under the Pharmaceutical Benefits Scheme (PBS). The PBS contains a list of drugs that are approved for use in Australia and subsidized by the Australian government.</p> <p>Community pharmacies in Australia have been seen as highly accessible, therefore it is not surprising that 94% of Australians, particularly those with chronic illnesses, visit community pharmacy every year. Although representing only 14% of the total population, the elderly account for 80% of pharmaceutical consumption. In 2013, approximately 271 million prescriptions were dispensed in community pharmacy and accordingly, dispensing of PBS medicines represents up to 70% of community pharmacy profit with the remainder from Over-the-Counter (OTC) drugs and other general retail products.</p> <p>In Australia, community pharmacy can be operated under the responsibility of full time registered pharmacist. A registered pharmacist must have graduated from at least four years B. Pharm program,</p>	

Questions	Responses
	<p>satisfactorily completed a period of supervised practice in pharmacy (one year duration or equivalent) and passed the registration examinations held by the Pharmacy Board.</p> <p>Since 1990, the commonwealth government of Australia signed a five year agreement with the Pharmacy Guild of Australia, known as the Community Pharmacy Agreements (CPA). The agreement is aimed to provide access of PBS medicines and professional pharmacy services for Australians through a viable community pharmacy network. The agreements also regulated that the ownership of pharmacy in Australia is restricted to pharmacist and controlled the distribution and establishment of new pharmacy through location rules. Furthermore, the agreement provided an impetus for diversification of community pharmacy role with a proliferation of professional services in addition to traditional supply role of dispensing medications.</p> <p>Although community pharmacists are still predominantly focused on their dispensing role, they are also involved in the provision of remunerated services including Home Medicine Reviews, Residential Medication Management Reviews, and Medscheck which are essentially medication management review program delivered in a patient's home, aged care facilities and in-pharmacy store, respectively. In addition, under the Pharmacy Practice Incentive program, community pharmacy receives payment for delivering Dose Administration Aids and Staged Supply service for patients who have issues with their adherence.</p> <p>The consecutive CPAs also provided funding for research and development of community pharmacy practice. The R&D plays a significant role for the genesis of professional services as aforementioned.</p> <p>Alongside the CPA, community pharmacy also attained to National Medicines Policy (NMP). The NMP is a cooperative endeavour to bring about better health outcomes for all Australians. The policy has four elements: equitable access to medicines, high quality, safety and efficacy of medicines, quality use of medicines (QUM) and a viable and responsible local pharmaceutical industry. The QUM part reflects the evolving role for development of service orientation in community pharmacy.</p> <p>There are two peak pharmacy organizations in Australia, the Pharmaceutical Society of Australia (PSA) and the Pharmacy Guild of Australia (the Guild). The PSA represents Australia's pharmacist working in all sectors (community, hospitals, individual consultants etc.) and across all locations. The core function of PSA is practice improvement in pharmacy through provision of continuing professional development, education, development and advocacy of standards and guidelines to enhance pharmacist's practice. The Guild is national peak body representing community pharmacy with its members are community pharmacy owners. It seeks the interests to promote, maintain and support community pharmacy as most accessible healthcare providers delivering quality health outcome for Australians.</p> <p>The other interesting feature of Australian pharmacy is that they are required to be covered by professional indemnity insurance. The pharmacy professional indemnity insurance is provided by the Pharmaceutical Defence Limited (PDL) together with Guild Insurance along with advice and procedures for risk minimisation. By being PDL member, community pharmacy receives advocacy for risk management and support to enhance standards of professional services.</p>
<p>13. From the cases in Australia, what would you think the key factors that we can learn or adopt to the setting of Indonesian community pharmacy? Prompt: - Access to Medicines - Professional Remunerated Pharmacy Services - Community Pharmacy Agreement - Policy empowerment etc.</p>	
<p>14. If you have the capacity to influence, what change would be your main priorities (up to three priorities) for improving the practice in Indonesia? Prompt: - Individual level e.g. training and education for pharmacist, job contract etc. - Organisational community pharmacy level e.g. peer support, advocacy, funding etc.</p>	

Questions	Responses
<ul style="list-style-type: none"> - National healthcare level e.g. collaboration, policy empowerment, etc. 	
ROLE EXPANSION	
<p>15. Going forward, are there any opportunities for community pharmacy to expand their roles within the universal healthcare coverage era? Prompt: - Public health area</p> <ul style="list-style-type: none"> - Primary care provider - Access for reimbursed medicine - Remunerated pharmacy services - Collaboration with doctors - Opportunity to become partner of insurance provider/BPJS Health 	
<p>16. What might prevent community pharmacy from expanding roles? Prompt:</p> <ul style="list-style-type: none"> - Internal pharmacy e.g. fear to change, resource shortage, lack of motivation - External pharmacy e.g. poor expectation, no support, lack of funding - Which is more significant? 	
<p>17. What might be the factors that facilitate community pharmacy to expand their roles? Prompt: - Internal pharmacy e.g. teamwork, willingness to expand</p> <ul style="list-style-type: none"> - External pharmacy e.g. patient satisfaction - Which is more influential? 	
CLOSING	
<p>18. Do you have any comments to add in relation to the topic in this interview?</p>	
<p>19. Is there anyone you think we need to speak with?</p>	

Thank you for your time

Appendix 5. Certificate of Translations

Commonwealth of Australia
STATUTORY DECLARATION
Statutory Declarations Act 1959

1 *Insert the name, address and occupation of person making the declaration*

I, ¹ Vannessa Hearman, Lecturer in Indonesian Studies, of the Department of Indonesian Studies, The University of Sydney, NSW 2006.

make the following declaration under the *Statutory Declarations Act 1959*:

2 *Set out matter declared to in numbered paragraphs*

²
I certify that the Indonesian translations of the ethics documents furnished to me by Mr Andi Hermansyah for his PhD research project under the supervision of Professor Ines Krass are the true and accurate translations of the corresponding English language ethics documents.

I am also a NAATI-accredited Professional Interpreter and Translator (into English), NAATI no. 45815.

I understand that a person who intentionally makes a false statement in a statutory declaration is guilty of an offence under section 11 of the *Statutory Declarations Act 1959*, and I believe that the statements in this declaration are true in every particular.

3 *Signature of person making the declaration*

³

4 *Place*
5 *Day*
6 *Month and year*

Declared at ⁴ Sydney on ⁵ Eighth day of ⁶ September, 2014

Before me,

7 *Signature of person before whom the declaration is made (see over)*

⁷

8 *Full name, qualification and address of person before whom the declaration is made (in printed letters)*

⁸

Professor Adrian Vickers, University Lecturer and Director Asian Studies Program, The University of Sydney, NSW 2006

Note 1 A person who intentionally makes a false statement in a statutory declaration is guilty of an offence, the punishment for which is imprisonment for a term of 4 years — see section 11 of the *Statutory Declarations Act 1959*.

Note 2 Chapter 2 of the *Criminal Code* applies to all offences against the *Statutory Declarations Act 1959* — see section 5A of the *Statutory Declarations Act 1959*.

A statutory declaration under the *Statutory Declarations Act 1959* may be made before—

(1) a person who is currently licensed or registered under a law to practise in one of the following occupations:

Chiropractor	Dentist	Legal practitioner
Medical practitioner	Nurse	Optometrist
Patent attorney	Pharmacist	Physiotherapist
Psychologist	Trade marks attorney	Veterinary surgeon

(2) a person who is enrolled on the roll of the Supreme Court of a State or Territory, or the High Court of Australia, as a legal practitioner (however described); or

(3) a person who is in the following list:

Agent of the Australian Postal Corporation who is in charge of an office supplying postal services to the public
Australian Consular Officer or Australian Diplomatic Officer (within the meaning of the *Consular Fees Act 1955*)

Bailiff

Bank officer with 5 or more continuous years of service

Building society officer with 5 or more years of continuous service

Chief executive officer of a Commonwealth court

Clerk of a court

Commissioner for Affidavits

Commissioner for Declarations

Credit union officer with 5 or more years of continuous service

Employee of the Australian Trade Commission who is:

- (a) in a country or place outside Australia; and
- (b) authorised under paragraph 3 (d) of the *Consular Fees Act 1955*; and
- (c) exercising his or her function in that place

Employee of the Commonwealth who is:

- (a) in a country or place outside Australia; and
- (b) authorised under paragraph 3 (c) of the *Consular Fees Act 1955*; and
- (c) exercising his or her function in that place

Fellow of the National Tax Accountants' Association

Finance company officer with 5 or more years of continuous service

Holder of a statutory office not specified in another item in this list

Judge of a court

Justice of the Peace

Magistrate

Marriage celebrant registered under Subdivision C of Division 1 of Part IV of the *Marriage Act 1961*

Master of a court

Member of Chartered Secretaries Australia

Member of Engineers Australia, other than at the grade of student

Member of the Association of Taxation and Management Accountants

Member of the Australasian Institute of Mining and Metallurgy

Member of the Australian Defence Force who is:

- (a) an officer; or
- (b) a non-commissioned officer within the meaning of the *Defence Force Discipline Act 1982* with 5 or more years of continuous service; or
- (c) a warrant officer within the meaning of that Act

Member of the Institute of Chartered Accountants in Australia, the Australian Society of Certified Practising Accountants or the National Institute of Accountants

Member of:

- (a) the Parliament of the Commonwealth; or
- (b) the Parliament of a State; or
- (c) a Territory legislature; or
- (d) a local government authority of a State or Territory

Minister of religion registered under Subdivision A of Division 1 of Part IV of the *Marriage Act 1961*

Notary public

Permanent employee of the Australian Postal Corporation with 5 or more years of continuous service who is employed in an office supplying postal services to the public

Permanent employee of:

- (a) the Commonwealth or a Commonwealth authority; or
 - (b) a State or Territory or a State or Territory authority; or
 - (c) a local government authority;
- with 5 or more years of continuous service who is not specified in another item in this list

Person before whom a statutory declaration may be made under the law of the State or Territory in which the declaration is made

Police officer

Registrar, or Deputy Registrar, of a court

Senior Executive Service employee of:

- (a) the Commonwealth or a Commonwealth authority; or
- (b) a State or Territory or a State or Territory authority

Sheriff

Sheriff's officer

Teacher employed on a full-time basis at a school or tertiary education institution

Appendix 6. Paper 1 – Community pharmacy and emerging public health initiatives in developing Southeast Asian countries: a systematic review

Review

Community pharmacy and emerging public health initiatives in developing Southeast Asian countries: a systematic review

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What is known about this topic

- Community pharmacies have both the opportunity and the potential to play a role in public health.
- Earlier research has shown that despite their potential, community pharmacies have been underutilised in the provision of public healthcare services.

What this paper adds

- Community pharmacies in South-East Asia have attempted to expand practice in public health.
- However, the pace of the expansion has been slow and lacking evidence for its sustainability in everyday practice.
- Fundamental policy change is needed to overcome the ongoing barriers which have limited progress.

Introduction

Healthcare systems in South-East Asia have dramatically changed over past decades as a result of rapid social and economic development and considerable population growth (Chongsuvivatwong *et al.* 2011). Healthcare in the region is at a crossroads, having to deal concurrently with both a rising tide of chronic conditions and ongoing issues with infectious

Abstract

The development of health and healthcare systems in South-East Asia has influenced the practice of community pharmacy. Over the years, community pharmacy in the region has striven to expand services beyond dispensing to encompass more involvement in public health issues. Searches were conducted in Scopus, EMBASE, MEDLINE and PubMed for articles published between January 2000 and December 2014, with 21 studies in five countries meeting the inclusion criteria. The findings showed increasing interest in research into the delivery of pharmacy services and public health initiatives. Overall, the review found that provision of some health services in pharmacies was common; however, most public health initiatives appeared to be poorly implemented, had limited evidence and were not demonstrated to be sustainable across the sector. This indicates that the practice of community pharmacy in the region has not significantly changed over the past 14 years with respect to the scope and quality of pharmacy services provided, and fundamental policy changes are necessary to improve this situation.

Keywords: community pharmacy services, public health initiatives, South-East Asia

diseases. Moreover, the diversity of cultures, languages and geographical landscapes continues to be daunting challenges to providing equitable access to healthcare services (Acuin *et al.* 2011). While lack of healthcare facilities and ongoing shortages of providers, especially doctors and nurses, have remained intractable problems over many years (Kanchanachitra *et al.* 2011), the increasing number of community pharmacies in the region creates unex-

explored opportunities for delivering public health services. In Vietnam, pharmacist numbers have nearly doubled from 7800 to 13,900 between 2000 and 2008 (Le *et al.* 2010). In Malaysia and Indonesia, pharmacist numbers have exponentially increased over the last decade as universities have graduated more pharmacists annually (Chee *et al.* 2009, Shafie *et al.* 2012).

With strategic location in the heart of the community, extended opening hours and no appointment required for seeking healthcare advice, community pharmacy has great potential as a setting in public health. Moreover, pharmacy in the region has often become patients' first point of healthcare contact (Chalker *et al.* 2005, Ngorsuraches *et al.* 2008, Chua *et al.* 2013). These benefits provide a platform for more proactive involvement of community pharmacy in addressing gaps in public health services and programmes.

As elsewhere, community pharmacy practice in South-East Asia has evolved in response to the changing healthcare environment. Significantly, provision of a range of healthcare services beyond traditional dispensing has been trialled in community pharmacies across the region. Although relatively new, such services include blood pressure monitoring, chronic disease screening, smoking cessation and weight management programmes (Nimpitakpong *et al.* 2010, Dhipayom *et al.* 2013, Chua *et al.* 2013, Phimarn *et al.* 2013). However, there is a dearth of evidence on the extent of implementation of these services in everyday practice and their impact on public health.

In this paper, we report the findings of a systematic review of the published literature on pharmacy services and public health initiatives in five South-East Asian countries: Indonesia, Malaysia, The Philippines, Thailand and Vietnam. These countries were selected because they are the most populous countries of the region, they are representative of developing countries, and they have introduced privatisation in healthcare which provides an avenue for community pharmacy partnership in public health (Ramesh & Wu 2008, Lowe & Montagu 2009). This review is guided by the research question: *What is known about the role of community pharmacy of this region in public health services?* To address this question, this paper briefly reviews the scope of practice and services provided in community pharmacy, then evaluates the evidence for the provision of community pharmacy public healthcare services, and finally identifies barriers to their provision.

Method

The literature search was conducted in Scopus, EMBASE, MEDLINE and PubMed. The database

search was also supplemented with electronic searches in relevant journals and/or publications.

Search terms included keywords such as community pharmacy, pharmacy service, pharmaceutical care, cognitive service, pharmacy practice in combination with South-East Asia or country name (Indonesia, Malaysia, Thailand, Vietnam, Philippines). The period covered 1 January 2000 to 31 December 2014. This review was based upon full-text original research articles written in English.

The screening used three inclusion criteria: studies that (i) reported services provided including public health activities in community pharmacy; (ii) were conducted in at least one of the five selected countries; and (iii) involved community pharmacists and/or pharmacy workers. Studies were excluded if they: (i) were not conducted in a community pharmacy setting or (ii) were investigations of patient/student's perceptions, attitude, knowledge or satisfaction, etc. conducted in community pharmacy. Details of literature search and screening process are shown in Figure 1.

Community pharmacy in this paper was defined as a healthcare facility that operates under the full responsibility of a registered pharmacist and provides pharmacy services to the community. These services may include, but are not limited to, dispensing of prescribed medicines, self-medication advice and other roles providing consumer assistance in the use of pharmaceutical products. In relation to the public health role of pharmacy, this paper adopted Walker's definition of pharmaceutical public health described as:

The application of pharmaceutical knowledge, skills and resources to the science and art of preventing disease, prolonging life, promoting, protecting and improving health for all through organised efforts of society. (Walker 2000, p.340)

Selected studies were evaluated for the scope and quality of pharmacy services and public health initiatives. The evaluation also classified the level of evidence of each study using a grading system adapted from the public health literature (Anderson *et al.* 2004, Agomo 2012, Neville *et al.* 2015):

- Level A: Evidence from meta-analysis or systematic reviews
- Level B: Evidence from randomised controlled trials (RCTs)
- Level C: Evidence from quasi-experimental studies
- Level D: Evidence from observational studies or quantitative surveys
- Level E: Expert opinion, case reports, focus groups or qualitative studies

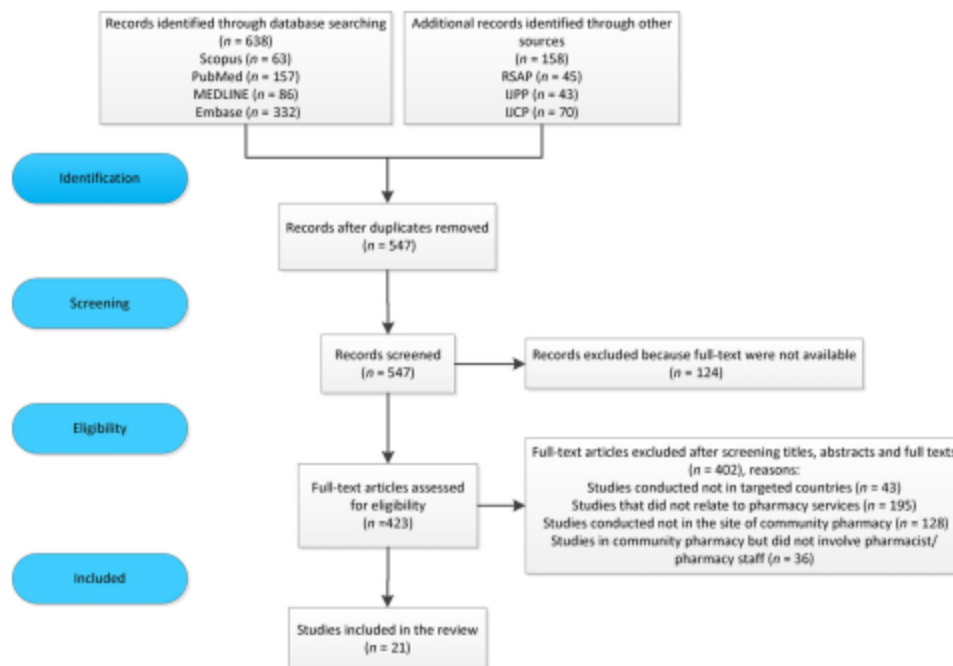


Figure 1 Flow diagram of paper selection process using PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Moher *et al.* 2009). RSAP, *Research in Social and Administrative Pharmacy*; IJPP, *International Journal of Pharmacy Practice*; IJCP, *International Journal of Clinical Pharmacy*.

Results

A total of 796 articles were identified through the search process. After eliminating duplicates, titles and abstract screening and reviewing full-text articles meeting the inclusion and exclusion criteria, 21 studies were included for analysis. Details of the 21 studies are presented in Table 1.

Scope and quality of services

The studies covered a range of topics related to public health services.

Management of minor ailments

Two studies examined the role of community pharmacy in managing minor ailments such as back pain (Chua *et al.* 2006) and migraine (Saengcharoen & Lerkiatbundit 2013). Both employed simulated patient methods to investigate pharmacy responses when presented with a 'patient' with specific symptoms. The

Malaysian study (Chua *et al.* 2006) did not distinguish between responses given by pharmacists or other pharmacy staff, while the Thai study (Saengcharoen & Lerkiatbundit 2013) compared the responses of pharmacists and non-pharmacists. In general, the majority of 'simulated patients' were actively asked by pharmacy staff members about their symptoms, especially in the Thai study where pharmacists asked more questions than non-pharmacists in relation to migraine. However, the services provided in both studies were considered suboptimal and inappropriate. The Malaysian study found that the pharmacist's assessment and counselling activities only covered three to five elements of a total of 13 elements which constituted appropriate service. Likewise, only 30% of 142 pharmacists in the Thai study had given appropriate advice to the migraine 'patients'.

Provision of smoking cessation services

Two Thai studies highlighted the role of pharmacy in smoking cessation programmes. A mail survey was

Table 1 Details of eligible studies

Author and country	Level of evidence	Aims/objective	Study design	Primary findings/conclusions
Management of minor ailments Chua et al. (2006) – Malaysia	Level D	Assessment of community pharmacy response to patient with back pain symptoms	Simulated patient; 100 randomly selected pharmacists in Klang Valley, Malaysia	Pharmacists' assessment and counselling were considered suboptimal. Only 3 and 5 of 13 elements for assessment and counselling were addressed by pharmacists respectively
Saengcharoen and Leritabundit (2013) – Thailand	Level D	Management of migraine in community pharmacy	Simulated patient and interview; 142 randomly selected pharmacists in South Thailand	33% and 53% of pharmacy staff appropriately dispensed medication for patients presenting with mild and moderate migraine respectively. Pharmacists showed higher knowledge than non-pharmacists in history taking, yet their level of knowledge was still not sufficient as on average they only achieved half of the full score. Fewer than 30% of pharmacists gave the appropriate advice to the 'patients'
Provision of smoking cessation services Thananithisak et al. (2008) – Thailand	Level D	Assessment of pharmacists' involvement, their perception and barriers in smoking cessation services	Mail survey and interview; 83 pharmacists participated in the survey, 13 early adopter pharmacists interviewed in Bangkok, Thailand	51% of surveyed pharmacists provided smoking cessation services. Their perception of the services was positive yet barriers such as lack of demand, lack of educational materials, lack of smoking cessation products, lack of knowledge and skills and lack of follow-up visits have hindered their services. Only 4 of 13 early adopters still delivered the services by the third month due to these barriers
Nimprakong et al. (2010) – Thailand	Level D	Evaluation of smoking cessation services and training in community pharmacy	Mail survey; 1001 randomly selected pharmacists nationwide	71% of pharmacists provided smoking cessation services but only 15% provided comprehensive services. 29% of pharmacists attended cessation training and they were more likely to provide comprehensive services than those who were not trained
Provision of weight management programme Phinam et al. (2013) – Thailand	Level B	Involvement of community pharmacists in weight management programme	Randomised controlled trial; 66 patients, 1 selector pharmacy	Although there is a potential role for pharmacist involvement in weight management programmes, particularly in influencing eating behaviours and knowledge of obese patients, there was no significant improvement in clinical outcomes such as weight, waist circumference and body mass index in the experimental group
Prevention and management of infectious diseases Linnroth et al. (2000) – Vietnam	Level E	Assessment of knowledge and dispensing practice of anti-tuberculosis drugs	Interview; 147 randomly selected pharmacists in Hanoi, Vietnam	The majority of the pharmacy staff members had adequate knowledge about tuberculosis and National Tuberculosis Programme. Of pharmacists, 58% dispensed anti-tuberculosis drugs and 24% had sold them without prescription in the previous 4 weeks
Chuc et al. (2001) – Vietnam	Level D	Management of childhood acute respiratory infections	Interview and simulated patients; 60 randomly selected pharmacists in Hanoi, Vietnam	In actual practice, 83% of pharmacy dispensed antibiotics at the first encounter while only 20% of them stated in the interview that they would dispense antibiotics. Only 36% of pharmacy encounters were managed according to the guidelines

Table 1 (continued)

Author and country	Level of evidence	Aims/objective	Study design	Primary findings/conclusions
Chuc <i>et al.</i> (2002) – Vietnam	Level B	Evaluation of multiple interventions in the case of acute respiratory infection, sexually transmitted disease, praziquantel and cephalosporin request	Randomised controlled trial 68 randomly selected pharmacies in Hanoi, Vietnam	Multiple interventions comprised of regulatory enforcement, education and peer influence significantly improved the practice of community pharmacy in terms of reducing dispensing of antibiotics and steroids without prescription, increasing history taking and advice to patients and increasing consultation with physicians
Saengcharoen and Leritabundit (2010) – Thailand	Level D	Management of childhood diarrhoea in pharmacy	Simulated patient and questionnaire; 115 randomly selected pharmacies in South Thailand	Only 5% of pharmacies correctly dispensed ORS for 'simulated patients' and 52% of pharmacies responded inappropriately by dispensing antibiotics as the first-line therapy. In contrast, the majority of pharmacies stated they would dispense ORS as the first-line therapy in the questionnaire
Vu <i>et al.</i> (2012) – Vietnam	Level D	Detection of suspected TB patients in pharmacy	Simulated patient and interview; 138 randomly selected pharmacies in Hanoi, Vietnam	Almost half of the pharmacists were dispensing drugs for suspected TB patients and did not directly refer patients to healthcare facilities. No differences were found between accredited and non-accredited pharmacies in the case study
Minh <i>et al.</i> (2013) – Vietnam	Level D	Evaluation of training and supervision in childhood diarrhoea and emergency contraceptive provision	Questionnaire and simulated patient; 734 randomly selected pharmacies in five provinces in Vietnam	Pharmacists' knowledge and practice in terms of providing more information about drugs and offering ORS for diarrhoea were significantly increased after a sequence of training and supportive supervision
Screening for chronic diseases Pongwecharak and Treanurat (2010) – Thailand	Level C	Screening for pre-hypertension and cardiovascular risk	Screening programme; 350 people in 1 selected pharmacy in Songkhla, Thailand	Community pharmacy can play a role to identify people at risk of hypertension and cardiovascular disease
Sookanekun <i>et al.</i> (2010) – Thailand	Level C	Comparison of screening programmes for diabetes and hypertension	Screening programme; 457 people in 2 selected pharmacies in Maha Sarakham, Thailand	Community pharmacy screening programme resulted in a higher rate of detection of new patients and higher success rate for referral, with reasonable cost compared to same services provided by primary care unit. However, the study had a high dropout rate (98%) as only 6 of 457 clients came back for follow-up meaning that only these 6 patients were actually referred to doctors. No particular reason was described for the low uptake
Pongwecharak and Treanurat (2011) – Thailand	Level C	Screening pre-hypertension and cardiovascular risk	Screening programme; 400 people in 1 selected pharmacy in Hat Yai, Thailand	Community pharmacy can detect patients at risk of hypertension, diabetes and/or dyslipidaemia
Dhipayom <i>et al.</i> (2013) – Thailand	Level C	Opportunistic screening of diabetes in community pharmacy	Screening programme; 397 people in 7 selected pharmacies in Bangkok, Thailand	The programme was effective in detecting half of the participants who were at high risk of diabetes. However, 91% of the participants (11 people) with suspected diabetes refused to see physicians despite frequent reminders. The main reason was that it was not convenient to visit a medical practice in a hospital setting

Table 1 (continued)

Author and country	Level of evidence	Aims/objective	Study design	Primary findings/conclusions
Harm reduction activities Pankonin et al. (2008) – Vietnam	Level E	Exploration of pharmacy harm reduction activities	Interviews; 5 conveniently selected pharmacies in Hanoi	Community pharmacists could contribute to harm reduction programmes and prevent the spread of HIV infections by providing sterile syringes and health education to injecting drug users
Other identified studies Chaikeo et al. (2005) – Thailand and Vietnam	Level B	Effectiveness of multi-component intervention on dispensing steroids and antibiotics	Randomised controlled trial; 68 randomly selected pharmacies in Hanoi, 78 pharmacies in Bangkok	Multi-faceted intervention improved dispensing behaviour of pharmacies in Hanoi but only improved it slightly in Bangkok
Babar and Awaisu (2009) – Malaysia	Level E	Investigation of generic drugs supply and substitution practice in pharmacy	Interview; 40 randomly selected pharmacies in West Malaysia	Branded drugs were more widely available at community pharmacies and only 40%–60% of pharmacy stock was generic drugs. 73% of pharmacists agreed with the concept of compulsory generic substitution. Generic substitution was more driven by consumer demand than pharmacist initiative
Ping et al. (2008) – Malaysia	Level D	Evaluation of generic substitution practice by community pharmacist	Self-completed questionnaire; 34 randomly selected pharmacies in Penang, Malaysia	47% of pharmacists discussed the substitution with prescribers and a majority of doctors (84%) contacted agreed to substitution. 88% of consumers accepted the substitution and this could save 61% of their expenditure on drugs
Chong et al. (2011) – Malaysia	Level D	Assessment of generic substitution practice among community pharmacists	Mail survey; 157 randomly selected pharmacies nationwide	85% of pharmacists recommended generic substitution, yet only 13% consulted about this practice with physicians. According to pharmacists, 89% of patients accepted the recommendation for substitution, which could save 57% of patients' expenditure on drugs
Puspitasari et al. (2011) – Indonesia	Level D	Evaluation of community pharmacy workers' response to antibiotic request	Simulated patient; 88 randomly selected pharmacies in Surabaya, Indonesia	Antibiotics were dispensed without prescription in the majority (91%) of pharmacies. Few (2%–8%) pharmacists assessed patients' suitability for antibiotics, and information about the medicines was mostly given when requested by the 'patients'. The most frequent information provided were indication, dosing, duration and direction for use

employed in both studies to assess pharmacists' perceptions and practice in providing smoking cessation services. The first study (Thananithisak *et al.* 2008) also included an interview to gather the opinion of early adopter pharmacists about smoking cessation services, while the second study (Nimpitakpong *et al.* 2010) was more focused on a nationwide survey to evaluate the programme and the effectiveness of cessation training.

The studies found that more than half (51% and 71% respectively) of the pharmacies surveyed were actively providing smoking cessation services. However, in the first study, only 4 of 13 early adopters consistently provided the services after the third month. Barriers to continuation included insufficient demand, educational materials, smoking cessation products, knowledge and skills, and follow-up visits.

Although the provision of the services was higher in the second study, only 15% of 1001 participating pharmacies provided comprehensive services which covered the standard 5As (ask, advise, assess, assist and arrange follow-up). Almost half of the pharmacists only provided brief interactions such as advice about the risks of smoking, giving leaflets or suggesting smoking cessation products. This finding was associated with the fact that only 29% of surveyed pharmacists had received smoking cessation training, and it was this group which was more likely to provide comprehensive services.

Provision of weight management programme

One study from Thailand (Phimam *et al.* 2013) examined pharmacists' role in weight management. An RCT with 66 obese patients investigated clinical outcomes such as weight loss, waist circumference and body mass index between a control group (attended 1 hour advisory session every 4 weeks) and an experimental group (received comprehensive treatment including routine monitoring) for 16 weeks after the initial advisory session. Even though pharmacist interventions were observed to improve patients' healthy eating behaviours and knowledge, the findings showed no significant improvement in clinical outcomes in the experimental group.

Prevention and management of infectious diseases

The region has long struggled with communicable diseases, prevention and management of infectious diseases, and this was reflected in six studies, five from Vietnam and one from Thailand, which addressed different types of infectious diseases including tuberculosis (TB) (Lönnroth *et al.* 2000, Vu *et al.* 2012), acute respiratory infections (Chuc *et al.* 2001, 2002) and diarrhoea (Saengcharoen & Lerkiat-

bundit 2010, Minh *et al.* 2013). Four studies (Lönnroth *et al.* 2000, Chuc *et al.* 2001, Saengcharoen & Lerkiatbundit 2010, Vu *et al.* 2012) explored services provided in pharmacy associated with the diseases, while two studies (Chuc *et al.* 2002, Minh *et al.* 2013) were aimed at improving practice by introducing multiple interventions.

Overall, the four studies which explored pharmacy services targeted to management of infectious diseases showed negative outcomes. In the case of TB, both studies conducted in Hanoi (Vietnam) showed that pharmacists dispensed drugs for suspected TB patients without a prescription. In the earlier study (Lönnroth *et al.* 2000), 58% of 147 pharmacies had dispensed anti-TB drugs in the last 4-week period, and 24% of this number without prescription. In the more recent study (Vu *et al.* 2012), almost half of 138 pharmacists dispensed anti-TB drugs without prescription and did not refer patients to doctors or healthcare facilities, thus delaying appropriate diagnosis and treatment. In the management of childhood diarrhoea, only 5% of 115 pharmacies correctly responded to symptom presentations by simulated patients (Saengcharoen & Lerkiatbundit 2010). A 'mystery shopper study' using an acute respiratory infection scenario revealed that community pharmacies in Vietnam commonly dispensed antibiotics without prescription, and only 36% of 60 pharmacies managed the case appropriately according to the guidelines (Chuc *et al.* 2001).

Two Vietnamese studies reported attempts to improve practice in pharmacy by introducing multiple interventions such as regulatory enforcement-education-peer influence (Chuc *et al.* 2002) and training-supportive supervision (Minh *et al.* 2013). Both studies concluded that multiple interventions significantly improved the practice of community pharmacy in managing infectious diseases. Chuc *et al.* (2002) demonstrated that these interventions could reduce the frequency of dispensing of antibiotics and steroids without prescription in the management of acute respiratory infection and sexually transmitted diseases, while Minh *et al.* (2013) concluded that training and supportive supervision improved pharmacists' knowledge, and their dispensing patterns became more appropriate according to the guidelines for presentation of 'patients' with diarrhoea.

Screening for chronic diseases

The escalating rates of chronic disease have focused attention on the need for early detection of those at risk. Four studies in Thailand investigated screening programmes conducted in community pharmacy. Two focused on hypertension and the risk of other

cardiovascular diseases (Pongwecharak & Treeranurat 2010, 2011), one investigated diabetes screening (Dhippayom *et al.* 2013) and one compared a screening programme conducted by pharmacy and a primary care unit (Sookaneknun *et al.* 2010).

All studies demonstrated a potential role for community pharmacy in the detection of people at risk of hypertension, diabetes and predisposing factors such as dyslipidaemia. In addition, community pharmacy screening programmes generated higher detection and referral rates compared to similar services provided by the primary care unit (Sookaneknun *et al.* 2010). However, two studies reported a poor uptake of referral by customers detected as at high risk of chronic disease (Sookaneknun *et al.* 2010, Dhippayom *et al.* 2013). Reasons for the poor uptake were that customers felt healthy (Sookaneknun *et al.* 2010), and that it was not convenient to visit a hospital for follow-up (Dhippayom *et al.* 2013).

Harm reduction activities

One Vietnamese study (Pankonin *et al.* 2008) investigated the role of community pharmacy in the supply of sterile syringes for Injecting Drug Users (IDU). The five pharmacies in the study sold on average 93 syringes per pharmacy to IDU in a 1-week period. The study demonstrated that the participating pharmacists had a solid understanding and strong commitment to taking part in HIV prevention activities through selling sterile syringes and providing educational materials for IDU. Therefore, the authors suggested that pharmacists might potentially play a role in the provision of harm reduction services.

Other identified studies

Five studies related to the safe supply and distribution of medicine, namely the role of pharmacists in dispensing antibiotics and steroids, and the practice of generic substitution in pharmacy. Three studies carried out in Malaysia (Babar & Awaisu 2008, Ping *et al.* 2008, Chong *et al.* 2011) focused on generic substitution practice and drew similar conclusions that the majority of pharmacies were engaged in generic substitution; however, fewer than half of the pharmacists discussed this practice with prescribers. Interestingly, these studies revealed that generic substitution was driven more by patients than by pharmacists. However, since doctors in Malaysia have dispensing rights, the number of prescriptions actually dispensed in pharmacy represented only a fraction of the total. In the other two studies, in Indonesia (Puspitasari *et al.* 2011) and in both Thailand and Vietnam (Chalker *et al.* 2005), dispensing antibiotics and steroids without prescription was commonly found. In

Indonesia, inappropriate dispensing was compounded by a lack of adequate patient assessment and counselling. Chalker *et al.* (2005) found that a multi-faceted intervention which comprised regulatory enforcement, education and peer review was able to improve dispensing practice significantly in Hanoi but only slightly in Bangkok.

The strength and level of evidence

The level of evidence demonstrated by the 21 studies ranged from B to E (see Table 1). Three studies generated level B evidence, four with level C evidence, the majority (11) produced level D evidence and three generated level E evidence. The level B studies involved RCTs evaluating the effectiveness of multiple interventions to improve dispensing practice in the management of diseases, and the role of pharmacists in weight management programmes. Level C evidence focused on opportunistic screening and early detection of chronic diseases in pharmacy. The majority of studies producing level D evidence employed simulated patient methodology to assess the actual practice of pharmacy service provision, while a minority used surveys. Studies with level E evidence employed interviews as a means to explore the knowledge and perception of pharmacists about current services, in particular dispensing anti-TB drugs, harm reduction services and generic substitution practice.

Across the range of research undertaken in the region, the overarching limitation was a lack of broad generalisability, as most studies were preliminary or pilot studies employing small sample sizes, were conducted in a narrow area of research and employed non-random sampling techniques. In addition, only two studies were carried out nationwide (Nimpitakpong *et al.* 2010, Chong *et al.* 2011). As a consequence, it is not possible to extrapolate any of the reported findings to the wider community pharmacy setting even within the same country. In addition, most studies reported poor quality and low success rates for public health services provided in pharmacy which may indicate structural and systemic barriers for provision of these services.

Given the variability in context within South-East Asia, it is also not possible to extrapolate evidence from one country to another. Despite finding that an intervention is successful in one country, it may not work in another. A good example is the study conducted both in Thailand and Vietnam (Chalker *et al.* 2005). While there was strong improvement in practice in Hanoi, the same was not the case in Bangkok. This suggests that while much can be learnt from

other countries in designing pharmacy public health interventions, they must be replicated and evaluated in different settings in order to build and strengthen the evidence base. This paper argues that cross-country learning is critical in implementing the best strategies for improving pharmacy public health services in developing countries.

Barriers to provision of services

A number of barriers that have hindered the provision of public health services are highlighted in this review. Lack of knowledge and skills has been reported as contributing to inappropriate response in some chronic diseases (Chuc *et al.* 2001, Thananithisak *et al.* 2008, Saengcharoen & Lerkiatbundit 2010, 2013, Puspitasari *et al.* 2011). Lack of confidence (Chong *et al.* 2011) and adequate training (Nimpitakpong *et al.* 2010) has been documented as barriers in the case of generic substitution and smoking cessation services. External to the pharmacy environment, barriers that have impeded the uptake of pharmacy services and public health initiatives include lack of policies (Babar & Awaisu 2008, Chong *et al.* 2011), low patient demand (Pongwecharak & Treeranurat 2011), poor recognition within the healthcare system (Ping *et al.* 2008, Dhippayom *et al.* 2013) and patients' reluctance to use pharmacy services (Sookaneknun *et al.* 2010).

Discussion

To the best of our knowledge, this is the first systematic review of community pharmacy practice and public health initiatives in developing South-East Asian countries. This review is important because a move into public health services is reflective of the expanding potential of community pharmacy as a service provider. Identification and evaluation of current pharmacy services in public health highlight opportunities that exist at the present time, as well as suggesting areas for future growth. The findings have also documented a range of barriers to implementation, and have outlined key reasons why they have not been introduced more appropriately, adequately and widely in the community.

The core finding of this study was that provision of a range of pharmacy public health services has been researched in the region, and these services can be clustered into seven topics as presented in the results. On the positive side, it is apparent that South-East Asian pharmacy practice is moving in directions similar to the international context and following the patterns of developed countries (Anderson *et al.* 2004, Agomo 2012). However, the review has also revealed limited

evidence of the efficacy, effectiveness, generalisability and sustainability of such services at the current time.

The majority of the reviewed studies were not designed to produce a high level of evidence, thus suggesting that the majority of the research was still proof of concept rather than knowledge translation. Where RCTs were undertaken, interventions to improve practice generally showed only limited success. The agenda for public health practice in pharmacy has remained at the level of vision rather than actively directed by sound evidence-based health policy.

This review has furthered and strengthened the findings of previous reviews of pharmacy services in developing countries by Smith (2009a,b), who reported that private pharmacies in African, Central and South American and Asian countries (including Thailand, Vietnam and Indonesia) played an important role in the supply of pharmaceuticals and had the potential to contribute more to primary care and public health. However, both reviews also highlighted that the quality of services in pharmacies was far from acceptable.

Despite the differences between the geographical scope and year of publication, common and consistent themes are evident in this review and the two previous reviews that community pharmacy generally provided similar types of services. Despite the rapid growth in the region, the evidence reveals that community pharmacy services in South-East Asia have not changed significantly in the last 5 years, suggesting that barriers identified earlier continue to limit their uptake in day-to-day community pharmacy practice.

Unlike the earlier reviews which focused only on scope and quality of pharmacy services, in this review we also explored the level of evidence for pharmacy public health initiatives in the targeted countries. The use of level of evidence allows a more fine-grained analysis of the findings and informs their interpretation. Research with higher levels of evidence is more likely to provide an explanation of why the services were effective or ineffective (Rychetnik *et al.* 2002), and thus guide strategies for improvement. Few of the reviewed studies employed RCTs, thus highlighting the need for more robust research to strengthen the evidence base. However, it should also be recognised that public health interventions are complex and context dependent and not always amenable to RCTs. Observational (level D) or qualitative studies (level E) may also provide important and relevant information about the services. In the search for effective pharmacy public health services, stakeholders in the region must decide on an acceptable level of evidence on which to base broad implementation.

It is apparent that barriers associated with service provision, many outside the pharmacist's control, have constrained successful introduction of high-quality programmes. If community pharmacists in these countries aspire to expand their role and contribute more effectively in the healthcare system, then resolving the barriers at all levels is critical. The approach must be multi-faceted, and include both a willingness on the part of pharmacists to become more involved, as well as policies which recognise and utilise the potential of community pharmacy to provide expanded services. This review has identified the need for fundamental structural and policy change to encourage and facilitate delivery of high-quality services by pharmacy. Furthermore, it has highlighted fundamental anomalies within the health system: demand for public health services is increasing but there is limited capacity of the health system to meet this demand; the number of pharmacies has increased but they are underutilised. This is exacerbated by the fact that community pharmacy in this region is effectively independent of the mainstream healthcare system and is not defined as a healthcare provider in some jurisdictions. Significant policy reform, founded on a fundamental rethinking of the role and value of community pharmacy, is needed.

Countries in the South-East Asian region might reflect on how developed countries have re-established their roles in the public health system over recent years. Regardless of the context, a common thread through the experience of these countries is the need to engage with the government in order to be recognised as a legitimate public health provider (Mossialos *et al.* 2013), and to be recognised by the public as a useful and accessible source of public health services. The process of achieving this is not an easy task and requires sustained efforts over a period of years.

Apart from policy change, attention must be directed to increasing public awareness of both service provision and pharmacists' roles in public health. Lessons from the UK and Australia show that public understanding is critical to enhancing the uptake of novel services. Although there is evidence of increasing recognition of the expanded services among the general public in both the UK (Taylor *et al.* 2012, Saramune *et al.* 2014) and Australia (White *et al.* 2012), it takes many years to change entrenched community perceptions. Studies in both countries illustrate that the key barriers to uptake have mostly been related to lack of consumer awareness of the services and of pharmacists' skills to deliver them. Lack of demand and poor perceptions of pharmacists have been consistently reported (Krska & Morecroft

2010, Eades *et al.* 2011). When consumers (and healthcare providers) are not aware of the breadth of the pharmacist's role and expertise in delivery of services other than dispensing medications, they will not seek those services in pharmacy and will remain unaware. As a result, despite significant uptake by pharmacists, the services are still underutilised. Therefore, addressing these barriers is likely to increase utilisation of the services.

The presence of these barriers is exacerbated by the perception of pharmacy as a retail business. In order for pharmacy to be regarded as a key player in the provision of public health, patients must come to view the pharmacist as someone who can assist them to remain healthy, rather than purely as someone to be consulted in the context of illness. Pharmacists have a key role to play in promoting themselves and their profession directly to the patients with whom they come in contact, and this will in turn help to promote credibility with governments which is necessary to stimulate regulatory change.

There are some signs of progress, albeit relatively small, in some South-East Asian countries. In Malaysia, although pharmacies still lack support for a monopoly over dispensing, the Community Pharmacy Benchmarking Guideline has facilitated the initiation of health promotion services in pharmacy, in particular for smoking cessation and weight management (Ministry of Health Malaysia Pharmaceutical Services Division 2011). In 2003, the Thai Pharmacy Council introduced an accreditation programme for service quality, and since 2005 has trained pharmacy to provide smoking cessation services in collaboration with the Thai Pharmacy Network for Tobacco Control (Thananithisak *et al.* 2008, Nimpitakpong *et al.* 2010). Vietnam has implemented an accreditation system to improve practice in pharmacy (Vu *et al.* 2012). Indonesia is moving forward to a policy of re-certification and licensure that is aimed at improving pharmacists' presence and capacity to work in pharmacy (Ikatan Apoteker Indonesia (Indonesian Pharmacist Association) 2014). These initiatives highlight the growing opportunity for community pharmacy to play a more prominent role in public health in the region.

Almost half of the studies reviewed in this paper were published more than 5 years ago. Although they do provide the framework for understanding overarching public health practice, they also highlight the dearth of research into current practice. As public health achieves greater focus in pharmacy services, research is increasingly critical as a vehicle for understanding the process of change. Studies in the delivery of pharmacy public health should continue to investigate this process and its outcomes.

This review thus has important implications for future research and policy in community pharmacy practice. To date, there is insufficient high-level evidence to support a role for pharmacy in public health practice in South-East Asia. Future research is needed to improve the quality of evidence, which will in turn provide a basis for rational health policy change to foster the significant potential contributions of community pharmacy to public health initiatives in the region.

Despite the significant contribution of this review, the decision to include only articles published in English may have limited the findings as some potentially relevant non-English language articles may not have been identified. Furthermore, only original published research articles were evaluated, and additional information available from the grey literature may need to be considered in order to provide a broader perspective.

Conclusion

Over the past 14 years, attempts have been made to expand the scope of community pharmacy practice in South-East Asia through piloting the introduction of new services in both pharmacy and public health practice. However, the pace of such expansion has been relatively slow and is not supported by a strong evidence base for pharmacist involvement in public health. Several notable barriers internally and externally to the pharmacy environment such as lack of knowledge, lack of confidence, poor recognition from the general public and lack of supportive policies have constrained progress. There remains considerable scope for community pharmacy to extend their practice into public healthcare initiatives, but this will require clear and planned efforts to address the barriers identified in this review. These efforts should focus on a co-ordinated approach to change in both public perceptions and the regulatory environment in order to realise the significant potential of community pharmacy as a legitimate resource for the delivery of public health services.

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Appendix 7. Paper 2 – Investigating influences on current community pharmacy practice at micro, meso and macro levels



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RESEARCH IN SOCIAL &
ADMINISTRATIVE PHARMACY

Investigating influences on current community pharmacy practice at micro, meso, and macro levels

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Abstract

Background: The nature of Australian community pharmacy is continually evolving, raising the need to explore the current situation in order to understand the potential impact of any changes. Although community pharmacy has the potential to play a greater role in health care, it is currently not meeting this potential.

Objective: To investigate the nature of the contemporary practice of community pharmacy in Australia and examine the potential missed opportunities for role expansion in health care.

Methods: In-depth semi-structured interviews with a wide-range of key stakeholders within and beyond community pharmacy circles were conducted. Interviews were audio-recorded, transcribed verbatim and analyzed for emerging themes.

Results: Twenty-seven key informants across Eastern half of Australia were interviewed between December 2014 and August 2015. Several key elements of the current situation representing the social, economic and policy context of community pharmacy have been identified. These elements operate interdependently, influence micro, meso and macro levels of community pharmacy operation and are changing in the current climate. Community pharmacy has untapped potential in primary health care, but it has been slow to change to meet opportunities available in the current situation.

Conclusions: As the current situation is complex, interrelated and dynamic with often unintended and unpredictable consequences, this paper suggests that policy makers to consider the micro, meso and macro levels of community pharmacy operation when making significant policy changes. The framework proposed in this study can be a helpful tool to analyze the processes operating at these three levels and their influences on practice.

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Keywords: Current situation; Community pharmacy; Macro; Meso and micro level influences

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Introduction

For many years, community pharmacy has been described as being in a state of transition with a body of international research highlighting the inevitability of practice change.^{1,2} Significant historical transitions in community pharmacy have been marked by the loss of three of its four traditional mainstays. Community pharmacies were originally focused on procuring, preparing and evaluating their own drug products.³ However, the rise of pharmaceutical industries took over these activities leaving only dispensing – a role which is usually associated with the distribution and sales of pharmaceuticals.⁴ In recent decades, in Australia, dispensing has been the core of the business model and the major contributor to remuneration in contemporary community pharmacy.⁵

However, the ongoing Pharmaceutical Benefits Scheme (PBS) reforms along with the changing landscape of the Australian health care system have greatly affected the income that community pharmacy can derive from their dispensing role. Community pharmacy viability is under threat if the business model continues to rely on dispensing. In addition, the over-reliance on dispensing has discouraged community pharmacy from adopting a more active role in health care through providing Cognitive Professional Services (CPS) such as medication management, health promotion and screening, and chronic disease support.⁶ It has been a concern of policy makers that the role of community pharmacists, as highly trained professionals, remains narrowly focused on dispensing medicines. Policy makers are calling for a greater contribution from pharmacists to health care, a challenge to which community pharmacy must respond.⁷ Accordingly, community pharmacy again faces inexorable societal and economic pressures to change.

It must be recognized that a community pharmacy is not simply a business entity. Although as with any business, a community pharmacy must be profitable, it also has a responsibility to meet the health care needs of the public.⁸ One perspective of community pharmacy is that it is a setting for an individual pharmacist to apply their professional duties in health care,⁹ whilst, at a broader level it has been increasingly seen as an effective instrument to control rising health care and pharmaceutical expenditure.¹⁰ These intertwined roles imply that the operation of community pharmacy encompasses multiple-levels i.e., the pharmacist

as an individual practitioner (micro level), community pharmacy as institution (meso level) and community pharmacy as part of health care system (macro level).

This study therefore sought to investigate the nature of the contemporary practice of community pharmacy in Australia, in particular the impact and the interaction of influences on practice at the micro, meso and macro levels. Secondly, this study examined the potential missed opportunities for Australian community pharmacy to assume an expanded role in health care.

Community pharmacy in Australia

There are approximately 5450 community pharmacies across Australia, comprising mostly small and medium sized businesses. It is a \$12 billion industry employing more than 63,000 persons with around 78% of registered pharmacists working in community pharmacy.¹¹ Over the years, community pharmacy has been a major facilitator of National Medicines Policy which aims to ensure that life-saving and vital medicines are distributed in a timely manner throughout Australia.

Community pharmacies in Australia are seen as highly accessible, therefore it is not surprising that 94% of Australians, particularly those with chronic illnesses, visit community pharmacy every year. Although representing only 14% of the total population, the elderly account for 80% of pharmaceutical consumption.¹² Dispensing of PBS medicines represents up to 60% of community pharmacy profit with the remainder derived from Over-the-Counter (OTC) medicines and other general retail products.¹²

While community pharmacists are still predominantly focused on their dispensing role, they may also participate in the provision of remunerated CPS including Home Medicine Reviews, Residential Medication Management Reviews, and Medschecks which are essentially medication management programs delivered in a patient's home, at aged care facilities and in-pharmacy store, respectively.¹³⁻¹⁵ In addition, under the Pharmacy Practice Incentive program, community pharmacies may receive payment for delivering Dose Administration Aids and Staged Supply services for patients who are at risk for potential medication misadventure.^{16,17}

Internationally, there is growing trend for incorporating community pharmacy in primary

care groups to provide services that meet the needs of the local population through collaborative work with other members of the primary care team particularly in countries such as UK^{18,19} and Canada.^{20,21} In Australia, inclusion of a pharmacist in a GP practice has recently been proposed as a new model of delivering team care in medication management. However, it is yet to be trialed and implemented.^{22,23}

Methods

Study design and setting

This study employed a qualitative design which provides the opportunity to collect rich, in-depth information and to uncover “hidden information” about the topics of interest. To address the objectives of this research, in-depth semi-structured interviews with a wide-range of key stakeholders within and beyond community pharmacy circles were conducted. These provided sufficient flexibility to explore the topics and concepts while still being guided by a specific interview framework.²⁴

Sampling and recruitment

Purposive maximum variation sampling was used to select potential participants across the Eastern half of Australia. Participants were chosen to include wide-range representation of stakeholders from pharmacy practitioner, pharmacy owner, general practitioners (GPs), academics and researchers, professional peak organizations related to pharmacy and the health care system, consumer groups, private insurers, and government representatives. Participants were also chosen to represent both genders, metropolitan and rural areas, pharmacy and non-pharmacy backgrounds, different pharmacy backgrounds (individual proprietor, banner groups and discount pharmacy) and different states (New South Wales, Victoria, Queensland, Australian Capital Territory and South Australia). The involvement of participants from different backgrounds is critical in ensuring perceptions are gained from various points of view.

Potential participants were identified in two ways. Firstly, the research team listed known influential key stakeholders relevant to community pharmacy practice. The names of the stakeholders were obtained from the researchers’ professional networks and key publications on the issues around practice change in community

pharmacy. Secondly, a snowball sampling method was applied after the conclusion of each interview whereby participants were asked to nominate other candidates who were potentially suitable for the study, but who may not have been identified by the research team.

Invitation letters including an information sheet and consent form were sent electronically to potential participants. Participants who did not respond to the e-mail were contacted by telephone. Once participants agreed, the interview was then arranged based on their convenience. Face to face interviews were the preferred method, however geographical and time constraints for some participants resulted in both telephone and Skype[®] interviews as alternatives. Consent was obtained from the participants before conducting the interview. Prior to the commencement of this study, ethics approval was obtained from Human Research Ethics Committee the University of Sydney.

Data collection

An interview guide was developed from the literature on practice change in-pharmacy, understanding of the latest developments in Australian pharmacy and discussions among the researchers. The guide was piloted with three stakeholders with research and practice experience and refined based on feedback.

The interview commenced with a broad, open ended question about participants’ experience, their role, and with regards to community pharmacy operation. Participants were then asked to describe their perception of the current situation of community pharmacy practice in Australia and the contribution of community pharmacists to the public and the health care system. Social, economic and policy contexts in health care and pharmacy were explored, and participants were encouraged to express their thoughts on all issues related to community pharmacy, the arguments behind the issues and possible strategies to resolve the issues.

Two researchers AH/IK or AH/ES conducted the interviews. All interviews were audio-recorded and transcribed *ad verbatim*. Interviews were conducted until saturation of themes was reached. Saturation was reached after 27 interviews, when no new themes emerged from the data.²⁵

Data analysis

Complete transcripts of the interviews were prepared and iteratively analyzed together with

the audio recordings of the interviews. Several transcripts of interviews which were considered have the richness of information were initially used to create a coding framework. Thereafter an inductive approach was used to explore the data and construct themes without pre-defined conceptions about the topics. The analysis broadly involved categorizing interview data based on initial coding, then clustering the code into categories, and finally merging them into themes and subthemes.²⁶

All researchers were involved in creating the coding framework. NVivo 10[®] was used to assist the coding process and management of data. The remaining transcripts were then read and thematically analyzed using the initial framework. This technique allowed the authors to compare the data with the initial transcripts and find repeated key themes and subthemes. New themes were added to the framework where they gave different perspectives or did not fit to the existing themes.

Further in-depth analysis of the data was then undertaken using a modified framework developed by Rogoff known as the "planes of analysis," a framework developed to assist in the analysis of human interactions within their social context. Rogoff views "context and individual as jointly producing psychological events,"²⁷ with which she argued that there is interdependence between individuals and their environment. For empirical practice, Rogoff developed "a three-fold analytic distinction between individual, group and community" that she describes as planes of analysis.²⁸ While Rogoff proposed that each of these three planes cannot be described in isolation, she approached the exploration of each plane as a "current focus of attention,"²⁸ with the plane of focus seen as foregrounded against the background of the other two. Using this approach, the analyst can "zoom in" on one plane at a time without losing the comprehensiveness of the whole. In other words, this concept offers the perspective that three levels "are separable in practice but in principle not reducible to each other."²⁹

This paper modified the concept of planes of analysis by defining a different set of three planes, namely the micro level (individual pharmacist), meso level (community pharmacy as an institution or network of institutions) and macro level (community pharmacy as a part of health care system). This approach distinguishes the particular aspects of each plane while still maintaining

the dynamic interdependence of the whole system. These three levels are neither hierarchical nor independent; rather the three are mutually interdependent and all are necessary to understand the operation of each.

Results

A total of twenty-seven in-depth interviews were conducted from December 2014 to August 2015. Fourteen participants were interviewed in person, seven over the telephone and six via Skype. On average, the duration of the interview was 71 min (range 43–93 min). The characteristics of the participants are provided in Table 1.

From the interviews several key themes emerged which characterized the nature of influences on contemporary Australian community pharmacy practice, representing the social, economic and policy context of community pharmacy. These influences operate interdependently, and can be explored at the micro, meso and macro levels to generate a broad understanding of the ways in which community pharmacy operates and is changing in the current climate.

Social influences

Value of community pharmacy to society

Participants consistently expressed the view that community pharmacy offers substantial value to the community such as high accessibility to the public, being a first port of call for a health problem and as a source of unbiased health care information from highly trained professionals. These values are distinct from other health care providers and have resulted in a high degree of public trust.

Table 1
Characteristics of participants

Characteristics	n = 27
Male, n (%)	20 (74)
Background, n (%)	
Pharmacy	21 (78)
Non-pharmacy	6 (22)
State, n (%)	
ACT	3 (11)
NSW	12 (45)
QUE	4 (15)
SA	2 (7)
VIC	6 (22)
Metropolitan, n (%)	24 (88)

We're very readily accessible. You don't need an appointment. You can walk in and get access to and advice from a trained health care professional, in many instances seven days a week over extended hours. We are the only health care professional that you can actually do that. Everyone else you have to make an appointment. Nine times out of 10 the advice is free. Value of Community Pharmacy (P05_FP)

Participants also observed that possession of these unique attributes confers responsibilities on the community pharmacist and community pharmacy and compels them to act in certain ethically responsible ways. Therefore in responding to societal-health care needs, they are increasingly providing a range of CPS.

Opportunities for expanding roles in health care

Demographic changes within the society characterized by an aging population and a higher prevalence of chronic illnesses have created a need for broader access in health care. Participants acknowledged that there are opportunities for community pharmacies to move beyond dispensing as they are ideally located to meet this changing societal-health care need.

We're involved in lots of health-related things, we're involved in screening programs, we're involved in compliance checks, (and) we're making sure that people have the information. I think there's a lot of opportunity for pharmacists to do lots of things in community pharmacy. Expanded Professional Services (P14_FP)

Although contemporary practice has shifted toward role expansion, a number of participants felt there were unmet needs in the society which necessarily required more effective use of pharmacist's skills and knowledge. For instance, one participant highlighted the potential for community pharmacy to play a role in the transitions of patients post discharge from hospital.

I don't think there is enough focus on transitions of care ... from the community into hospital, or the hospital into the community, or hospital into the nursing home ... there is a big opportunity to reduce medication errors and discrepancies in transitions of care to reduce errors and referrals at a higher levels of care ... they [pharmacists] can take a structured and systematic approach for medication reconciliation, and review and coordinate and collaborate with other health professionals ... I think that pharmacists underutilize in what they're specifically trained to do and can deliver a lot of benefit but it's something that slips

through the cracks. Under-utilization of Pharmacist's Skills and Knowledge (P03_MP)

Poor expectation as a barrier

A key factor cited by many participants as hampering the expansion of community pharmacy's involvement in health care service delivery is low expectations of pharmacy and pharmacists by other stakeholders.

Consumers really don't understand a large part of what pharmacists do and ... is reflected also in the way for example our politician and their government authorities feel about pharmacist. They don't really understand the role and it is only few general practitioners who are really supportive about this role. In my practice, there are many opportunities for GPs to be doing more with their time ... GPs just don't have high expectation about what we can do either. I think all that background is related, that low expectation is really holding us back fundamentally. Poor Expectation (P23_MP)

Cross-subsidization of expanded services from dispensing

Whilst there is an impetus for providing expanded services, community pharmacy encounters difficulties for sustaining the services because the payment is not sufficient to make these services profitable.

The thing is in pharmacy there's been this notion that everything is cross-subsidised by the profit that being marked up but that's no longer the case. You can't cross subsidise these services. So the model is changing but it still hasn't changed fast enough to make it sustainable. That whole concept has been lost in translation ... we (are) just not, it is disappear and it could threaten the viability. Cross-subsidisation of CPS (P10_MP).

Economic influences

The rise of a new business model

Despite the aforementioned challenges, the industry continues to grow particularly with the rise of the discount model pharmacy within the past five years. Some participants viewed community pharmacy in Australia as becoming increasingly polarized between discount model pharmacies which focus on cost leadership strategies and service model pharmacies that emphasize the delivery of CPS.

On the one hand, the rise of discount pharmacies has been seen as advantageous by consumers as they offer a wide-range of products at cheaper prices. On the other hand, as noted by the

majority of participants, their expansion has put a lot of pressure particularly on small and independent pharmacies. In addition, a small number of participants indicated that discounters' advertising campaigns which focus on their low cost strategy has damaged the professional image of community pharmacy.

... these kind of movement of discount pharmacy which is difficult because they are becoming quite large and powerful in their advertising and their marketing to Australian consumer ... which (is) very much about the cost and so it is making people focus more on that type of aspects. You can't compete with that so you have got to try doing something different to draw people back to your pharmacy. Inter-pharmacy Competition (P07_FP)

To remain viable over the longer term, independent and non-discount community pharmacies must differentiate themselves by adopting a more service oriented health care model rather than relying on supply model.

I think that there'll be models like discounters who are just plain straight suppliers. Come here, get your medicines, whatever you pay you pay, and then I think there'll be specialised pharmacies ... there'll be a service driven model of pharmacy that are pharmacies that provide various services ... whether they're a diabetic specialist, an asthma specialist, a wound care specialist, aged care specialist. But I think that model will probably be the future of pharmacy. Emerging Business Model (P27_FP)

Financial viability under threat

Some participants acknowledged that a number of pharmacies have had reduced incomes due to intense inter-pharmacy competition. One participant clearly indicated that her pharmacy had experienced significant loss, forcing them to find other ways to offset the losses.

I know our boss has said that he has a cut in income of the pharmacy about \$40,000 last year and that's probably a pharmacy that's going very well so financially that's quite difficult because that's a huge cut in income and the challenge is to try to find other incomes from other places, so that's one kind of challenge that gets tougher I suspect. Shrinking Community Pharmacy Income (P07_FP)

One of the easiest ways to recover the loss is through rationing wages including that of employee pharmacists. One participant argued that employee pharmacist wages have diminished

in real terms over the years and he felt that this is common throughout Australia.

When I was managing community pharmacy 10 years ago, my staff pharmacists in Canberra were on \$43 to \$45 an hour. Ten years later, as a staff pharmacist, I'm getting \$35 an hour, so the wages have actually gone down over the last 10 years, that's in Canberra, which I'm sure would be very similar to a lot of capital cities. There's still a bit more money to be made in rural and remote areas if you're prepared to travel, but in the cities, it's becoming pretty brutal. Declining Individual Wages (P10_MP)

The declining wages in tandem with the increasing pressures in the working environment have been a source of growing dissatisfaction for employee pharmacists. The respondent in the previous quote continued to express his concern about pharmacists leaving the profession due to dissatisfaction with the current situation in community pharmacy.

Well, there's this group in Canberra, they've lost nine pharmacists this year from this group ... Most of them have left pharmacy, they've joined department of health, not as a pharmacist, just as part of the bureaucracy, because they're just fed up with the low wages and the poor conditions and the pressure to churn, so the cracks are there. Pharmacists Leaving the Profession (P10_MP)

In addition, one participant expressed the view that many pharmacy graduates were not satisfied with their career development particularly the difficulty of owning their own pharmacy and some others opted to pursue education of another major for better career enhancement.

I talk a lot with pharmacists okay and I see a lot of disgruntled recent graduates and they aren't ever going to own a pharmacy so they'll always be an employee. They're very intelligent people. They get out of University and they go, "Is this all there is?" ... And there's a number of pharmacists I've worked with in public health who've gone and got public health qualifications and have taken their skills somewhere else. So the pharmacy agreement unfortunately doesn't allow for career development and also role enhancement. Lack of Opportunities for Career Development (P21_MNP)

Policy influences

Price disclosure

Whilst community pharmacies operate in a hypercompetitive market, their profitability is also under external pressure from PBS reforms,

particularly the Price Disclosure policy. The policy, which was introduced in 2007 and gradually accelerated in 2013, has been viewed by all participants to have had a great impact on the income of community pharmacy. Some participants indicated that dispensary profit will start to decline as price disclosure reduces the cost of PBS medicines to an extent whereby the Government will need to subsidize fewer medicines in the longer term. However, although Price Disclosure is generally seen as hurting pharmacy, some participants also felt that the policy actually acts as a driver of change to restructure business toward a services focused model.

Let's be realistic, we had a great time before, and it was inevitable this was going to happen and why would the Government pay the same price for generics which we were paying significantly less as an owner pharmacist, why would they continue to pay us the same price as they would for the innovators ... So price disclosure and the continual eroding of prices of drugs is just a fact of life and pharmacy needs to restructure and that's what everybody's scrambling to do, is to restructure so that we can afford to continue to provide the services that we've always done. The Impact of Price Disclosure (P27_FP)

Community pharmacy agreements (CPAs)

Participants in this study acknowledged the key role of consecutive Community Pharmacy Agreements (CPAs) as the underpinning policy framework in Australian community pharmacy. Under the agreements, community pharmacy receives funding for dispensing and providing CPS. The agreements since 1990, according to the majority of participants, have provided a stable basis for the operation of community pharmacy at least for the next five years. Within this continuum, community pharmacy owners have the certainty to run, redesign or expand their business. More importantly, the agreements have ensured timely and reliable access to PBS medicines through the community pharmacy network as a key plank of the National Medicines Policy. This role is vital as no other business model can cover such a wide-range of areas throughout Australia. In addition, the agreements have contributed to some innovation in community pharmacy as there have been investments in Research and Development in-pharmacy practice particularly within the last three agreements (3rd, 4th and 5th CPAs).

Absolutely, it gives certainty to the industry ... there are billions of dollars of privately invested

funds within the community pharmacy network ... It allows you to recapitalize your business ... It allows you to sign leases ... you have access to the pharmaceutical benefit scheme and in my belief is that no other groups, no other organizations could provide those services to the level of community pharmacy does. If everyone wants to play on that games, Coles, Woolworths, everyone but they won't provide that services in Brewarrina [an indigenous town in New South Wales], (that means) they won't provide that service at Fitzroy Crossing [a small town of indigenous population] in Western Australia that community pharmacy does. The Benefits of the CPAs (P20_MP)

However, concern about the shortcomings of the CPAs was also expressed. According to several participants the agreements have limited the opportunity to obtain funding from other sources since the Government and health insurance providers consider that all funding for community pharmacy is provided in the “bucket” of CPAs. The agreements, according to one participant, have lacked flexibility and have constrained the development of other services that are not listed in the agreement. This is because the funding has been capped for certain services within the five years of the CPA. In addition, some participants described their concern that the agreements have preserved the over-reliance on the dispensing model as the largest portion of the funding is allocated for payment for dispensing of PBS medicines with only a small portion dedicated to professional pharmacy services.

The problem would always be whenever we inform the government about what pharmacy can do, “oh no we [government] have done pharmacy, (and) we have got the CPA signed for five years so we don't need to think about it.” So you don't have any other opportunities to try to get other new areas of funding because they think that they [the funding] are all in here [the CPA]. Whilst, it is great that there is guaranteed funding pharmacy through the CPA, it is also a detriment for other events or opportunities. Limited Flexibility of the CPAs (P07_FP)

Discussion

The findings of this study highlight the complex, and dynamic nature of Australian community pharmacy practice today and the interrelatedness of influences operating at the individual practitioner level (micro level), the community pharmacy (meso level), and the health care system

(macro level). Without an in-depth understanding of such a complex, interdependent and dynamic process, it is difficult to propose a holistic policy approach as the system in community pharmacy is composed of heterogeneous and interacting entities. For example, it is inappropriate to focus only on the price disclosure policy at the macro level without consideration of its negative impact on the salaries of individual pharmacists working at the micro level. Moreover to assume that the establishment of the CPAs at the macro level has been responsible for a broad expansion of the health care role of community pharmacy at the meso level is not supported by the evidence. The aim of this paper was to demonstrate that changes at any one level have significant potential to, and have had, unintended and unpredictable consequences on practice.

The framework used to analyze the data provides a plausible explanation of the slow pace of practice change in community pharmacy. Moreover, it can be used as a mean to analyze the processes operating at three levels, which are mutually interdependent.

A helpful starting point for the analysis is the operation of community pharmacy (meso level), which as many participants agreed provides unique opportunities to serve the community at both an individual and health care (macro) level. The respondents described potential roles that can be played by community pharmacy in health care which accord with previous findings,^{30,31} and include those facilitated by the CPA such as remuneration for medication management services^{32,33} and Pharmacy Practice Incentives (PPI) program.^{34,35} The government (macro) has acknowledged that, with the challenges faced by the health system from an aging population and increases in prevalence of chronic disease, there is a genuine need to maximize the potential of community pharmacy (meso). Whilst there is some evidence of role expansion in community pharmacy as a result of successive CPAs, this has been offset by pharmacist (micro) dissatisfaction with the ways in which the agreements have been administered and the limited extent to which they have benefited the profession (meso). Since the largest proportion of the money is allocated to dispensing of PBS medicines, the CPAs have continuously preserved a reliance on the supply model. In this sense, the CPAs – notwithstanding their benefits – have discouraged a shift to provision of expanded services, and thus indirectly inhibited the very progress that they were designed to

promote. In other words, the cross-subsidization of CPS by profits from dispensing – which is intrinsic to the CPA – has a significant impact on the capacity of community pharmacy (meso) to deliver and maintain the viability of its professional services.

At the same time, increases in health care expenditure, including the cost of subsidizing PBS medicines, have become an impetus for PBS reforms in terms of the price disclosure policy at the macro level. Since community pharmacy (meso) has been surviving on the profits from supplier discounts over many years, price disclosure represents a key policy change that has generated ongoing concern surrounding the financial viability of community pharmacy. Moreover, tension at this meso level has been exacerbated with the emergence of the discount model pharmacy making the business landscape more competitive. Consumers may prefer to visit discount pharmacies as they offer cheaper prices. At this level, price disclosure (macro) together with inter-pharmacy competition and capped funding through the CPAs have significantly reduced the incomes of pharmacies, particularly small and independent pharmacies. The erosion in incomes has motivated some change of direction among some community pharmacies. Whilst changes might be difficult for the majority, there are examples of pharmacies that have been able to successfully transform their business by leveraging opportunities provided by the CPAs through funded CPS such as Home Medicine Reviews, Medscheck, Dose Administration Aids etc., as well as implementing innovative services addressing the health care needs of their local community.

However for most pharmacies, the shrinking of income has led to significant cuts in operation including funding of pharmacist wages at the micro level. In addition, the legislative restrictions of pharmacy ownership (macro) which have remained mostly unchanged over decades limit the opportunity for graduates to open their own pharmacy (meso). Both of these outcomes have contributed to growing dissatisfaction among practitioners, and have led some pharmacists (micro) to depart the profession. This decision to leave the profession has the potential to affect the capacity of community pharmacy (meso) to meet changing societal needs (macro). In a nutshell, the implementation of policies at the macro level have affected individual pharmacists at the micro level in relation to their professional responsibility to the public and community pharmacy role at the

meso level in the sense of fulfilling government expectations (macro). Changes at the meso and micro levels have also interdependently impacted the system at the macro level as shown in the case of CPAs and price disclosure.

It is important to recognize, however, that much optimism was expressed by the participants, in addition to their reflections on the current situation. This study has demonstrated that there is opportunity, and indeed willingness, for community pharmacy to play a greater role in health care. For example, several respondents viewed on opportunities to become a primary care provider and health hub destination are consistent with other findings.^{36,37} Nevertheless, this paper's analysis of the current situation has clearly demonstrated that responding to these opportunities will involve more than simply implementing isolated policy and funding changes at the macro level. A number of previous studies have identified and highlighted barriers to change^{38,39} including poor public awareness and expectations of pharmacist's expanded role and lack of funding models to support provision of the expanded services. These barriers which are consistent with this study have been persistent within the practice of community pharmacy, indicating that the contemporary policy approach is insufficient to offer a potential solution. This paper argues that in a complex, interrelated and dynamic system such as community pharmacy, any policy and funding decisions will influence all three levels in an interdependent fashion, and therefore there is a need to consider the mutual impacts at each level in the formulation and implementation of policy. In other words, it is not sufficient to identify barriers, facilitators or drivers to practice change without an in-depth analysis of their mutual interdependence. This may result in the need for in-depth modeling using an analytical framework such as the one which is utilized in this paper.

This study was not without limitations. This paper used a purposive and snowball sampling strategy which if repeated with different group of participants may yield different results. However the interviews were continued until data saturation was achieved. As context plays an influential role in the findings of this study, they may not be extrapolated to other cultures. Finally, despite their increasing impact within the industry, this study was not able to attract participants from warehouse-style or discount pharmacy. The

researchers invited and followed up on a number of key informants with this background but none responded to the invitation. This may be taken into consideration when conducting future research. To compensate for the absence of key persons from the discount pharmacy model, this study interviewed other stakeholders who closely worked and understood how discount pharmacy operates.

In addition, there have been some policy changes since the completion of data collection for this study. The administration of the 6th CPA which took effect on 1 July 2015 is likely to change the picture. Likewise, the proposal of the Pharmaceutical Society of Australia (PSA) and the Australian Medical Association (AMA) to put non-dispensing pharmacists into GP practices is likely to have a significant impact on the role expansion of pharmacists outside dispensary practice.⁴⁰ Furthermore, the latest policy adopted in January 2016 that allows up to one dollar discount on the patient co-payment for eligible PBS medicines is likely to influence the business viability of pharmacy. Whilst the outcome of these policies has not been evaluated, they will undoubtedly have an impact on the three levels.

Conclusions

The current situation in Australian community pharmacy is complex, interrelated and dynamic with several key elements from the social, economic and policy context impacting on the micro (individual pharmacist), meso (community pharmacy) and macro level (health care system) of community pharmacy. Although community pharmacy has untapped potential in primary health care, it has been slow to change to meet opportunities available in the current situation, and if not addressed, this will continue to hinder the development of pharmacy as a key player in health care. In order to optimize the potential of the system, future policy decisions must consider the impacts at the micro, meso and macro levels in a holistic manner.

The findings and analysis presented in this paper contribute not only to "knowing what is going on" in the current state of community pharmacy, but they also provide a means of exploring and understanding the complexities, interrelatedness and dynamics of the practice in Australian community pharmacy both now and into the future.

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Appendix 8. Paper 3 – The operation of a Research and Development (R&D) and its significance for practice change in community pharmacy

RESEARCH ARTICLE

The operation of a Research and Development (R&D) program and its significance for practice change in community pharmacy

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Abstract

Background

Community pharmacy practice in Australia is changing and Research and Development (R&D) in community pharmacy plays an important role in contributing to the changes. A range of Cognitive Pharmacy Services (CPS) were developed from R&D programs, yet their implementation has been minimal indicating slow practice change within community pharmacy. Given the vital role of R&D, little is known about the operation and the extent to which it has been effective in supporting practice change in community pharmacy.

Methods

In depth, semi-structured interviews were conducted with 27 key stakeholders in the pharmacy and healthcare system in Australia. All interviews were audio-recorded, transcribed ad verbatim and analysed using an inductive approach.

Results

Participants perceived that the R&D program has played an important role in the advent of CPS. Furthermore, they considered that evidence generated by the R&D projects is a critical influence on policy formulation, funding and implementation of CPS into practice. However, policy decisions and subsequent implementation are also influenced by other factors associated with context and facilitation which in turn foster or inhibit effective Knowledge Translation (KT) in the community pharmacy sector.

Conclusion

While R&D programs have been viewed as essential for supporting changes in community pharmacy practice through development and funding of CPS, the overall impact has been small, as contemporary practice continues to be predominantly a dispensing model. Given the complexity and dynamic nature of the community pharmacy system, stakeholders must

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take into account the inter-relationship between context, evidence and facilitation for successful KT in community pharmacy practice.

Introduction

Community pharmacy practice is under pressure to change. Over recent years, the revenue generated from dispensing prescriptions has become constrained, profit margins are falling and the sales of non-pharmaceutical products are diminishing [1–4]. There is a clear imperative for community pharmacies to change their business model beyond dispensing and sales of pharmaceuticals [3,5,6]. Internationally, there is a growing body of evidence which shows that community pharmacy has increasingly turned to providing expanded health-related services as a revenue stream to offset the losses from traditional dispensing practice [7–9].

With regards to the practice change paradigm, Research and Development (R&D) in community pharmacy has been increasingly acknowledged as a driver for the development of new Cognitive Pharmacy Services (CPS). In Australia, R&D in community pharmacy has been funded through the consecutive Community Pharmacy Agreements (the CPAs) which are five-year agreements between the Australian government and the Pharmacy Guild of Australia. Commencing in 1990, the agreements have provided funding of over \$45 billion to support a viable network of community pharmacies throughout Australia including funding support for the R&D program (Table 1) [10].

The R&D program funded two types of projects (Fig 1): Investigator Initiated Grants (IIGs) and Commissioned projects. In the IIG, researchers designed projects aligned with their own research or interests within each CPA. On the other hand, Commissioned projects were announced for public tender with the research program already pre-determined by an Expert Advisory group encompassing key stakeholders in pharmacy [11,12].

Table 1. Proportion of funding under the consecutive CPAs.

	1 st CPA (1990–1995)	2 nd CPA (1995–2000)	3 rd CPA (2000–2005)	4 th CPA (2005–2010)	5 th CPA (2010–2015)	6 th CPA (2015–2020)
Total funding ^a , (% increase from previous CPA)	\$3.286 billion	\$5.497 billion (167%)	\$8.804 billion (160%)	\$12.158 billion (138%)	\$15.610 billion (128%)	\$18.886 billion (121%)
Funding for Pharmacy Remuneration ^b , (% within the CPA)	Not Available	Not Available	\$5.6 billion (63%)	\$11.1 billion (91%)	\$13.8 billion (89%)	\$14.8 billion (78%)
Funding for CPS, (% within the CPA)			\$114 million (1.29%)	\$241 million (1.98%)	\$427 million (2.77%)	\$368 million ^c (1.94%)
Funding for R&D, (% within the CPA)		\$5 million (0.1%)	\$15 million (0.17%)	\$19 million (0.16%)	\$11 million (0.06%)	\$50 million ^d (0.26%)

^aActual expenditure under each agreement was not publicly reported. These numbers were obtained from the Audit Report on the Administration of the 5th CPA;

^bFunding that was related only to payment for supplying the medicines e.g. dispensing fee, pharmacy mark-up, premium fee dispensing incentives, extemporaneous preparation etc.;

^cApproximately \$613 million was invested in the 6th CPA under funding for Community Pharmacy Programs. However, only half of this funding was allocated for provision of professional pharmacy services as indicated in Appendix B of the agreement. Additional funding up to \$600 million will be provided based on the recommendations of the Health Technology Assessment Body after evaluating the outcome of the Pharmacy Trials Program.

^dFunding for the R&D program was ceased in the 6th CPA and shifted to fund the Pharmacy Trial Program.

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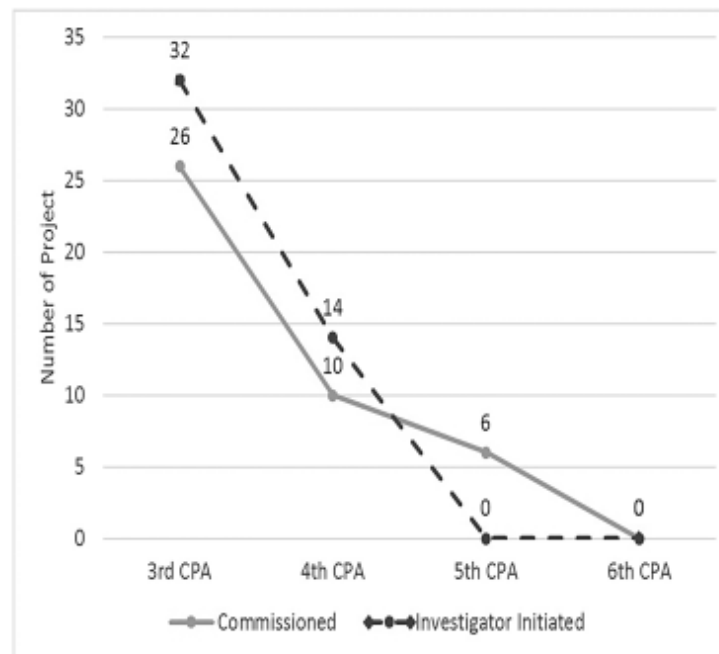


Fig 1. Distribution of R&D projects under the CPAs.

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Despite the importance of the R&D program, there has been concern expressed about the way the program has been funded, operated and its effectiveness in supporting practice change in community pharmacy. For instance, only a very small proportion of the total CPA funding was invested in the R&D program with the majority having been allocated to fund the supply of medicines including the allocation for dispensing fees of Pharmaceutical Benefits Scheme (PBS) medicines (Table 1). In fact, the amount of funding for R&D fell steadily from the 3rd CPA onwards, and was ceased in the current CPA (the 6th). However, there was funding provided to trial new and expanded community pharmacy services under the Pharmacy Trial Programs. Furthermore, there was a trend within the most recent agreements towards funding Commissioned projects which limited opportunities for independent innovative research in the community pharmacy sector (Fig 1).

From research to practice: The case of DMAS, PAMS and HMR

The implementation of CPS involves a long and complex process from the design and development of the research, to evaluation of the impact on clinical, humanistic and economic outcomes of a variety of CPS, dissemination of the research findings to stakeholders, to the adoption and implementation which leads to sustainable delivery of CPS in community pharmacy. In the R & D phase of previous CPAs there was scant attention paid to development of a strategy to achieve knowledge translation using principles of implementation science.

Within this section, we describe three case studies of pharmacy services funded under R&D program of the consecutive CPAs. They are Diabetes Medication Assistance Service (DMAS), Pharmacy Asthma Medication Service (PAMS) and Home Medicines Review (HMR). These services were trialed using rigorous research designs i.e. randomized controlled trials, thereby providing a body of sound evidence of benefit in community pharmacy. While these benefits supported the possibility for larger scale implementation, the policy decision was not to proceed with the implementation of these services in community pharmacy reflecting the long process and complexity for developing R&D in community pharmacy.

The Diabetes Medication Assistance Service (DMAS) and Pharmacy Asthma Medication Service (PAMS) were two research projects examining the clinical and cost effectiveness of chronic disease management support services provided by community pharmacists for patients with type 2 diabetes and asthma respectively [13,14]. These services were initially funded as small trials, and subsequently tested in randomized controlled trials in the 3rd CPA. Under the 4th CPA, the funding for DMAS and PAMS was continued for national pilot programs. Despite the success of the pilot programs, funding for neither of these CPS was continued in the 5th CPA.

When it was funded for small trials as part of the Pharmacy Diabetes Care Program under the 3rd CPA, DMAS was found to be operationally and clinically effective [15,16]. Under the 4th CPA, the service was then rolled out for a two-stage pilot program, first to 90 pharmacies and then 800 pharmacies across Australia. In the first stage, the benefit of DMAS was demonstrated in terms of improved clinical outcomes and acceptance by patients, pharmacists and GPs [13,17,18]. However, the uptake of the service in stage 2 was limited. The evaluation of stage 2 DMAS identified operational problems such as poor interaction with other health professionals including GPs, difficulties in recruiting patients which were predominantly related to lack of interest from patients, limited time and capacity of pharmacists to provide the services and mixed patient health benefits with only marginal improvement in clinical outcomes and lifestyle factors [19]. As a result, continuation of DMAS in its original form was not considered to be necessary or economical [19].

In the 5th CPA, DMAS was modified into Diabetes Medscheck, a one off meeting with a pharmacist to review the medication and management plan for a patient with type 2 diabetes [20]. The modification removed the most valuable part of DMAS which was patient support and monthly monitoring to facilitate better self-management for patients with established diabetes [21]. The Evaluation report on Medscheck and Diabetes Medscheck demonstrated mixed perceived benefits. Although there was an increase in consumers' knowledge about their medication regimens, the programs may not have reached their targeted patients such as high-risk patients, patients with chronic diseases, and patients taking multiple medications. In addition, in contrast to DMAS and PAMS there was no evidence demonstrating clinical and cost-effectiveness of these services to justify their funding [22].

Research for PAMS originated from the Pharmacy Asthma Care Program (PACP), also funded under the 3rd CPA. The research demonstrated significant improvement in asthma control and quality of life of patients with asthma and the service was found to be cost effective [23]. The project was rolled out as PAMS for a pilot program under the 4th CPA, and involved several consultations with the pharmacist in the pharmacy over a period of 6 months. The service included assessments of asthma severity, inhaler technique, medication adherence, the use of spirometry, patient counselling on asthma triggers, goal setting and referral to GPs as appropriate [24,25]. The pilot was initially designed in two stages. The evaluation of stage 1 which involved 100 pharmacies showed that clinical outcomes and substantial economic efficiencies would be achieved if PAMS were implemented in a broader community pharmacy setting [26]. However, after stage 1 was concluded, a decision was

made by the Department of Health, in consultation with the Pharmacy Guild, not to proceed with stage 2 [26]. There was no explanation publicly available concerning the reason for not continuing the PAMS project.

Even the implementation of reasonably well-established CPS such as Home Medicines Review (HMRs) has not been without problems. HMRs have been part of CPS in Australian community pharmacy since 2001 and have proven to be sustainable to date. HMRs are provided jointly by doctors and accredited pharmacists specifically for patients who may benefit from a medication management plan. Research on HMRs has shown that it is an evidence based and cost effective service that prevents and resolves medication related problems [27–29]. In addition, there is evidence that HMRs are cost saving to the healthcare system [30].

Funding for HMRs was initially allocated under the 3rd CPA, however the increasing uptake of the services since 2002 has resulted in growth in demand significantly outstripping the funding allocation [31,32]. This was particularly evident during the 5th CPA, when funding for HMRs was exhausted before the conclusion of the Agreement. The decision not to provide additional funding for the service reduced the effectiveness of the service, affected particularly vulnerable patients and threatened the sustainability of medication management programs in the future [22,33].

Stakeholders' thoughts and opinions about the operation of the R&D program and its significance for practice change have not yet been explored in the literature. Therefore, this study aimed to analyse the operation of the R&D program funded under the Community Pharmacy Agreements and its impact on knowledge translation in Australian community pharmacy practice.

Materials and methods

In-depth, semi structured interviews with a wide range of key stakeholders within and beyond community pharmacy were employed to address the aim of this study. The participants represented multiple actors in pharmacy and the healthcare system including practicing pharmacists, professional peak pharmacy and medical organizations, GPs, consumer organizations, private insurance companies and the government. The participants also represented both genders, different States within the eastern half of Australia (Queensland, Australian Capital Territory, New South Wales, Victoria and South Australia), various pharmacy backgrounds (banner pharmacy group, discount chemist and sole proprietor) and metropolitan to rural areas.

The participants were firstly selected using purposive sampling and the snowball sampling method was used to expand the initial sample; at the end of each interview, participants were asked to nominate other potential candidates for the study. Face to face interview was the interview method of choice, but a number of participants were interviewed by telephone and Skype video. Written consent was obtained from participants prior to the interviews. This study was approved by the Human Research Ethics Committee of the University of Sydney.

The interview was based on a series of key questions that were developed from the literatures on R&D and implementation science, the contemporary situation of pharmacy practice in Australia and discussions among investigators. Several literatures highlighted the complexity and variation in the implementation process including the presence of both opportunities and challenges from which the investigators developed the interview guide [34–37]. The guided questions were piloted with three different key stakeholders and revised based on their feedback. There were no changes concerning the content of the interview questions. Improvement was made in relation to wording, order of the questions and how to probe respondents' comments. The guided questions asked about stakeholders' perceptions and experiences of the R&D program under the CPAs and the contribution of the program to community pharmacy practice

and the healthcare system (see appendix 1). Each interview was conducted by two investigators, AH/ES or AH/IK. All interviews were audio-recorded and transcribed verbatim. The interviews continued until data saturation was reached, when no new themes or information emerged.

Complete transcripts of the interviews were analysed iteratively together with the audio recordings. This study employed an inductive approach to the meaning of the data, and themes were constructed without pre-determined topics. Several transcripts that were considered to have particular richness of information were selected to create the coding framework, which was constructed collaboratively by all investigators. Data were initially broadly categorized into an initial coding scheme, the codes were clustered into categories, and the categories classified into themes and sub-themes. This technique allowed the investigators to modify the coding framework and add new themes as they emerged from the data.

Theoretical approaches

There are numerous models, theories or frameworks analysing variable factors contributing to successful implementation of an intervention or research [38–40]. However, the application of such models, theories or frameworks depends on the objective, context, interaction of actors and the complexity of the system in which the research is conducted. The Promoting Action on Research Implementation in Health Services (PARIHS) framework was developed as a tool to explain the success or failure of implementation programs [41–43], and was considered appropriate for analysis of the multi-dimensional elements of knowledge translation in community pharmacy practice.

The PARIHS framework suggests that successful implementation of Evidence Based Practice (EBP) is a function of the relationship among Evidence (E), Context (C) and Facilitation (F). Evidence in the PARIHS framework can be derived from a variety of sources particularly research, clinical experience, patient experience and local data/information. Context refers to the environment or setting in which the research is to be implemented which is influenced by economic, social, political, historical, fiscal and psychological factors. Furthermore, the PARIHS framework defines culture, leadership, monitoring and evaluation as central to determining the context for change. Facilitation in the PARIHS framework relates to processes which enable the implementation of evidence into practice. Within the facilitation element, facilitators, who can be individuals or teams, from internal or external sources, play key roles in affecting the context in which the research is implemented and with their skills, knowledge and roles, help other individuals, teams or organisations to apply the evidence into practice.

The three core elements (E, C, F) are dynamic, equal and simultaneously interrelated. Each element encompasses a range of potentially applicable conditions or sub-elements that determines the status of the three core elements on a weak (low level) to strong (high level) continuum. The framework uses a three dimensional matrix to show that the three core elements can influence the implementation in either a positive (high: H) or negative (low: L) way [41]. Assuming that high quality evidence is available, (notwithstanding that low evidence may be useful in conditions where other elements are favorable), the matrix demonstrates that successful implementation of an innovation is most likely to occur when the context is supportive of change and there is strong facilitation for change. In contrast, less successful implementation is most likely when the context is not receptive to change and there is inadequate facilitation. In a condition when one of the two elements, for instance, context, is low, it may be overcome by the appropriate facilitation or vice versa. This implies that improvement, for example, in infrastructure may be required to change the context or staff development and training is perhaps needed to ensure appropriate facilitation of the innovation.

Table 2. Characteristics of participants.

Characteristics	n = 27
Male, n (%)	20 (74)
Background of profession, n (%)	
Pharmacy practitioners and managers	8 (30)
Other healthcare professionals	1 (4)
Academics and researchers	3 (11)
Policy makers and administrators	13 (47)
Consumer representatives	1 (4)
Insurance providers	1 (4)
State, n (%)	
ACT	3 (11)
NSW	12 (45)
QUE	4 (15)
SA	2 (7)
VIC	6 (22)
Urban area, n (%)	24 (88)
Method of interview, n (%)	
Face to face	14 (52)
Over the phone	7 (26)
Skype® video call	6 (22)
Average duration of interview (min)	71 min (range 43–93 min)

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Results

A total of twenty-seven key stakeholders participated in the interviews between December 2014 and August 2015 (Table 2).

Three broad themes were identified from the interviews: the value and role of R&D, the operation of the R&D program, and the uptake and challenge for effective implementation.

The value and role of R&D

Participants expressed the view that investment in the R&D program under the CPAs was essential for developing and strengthening community pharmacy practice. R&D has been recognized as an important element for driving innovation and the long term incremental quality improvement of services provided in community pharmacy.

"All services that we have today have the seed planted maybe 20 years ago with some R&D. You just don't wake up and roll out that service so I think there has to be the seed somewhere, it has to be developed and it has the fruit so I would say R&D is integral part of the long-term strategy" (P01_MP). **Value of R&D in driving innovation.**

More importantly, the R&D program generated evidence that was critical to demonstration of the efficacy of changes in community pharmacy, and thus to act as a driver of change.

"Unbelievably important. I mean it's what we use as the reason why we make a decision to implement a service. . . We need to show evidence of, particularly when it's not widespread and we don't have it across every pharmacy in Australia, we need to continue that research and development" (P06_MP). **R&D as driver for change.**

The operation of R&D program

A range of views was expressed about the way the program operated, and particularly how the funding model changed across successive agreements. Several participants in this study expressed concerns about the small quantum of money allocated for funding R&D especially under the 5th CPA. Moreover, the trend towards funding commissioned projects was criticized as it limited opportunities for innovation.

"We haven't seen the development of new services or better way of doing things as a result because they have tailored, also we have seen net reduction in amount of investment in R&D as a total proportion of the funding and that very much has been tailored to answering questions that the stakeholder on the agreement wants to know rather than what might be something that is more useful broadly and might be needed" (P02_FP). **Shifted funding towards Commissioned project and small proportion for funding R&D**

Some participants expressed their disappointment with the discontinuation of funding under the 6th CPA. One participant questioned the source for pharmacy to innovate and change practice in the future when there is no funding available for R&D.

"I think it's disappointing. It doesn't appear to be in the agreement. I think over the successive agreements R&D has been one of the key drivers of improvement and the evolution of new services and it's very disappointing it's not there so where does funding for research into pharmacy then come from" (P08_FP). **Discontinuation of R&D program under the 6th CPA**

However, according one participant, rather than continuing to fund new R&D, the purpose of the 6th CPA is to generate high level evidence to facilitate implementation of CPS which have already been developed through R&D in previous agreements.

"This agreement has ceased funding for the research and development program. However, instead of doing the R&D program, that's where the \$50 million trial programs are going to come into play. ...under the Sixth Agreement what you might actually do is continue on with that work, but rather than funding it as an R&D project, you might actually fund it as an implementation pilot and trial" (P25_MNP). **Funding trial of R&D projects under the 6th CPA**

The uptake and challenge for effective implementation

The majority of participants perceived that CPS had been widely adopted by community pharmacy in daily practice but that the quality and consistency of provision have been variable. Few participants claimed to know whether the provision of CPS led to better health outcomes for patients.

"If you measure the signup rate then they were really well adopted because every pharmacy is registered to record clinical interventions, to receive payment for Dose Administration Aids and so on. If you think about whether they are regularly and genuinely delivering services like Medscheck and making a difference to the people who are they delivered to, I think that is a different question and I am not sure we can answer the question with data we have available" (P02_FP). **Uptake of R&D into practice**

Some participants stated that provision of CPS has contributed to more income for their pharmacy, however, the income gained from providing CPS is much smaller than income from dispensing.

"The more you drive the professional income, the bigger your wages budget you'll get. . .but it is still a very, very small part compared to dispensing, and in a lot of our business we have a strong, very strong retail offer but compared to our dispensing it is still very small part" (P22_FP). **Profitability for delivering CPS**

Furthermore, a number of factors that act as barriers to implementation were identified. One participant mentioned the lack of patient demand, pharmacists' ability to deliver, and funding as barriers that need to be addressed, and pointed out that all were important in the successful implementation of CPS.

"There's an implementation barrier. . . You need the patient demand, you need a pharmacist's ability to deliver on that demand, and then you need a funding for that position, or the owner that will take the lead and do that. So you could have the two of those and without the third it's not going to happen. So yeah, we could have the funding, we could have the pharmacist ready to deliver, but if you don't have the patient demand yeah, I guess we're not going to see that" (P06_MP). **Barriers in Effective Implementation**

Reflecting on the case of DMAS and PAMS, where the demonstration of high quality evidence provided a strong argument in favour of ongoing funding, the difficulties associated with service practicalities were raised by some participants as a key counter argument to continuation of funding.

"With those two particular programs, there was a strong case that they were valuable services. However, I think in their conception they were over engineered. There was a reliance with the DMAS on absolute cooperation with GPs, with HbA1C readings. If you couldn't engage with the doctors, then you couldn't access the doctors. So it was in some ways the design was a fail. The principle behind it was very good. The same with the Asthma thing that involved some spirometry and some training" (P20_MP). **Practicability of R&D project**

The majority of participants argued that R&D projects must be able to demonstrate cost savings along with the improved clinical outcome to justify further implementation. One researcher involved in HMR posited that HMR was adopted for implementation as it has evidence of both clinical benefits and cost savings for government.

"We did that original research (and) we are able to demonstrate there is benefit that outweighs the cost and that's the reason they got out. And sure that was good thing for pharmacists to do but ultimately for government they looked at the benefit outweighing cost, they're looking for savings. So to me the fact the way I actually did that work and we're able to demonstrate the value was just, was probably the factor that allows us to get up" (P09_MP). **Cost Saving value of R&D Project**

Furthermore, some participants suggested that patient acceptance was a determining factor for whether a R&D project was funded for widespread implementation. Patients were often unaware of the role of pharmacists in delivering the new CPS and the benefit gained from the provision of the CPS, and thus chose not to access the services.

"There's been examples of failed programs where the program has looked great on paper, but there's actually been very low consumer subscription because they don't necessarily perceive that as being the role of a pharmacy or as a pharmacist" (P25_MNP). **Patient's acceptance**

In the end, the majority of participants indicated that political commitment had the greatest influence in deciding whether a CPS achieved ongoing funding or not. Despite strong research evidence of efficacy, it was essentially political agreement among the involved stakeholders within the decision-making process that determined whether or not further implementation occurred.

"I think at the end of the day it came to what the Minister was more interested in. Although that's not what they're saying now but the reality is that how it was. . . I don't believe that it'll be totally evidence based now, I reckon it's going to be money driven as well. But the other thing is that it's negotiated by two parties, the Guild and the Government, and unless there's perceived to be a groundswell interest the warmth of the Guild to negotiate for anything is going to sort of drive what happens. If the Guild doesn't perceive that pharmacy is interested in doing it, then they're not going to argue for it and in my experience the Government has not yet ever said well this is what we need to do" (P27_FP). Political supports in decision making process

Discussion

This study confirms that the R&D program under the consecutive CPAs has played an important role in driving some changes through innovation and development of new services in Australian community pharmacy. The CPS generated from the R&D program has created an impetus for role expansion of community pharmacy, and in general, stakeholders had positive views about the value of R&D programs and their benefit to community pharmacy practice. Without R&D projects, it was perceived to be very difficult for community pharmacy to generate evidence that demonstrates value for money of the CPS which is critical to securing funding within the CPAs. Whilst the provision of CPS provides an additional revenue stream to that provided by dispensing PBS medicines, to date, the revenue has been insufficient to foster a major overhaul of the pharmacy business model based on dispensing to a health services focus.

Using the PARIHS framework described earlier in this paper, the influence of the multiple factors at play (evidence, context, facilitation) in determining which CPS are implemented and in what manner is explored. According to this framework, evidence plays a key role in determining the effective implementation and this is a central element in our findings. With respect to evidence, participants described it as a critical factor for successful adoption of research into practice. The fact that several CPS funded under the CPAs were generated from the R&D program has supported this notion. However, at the same time there is a range of factors relating to context and facilitation, which shape the ways evidence is—and is not—translated into general practice including practicability, incentives for delivery of CPS, patient acceptance, cost saving and value to healthcare and political support for implementation as identified in this study. The PARIHS framework provides an excellent tool for explaining the interplay of these three factors.

Evidence collected under carefully controlled conditions, such as in the R&D programs, is therefore essential for supporting practice change. However, the views of participants were strongly supportive of the notion that evidence should not be restricted to that described in research or controlled trials alone. Practical evidence as a mean to explore practicability of a research which involves exploration and consideration of both clinical and patient experiences of a particular service, is also vital in determining the likelihood of successful implementation. With particular reference to DMAS and PAMS, it is clear that the research evidence that was generated indicated that the programs resulted in clinical, economic and humanistic outcomes

being met when the context was supportive. Within small scale controlled trials, the impact of many practical variables was able to be minimized, and the support and facilitation provided by the research team was instrumental in maintaining the necessary incentive to continue. However, wider scale rollout resulted in more variability within the context, and a dilution of the effect of facilitation as pharmacists were required to maintain their own motivation to continue. With respect to the DMAS a lack of interest from patients in combination with time and capacity constraints of the pharmacists, rather than any deficiency in the program itself, was responsible for the lower than expected uptake of the service [19]. Likewise, despite high level satisfaction among pharmacists and patients with PAMS research, the decision to cease funding for further PAMS research also played a key role in undermining the potential for knowledge translation [26]. Therefore, participants in this study viewed that knowledge translation resulting from the R&D program was critically dependent on context and facilitation, rather than on the evidence alone, as outlined in the PARIHS model.

Importantly however, the participants also identified a wider range of aspects of context and facilitation, consistent with prior research, contributing to the translation of evidence into practice. A number of studies into the broad area of practice change in community pharmacy have highlighted enthusiasm both from pharmacy stakeholders and policy makers as fundamental to the adoption of changes in practice. [44–47]. This is consistent with the PARIHS framework, since high commitment and receptivity to change are key contextual facilitators, and these were very apparent in the initial phases of both DMAS and PAMS where many pharmacists eagerly signed on to participate in both stages of the national pilot. However, our findings also highlighted a range of barriers to practice change in pharmacy, from both internal and external contexts, as reported in many other studies. These include lack of pharmacists' capacity due to increased workload [48], poor patient demand [49], limited practicability of the research [50], and lack of incentive for providing the services [51]. In addition, transformation of DMAS into Medscheck suggested that while an evidence based CPS may be refashioned, it is fundamental to maintain its core components—the aspects with proven effectiveness—in any new services. The core components must be implemented with high fidelity and remain untouched while allowing for adjustment for non-core components to adapt with the context or local needs. Furthermore, the small investment in R&D programs and remuneration for CPS under the consecutive CPAs has corresponded to slow practice change in most community pharmacies. As a result, participants perceived that to date, provision of CPS has not been able to significantly contribute to the viability of community pharmacies which remain highly reliant on income from dispensing. This highlights the need for *a priori* funding of research based on principles of implementation science to inform a strategic approach to knowledge translation of evidence based CPS.

Perhaps an important aspect contributing to facilitation and context is the political commitment from peak pharmacy organisations and the government supporting practice change. For instance, the Pharmacy Guild of Australia and the Australian government influenced practice change through negotiation of the successive CPAs within which billions of dollars have been invested including for the R&D program and payment for delivering CPS. However, the community pharmacy sector is a complex and dynamic system with influential elements interacting at the micro, meso and macro level [52]. In this type of system, indirect or less obvious facilitators must also be taken into account. For example, despite not being involved directly in the negotiation for the CPAs, other organisations have been able to push their change agenda in parallel. One example, is the role of the Pharmaceutical Society of Australia in facilitating community pharmacy change through education and targeted practice programs which may or may not receive recognition from the policy perspective. Within this complex system the activities of different pharmacy groups, have been influential, albeit often indirectly or weakly

[53]. Gauging their relative influence on practice change is difficult, however, what is clear is that in order to be effective the various pharmacy organisations need to work in unison with other health professions and the consumer to drive practice change [53,54].

A further impact of government policy as facilitator and constraint can be seen in several programs that have been funded in recent CPAs, and which have little or no research evidence to support them. This has been particularly apparent in the decision to fund CPS such as Medscheck, Diabetes Medscheck (in itself a much abbreviated version of DMAS) and Clinical Interventions, despite these services not being supported by any solid evidence for better health outcomes in the context of the Australian healthcare setting [32]. Although like HMR, these services were capped near the conclusion of the 5th CPA, their introduction clearly demonstrates that evidence is not the only factor considered by policy makers.

This study clearly identified that in the contemporary context, all three aspects of the PARIHS model must be taken into account when attempting to understand why some programs are successfully adopted and others are not. The use of the PARIHS framework demonstrates that change is a process resulting from the interaction of evidence, context and facilitation, and provides a plausible explanation of the current situation. Despite sound evidence of the potential for efficacy from the DMAS and PAMS research programs, constraints tended to exceed facilitators within a context which was already resistant to change. Political policy based on pressure to create financial savings, poor patient understanding of the potential roles of pharmacists in broader health care, limitations associated with pharmacists themselves, the siloed nature of the health care system, and a willingness of policy makers to downplay the value of evidence combined to overshadow evidence. These multiple factors demonstrated that decision making for adopting research into practice is a "complex, messy and demanding task" [55].

One of the lessons of this study is that policy makers might be more willing to favour funding of CPS when there is evidence of significant potential savings to the healthcare system such as reduced medication costs (i.e. reduced claims of PBS dispensing), reduced number of hospitalizations, or reduced number of doctors' visits. With rising healthcare expenditure, governments are concerned to curb the growth in expenditure without adversely affecting health outcomes. However, for the research to be successfully translated and services to be delivered by pharmacists, it is also important to take account of the economic/business implications for pharmacies and whether or not pharmacists perceive that they have the capacity to implement the CPS. In other words, pharmacists need to believe that implementing practice change to focus on delivery of CPS is going to be economically beneficial to ensure the sustainability of the practice, the investment for the pharmacy and income of the individual pharmacist(s).

The PARIHS framework has often been used to analyse knowledge translation in a small scale setting such as a company, organization or work division. The utilization of the PARIHS framework in a broader context as proposed in this study is a novel discussion and some important insights were gained when the framework was used to meet the aim of this study. Furthermore, this study used empirical data in the form of opinions from the stakeholders to seek to explain the relationship between the framework and the real world situations. It confirms that utilization of the PARIHS framework might be applicable as a strategy for analyzing actual cases.

Strength and limitations

This study included a wide range of key stakeholders with particular experiences and views about the R&D program in community pharmacy. While we may not necessarily have captured the full spectrum of behaviors, attitudes and influences in policy making and

implementation, the diversity of opinions elicited nevertheless reflected the complexity and multifactorial nature of influences on knowledge translation in community pharmacy, a topic which has not been widely explored in the current pharmacy literature. There have been some policy changes since the completion of data collection for this study, including the commencement of the Pharmacy Trials Program under the 6th CPA and the ongoing review on pharmacy remuneration and regulation, which to some extent have raised questions about the contribution of R&D programs to community pharmacy services. Nevertheless, these two policies were excluded from consideration as they took effect after 1 July 2015. These policies undoubtedly will have an impact in the future implementation of R&D funded services in community pharmacy.

Conclusion

This paper summarizes the perceptions and experiences of key stakeholders regarding the operation of an R&D program funded under the CPAs in Australian pharmacy, and its significance in fostering practice change. While R&D programs have been viewed as essential for supporting changes in community pharmacy practice through development and funding of CPS, the overall impact has been small, as contemporary practice continues to be predominantly a dispensing model. The utilization of the PARIHS framework in this study also served to shed light on the complex relationship between evidence, context and facilitation and CPS funding policy decisions and subsequent knowledge translation into community pharmacy practice.

Supporting information

S1 File. Interview guide.
(DOCX)

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Appendix 9. Paper 4 – Investigating the impact of the universal healthcare coverage programme on community pharmacy practice

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ORIGINAL ARTICLE

WILEY **Health and Social Care** in the community

Investigating the impact of the universal healthcare coverage programme on community pharmacy practice

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Abstract

The introduction of Universal Healthcare Coverage (JKN) in 2014 has changed the landscape of the Indonesian healthcare and affected the community pharmacy sector. This paper investigates perceptions of healthcare and pharmacy stakeholders about the impact of JKN on the practice of pharmacists and pharmacy in both public (Puskesmas) and private (Community or Retail pharmacy) settings. In-depth, semi-structured interviews were conducted from February to August 2016 involving 29 participants representing key stakeholders from different provinces in Indonesia. While JKN was actually designed with good policy objectives for pharmacy integration within primary care network, it has created some unintended and unanticipated distortion in the healthcare system which may be detrimental to the community pharmacy sector. In fact, community pharmacy practice is still limited to dispensing and continued to be hampered by ongoing challenges mainly pharmacists' absence, lack of clinical competence and limited support from regulation changes. It is a missed opportunity for pharmacists to play a greater role in primary care services indicating the need for an overhaul to pharmacy education and policy system.

KEYWORDS

community pharmacies, Indonesia, pharmacists, universal healthcare coverage

1 | INTRODUCTION

Community pharmacy has long been recognised as an important community setting for healthcare delivery. It is often the first port of call for patients with minor ailments. In addition, community pharmacists are authorised to manage pharmaceuticals which constitute a significant proportion of healthcare expenditure. Therefore, changes in a healthcare system will inevitably influence the practice of community pharmacy and pharmacists (Mak, Clark, Poulsen, Udengaard, & Gilbert, 2012).

On 1 January 2014, Indonesia introduced Universal Healthcare Coverage (*Jaminan Kesehatan Nasional*-JKN) with an ambitious intention to cover all Indonesians under a single health insurance programme by 2019 (estimated at 270 million people) (Jung, 2016; Plummer & Boyle, 2016). After a long delay since the initial passing of the law in 2004, the roll out of JKN has raised many concerns about the ability

and commitment of Indonesia to implement such large-scale changes in its healthcare system (Pisani, Olivier Kok, & Nugroho, 2016). The introduction of JKN was marked by three significant changes: expanded insurance coverage to the whole population; reconfiguration of the primary care network; and integration of multiple health insurance schemes into a single payer for healthcare (Mboi, 2015; Sparrow et al., 2017). Notably, the new national insurance provider, BPJS Health, has included community pharmacies as an integral part of the primary care network. Pharmacists, comprising the fourth largest health profession in Indonesia, are viewed as highly trained professionals yet they are underutilised (MoH Indonesia, 2016a). The integration of pharmacists within the JKN scheme may create opportunities to embrace primary care roles which is a novel approach in Indonesia and evidence supporting this role is limited. The next section provides an overview of the relevant changes in Indonesian healthcare and community pharmacy.

1.1 | A new landscape of Indonesian healthcare and community pharmacy

Indonesia is a vast archipelago of more than 17,000 islands, and the fourth most populous country in the world (260 million people in 2017). The country is divided into 34 provinces composed of 514 districts and municipalities, each with its own administrative function, including budgeting and legislating for health, as a result of a decentralisation policy introduced in the late 1990s. Classified as a Lower Middle Income country, GDP per capita is US\$ 3,491 with 2.9% of the GDP invested for health expenditure (United Nations, 2017).

Prior to JKN, the Indonesian healthcare system was characterised by a mix of public and private management on the supply side, and a mix of public and private financing with a significant portion of out of pocket payment on the demand side (Brodjonegoro, Nazara, & Zen, 2015). On the supply side, private general practitioner (GP), specialists, health clinics, government-owned community health centres (*Puskesmas*), and small or large hospitals owned by private or public companies co-existed and were accessible to patients. A sick patient could go to their facilities of choice regardless of the level of care. In practice, the large hospitals were often inundated by patients who perceived that hospital treatment was better and more comprehensive even for minor illnesses compared to treatment in *Puskesmas*. Thus, the *Puskesmas* were underutilised (Rokx, Schieber, Tandon, Harimurti, & Somanathan, 2009).

On the demand side, various public and private insurance providers existed to service customers with very similar types of benefits albeit with different premiums. The system was quite fragmented with different public insurance providers only covering certain groups of people particularly based on their profession. For instance, ASKES only covered civil servants, JAMSOSTEK covered formal private workers, ASABRI covered the armed forces, TASPEN covered pensioners and insurance for poor people came under the umbrella of the social security net programme (JAMKESMAS). This did not include a number of healthcare protection programmes funded by provincial and district governments (Holzhacker, Wittek, & Woltjer, 2016). Moreover, the proportion of out of pocket payments was high as insurance coverage was limited and people preferred to pay as they go. It was estimated that more than 30% of Indonesians were not insured, which contributed to extremely high out of pocket expenditure and led to further impoverishment of very poor families (Sparrow, Suryahadi, & Widyanti, 2013).

With the introduction of JKN, reorganisation of the primary care system has been the main priority. *Puskesmas*, GPs, dentists and primary clinics now hold strategic responsibility as the gatekeepers of primary healthcare delivery (MoH Indonesia, 2013). This means they are the first point of contact for patients and act as a referral point to specialised healthcare services. Furthermore, various public insurance schemes and providers both at the local and national level have been unified under JKN and are operated by BPJS Health as the sole agency responsible for the management of healthcare coverage, recruitment of insureds and paying for healthcare (Jung, 2016). In addition, membership in JKN has been opened to cover others such as informal workers and individuals who must pay premiums on a regular basis.

What is known about this topic

- Indonesia implemented Universal Healthcare Coverage (JKN) since January 2014.
- Changes in the health financing system have always had impact to healthcare and affected the community pharmacy sector.

What this paper adds

- While policy implementation of JKN has been designed to reform healthcare, it did not address key ongoing problems within the community pharmacy sector.
- Community pharmacy practice in Indonesia has not moved significantly beyond dispensing practice even after the introduction of JKN.
- Community pharmacy continues to be hampered by structural and fundamental issues which in the main, do not relate to the policy changes provided by JKN.

As a means of controlling the quality and the cost of pharmaceuticals, the government through the Ministry of Health introduced the National Formulary containing a list of approved drugs covered under JKN (MoH Indonesia, 2016b). Only a small number of registered pharmaceuticals (586 of 13,564 marketed drugs), claimed to represent safe, effective, quality and affordable medicines for JKN insureds, were approved. In addition, healthcare facilities providing pharmaceuticals, including community pharmacies, *Puskesmas* and hospitals, are required to purchase medicines through an e-catalogue purchasing system. The system, managed by the National Procurement Agency (LKPP), aims to improve the accountability, transparency and efficiency of pharmaceutical purchasing (MoH Indonesia, 2014a).

Pharmaceutical services in the community in Indonesia are delivered by two main institutions: *Puskesmas* and community-based pharmacy (hereafter called community pharmacy). They differ in ownership, operation and scale yet under JKN, there are some activities which are common to both institutions. The Ministry of Health launched standards for good pharmacy practice in both *Puskesmas* (MoH Indonesia, 2014b) and community pharmacy (MoH Indonesia, 2014c) described minimum standards for pharmaceutical services in both settings.

Most patients treated in *Puskesmas* are likely to receive medicines at the end stage of the service cycle. Therefore, the pharmacy unit in *Puskesmas* plays an important role in ensuring the availability of pharmaceuticals and provision of pharmacy services. However, only 17.5% of 8,980 *Puskesmas* in Indonesia have a pharmacist in charge with the remainder employing either pharmacy assistants or non-pharmacy workers (Badan Penelitian Depkes RI, 2012).

Community pharmacy in Indonesia is mostly situated in the private sector and ranges from small independent pharmacies to networks of large chain pharmacies. Ownership of pharmacy is not restricted to pharmacists; however, non-pharmacist owners must employ pharmacists prior to opening a pharmacy. As in many other countries,

pharmacists hold the main authority and sole responsibility for the operation of community pharmacy such that the pharmacy requires the presence of pharmacists at all times. However, in practice, pharmacists' absence is common—studies indicated only 14%–23% pharmacists work on a full-time basis—with pharmacy services being delivered particularly by pharmacy assistants (Dominica, Putra, & Yuliharsi, 2016; Kartinah, Annisa, Yuniarti, & Setyanto, 2015; Purwanti, Harianto, & Supardi, 2004). Community pharmacies derive their income from general pharmacy business and sales such as dispensing prescribed medicines, providing pharmacy and over-the-counter medicines, and other healthcare and retail products (Hermansyah, Sukorini, Setiawan, & Priyandani, 2012; Tri Murti & Satibi, 2016). However, under JKN, community pharmacies have the opportunity to be involved in two schemes: (1) as a pharmacy affiliated with the primary care network (Apotek Jejaring) and (2) as a pharmacy contracted by BPJS Health (Apotek Rujuk Balik). These two schemes provide different scope of services under different contractors, yet an individual community pharmacy can apply to become either or both.

An affiliated pharmacy (Apotek Jejaring) is an independent community pharmacy which is partnered with a primary care provider such as GPs, dentists or clinics. Under this scheme, the community pharmacy is responsible for the supply of medicines prescribed by the primary care providers. They receive a portion of the capitation payment which is paid by BPJS Health through the provider. The level of payment may vary between affiliated pharmacies and is dependent on negotiation with the primary care provider as their contractor, but predominantly it covers the cost of medicines and a small fee for dispensing services.

Unlike an affiliated pharmacy, a pharmacy which is contracted by BPJS Health (Apotek Rujuk Balik) provides more limited services. They are only responsible for providing pharmaceutical services for patients discharged from secondary care providers such as hospitals or specialists, by dispensing medicines for up to 30 days of supply for patients suffering certain chronic diseases (BPJS Health, 2014). These pharmacies can claim for their provision of pharmaceuticals and services directly from BPJS Health.

Despite the increasing number of community pharmacies formally engaged with JKN, they only represent a very small fraction of total community pharmacies in Indonesia (8.5% of 25,339 community pharmacies) (BPJS Health, 2015; MoH Indonesia, 2015). The large majority of pharmacies are operated independently outside JKN (Figure 1).

Given this background, it is evident that the introduction of JKN affects the operation of community pharmacy and the professional practice of pharmacists in Indonesia. However, no studies to date have critically examined this impact. The objective of this study was to investigate perceptions of healthcare and pharmacy stakeholders about the impact of JKN on the role and practice of pharmacists and pharmacy in both public and private settings.

2 | METHODS

A qualitative study design using in-depth, semi-structured interviews was developed to gain understanding of key stakeholders' perceptions

of the current practice of community pharmacy under JKN. Ethics approval was obtained from the authors institute prior to data collection.

The study included a wide range of key stakeholders from practicing pharmacists in both community pharmacy and *Puskesmas*, peak pharmacy organisations, consumer groups, medical associations, BPJS Health to local and national health authorities. A purposive sampling strategy was undertaken to ensure maximum variation of the sample based on gender, role within pharmacy and geographical representativeness. This study selected potential participants both from the most populous regions of Indonesia, e.g. Java island including Greater Jakarta, East Java and Yogyakarta and the least developed regions outside Java island, e.g. Central Sulawesi. Contact with initial participants was obtained from the network of the researchers and experts in the community pharmacy sector. Participants were first contacted in person, via email or telephone, and informed about the research and the expected duration and the method of the interview. Candidates who declined to be interviewed were asked to nominate other potential candidates or were substituted by another participant with similar characteristics. Candidates who agreed to be interviewed were provided with the Participant Information Statement and consent form and their signed consent was obtained prior to the interview.

The interviews were conducted either in Bahasa Indonesia or English, using face to face, over the telephone or video conference via Skype. The study sample was expanded using the snowball method by asking each participant to nominate other suitable candidates. The interviews were continued until data saturation was reached in that no new themes emerged from the data analysis. A sample size of at least 20–30 individuals is recommended to achieve theoretical saturation (Creswell, 2013). Despite the different backgrounds and work settings of the respondents, they can be considered a relatively homogenous group given their interest and affiliation to community pharmacy sector.

The interview guide was developed from the review of the literature, exploration of media coverage on current issues and discussions within the research team. The interview guide in general comprised of a series of open-ended questions regarding the healthcare system before and after the implementation of JKN, its impact on the current practice of community pharmacy, the challenges and enablers for practice within the current situation, strategies to advance practice and expectations for the future. Several pilot interviews were conducted to test and refine the interview materials and technique.

The interviews were audio-recorded and subsequently transcribed verbatim. Interviews conducted in Indonesian were back-translated to English by the lead investigator and a proofreader was engaged to check the quality of the translation. The transcripts were iteratively checked against the audio recordings to ensure the completeness of information. NVivo 10 software was used to assist the management of the data.

2.1 | Data analysis

An inductive approach was used to analyse the data. Initially, several interview transcripts which were considered to have richness and

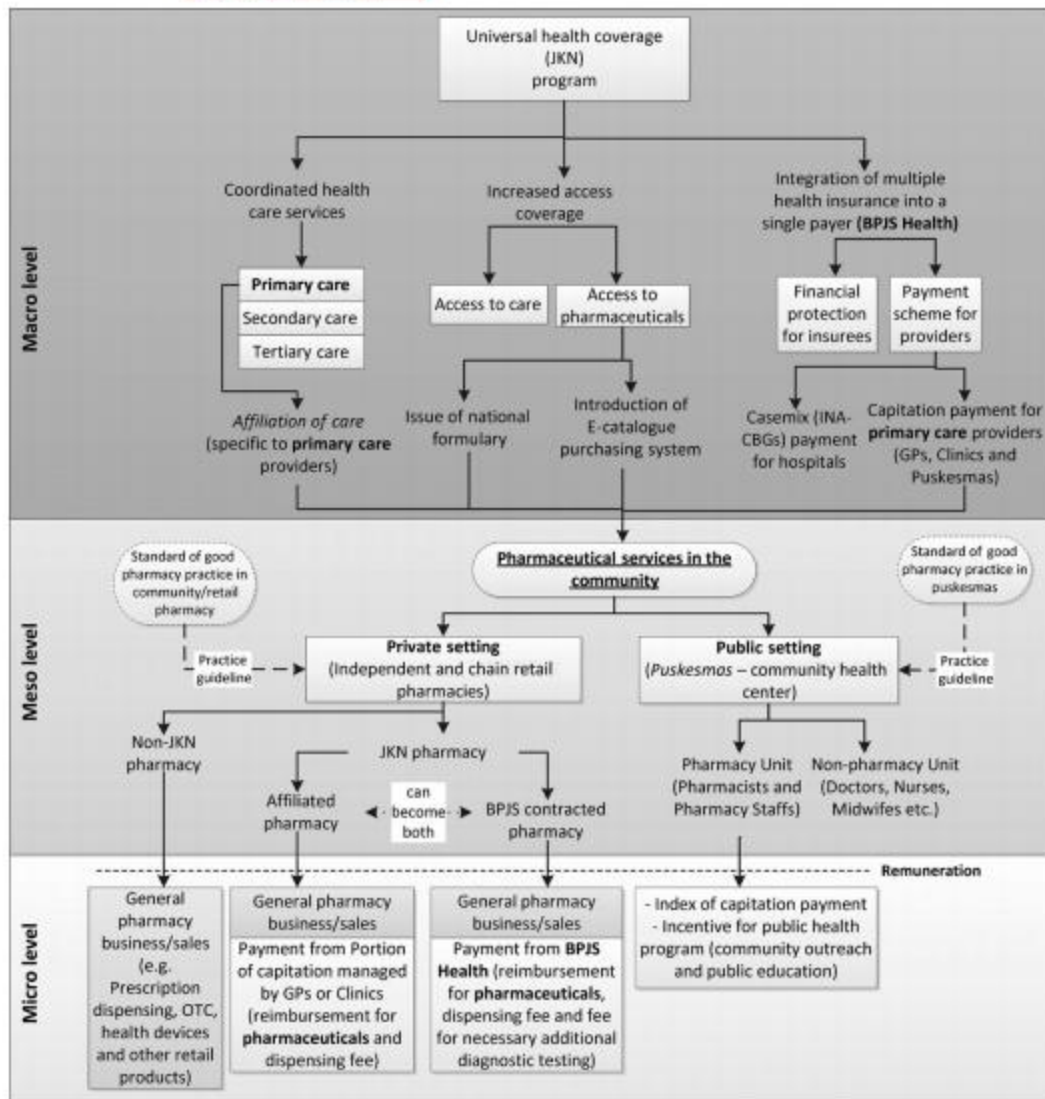


FIGURE 1 Summary of the changes in community pharmacy sector after the introduction of JKN

"uniqueness" of information were used to build the coding framework. Each investigator was asked to structure their own coding framework. The framework was then discussed within the research team. In this way, a coding framework was developed based on consensus among the team to ensure the internal consistency of the findings. The analysis of the data continued along with data collection. Similar content from different transcripts was grouped together under sub-themes which were then aggregated into a main theme. A new theme was created if a selected content did not fit an existing theme. The progress of

the analysis was reported in regular research team meeting; to ensure reliability and to determine when data saturation occurred.

2.2 | Theoretical framework

Changes in healthcare systems including in the community pharmacy sector have been variously described as complicated, dynamic, non-linear and often leading to unpredictable and unintended consequences (Hermansyah, Sainsbury, & Krass, 2016). One approach

that has been considered useful in elucidating the impact of change in health systems is to consider the impact in each level of the system; the individual or smallest element of the system (micro level), i.e. patients, healthcare professionals or carers; the organization or group including hospitals, primary care providers, GPs network including community pharmacy network (meso level) and the larger healthcare system in which individuals, group and organization are embedded (macro level).

Accordingly, the "planes of analysis" framework has been applied in the analysis of the data to explain the operation of changes in each level, zooming into unique or specific effects, yet without losing the bigger picture in which the changes occur as a whole (zooming out). The "planes of analysis" approach was developed by Barbara Rogoff to investigate human interactions within their social context (Rogoff, 1997) and classifies the interaction of individuals within their environment in a threefold analytic distinction between individual, group and community. Rogoff described each plane as interdependent rather than isolated, with each plane able to be the focus of particular attention without losing the coherence and dynamic interdependence of the whole system.

3 | RESULTS

A total of 29 key stakeholders were interviewed from February to August 2016 (Table 1).

The impacts of JKN on community pharmacy practice were analysed in three planes, namely: (1) individual pharmacists (micro level), (2) organisational context of pharmacy (meso level) and (3) external pharmacy environment (macro level). Illustrative quotes for each level are provided in Table 2.

3.1 | Individual pharmacists (micro level)

The improvement in the referral system has made *Puskemas* a first choice for care among many patients and has resulted in a significant increase in patient visits. This in turn has increased the workload of all healthcare personnel including pharmacists. In contrast, despite their inclusion in the primary care network, pharmacists in community pharmacies have not experienced any substantial change in their daily activities. In fact, this study revealed that pharmacy affiliation to primary care has not translated into improvements in profitability or to any enhancement in their professional role.

3.1.1 | Scope of practice

Participants highlighted the commonalities of pharmacists' activities in *Puskemas* and community pharmacy which are predominantly focused on the preparation and dispensing of pharmaceuticals. The increase in patient visits to *Puskemas* has contributed to an increase in workload and reduced the opportunity for pharmacists to interact with patients. Nevertheless, JKN offers an opportunity for pharmacists to educate the community through health promotion and education programmes,

TABLE 1 Characteristics of participants

Characteristics	n = 29
Male	18
Background of education	
Pharmacists	25
Non-pharmacists	4
Background of profession	
Practicing pharmacists	10
Other healthcare professionals	1
Academics and researchers	4
Pharmacy managers	3
Policy makers and administrators	8
Consumer representatives	1
Insurance providers	2
Province	
Greater Jakarta	8
Yogyakarta	6
East Java	14
Central Sulawesi	1
Metropolitan/Urban City	23
Method of interview	
Face to face	25
Over the phone	4
Average duration of interview (min)	77 min (range 35–116 min)

which take place in community settings. In contrast, pharmacists' practice in the community pharmacy varies depending on the availability of a pharmacist and their individual interest in delivering care to patients. In general, participants reported a wide variation in services delivered by small independent pharmacies. Some pharmacies have been very proactive in providing services beyond dispensing such as home visits and continuous chronic disease monitoring. However, this is not the case among the majority of community pharmacies.

3.1.2 | Perceptions about pharmacists

There were mixed perceptions of the pharmacist's role and position under JKN. Pharmacists in *Puskemas* were generally perceived more positively than their counterparts in community pharmacy. Participants mentioned that pharmacists in *Puskemas* were often sought for consultation about medication by patients and doctors. In contrast, pharmacists in community pharmacy were described as an "invisible" healthcare professional because they only appear outside the dispensary if there is a problem. This may also relate to the other findings in this study which highlight the common absence of a pharmacist on duty during pharmacy hours, which has become a significant issue over the past years. Moreover, the public often focuses on community pharmacy as a profit-making business which in turn degrades the professional image of pharmacists.

TABLE 2 Illustrative quotes of participants reflecting the themes of the study

Topic	Puskesmas	Community/retail pharmacy
<i>Individual pharmacists (micro level)</i>		
Scope of practice	<p>*Pharmacist handles more than 150 outpatients a day ... Most of what they do now are technical tasks, such as taking records, managing stock, and writing reports. They have very little communication and consultation with patients; (P03_MP). Too many administrative and technical tasks</p> <p>*We often go to Pocyandu (Integrated Healthcare Post) for elderly people and educate elderly people about medicine use. We also teach patient for CBIA (Active Individual Learning Method) and Prolanis (Management of Chronic Disease Program) (P024_FP). Puskesmas pharmacists involved in health promotion and education</p>	<p>*I think pharmacist's role is inconsistent. If the pharmacy has full-time pharmacists, they can give counselling especially for those with chronic diseases. Some pharmacists even visit a patient house ... they monitor drug use and check the random blood glucose levels ... but there are lots who do nothing for the patient" (P029_MP). Variation in pharmacy services</p> <p>*We have a quality assurance department to ensure pharmaceutical services are correctly delivered. We have many tools for supervising and reporting whether services are correctly provided or not..." (P01_FP). Pharmacists role in chain pharmacy</p>
Perception of pharmacists	<p>*At Puskesmas, patients always ask for pharmacists. If I do not appear, they look for me ... initially there was resistance from doctors. Now he often asks about dose, asks why this why that, therefore he often comes to pharmacy" (P024_FP). Puskesmas pharmacists viewed positively for their professional roles</p>	<p>*... usually I only meet the staff member who gives me the medicines. I know that person is not pharmacist but sometime she consults with the pharmacist and go out with another recommendation" (P023_MNP). Pharmacists perceived as "invisible" healthcare professional in community pharmacy</p> <p>*People consider pharmacy is a business that will survive in the present economy because everyone thinks people will always need medicine" (P02_FP). Pharmacy perceived as profitable business</p>
Remuneration	<p>*Pharmacists can breathe a bit more freely because they're given fees ... for service provision and promotion-prevention initiatives during health education sessions." (P03_MP). Puskesmas pharmacists received increased remuneration</p>	<p>*For the first 5 months, all the prescriptions from clinic went through to my pharmacy. But after 5 months, they didn't send patients at all. The clinic purchased medicines directly (from supplier) so the contract is useless, it is just a formality" (P013_MP). Community pharmacy experienced reduced profitability within affiliation of care</p>
<i>Organizational context of pharmacy (meso level)</i>		
Workforce availability	<p>*The reality is, many Puskesmas are lacking of pharmacists. Therefore, Puskesmas employs non-pharmacists to assist in the services ... Ironically in Yogya, the universities produce thousands of (pharmacists) graduates every year but it is quite difficult to recruit pharmacist. T" (P011_FP). Shortage of pharmacists in Puskesmas</p> <p>*There is no increase in the number of Puskesmas staff ... I asked some pharmacists in Puskesmas and they said "I can't do my other roles. I can't give counselling, there is no time because I am tied up with dispensing" (P027_FP). Understaffing of pharmacists constraining pharmacy services.</p> <p>*Pharmaceutical practices at Puskesmas are mostly assisted by non-pharmaceutical personnel..." (P03_MP). Puskesmas pharmacists were often assisted by non-pharmacy personnel</p>	<p>*In franchise pharmacies ... they each have their own pharmacists; so no pharmacist no service. In independent pharmacies, most of them have pharmacist's names listed but no actual person who goes by those names. Almost 90% of them commit this forgery" (P03_MP). Discrepancy of Pharmacists' attendance in independent pharmacies and chain pharmacies</p> <p>*Every pharmacy has an actual real pharmacist. We have APA (First pharmacist-pharmacist incharge) and 2 AA (technicians) and also APING (second pharmacist) who is also the vice" (P018_FNP). Pharmacists presence in chain pharmacy</p>

Continues

TABLE 2 Continued

Topic	Puskesmas	Community/retail pharmacy
Position of pharmacy within the primary care system	"Although the government regulation 51/2009 article 21 point 2 clearly states that pharmacy practice and dispensing can only be conducted by pharmacists, ... not every Puskesmas has pharmacists. Government does not invest in recruiting more pharmacists although the mandate on the regulation is clear" (P029_MP). Lack of policy awareness to employ more pharmacists for Puskesmas	"When everything goes on track, a doctor will prescribe and the pharmacy dispenses the medicines. However, within 1 year of JKN, there are pharmacies which receive all the prescriptions, there are others receiving none ... there is a case of a GP affiliated with a pharmacy that is far from his practice. Due to the distance, patients don't want to travel to the pharmacy, and they can't obtain medicines from the closest pharmacy because it is not affiliated with the GP. GP then dispenses the medicine to the patient" (P05_MP). Violation to contract within affiliation of care "Government said BPJS Health would only involve pharmacies that were previously affiliated with ASKES. They don't require additional pharmacies. This statement has let us down, it's as though we are denied an opportunity to serve in JKN" (P02_FP). Limited number of pharmacies contracted by BPJS Health
External pharmacy environment (macro level)		
Access to pharmaceuticals	"Due to limited stock, a pharmacist ends up having to save drugs; so they reduce the quantity from 10 to 5, for example if a geriatric patient is meant to receive 3 daily dosages for 2 weeks, they reduce it to 1 week" (P03_MP). Shortage of pharmaceuticals in Puskesmas "The main problem is pharmacy often runs out of medicines because there is delay on the procurement, in the e-catalogue purchasing ... we can do nothing for the procurement because it is completely managed by the local health office..." (P024_FP). Problem of procurement in Puskesmas "Sometimes the price of medicine is not matched with e-catalogue price; sometimes the price is good but the item is not available; sometimes the price is good, the item is available but the supplier is troublesome. Sometimes, there is a new (pricing) regulation but its conditions differ so I often get confused" (P017_FP). Structural issues with e-catalogue purchasing system	
Policy enforcement	"On one hand, pharmacy is a legal setting, there is a pharmacist and they are restricted with so many regulations. But on the other hand, there are many people selling medicines in the drug stalls; ... many healthcare professionals also feel responsible for managing medicines" (P017_FP). Lack of law enforcement for illegal medicine selling "Many pharmacists caught behaving illegally turn out to be staff of [name of Indonesian authorities] which means they're supposed to be the regulators; ... I feel ashamed seeing my colleagues like this" (P03_MP). Collusive enforcement	
Pharmacy competence and education	"There is one school in [name of a city] which has 400 students ... In public universities, we only receive 150 students and are already stretched with these numbers; how can they deliver courses to 400 students? A few days ago, I became evaluator for graduates: competency examination and I was shocked. I said to them "you have to learn, there is plenty of time to learn because you actually know nothing about medicines in pharmacy, you don't know about drugs;" (P027_FP). Shortcoming in the graduate's competence "Previously only a few good universities; but now there are 120 universities offering B. Pharm and only 29 universities offering Apothecary [only faculties which are accredited A and B can offer an apothecary programme] ... the remainder of 29 universities have poor quality students; ... there is a wide discrepancy between education and practice ... the education system does not create pharmacists to be pharmacists. The education system is overloaded with too many science courses;" (P015_MP). Mismatch between education and practice	

3.1.3 | Remuneration

Some participants commented on the improved remuneration in Puskesmas under JKN. They receive more income due to increased patient numbers and additional payments for providing health

promotion and education programmes. In community pharmacy, JKN has provided no equivalent impact on remuneration. In fact, being an affiliated pharmacy has not necessarily been profitable for community pharmacists and pharmacy because the involved parties, especially GPs and clinics, tend to maximize their own share of the capitation

fund by directly purchasing and dispensing their medicines, thereby bypassing community pharmacies. As a result, remuneration for affiliated pharmacies is decreasing as are the number of prescriptions dispensed.

3.2 | Organisational context of pharmacy (meso level)

The introduction of JKN has brought in new ways of working for community pharmacies such as becoming an affiliated pharmacy or BPJS-contracted pharmacy. Interestingly, the majority of participants in this study considered that JKN had not changed the practice of pharmacy because of some structural issues which discourage pharmacy involvement within primary care. In addition, traditional issues such as the poor record of pharmacists' presence in the community pharmacy and shortages of pharmacists were identified by most participants as obstacles to effectively integrating pharmacies and pharmacists within the primary care network. The introduction of JKN has not been able to solve these structural problems.

3.2.1 | Pharmacy workforce

Pharmacy practice in Puskesmas has been hampered by a shortage of pharmacists. Despite the increasing workload under JKN, understaffing of pharmacists has been responsible for their minimal involvement and contribution to patient care. Pharmacists in Puskesmas spend most of their time dispensing medications. They are even assisted by non-pharmacy personnel to cope with the overwhelming workload. This differs from practice in community pharmacy where the perennial issue of poor attendance of pharmacists in pharmacy persists and is unrelated to JKN. It was noted that the majority of pharmacies, particularly independent pharmacies, are operated without regular pharmacists' attendance.

3.2.2 | Position of pharmacy within primary care

Participants ascribed the lack of pharmacists in Puskesmas to be a consequence of governmental attitudes to the limited value of pharmacists in the healthcare team and a low level of priority attached to increasing pharmacy staff. As a result, recruitment of pharmacists in Puskesmas is quite limited. Some participants also noted that being an affiliated pharmacy had not benefited community pharmacy operation. Violation of the affiliation contract, particularly in the form of doctor dispensing, is widespread and has jeopardised the relationship of community pharmacy with both general practice and patients. In addition, BPJS Health as the sole payer for JKN only contracted pharmacies which previously worked with ASKES (prior version of BPJS Health) for providing discharge referral services, which in turn has limited the opportunity of other pharmacies to participate in JKN.

3.3 | External pharmacy environment (macro level)

Most participants perceived that JKN has not had a significant impact on the industry and was not designed to resolve the ongoing issues

such as shortages of pharmaceuticals and poor law enforcement. Participants implied an imperative to tackle these persistent issues as a precursor to the effective implementation of JKN in the macro level.

3.3.1 | Access to pharmaceuticals

The increased demand for pharmaceuticals as a consequence of health coverage expansion has not been accompanied by sufficient availability of pharmaceuticals. Participants mentioned that Puskesmas often run out of medicines due to limited stock or delays in procurement. In addition, procurement of medicines is undertaken by the local health office leaving Puskesmas with limited options to buy medicines directly. Likewise, procurement of medicines in community pharmacy is also problematic because the e-catalogue system does not work efficiently.

3.3.2 | Policy enforcement

Participants expressed concern that despite the massive changes brought by JKN, there have been no serious attempts through enforcement to tackle the problem of illegal selling of medicines. In fact, the introduction of JKN may have created another issue for policy enforcement, namely the illegal dispensing of medicines by some primary care providers especially GPs, notwithstanding their contractual obligations to a particular pharmacy. In addition, participants felt that the lack of enforcement may occur as a consequence of collusive relationships and conflicts of interest between practicing pharmacists and regulatory bodies. This may pose a dilemma for authorities who may be reluctant to impose punishment on their own close colleagues.

3.3.3 | Pharmacy education

There was an expectation among participants that pharmacists could play more prominent roles under JKN. In this sense, education and pharmacists' competence are pivotal to enable pharmacists to engage with healthcare changes. However, some participants argued that pharmacists were not prepared for the changes. Participants were concerned with that while there are many universities offering pharmacy courses, only a few schools of pharmacy have received high-level accreditation, indicating that the majority are not appropriately qualified to deliver pharmacy courses. This has influenced the quality and the competence of graduates of these programmes. Moreover, the current curricula of pharmacy courses are very heavily weighted towards science content with limited content addressing clinical knowledge and practice skills development. As a result, current pharmacy education does not produce enough pharmacists with the competencies required to deliver patient-centred pharmaceutical care in practice.

4 | DISCUSSION

The impact of JKN on community pharmacy practice has highlighted three key issues. First, the policy making process of JKN did not

adequately consider the role and the professional practice of pharmacists especially in the community or retail pharmacy setting. Second, the implementation of the new funding model through capitation payments to primary care networks has set up unintended consequences and additional problems, leading to concerns about the ongoing viability of the community pharmacy network and pharmacists' contribution. Third, the changing system under JKN did not address key ongoing problems within the pharmacy sector such as shortages of pharmaceuticals and illegal selling of medicines. A helpful starting point to discuss these three points is to analyse the situation from the organizational level (meso level) with which the individual (micro level) and healthcare system (macro level) are interdependent.

Within the era of JKN, *Puskesmas* appear to have been revitalized and currently play a central role in primary care services particularly as gatekeeper and referral for higher level care. This study found that the strengthening of *Puskesmas* has significantly increased pharmacists' workloads and provided opportunities to deliver more value in patient care. However, the policy changes did not take into account the fact that *Puskesmas* were understaffed with pharmacists, and pharmaceutical supply is undependable. Likewise, the introduction of affiliated and BPJS-contracted pharmacies was perceived to be an initiative to integrate community pharmacy within the primary care network. The scheme appeared to have encouraged a more multidisciplinary approach with the possibility for pharmacists to play a greater role in delivering pharmaceutical care to patients within the network. However, given the fact that only a very small portion of community pharmacies are funded under JKN, there are doubts as to whether the initiatives were genuinely intended to provide access to a more comprehensive multidisciplinary service. The small number of pharmacies engaged with JKN shows that despite the outcomes sought by the policy maker, i.e. wider access to care, JKN has not adequately invested in the community pharmacy network and in the quality use of medicines.

The introduction of capitation payments to GPs and other primary care networks under JKN was touted as a mechanism for constraining healthcare costs. Under a typical contract with BPJS Health, GPs and primary care networks received funding to be administered regardless of the amount of services provided. In addition, the capitation funding includes all professional services provided to patients spanning a range of providers from GPs to affiliated pharmacies. In this way, efficiency in healthcare funding and flexibility of delivery might be achieved as the new model shifted financial risk to providers, and providers have the freedom to address patients' needs respectively (Lagomarsino, Garabrant, Adyas, Muga, & Otoo, 2012). Furthermore, contracting out private healthcare providers can improve access to primary care services as highlighted in several countries implementing universal healthcare coverage (Liu, Hotchkiss, & Boce, 2008). On the one hand, the new funding model has meant that the role of pharmacists in the management of prescribed medication should become more important. This also means the role of the community pharmacy network should be even more critically important particularly to manage the supply and the administration of medicines to patients. However, in practice, shifting funding administration to healthcare providers has somewhat backfired for affiliated pharmacies. First, in some cases, it

has stimulated illegal doctor dispensing as the doctor controls the finance. It is appealing to doctors to protect their income by reducing other expenses such as for pharmaceutical services notwithstanding the violation of contractual obligations to the affiliated pharmacy. Second, as the control for negotiating the amount of payment shifted to providers, an affiliated pharmacy may receive varying amounts depending on their ability to negotiate with their contractor. Third, it adds administrative complexity especially for GPs and may increase GPs workloads. Several studies have shown that only 13%–35% of the capitation payment was used to pay for pharmacy and pharmacists' contribution within the primary care network suggesting that community pharmacies may not always obtain a significant financial benefit from participation in JKN (Budiarto & Kristiana, 2015; Dewa Ayu Putu Satrya, Satibi, & Ayu Puspadari, 2015). Our findings suggest that changes in the funding model which were actually designed with good policy objectives may have created some unintended and unanticipated distortion in the healthcare system which may be detrimental to the community pharmacy sector.

Prior to JKN, the pharmacy sector in Indonesia was already tainted with ongoing issues such as shortages of pharmaceuticals, illegal selling of medicines and collusive enforcement. While the introduction of JKN provided momentum to improve healthcare delivery, it did not address these existing problems. As a result, these challenges continue to hamper achievement of JKN's goals of providing quality care for patients. The community pharmacy network which is at the forefront of pharmaceutical services has been hardest hit by these challenges. Evidence from international studies emphasizes that medicines are the crucial piece to promote health and achieve sustainable development under universal health coverage schemes (Wagner, Quick, & Ross-Degnan, 2014; Wirtz et al., 2017). Therefore, access to essential medicines must be the priority in the healthcare needs of the population. Governments must ensure that the population receive safe, effective and affordable medicines and obtain the best outcome of the use of the medicines, and these are the domain of pharmacists and community pharmacy. This study concluded that Indonesian community pharmacy has the potential to address such demand, yet there is a need for thorough examination of the policies to recognize and develop solutions for the entrenched problems.

The findings of this study, on the one hand, have confirmed the importance of pharmacists becoming members of the primary care team which is consistent with many international studies (Bradley et al., 2008; Dosea et al., 2017; Jorgenson, Laubscher, Lyons, & Palmer, 2014; Silcock, Raynor, & Petty, 2004). With a health system moving towards an interprofessional approach to primary care, pharmacists may contribute value to the team by delivering comprehensive medication management, providing health education and drug information for team members, patients and populations, and enhancing system efficiencies through cost-effective and quality use of medicines (Dolovich et al., 2008). For this reason, implementation of JKN can be a lever to promote such integration.

However, on the other hand, there are at least three paramount barriers to be overcome. First, the common practice of operating a pharmacy without a pharmacist is a serious problem from both a legal

and professional standpoint. Legally, the presence of a pharmacist is mandatory, and professionally the absence of a pharmacist leads to poorer quality care being delivered by non-pharmacists. We argue that this is a huge opportunity loss for the profession to advance to the next level. Pharmacists have been shown to be effective in improving patient outcomes through successful collaborative care within the healthcare team. For example, pharmacist-led intervention has been able to identify patients at risk of chronic diseases and improve detection of drug-related problems (Avery et al., 2012; Tan, Stewart, Elliott, & George, 2014; Tsuyuki, Al Hamarneh, Jones, & Hemmelgarn, 2016). Furthermore, the introduction of pharmacists into GP practice as inspired by the role development of clinical pharmacists in hospital settings has been increasingly advocated by pharmacy stakeholders to facilitate pharmacists' accessibility and contribution to primary care services. Indeed, this is under trial in a number of countries including the UK, Canada and Australia (Farrell et al., 2008; Freeman, Cottrell, Kyle, Williams, & Niccen, 2012; Tan, Stewart, Elliott, & George, 2013).

Second, the education of pharmacists has not kept pace with increasing clinical opportunities, meaning that Indonesian pharmacists currently have a limited clinical capacity to embrace expanded roles. Unfortunately, this is a common barrier to pharmacy role development in many developing countries and requires a significant overhaul of pharmacy education (Kheir et al., 2008; Miller & Goodman, 2016). While improvement of pharmacists' skills can be achieved through training and continuing professional development, the root cause lies in the University curricula which currently do not fully prepare pharmacists for clinical practice. For example, several Indonesian studies found poor communication skills among pharmacists, specifically in relation to gathering information about symptoms and providing drug information to patients. Critically, the pharmacists' skills were not significantly different from those of other staff members. (Brata, Marjadi, Schneider, Murray, & Clifford, 2015; Puspitasari, Faturrohman, & Hermansyah, 2011). Although poor communication cannot be solely attributed to deficiencies in education, these studies nonetheless demonstrated the need for inclusion of increased social and clinical content in the pharmacy curriculum.

Third, the current legislation and regulation changes have not supported an expansion of pharmacists' scope of practice. Our findings highlighted that community pharmacy practice in both Puskesmas and community pharmacy has not moved significantly beyond dispensing practice even after the introduction of JKN, albeit for different reasons. The current system indeed only focuses on pharmaceuticals and has not invested in developing pharmacy practice and the pharmacy network. Internationally, changes in the community pharmacy system are not possible unless driven by policy. For example, the governments in UK, Australia, Canada and New Zealand have been proactive in implementing major reforms in community pharmacy through a number of policy documents (Commonwealth of Australia & Pharmacy Guild of Australia, 2015; DoH UK, 2008; MoH New Zealand, 2007), reports (Australian National Audit Office, 2015; Canadian Pharmacists Association, 2011) and reviews (Anderson,

Blenkinsopp, & Armstrong, 2003; DoH & Pharmacy Guild of Australia, 2017) highlighting the current and future roles for community pharmacy. In addition, professional organisations have also published visions and roadmap documents outlining themes of change for community pharmacy within the primary care sector (Canadian Pharmacists Association, 2008; Pharmaceutical Society of New Zealand, 2004; The Pharmacy Guild of Australia, 2010). The changes in the policy and regulatory framework have been critical in creating opportunities for pharmacists to overcome classic barriers including lack of time, limited funding, low public expectation and inadequate pharmacists' clinical competence which are found in the current study. This study strongly suggests that community pharmacy and professional bodies in Indonesia need to advocate compellingly for community pharmacy development as a means of promoting better healthcare outcomes.

To our knowledge, this is the first study that has explored changes in the community pharmacy sector since the introduction of JKN in Indonesia. In addition, the framework applied in this study provides a way to focus on particular issues within the system without neglecting their mutual interdependence with other aspects. Nevertheless, there are several limitations to this study. First, the views expressed by participants cannot be assumed to be representative of all stakeholders in community pharmacy and the health sector in Indonesia, and the purposive selection of the respondents may have limited the breadth of the perceptions presented. The respondents, however, were selected to represent a broad range of stakeholders working in or affiliated with the community pharmacy sector from which we sought complementary views regarding the operation of community pharmacy within the early years of implementation of JKN. Second, this study only involved stakeholders residing in four provinces, raising the question whether the impact of JKN might be different in other provinces. However, JKN is a nationwide programme and delivery of the programme is managed by BPJS Health at the national level irrespective of policy in the local area; therefore, implementation of JKN is expected to be consistent across the country. Third, taking into account policy decentralization in Indonesia, there is a caveat that there might be local policies regulating community pharmacy which have not been identified and included in this paper.

5 | CONCLUSION

The introduction of JKN has brought changes in the way community pharmacy operates and pharmacists practice. Pharmacy and pharmacists in Puskesmas have experienced significant changes with respect to active participation in the delivery of pharmaceuticals, better remuneration and positive recognition for their roles. In contrast, despite changes which were introduced to integrate community pharmacies within the primary care network, community pharmacy continues to be hampered by structural and fundamental issues which in the main, do not relate to the policy changes provided by JKN. It is imperative for the profession of pharmacists and community pharmacy network to work to improve this situation.

ETHICAL APPROVAL

The ethical aspects of this study have been approved by the Human Research Ethics Committee of the University of Sydney No. 2014/820.

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CONFLICT OF INTEREST STATEMENT

None declared.

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Appendix 10. Paper 5 – Multiple policy approaches in improving community pharmacy practice: the case in Indonesia

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BMC Health Services Research

RESEARCH ARTICLE

Open Access

Multiple policy approaches in improving community pharmacy practice: the case in Indonesia



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Abstract

Background: Health reform has been an ongoing agenda in many countries with community pharmacy increasingly gaining attention for contributing to healthcare improvement. Likewise, multiple policy approaches have been introduced to improve community pharmacy practice in Indonesia yet no studies have evaluated their effectiveness. Therefore, this study aimed to identify and collate information on approaches intended to improve practice in Indonesian community pharmacy and subsequently examine the perceptions of key stakeholders in healthcare and community pharmacy about these approaches and the extent to which they have affected community pharmacists as a profession.

Methods: This study reviewed the grey literature related to community pharmacy policies published by government and pharmacy organisations in Indonesia since 2009 and broadened the search to other relevant databases. In-depth semi structured interviews were conducted with a wide range of key stakeholders in pharmacy and healthcare between February and August 2016 to evaluate these policy approaches.

Results: Seventeen policy documents were identified with the majority published by the Indonesian Pharmacists' Association (8 documents) and Ministry of Health of Indonesia (6 documents). Most documents (15 documents), either the updated version or new policy, were published since 2014 indicating the recent enthusiasm of pharmacy stakeholders to improve community pharmacy practice. Twenty-nine key stakeholders participated in the study, and highlighted three main themes regarding the policy approaches: barriers to effective policy implementation, need for policy changes and strategies to cope with policy challenges. Poor policy enforcement was commonly expressed by participants as a major challenge, with participants anticipating the need for a unified stakeholder vision to improve the current situation. Participants also mentioned several local initiatives which they claimed were improving practice but evidence was lacking.

Conclusion: The introduction of policy initiatives within the past ten years has highlighted the enthusiasm of policy makers and pharmacy stakeholders to improve community pharmacy practice in Indonesia. However, some of the initiatives were conceived and enacted in a piecemeal, sometimes conflicting and uncoordinated way. Overall, fundamental and entrenched barriers to practice need to be overcome to create a more professional climate for the practice of pharmacy in Indonesia.

Keywords: Community pharmacy practice, Policy approaches, Policy evaluation, Indonesia

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Background

Governments around the world face increasing pressure to provide effective, efficient and equitable healthcare services to their populations. Health reform has been on the main agenda in many countries with similar approaches applied to improve access to health care and the overall performance of the health system within the constraints of needing to curb the growth in health expenditure [1]. One reform that is increasingly gaining attention is to incorporate community pharmacists within the broader healthcare system. Community pharmacists have the potential to not only contribute to improving patients' outcomes through safe and effective use of drugs, but also to reduce the cost of healthcare by resolving drug related problems and promoting public health issues [2, 3].

At the same time, the nature of pharmacy practice and community pharmacy is also changing. Over the past four decades, scholars have acknowledged a shift in community pharmacy practice beyond dispensing activities to provision of a broader array of health services [4–6]. These simultaneous changes have resulted in complexity for all stakeholders, requiring them to adapt to rapidly evolving circumstances. As a result, community pharmacists have consistently been challenged with pressures to meet professional standards, to provide patient-centered services, and to work with other healthcare professionals within the large healthcare system while keeping profitable in a highly-regulated environment.

Policy makers also face complexity in attempting to encompass both an increase in the utilization of community pharmacists, while maintaining some control over the increasing health care budget. Policy documents since the Nuffield report in 1986 [7], including more recent blue prints or road maps for the future of pharmacy, highlight the multiple approaches and strategies that have been directed towards harnessing a greater contribution by pharmacy to health care [8–10]. Despite the growing number of initiatives to improve the practice of community pharmacy, the literature on policy evaluation is sparse. In addition, much less attention has been directed to determining how stakeholders in community pharmacy perceive the impact of these policy statements and initiatives on pharmacy practice. Furthermore, policy development in expanding the role of community pharmacists has not always been supported by relevant policy evidence which in turn has raised questions about the extent to which these policies have been appropriate, effective and sustainable particularly for stakeholders in community pharmacy [4].

The lack of policy evaluation has been common in both developed and developing countries. However, the situation is arguably more acute in developing countries. There is limited capacity among stakeholders, particularly

government, to fund and produce quality research which examines the practice of community pharmacists and pharmacy [11]. Furthermore, regulatory evaluation is also constrained by a myriad of factors encompassing limited government staff, small budgets, fragmented delivery of healthcare and pharmacy practice, poor control over the regulation and the absence of a regulatory evaluation framework which may be less pronounced in developed countries [12]. Thus, there is an urgent need to evaluate the impact of various policy or program initiatives designed to influence pharmacy practice in developing countries. This paper aims to address this using Indonesian community pharmacy as a case study.

The Indonesian health system has undergone significant changes over the past decade including the establishment of a decentralization policy in 2001 and the recent introduction of universal healthcare coverage (JKN) in 2014 [13]. With respect to community pharmacy, multiple approaches and regulations intended to advance the practice of community pharmacy have been enacted within the past decade. These approaches include legislation, incentivization policies, campaigns and education [14]. Prior to critically examining the effectiveness of these multiple approaches, it is important to contextualize the policy and practice environment in Indonesia in order to understand the nature of the system and challenges to implementation.

Policy environment of Indonesian community pharmacy sector

Community pharmacy practice in Indonesia is regulated under the Ministry of Health (MoH) at the national level, and the Local Health Department office as the extension of MoH at the provincial and district (Kabupaten/Kota) level. In addition, the 2001 decentralization policy transferred the responsibility for services delivery and fiscal autonomy, including health, from the central government to the local government. At the same time, the operation of community pharmacy is supervised by BPOM (Indonesia National Agency of Drug and Food Control) as the government agency responsible for the administration and control of food and drugs. Further, the authority for overseeing drugs and therapeutic products in the market is also part of the duty of the police. The police with or without BPOM often conduct surprise inspections of healthcare facilities including pharmacy particularly when they suspect illegal activities such as selling of prescribed medicines without a doctor's prescription, selling of expired medicines and selling of unlicensed medicines. Importantly, it should be noted that there is no legal restriction preventing pharmacists who work in regulatory or supervisory bodies from also practicing in community pharmacy, despite the potential for a conflict of interest to arise. However,

the chairman of BPOM recently issued a directive to BPOM staff prohibiting them from working in any facilities under the supervision of BPOM including community pharmacy [15]. As a result, the majority of the staff have resigned from their employment in any pharmacy settings in order to retain their position in BPOM [16].

From the professional practice point of view, the Indonesian Pharmacists Association (IAI) is the sole peak pharmacy organization representing pharmacists, with the main role being to maintain pharmacists' competence, advocate for pharmacists and advance the profession. Within the IAI, there are several peer groups based on work setting and professional interest including a group of community pharmacists (HISFARMA) which is responsible for coordinating and advancing the practice of pharmacists in the community as defined by IAI. Another important body is the Indonesian Pharmaceutical Association (GP Farmasi) whose membership includes business owners in the pharmacy sector comprising pharmaceutical industries, wholesalers, pharmacies and retail drug outlets. Since the ownership of community pharmacy in Indonesia is not restricted to pharmacists, members of GP Farmasi representing community pharmacy include non-pharmacists. Responding to the introduction of JKN in 2014, both IAI and GP Farmasi worked together to establish a community pharmacy association (ASAPIN) as an organization to represent the whole community pharmacy network in the negotiation of tariffs within JKN. However, despite its vital mission, the MoH to date has not included ASAPIN in the legislation of healthcare facilities negotiating for JKN. Consequently, pharmacists and the community pharmacy network are underrepresented in the JKN payment scheme. Another organization which has a role in determining the quality and competence of pharmacists is the National Pharmacy Board (KFN) which manages the registration of pharmacists and oversees the Association of Schools of Pharmacy (APTFI) which deals with the development of pharmacy education curricula and competence of graduates.

The foregoing discussion has highlighted the complexity of the management and oversight of community pharmacy and pharmacists in Indonesia. Multiple regulators and professional organisations play overlapping, and sometimes conflicting roles in influencing the practice of pharmacy, and the way it is evolving. Each of these institutions has advocated top-down policies, standards and legislation which are parallel to the mission of other institutions. Therefore, the first objective of the current study was to identify and collate information on initiatives intended to improve practice in Indonesian community pharmacy. The second objective was to examine the perceptions of key stakeholders in community pharmacy about the multiple approaches advocated

by the government and pharmacy organisations, and the extent to which these approaches have affected community pharmacists as a profession and resulted in practice change.

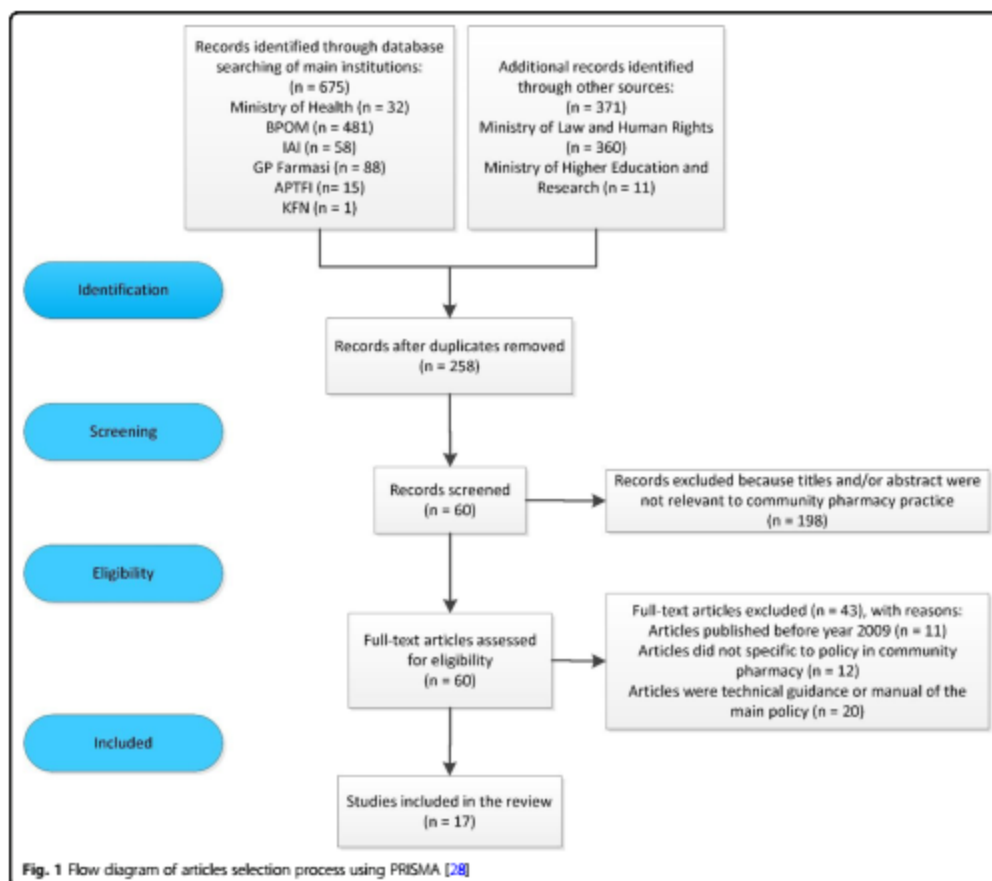
Methods

Document collection and analysis

We searched websites of relevant government departments and professional organisations in particular the websites of the Ministry of Health of Indonesia, BPOM, IAI, GP Farmasi, APTFI and KFN. These websites were searched for relevant information, reference publications and databases describing pharmacists' role and responsibility and community pharmacy practice. The search process was broadened to include grey literature obtained from databases of other government institutions. As most government documents and professional organizations' policies were published in the Indonesian language, this study used the following combination of search terms in the Indonesian language: apotek OR apotik OR farmasi (meaning: community pharmacy); apoteker OR farmasis OR tenaga AND farmasi (meaning: pharmacists); praktek OR praktik OR pekerjaan OR pelayanan AND farmasi (meaning: pharmacy practice or pharmacy services); kebijakan OR peraturan OR hukum OR keputusan OR standar OR pedoman OR rencana AND farmasi (meaning: legislative framework in pharmacy); peran OR kinerja OR tanggungjawab AND apoteker AND apotek OR apotik (roles and responsibility of pharmacists or pharmacy). In addition to the web search, investigators contacted key personnel in government agencies and professional organizations for further information/clarification and to request copies of relevant documents if necessary. This study purposively selected grey literature, and used an exploratory approach because there has been limited research published in the peer reviewed literature, in the field of policy evaluation of community pharmacy practice in Indonesia.

In terms of the inclusion and exclusion criteria, this study only included formal and legal documents from official authorities such as policy documents, legislative frameworks, standards and directives. We limited the search for documents published in the Indonesian language from 2009 onwards. The 2009 start date was selected because this was the year in which Health Law 2009 was issued. It was the first law accommodating the practice of pharmacy in Indonesia (article 108). The implication of this law was the enactment of the Pharmacy Practice Act 2009 which became the main policy framework underpinning the practice of pharmacy including community pharmacy in Indonesia. Details of literatures search and screening process are shown in Fig. 1.

The study retrieved 60 documents, of which 17 contained relevant information on policies and strategies



aimed to improve pharmacy practice in Indonesia. The selected documents were reviewed based on their objectives and relevance to the support of community pharmacy practice either by: (1) providing a legal framework for practice, (2) reducing barriers in practice, (3) increasing the role and recognition of pharmacists, (4) promoting the uptake of pharmacy services, (5) contributing to the sustainability of community pharmacy operation. The criteria used to review the documents were developed from the recommendations of several systematic reviews reporting on pharmacy practice in developing countries [12, 17–20].

Stakeholder collection and analysis

Between February and August 2016, in-depth semi structured interviews were conducted with a wide range of key stakeholders in pharmacy and healthcare

representing community pharmacists, physicians, peak pharmacy and medical organisations, insurance companies, consumer group associations and governments in the local and national setting. Ethics approval was obtained from the authors institute prior to data collection. A purposive sampling was used to select the initial respondents and expanded using the snowball method. Candidates who agreed to participate were required to provide signed consent prior to the interview. The respondents were asked questions primarily focused on the current situation of healthcare and the community pharmacy sector, approaches introduced by governments and pharmacy associations to cope with the changes and challenges of the current situation, their expectations and strategies to adapt to the challenges (see Additional file 1). All interviews were audio-recorded and transcribed verbatim. Thematic analysis was performed to

analyse the findings. Each investigator initially developed a coding framework from some of the transcripts which were considered unique and "rich of information". Subsequently, the main coding framework which included themes and sub-themes was mutually agreed. The interviews were continued until data saturation was achieved. NVivo 10 was used to assist data management.

Results

Collation of documents

Of the 17 documents which were eligible for inclusion, the majority were published by IAI (8 documents) and the Ministry of Health of Indonesia (6 documents). The remainder were issued by KFN (1 document), the Presidential office (1 document) and a group of organisations – IAI, APTFI and KFN (1 document). According to the hierarchy of legislation in Indonesia, the Presidential Act is the highest level of legislation, followed by Ministry of Health decrees, and professional organizations' regulations as subsidiary legislation, respectively. This means most of the approaches collated in this study were applied in a narrow setting and have limited legislative power. For instance, the initiative to set minimum remuneration for pharmacists enacted by several branches of IAI was only applicable to pharmacists within the region covered by the branches.

Most documents concerned approaches which were commenced from 2014 onwards (15 documents). However, some of these were updated versions of previous legislation (6 documents). This means that some approaches have changed over a long period of time. For example, the Community Pharmacy Decree was first introduced in 1953, and subsequently revised in 1965, 1980, 1993, 2002 and currently in 2017. It is also important to note that some approaches have certain degree of overlap with other approaches. For example, drug use campaign programs such as Gema Cermat, Dagusibu and GKSO were in essence devised to convey similar public educational messages surrounding self-management and basic education on the use of medicines although they were initiated by different organisations. As a result, community pharmacists may undertake one single public education activity and offer it as part of all three programs, thus gaining multiple CPD credits for the same activity. Some approaches also form part of the process of other policy initiatives. For example, pharmacists who wish to renew their practice license must deliver practice as defined by standard of pharmacy practice and pharmacy services, participate in CPD programs and collect a certain amount of credits. Table 1 is a compilation of the multiple approaches advocated by government and professional organisations in Indonesia.

Stakeholders' interview

29 key stakeholders took part in the interviews between February and August 2016. Characteristics of the interview participants are provided in Table 2.

Three main themes emerged in the analysis of the data: barriers to effective implementation approaches, expectation for policy changes and coping strategies for the challenges of existing initiatives. Illustrative quotes of the findings are described in Table 3.

Barriers to effective implementation

Several barriers to implementation approaches were identified by the participants. One commonly expressed barrier is the lack of enforcement. Participants believed the approaches were created with good intention, yet the practice was not strongly encouraged or enforced. When there is a discrepancy between policies and practice, no firm response has been taken by the authorities to discipline the poor practice. The poor enforcement is also associated with a lack of trust in the integrity of the regulatory and supervisory bodies, since individuals in these institutions who violate the policies have not been sanctioned for their misconduct. However, on the other hand, professional pharmacy organizations have also been subject to criticism and participants expressed mixed responses towards them. Several participants criticized them as being unable to advocate the interest of community pharmacists, and instead seeking their own power and financial gain. Others mentioned that the establishment of peer groups within the professional organisation is useful although they are still limited in their influence.

One participant who worked for a multi-national chain pharmacy company expressed her concern regarding the lack of accountability around policy implementation. The operation of community pharmacy has been influenced by a number of policies created and supervised by several different organisations. While community pharmacy has traditionally operated under a highly-regulated environment, the involvement of additional organisations in the monitoring and execution of the policies has increased the complexity and diluted the impact of policy decisions. In addition, government which should play a role in facilitating policy implementation has been viewed by some participants as being lacking in the power to play such role. They highlighted several policies which have been created but not enforced, due to a lack of empowerment and support for the practice.

Skepticism about the impact of these approaches was also expressed by the participants in relation to the imperative for pharmacists to participate in the CPD program. One respondent suggested that participation in CPD is merely seen as a way to collect the required credits (SKP) and not as a means to improve or develop

Table 1 Multiple Approaches to improve community pharmacy operation and practice of pharmacists

Approaches (initiating bodies, year introduced/ updated); References	Objective	Process to achieve objective
<i>Type of approaches: Incentivization</i>		
Minimum rates for pharmacists' remuneration (branches of IAF ¹ , introduced in 2015); [29–31]	Ensuring pharmacists receive adequate and fair income	Pharmacy employer must pay employee pharmacists based on the minimum rate. The amount and composition of the income must be validated by IAI and become the consideration for issuing recommendation letter for pharmacists to practice
Payment for pharmacy services (MoH, updated in 2016); [32]	Reimbursing pharmaceuticals and incentives for pharmacy services	Community pharmacies working under the JKN ² scheme receive payment for dispensing prescribed medicines and incentives for delivering pharmacy services. The method for distribution, the amount and the coverage of the payment can vary depending on the classification of pharmacy i.e. pharmacy affiliated with primary care providers, contracted by BPJS Health or both.
<i>Type of approaches: Campaigns and communication</i>		
Gema Cermat - Community awareness campaign in using medicines (MoH, introduced in 2015); [33]	Raising peoples' awareness on proper use of medicines	National campaign including workshops, group discussions and distribution of information e.g. books, posters, modules and audio-videos. Certain pharmacies and community pharmacists are invited to deliver public education such as talks, lectures and community outreach.
Dagusibu - Pharmacists campaign on self-management of medicines (IAI, introduced in 2014); [34]	Public education on self-management of medicines	Community pharmacies are encouraged to provide educational materials such as leaflets, brochures and posters in the pharmacy. With the phrase "Ask your pharmacist", consumers are educated to obtain, use, store and dispose of medicines as advised by pharmacists. Participating pharmacists are rewarded with credits (SKP ³) for license renewal.
Gerakan Keluarga Sadar Obat (GKSO) - Campaign for raising family awareness in using medicines (IAI, introduced in 2014); [34]	Raising family awareness on self-management of medicines	Run in tandem with Dagusibu program, GKSO targets the health of family through lectures, simulation and role play, CBIA ⁴ (active individual learning), training of pharmacists as trainers and recruitment of family members as health advocates. Topics for learning also include safe and proper use of cosmetics, food, beverages and narcotics/psychotropics. Participating pharmacists are rewarded with credits (SKP) to count towards their license renewal.
Image building of pharmacists (IAI, introduced in 2014); [35]	Increasing pharmacists' recognition	Pharmacists are encouraged to wear pharmacist coat and name badge during practice in community pharmacy. The pharmacy must also display a sign board showing pharmacists' names and practice hours. Credits (SKP) are awarded for pharmacist's license renewal.
<i>Type of approaches: Standard, policy and regulation</i>		
Registration, certification and licensure of pharmacists (MoH, updated in 2016); [36]	Ensuring that pharmacists practice in a professional and ethical manner	Community pharmacists are required to obtain four legal documents to practice; certificate of competence and recommendation letter issued by IAI, registration letter (STRA ⁵) from the National Board of Pharmacy (KFN ⁶) and license to practice (SIPA ⁷) from the MoH. In order to obtain certificate of competence, new graduate pharmacists must pass a competency exam while registered pharmacists must collect a quantum amount of credits (SKP) during each five years of practice. The certificate is a pre-requisite to obtain STRA. Once the STRA has been issued, pharmacists must apply for a recommendation letter. The letter of recommendation and STRA are part of the application for SIPA. The license is valid for five years and a pharmacist can practice in up to three different pharmacies. Prior to expiration, pharmacists must renew the license by firstly obtaining a new certificate of competence. The updated regulation has allowed pharmacists to practice in up to three community pharmacies.
Collection of SKP (IAI, introduced in 2014); [37]	Indicator for pharmacists' participation in practice	Pharmacists must collect minimum of 150 credits (SKP) during each five years of practice as a requirement for license renewal. In general, the credits are distributed to participation in continuing education program (e.g. CPD, workshop and peer group discussion) minimum 60 credits, undertaking professional practice (indicated by attendance report and

Table 1 Multiple Approaches to improve community pharmacy operation and practice of pharmacists (Continued)

Approaches (initiating bodies, year introduced/updated); References	Objective	Process to achieve objective
Pharmacy Practice Act (MoH, introduced in 2009); [38]	Legislating pharmacy practice	record of providing services) minimum 60 credits, involvement in community outreach program (e.g. public campaign) minimum 7.5 credits, and voluntary participation in publishing ideas and knowledge development (e.g. conducting research, writing book and article) maximum 37.5 credits. The Act which underpins pharmacy practice in Indonesia regulates different settings of pharmacy practice from manufacturing and distribution to service provision including community pharmacy. It also classifies the pharmacy workforce into two main groups: pharmacists and pharmacy technicians, with their designated responsibilities. The act legislates that pharmacy practice can only be conducted under responsibility and supervision of pharmacists.
Standard of pharmacy services in community pharmacy (MoH, updated in 2016); [39]	Setting minimum services delivered in pharmacy	The standard describes two main roles conducted by community pharmacists: management of pharmaceuticals and healthcare devices, and provision of clinical pharmacy services. The first role relates to the management cycle of pharmacy items from planning and procurement to disposal, record keeping and reporting. The second role covers pharmacy services which should be provided by pharmacists such as prescription assessment, dispensing, drug information, counselling, home pharmacy care, drug use monitoring and surveillance for adverse drug reactions.
Standard for pharmacy practice (IAI, introduced in 2014); [40]	Developing standard for pharmacists to practice	The standard consists of 9 (nine) key activities which must be conducted during practice: (1) providing fundamental pharmacy practice, (2) conducting drug assessment and review, (3) dispensing medicines and health devices, (4) compounding dosage form (specific to pharmacists in the pharmaceutical industries), (5) providing drug information and counselling, (6) delivering health promotion, (7) management of pharmaceuticals and health devices, (8) management of pharmacy settings, (9) maintaining skills and competencies. The standard sets minimum activities for pharmacists in the practice site.
Standard competency of pharmacists (IAI-APTFI-KFN, updated in 2016); [41]	Setting the minimum competency of practicing pharmacists	The standard comprises 10 (ten) main competencies which means pharmacists must be competent in: (1) delivering the practice of pharmacy in an ethical and professional manner, (2) optimising the use of medicines, (3) dispensing medicines and health devices, (4) providing information about the medicines and health devices, (5) mastering skills and knowledge of formulation and production of pharmaceuticals, (6) contributing to preventive and promotive community health, (7) management of medicines and health devices, (8) delivering effective communication, (9) active involvement in the organization and maintaining inter-personal relationship, (10) striving to improve competency. Graduate pharmacists must meet the minimum competency as defined by the standard.
Community pharmacy Decree (MoH, updated in 2017); [42]	Establishing regulation for community pharmacy operation	The decree is the main framework regulating the opening, license issuance and operation of community pharmacy. A community pharmacy can be opened by pharmacists with or without investment from other parties (individual, group or organization). An approval from the MoH, which can be delegated to the district government, is required before opening a pharmacy. In addition, district government has the right to manage the location and distribution of community pharmacy. Premises, facilities, and equipment of the pharmacy must meet certain standards and be approved prior to operation. The practice of pharmacy must comply with the regulation as similarly stated in the Pharmacy Practice Act and Standard of Pharmacy Services in Community Pharmacy. Each pharmacy must have a First-pharmacist as pharmacist in-charge for the operation and practice of pharmacy who can be assisted by other pharmacists (as second-pharmacist), technician and/or administrative employee.

Table 1 Multiple Approaches to improve community pharmacy operation and practice of pharmacists (Continued)

Approaches (initiating bodies, year introduced/ updated); References	Objective	Process to achieve objective
<i>Type of approaches: education and training</i>		
Continuing Professional Development (IA), introduced in 2014; [43]	Improving pharmacists' competence and knowledge	Pharmacists are encouraged to participate in CPD program. Pharmacists undertaking CPD program are rewarded with credits (SKP) which are essential for license renewal
Pharmacists Competency Examination (KFN), updated in 2016; [44, 45]	Entrance to practice as pharmacists	Graduate pharmacists must undertake the Competency Examination comprising a Computer Based Test (CBT) followed by an Objective Structured Clinical Examination (OSCE). The exam assesses pharmacists' knowledge, cognitive skills and professional, legal and ethical decision-making. An alternative was given for pharmacists who graduated before 2011 who did not have a certificate of competence to undertake the OSCE (for pharmacists working in community pharmacy and hospital) or OSPE (Objective Structured Pharmaceutical Examination) for pharmacists working in pharmaceutical industries and wholesalers.

¹Katatan Apoteker Indonesia; ²Jaminan Kesehatan Nasional – Universal healthcare coverage program; ³Satuan Kredit Partisipasi; ⁴Cara Belajar Insan Aktif; ⁵Surat Tanda Registrasi Apoteker; ⁶Komite Farmasi Nasional; ⁷Surat Ijin Praktek Apoteker

as a professional. She referred to the opinion of some pharmacists who viewed CPD as a gathering or reunion of colleagues and peers. They attended CPD to gain sufficient SKP to renew their license without thinking about the essence of CPD to develop pharmacists' knowledge.

Table 2 Characteristics of Participants

Characteristics	n (Total 29)
Male	18
Educational background	
Pharmacists	25
Non-pharmacists	4
Professional background	
Practicing pharmacists	10
Other health care professionals	1
Academics and researchers	4
Pharmacy managers	3
Policy makers and administrators	8
Consumer Representatives	1
Insurance providers	2
Province	
Greater Jakarta	8
Yogyakarta	6
East Java	14
Central Sulawesi	1
Metropolitan/Urban City	23
Method of interview	
Face to face	25
Over the phone	4
Average duration of interview (min)	77 min (range 35–116 min)

Need for policy changes

While respondents acknowledged that several policies were still ongoing, there was a general consensus that overall insufficient progress has been made. Therefore, they expressed a need for further changes to improve the situation. One major need is to have a unified vision of stakeholders in pharmacy. One participant highlighted the need for collective responsibility to create a vision for the improvement of community pharmacy practice in Indonesia. She urged key stakeholders such as universities, governments and IAI to sit around a table together and create a plan for the advancement of pharmacists. Other participants argued that collection of evidence in community pharmacy is necessary as it is a means to showcase pharmacists' contribution to the healthcare system. One participant regretted the fact that no evidence can be provided to show pharmacists' impact. However, another participant perceived that it is impossible to collect evidence as only a few pharmacists practice regularly. Therefore, some participants highlighted the need to duplicate good practice in some pharmacies and amplify it into a policy action. These participants argued that community pharmacy is lacking good role models, and therefore policy supporting the dissemination of good model practice is required.

The majority of respondents anticipated the need for major changes in the pharmacy curricula which are currently still focused on the pharmaceutical sciences. Participants considered that pharmacists are not ready to interact with the patients as they are trained predominantly in laboratory work, and lack exposure to practical and clinical experience. This was linked to poor pharmacists' attendance in the pharmacy. Some participants highlighted the need for a supportive policy that is intended to make pharmacists and pharmacy as a first point of contact and venue for resolving patients' problem with medication.

Table 3 Illustrative quotes of the findings

Topic	Quotes
Challenges to policy implementation	<p>"When we look at policy changes there are too many hands involved...as you go every layer decisions get diluted, accountability gets diluted, execution gets diluted so there is no strong line for accountability. Who is truly accountable for change of healthcare in Indonesia? Is it the Ministry of health or the police in the region? and you also have very regional influences. You have the region of governance" (P018_FNP). Lack of accountability in the implementation</p> <p>"We do have policies, standards, regulations on one hand but on the other hand...we see with our eyes that there is no pharmacist (in pharmacy)...There is no one who pushes the policy, facilitates the policy which means that there is a lack of facilitation especially from government to ensure that the policies are running well. They don't support it so it is up to pharmacy..." (P029_MP). Lack of facilitation from government</p> <p>"We're only undertaking CPD because we have no choice, it's not because we want to improve our competence. It's just because we have the awareness that (collecting) SKP is a prerequisite to continue practicing pharmacy. That is why CPDs and seminars are being treated like reunions...Whether they (pharmacists) practice is another matter. They say, I get SKP so I can extend my STRA (registration), I need STRA to get my SIPA (license), and no SIPA means no salary. Whether I show up for work is my business with my employer; IAI should mind their own business" (P01_FP). Skeptical to the impact of the policies</p> <p>"We always look for scapegoats when we do something wrong...The popular excuse when committing violations has been 'I can do this because others have done the same and they don't get punished'. When violations go unpunished, people end up considering these violations as normal" (P02_FP). Lack of enforcement for successful policy implementation</p> <p>"Many pharmacists from [name of government bodies] work in pharmacy. I ask them to quit but it is difficult to ask people to become good role models in Indonesia...I ask them to be consistent, consistent with their own policies (they created). It is really shameful if individuals from [name of government bodies] should have been present in the pharmacy three times in a week but it turns out he comes only once in every three weeks. It is embarrassing" (P027_FP).</p> <p>"[name of professional organization] cannot become agents of change because there are many people with various interests in [name of professional organization]. There are people who have interests in obtaining official appointments e.g. becoming a commissioner for a state-owned enterprise, or director for state owned enterprise. Therefore, it is difficult." (P028_MP). Lack of trust in pharmacy stakeholders</p>
Need for policy changes	<p>"We were challenged by MoH when we had a coordination meeting. They said "If you could show us the evidence of what can pharmacists do when they practice then we can discuss about their fees". To date, we are unable to show this evidence" (P05_MP).</p> <p>"We can't use the word evidence at the moment because we (pharmacists) don't practice, am I correct? The number of practicing pharmacists is very low...Nowadays, they (pharmacists) only talk about business or sales" (P015_MP). Collection of evidence</p> <p>"We try to look for role models. For instance, IAI [name of region] covers five branches and I asked each branch to look for a community pharmacy which can be role model. Then we can replicate the success to other pharmacies, one becomes two, three and so on" (P027_FP). Search for pharmacy role model</p> <p>"There is a wide discrepancy between education and practice because universities are still polyvalent (of knowledge)...Frankly speaking, the education system does not create pharmacists to be pharmacists. The education system is overloaded with too many science courses...there is no practice values within the course" (P015_MP). Changing pharmacy education curricula</p> <p>"I think they should have collective responsibility but right now they don't talk each other. So, the universities don't exactly know where they want to take healthcare to the next stage. The government policy does not have support what comes out and then the IAI also just kind of, I think they are great in showing best practices but not again not execution. I think there is a little bit of within any political maneuvering there are the egos, who should be responsible? which other parties should be responsible for?" (P018_FP). Lack of a shared stakeholder vision</p> <p>"(we need) policy that makes pharmacists proud of working in pharmacy, policy that supports pharmacy as the first point of contact with patients, policy that makes pharmacy is a setting to listen to patient's problem related to medication. That's all. It is a great thing if we have those three policies" (P028_MP). Policy advocating pharmacists</p>
Coping strategies initiated by locals	<p>"We have accreditation system by giving pharmacy star rating from 4 to 1 star...the accreditation evaluates the workforces, facilities, legality for practice, service provision and administrative matters. We give different score for each aspect with service provision is the highest...we do it once in every one or two year and we publish the results regularly...the stars must be displayed in the pharmacy" (P016_MP). Pharmacy star rating model - applied in Yogyakarta</p> <p>"When a pharmacist wants to open pharmacy and they have difficulty in purchasing, I offer them my stock at a cheap price. I don't take profit. That is to push pharmacist practice. When there is pharmacist who opens a pharmacy, I endorse colleague to guide the pharmacist from the scratch, help them with how to provide good service and even they are not yet sustainable for procurement, they can buy to another pharmacy" (P05_MP). Peer support and assistance - applied in East Java</p> <p>"If pharmacist is unable to order medicine such as Imodium (brand name of Loperamide) because the price of one tablet is 6 thousand rupiah (approximately 60 cents)...your pharmacy can buy from me. What important is you have the stock of the medicine. We make a network so we can help other small pharmacies. Other cases, for example your pharmacy can't sell a medicine. By having network you can distribute it to other pharmacies which may be able to sell it. We can help each other so we can minimize loss due to expired medicines" (P027_FP). Networking and collective approach - applied in Greater Jakarta</p> <p>"The head of IAI must be strong character person, with vision and knowledge and a resolve to enforce the regulations...It really depends on the leadership, that's why he should be above any matters involving conflict of interest." (P025_MP). Leadership influences and support - applied in Central Sulawesi</p>

Table 3 Illustrative quotes of the findings (Continued)

Topic	Quotes
	"We have a quality assurance division to ensure pharmaceutical services are correctly delivered. We have many tools for supervising and reporting whether services are correctly provided or not...Home care needs to be done once a week, and every week 5 Patient Medication Records (PMR) need to be filled out...we have records of how many hours spent for patient consultations...we learn something new every time, we have an update training every 3 months minimum. Our skills are up to date, the system is good" (P01_FF). System of quality assurance - applied in Chain Pharmacy

Strategies initiated by locals to cope with existing challenges

Despite a number of centrally administered approaches designed to regulate community pharmacy practice, interestingly, some respondents mentioned several local initiatives, led by individuals or local associations, independent of the government and national organization agendas. They claimed that these programs were able to support the role development of community pharmacists, and aimed to increase pharmacists' participation and presence in community pharmacy.

For instance, the IAI and local health office in Yogyakarta have implemented a star rating system to measure the quality and performance of a community pharmacy. Community pharmacies with the best performance are awarded 4 stars, with the lowest receiving 1 star. This was perceived as an incentive for community pharmacies to increase their performance.

Pharmacy leaders in some regions of East Java have encouraged new pharmacist graduates to open a pharmacy by offering assistance in the procurement of medicines and management of pharmacy. Participants viewed such support as essential to help new pharmacists start professional practice and become competent in the business of pharmacy. Some pharmacy leaders in Jakarta have developed a collective network to help pharmacists in managing their medicines stocks. They also use the network to empower each other, thus pharmacists have a channel to communicate about their practice. In a region outside Java, the leaders of IAI used an interpersonal approach and their leadership to motivate pharmacists to practice while advocating the interests of community pharmacists. In this way, participants expressed that pharmacists are much confident and feel secure as they know that they are supported by their leaders. In addition, participants mentioned the importance of a leader in pharmacy to become a role model for their colleagues, and avoiding unscrupulous and collusive practice.

One participant representing a chain pharmacy business used a quality assurance system to maintain the quality of pharmacy services delivered in her pharmacy and to improve the skills and knowledge of employee pharmacists.

Discussion

To the best of our knowledge, this is the first study which has collated and evaluated the multiple initiatives

designed to influence community pharmacy practice in the context of a developing country. The detailed overview of the major approaches that have been implemented to improve the practice of community pharmacy and pharmacists in Indonesia presents important data to inform the development of future intervention strategies to effect practice change. The findings also contribute to an understanding of policy development and implementation in the Indonesian community pharmacy sector which is currently lacking in the literature.

In collating and summarizing recent policy and other initiatives, it has become apparent that the multiple approaches and regulations introduced into the Indonesian community pharmacy sector over the past ten years reflect an enthusiasm by both policy makers and pharmacy stakeholders to support pharmacists' role development. Encouragingly, the broad range of the approaches have also demonstrated a significant level of commitment by both groups to improving the current practice in community pharmacy, and a clear recognition of the untapped capacity and potential for community pharmacy to make a greater contribution to the healthcare system overall. This is particularly important in relation to a developing country such as Indonesia where there is limited acknowledgement of the pharmacy profession and the role of community pharmacy in health care as reflected in the low levels of effort to support practice change [21].

Our findings demonstrate that a clear legal framework exists for the regulation and enforcement of the practice of community pharmacy and pharmacists, specifically through the Pharmacy Practice Act and Community Pharmacy Decree, which define the core domain of pharmacy practice which is specific and unique to pharmacists' role, expertise and authority. Further legislation reinforces the set of skills required to be mastered by community pharmacists as outlined in the Competency Standards. These may then be translated into a range of pharmacy services as regulated by the Standard of Pharmacy Practice and Standard of pharmacy services. Thus, a template for potential practice change and development is present in a formal and supposedly enforceable sense; however a lack of prior supporting research evidence made it very unclear how well (or if at all) these approaches have achieved their policy objectives or adequately addressed the

needs of the profession. Our qualitative study was designed to begin to address this gap.

In relation to the second objective, this study reflects the expressed opinions and attitudes of a sample of stakeholders in Indonesia and has provided an insight into the implementation of multiple approaches to advance pharmacy practice as advocated by government and pharmacy professional organization. Seven specific findings are discussed in this section.

Firstly, this study has highlighted that a number of the initiatives, while relevant and appropriate in themselves, were conceived and enacted in a piecemeal, sometimes conflicting and uncoordinated way. For example, the requirement for pharmacists to undertake the CPD program has not been effective in achieving its policy objective. While it is widely believed that CPD is an effective avenue for improving pharmacists' competency by targeting both educational and experiential learning for participants, our findings suggest that the lessons from CPD among Indonesian pharmacists have not been translated into practice. As expressed by respondents in this study, even mandatory participation in CPD has not been a pathway for improving practice. It is viewed as a way to accumulate a certain number of the credits required to maintain licensure. Moreover, the CPD activities which are available are knowledge-based rather than skills-based or practice-focused and do not necessarily correlate with the pharmacist's scope of practice. For example, pharmacists working in pharmaceutical industry are able to undertake CPD on the management of hypertension focusing on clinical knowledge more suited to practicing pharmacists in the hospital or community pharmacy setting.

Lack of coordination is also seen in the attempt to set minimum remuneration rates by some local branches of IAI, rather than by the association at the national level. Whilst the reason for the absence of similar initiatives at the national level is unknown, it reflects a lack of consensus regarding minimum remuneration for community pharmacists. Similarly, the initiatives to improve recognition of pharmacists' role in health care are undermined by the continuing poor level of attendance of pharmacists in many community pharmacies [22]. This latter finding also highlights the lack of enforcement of legislation, which is the second major finding from this study. There are two factors contributing to the lack of enforcement as expressed by participants. Firstly, there is a strong perception that pharmacists who have violated the law will go unsanctioned. Secondly, this perception is reinforced by the observation that some pharmacists working in government authorities whose responsibility it is to enforce the regulation, have also been guilty of its violation and not been sanctioned. Apparently, these two factors – misuse in

practice and abuse of power – have not been addressed by current legislative frameworks which demotivates pharmacists from being present in the pharmacy. Whilst recognition of this issue has been put forth in the conception of some approaches such as indicated in the collection of credits (SKP) which includes evaluation for regular attendance, progress is still far from sufficient. The approach of the Chairman of BPOM through a directive prohibiting BPOM staff from working in community pharmacy as mentioned in the introduction of this study might go some way towards redressing the problem.

Thirdly, this study has highlighted a number of key attitudinal barriers to the implementation of practice change approaches, notably strong perceptions of poor policy enforcement, lack of trust in the role of the governing bodies and skepticism towards the impact of the programs. These barriers are not uncommon in developing countries [11, 12], and therefore there is a need to address all these issues - which are notoriously difficult to change - in order to create sustainable and successful policy implementation influencing practice change.

Relatedly and fourthly, this study highlights the desire of stakeholders for a shared vision describing best practice in Indonesian community pharmacy. The commitment to a shared vision ranging from individuals, group of individuals to organisations is essential to overcome the preceding barriers. In addition, the presence of a shared vision particularly between peak pharmacy organisations and the government as regulator will facilitate the development of a role model of community pharmacy and support the collection of evidence through research in community pharmacy. In many developed countries, a shared vision has become common sense for stakeholders in the community pharmacy sector to build a mutual understanding of the future of community pharmacy practice [9, 10, 23].

Fifthly, and accordingly, there was a need to design strategies that can be successfully and sustainably implemented in the setting of community pharmacy. However, with top-down approaches, there also needs to be a recognition that programs with good policy objectives may result in unintended and unwanted consequences. Our previous study analyzing the contemporary situation in community pharmacy in Australia highlighted that knowing the problem or understanding the mechanism to resolve the problem does not guarantee good implementation of a policy. This is particularly because community pharmacy operates in a complex and dynamic system with several key elements from social, policy and economy context influencing the micro (individual pharmacists), meso (community pharmacy as an institution and network of institution) and macro level (healthcare system) of community pharmacy [24]. With respect to Indonesia, community pharmacy continues to face a

number of underlying issues such as a shortage of pharmacists, limited clinical competency of pharmacy staff, counterfeit drugs and illegal supply of medicines available from street vendors to healthcare professionals, which is consistent with the situation in many other developing countries [25]. As community pharmacy and the health system are inter-connected, the impact of poorly implemented programs in community pharmacy sector may undermine policy initiatives and create poor outcomes elsewhere in the health system, and therefore policy makers and stakeholders in pharmacy must look at broader scope of the program. This study reinforced the argument that simply adding new policies or strategies will not improve the situation without resolving the underlying problems of the past.

Sixthly, the findings of this study also highlight the potential feasibility of a national scale-up of local interventions. The successful local initiatives described by participants illustrate a range of novel and different ways to enhance pharmacists' roles, tailored to the specific context in which they operate. In addition, these initiatives reflect a desire and willingness of local organisations to address the challenges of policies designed at the national level. Expanding this bottom up approach will undoubtedly require a good understanding of local situations and may be unique in every region. However, some key characteristics of successful approaches have emerged. Most of the local initiatives included in this paper involved a collective approach through networking and mentoring to encourage pharmacists to practice. Others relied on the critical role of leaders in recognising the need to support and encourage individual pharmacists. A few initiatives involved the application of a quality assurance system by ensuring adequate resources for pharmacy operations and maintaining the quality of the services by implementing pharmacy rating star model as a showcase for consumers and patients. While these local strategies were not supported by robust evidence of effectiveness, they may act as catalysts for change whereby local pharmacists' communities work together for a common purpose and for better results. Another lesson is that sustainable changes are often achieved through an understanding of local health care needs. The UK experience in introducing the Healthy Living Pharmacy program which allows an individual pharmacy to tailor services to local needs despite the pharmacy being contracted under the NHS scheme is an example [26]. This is also similar in Australia where a number of pharmacists under Health Destination Pharmacy program have changed their practice by adopting a bottom up approach where they can be innovative and adapt to the changing demand in the current state of healthcare [27].

Finally, and underpinning all aspects of practice change, is the urgent need to transform the current

pharmacy education system which has hitherto primarily focused on pharmaceutical sciences rather than on pharmacy practice. In responding to the changes in pharmacy which focus on the role of pharmacists in medication management and patient centered care, the education system in Indonesia - which consists of four-years undergraduate and one-year apothecary program - must be reshaped to better prepare pharmacists, not only for future changes, but also for the current situation. Reflecting on our findings, it is imperative to devote more time, effort and resources to developing the clinical knowledge and experience of pharmacy students to allow them to face and meet the challenges in health-care that they will experience during their careers.

The interpretation of the study results should take into consideration a number of limitations. Firstly, the assessment of the policy or program was limited to reporting experience and perception of stakeholders with no quantitative measurement showing quality performance of the policies. While providing such data is also of importance, we were interested to capture the key aspects of the lived experience of program functioning and its impact on community pharmacy. Secondly, the study only identified the approaches delivered by national organizations or central government authorities without including assessment of policy at the lower bureaucratic level such as policies created by local government. Hence, underreporting of strategies within this paper is possible. We did not attempt to collect data on the policies or programs at the lower level although they are likely to influence community pharmacy. One of the reasons was due to the scarcity of available information about the policies. However, assessing the national policy agenda has enabled an overarching understanding of the broad spectrum of initiatives that have been undertaken to improve community pharmacy practice in Indonesia. Thirdly, it might be argued that each individual study participant would be expected to have only a relatively narrow and specialized understanding or experience of the Indonesian health care/pharmacy system, however the number and diversity of the participants meant that a wide range of perspectives was obtained. In fact, the breadth of the stakeholder cohort was a strength of this study since the policies of interest could be interrogated from multiple angles. Finally, new policies have been introduced following the research underpinning this paper, for example, the implementation of a policy allowing pharmacists to work in a maximum of three different pharmacies as regulated under the Decree for registration, certification and licensure of pharmacists. On the surface, it seems unlikely that that this policy will have a significant impact on the practice in community pharmacy, however, it is important to keep tracking such changes to see the impact in the future.

Conclusion

The introduction of a plethora of policies, regulations and initiatives within the past ten years has highlighted the enthusiasm of policy makers and pharmacy stakeholders to improve community pharmacy practice in Indonesia. However, some of the initiatives were conceived and enacted in a piecemeal, sometimes conflicting and uncoordinated way. Despite the good policy objectives of the initiatives, it appears that poor enforcement, lack of trust of pharmacy stakeholders and skepticism regarding the impact of the initiatives have significantly undermined the success of these initiatives, and remain the predominant challenges for successful policy implementation. This study suggested some attempts to resolve these challenges focusing on the need to have a shared vision among peak pharmacy stakeholders defining best practice in community pharmacy. Some local initiatives highlighted the bottom-up approach in the system and potential for scaling up at the national level. Overall, it is clear that some fundamental and entrenched barriers to practice will need to be overcome in order to create a more professional climate for the practice of pharmacy in Indonesia.

Additional file

Additional file 1: Interview guide. (DOCX 13 kb)

Abbreviations

APFI: Asosiasi Perguruan Tinggi Farmasi Indonesia (Indonesian Association of School of Pharmacy); BPOM: Badan Pengawas Obat dan Makanan (Indonesian National Agency of Drug and Food Control); CBA: Cara Belajar Insan Aktif (Active Individual Learning); CPD: Continuing Professional Development; DAGUSIBU: Dapatkan, Gunakan, Simpan, Buang Obat (Campaign on self-management of medicines); GEMA CERMAT: Gerakan Masyarakat Cerdas Menggunakan Obat (Community Awareness Campaign in using Medicines); GKSO: Gerakan Keluarga Sadar Obat (Campaign for raising Family Awareness in using Medicines); GP Farmasi: Gabungan Perusahaan Farmasi Indonesia (Indonesian Pharmaceutical Association); HSFARMA: Himpunan Seminar Farmasi Masyarakat (Community Pharmacists Group); IAI: Ikatan Apoteker Indonesia (Indonesian Pharmacists Association); JKN: Jaminan Kesehatan Nasional (Universal Healthcare Coverage); KFN: Komite Farmasi Nasional (National Pharmacy Board); MoH: Ministry of Health; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; SKP: Satuan Kredit Partisipasi (credits for participation); STRA: Surat Tanda Registrasi Apoteker (Pharmacist Registration Letter)

Availability of data and materials

All data generated or analysed during this study are included in this published article and Additional file 1.

Authors' contributions

All authors were involved in the design of the study, data collection, analysis and interpretation of the findings and preparation of the manuscript. All authors have read and approved the final manuscript.

Ethics approval and consent to participate

This study has been reviewed by, and received ethics clearance from the Human Research Ethics Committee the University of Sydney Number 2104/820. Informed consent was obtained from all respondents prior to participation in the interview.

Competing interests

The authors declare that they have no competing interests.

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Appendix 11. Paper 6 – Prioritising recommendations to advance community pharmacy practice

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Prioritising recommendations to advance community pharmacy practice

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ABSTRACT

Introduction: The nature of community pharmacy in many countries has changed. Despite the significant efforts made to change practice, there is a paucity of literature that highlights consensus on the approaches that should be prioritised for advancing practice particularly in the context of developing countries.

Objective: To systematically identify and prioritise a range of potential recommendations to improve practice in Indonesian community pharmacy from the perspective of pharmacy stakeholders.

Methods: Qualitative research using Nominal Group Technique (NGT) was conducted in July 2017 involving 34 nationwide pharmacy stakeholders. Participants were assigned to four nominal group discussions based on the areas for action as developed by researchers. The results were thematically analysed.

Results: Nine priority recommendations were generated from the group discussion reflecting four main themes to advance community pharmacy sector, namely improving professional pharmacy practice, reforming pharmacy education, enforcing policy and regulation and enhancing public recognition of pharmacists. The analysis using the culture-structure-agency approach highlights that the top down structure in terms of policy and regulatory framework has not been effectively enforced. In addition, the role of pharmacists as the central agency in delivering pharmacy services has been limited due to their common absence from practice. The approach, however, provides an alternative to advocate changes by locating the role of pharmacists and community pharmacy as central agency within the challenging health system structure.

Conclusions: The recommendations generated from and approach used in this study provide an impetus to advance community pharmacy practice in Indonesia. Amongst the important solutions, there is substantial need to provide evidence of pharmacists' contribution to healthcare.

1. Introduction

The nature of community pharmacy in many countries has changed within recent decades. Community pharmacy has evolved from a place, known as the “chemist”, where people only obtained pharmaceuticals, to a health hub destination where people have the opportunity to consult with a pharmacist on a wide range of health care concerns.¹ Increasingly, community pharmacists are offering a range of clinical, diagnostic and public health services targeted to their patient and community base.^{2,3}

The imperative and rationale for community pharmacy to evolve has been reported in many publications, together with a range of ways of achieving practice change, initiated at individual (pharmacist) level e.g. behavioural and attitudinal modification,⁴ at organisational (pharmacy) level e.g. change management⁵ and at healthcare system level e.g. implementation of evidence based practice⁶ and remuneration

for professional services.⁷ While practice change in community pharmacy has been the agenda in developed countries, the pace of change has been slow in many developing countries.⁸

There are a number of factors hampering practice of pharmacists in developing countries ranging from an under-developed healthcare system to a lack of professional regulations supporting practice of pharmacists i.e. they are less well equipped educationally, professionally and economically.^{9,10} The situation in these countries reflects the need for an overhaul in the healthcare and pharmacy system with some significant efforts required to change practice. Unfortunately, there is a paucity of literature that highlights consensus on the approaches that should be prioritised for implementation particularly in the context of developing countries where community pharmacy and pharmacists are often marginalised and under-recognised within the healthcare system. This paper addresses this gap.

The practice of community pharmacy in Indonesia is changing

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ACCESS TO PHARMACEUTICALS AND PHARMACY SERVICES	ROLE OF COMMUNITY PHARMACY IN THE SUPPLY OF MEDICINES
<ul style="list-style-type: none"> Increased demand for pharmaceuticals and healthcare services Shortage of medicines and pricing variations Distribution of pharmacy services is not proportional to population 	<ul style="list-style-type: none"> Community pharmacy is primary source to obtain medicines Perceptions to pharmacy are mixed There are minimum standard for pharmacy services but limited to dispensing only
PARTICIPATION OF PHARMACISTS	REGULATION FOR PRACTICE AND MEDICINES SUPPLY
<ul style="list-style-type: none"> Pharmacist has the sole responsibility for practice of pharmacy Absence is common Pharmacists have limited clinical skills, knowledge and experience Attempts to improve pharmacists' attendance have been introduced but progress is slow 	<ul style="list-style-type: none"> Key regulations have been made but enforcement is far from sufficient Skepticism towards legislation enforcement is high Illegal supply of medicines is common Remuneration scheme has not benefited pharmacy operation No evaluation mechanism in place

Fig. 1. Summary of key issues in the practice of Indonesian community pharmacy.

rapidly, particularly since the introduction of the Universal Healthcare Coverage Program (Jaminan Kesehatan Nasional • JKN) in 2014. Under JKN, a small number of community pharmacies are now affiliated with a primary care network and are able to supply pharmaceuticals and provide access to some non-dispensing pharmacy services such as home care pharmacy and disease screening and monitoring. However, the vast majority of pharmacies have not been included in this scheme thereby creating a gap in service quantity, financial benefits and practice quality between the affiliated and unaffiliated pharmacies.¹¹

We recently conducted a project investigating the impact of the introduction of JKN on practice change in Indonesian community pharmacy.¹¹ Having interviewed a wide range of stakeholders in community pharmacy and the healthcare system, this study identified a number of key issues hampering change in contemporary pharmacy practice (Fig. 1). On the basis of these barriers, corresponding areas for action to improve practice in community pharmacy practice were proposed (Fig. 2). The areas for action represent the research team recommendations to promote change from the perspectives pharmacy stakeholders. Our recommendations, however, are broad and require further discussion to help refine the priorities and matching strategies to address each of the identified areas for action. In addition, stakeholders' feedback on the extent to which these recommendations can be sustainable in everyday practice is needed.

1.1. Community pharmacy in Indonesia: regulation, education and practice

It is important to understand the context of community pharmacy in Indonesia to interpret the findings of this study. Therefore, this section provides an overview of the regulation, educational system and practice of community pharmacy in Indonesia.

Community pharmacy is one of the most highly-regulated sectors in Indonesia. Regulation is complex and is an amalgam of legislation and policy frameworks ranging from the national to the local level, advocated by a myriad of actors including the Ministry of Health (representing government), National Agency of food and drug control (BPOM), community pharmacy organisations and pharmacists' association (IAI). The first and currently the highest order of legislation governing pharmacy practice in Indonesia is the Pharmacy Practice Act 2009.¹² The Act, which can be considered the main policy framework which underpins practice in community pharmacy, defines pharmacy practice is under responsibility of pharmacist as the sole authorised profession for the operation of a community pharmacy.

In order to become a pharmacist, a high-school graduate must undertake formal education for at least five years in a school of pharmacy. The five-year program is divided into two education programs: four years for the Bachelor of Pharmacy program (B. Pharm) and one year for the Apothecary program (Apothecary).¹³ There are 162 schools of

INDIVIDUAL EMPOWERMENT	<ul style="list-style-type: none"> Peer supports: mentoring and assistantship Motivation and advocacy by the leaders CPD focused to practice based 	OPTION	<ul style="list-style-type: none"> Longer duration for internship Preceptorship Curriculum reform Developing model for practice 	EDUCATION AND SCOPE OF PRACTICE
	COMMUNITY PHARMACY NETWORK RECOGNITION		<ul style="list-style-type: none"> Collection of evidence and documentation Distribution of pharmacy services and location Remuneration allocated for pharmacists Mapping of pharmacy potential Developing quality indicators and audit system 	<ul style="list-style-type: none"> Shared vision of stakeholders Enforcing pharmacy legislation Prohibition for authorities to involve in practice of pharmacy Imposing penalty for misuse and abuse in practice Evaluation of current policy framework

Fig. 2. Areas for action representing research team recommendation.

pharmacy in Indonesia however only 26 schools are eligible to conduct both the B. Pharm and Apothecary programs.¹⁴ The remainder, due to their low accreditation rating, are only allowed to offer B.Pharm program. While the B.Pharm program is designed to provide students with skills and knowledge in basic and theoretical pharmaceutical sciences, the apothecary program is focused on developing practical skills and providing experiential learning for final year students.¹³

Interestingly in Indonesia, once a pharmacist receives a license to practice, he or she is eligible to work simultaneously in up to three pharmacies.¹⁵ While the rationale for allowing pharmacists to work in three pharmacies is neither explicitly stated in the regulation nor publicly declared, it is arguably to improve pharmacist accessibility in rural areas where there is a notable shortage of pharmacists. Unfortunately, the regulation is not limited to rural areas making it possible for a pharmacist in urban areas to be employed in three pharmacies at the same time. A further issue is the potential conflict of interest that is created by the fact that personnel in regulatory or supervisory roles are also permitted to practice in the community pharmacies which they regulate or supervise.

There has been increasing competition between pharmacies in Indonesia as there is no regulation controlling locations of pharmacies. As a result, maldistribution is evident with urban areas oversupplied with pharmacies, while suburban and rural areas experience pharmacy shortages.^{16,17} Community pharmacy has been underutilised as a healthcare setting in which pharmacists are available to provide professional pharmacy services. Generally, patients will go to a pharmacy when they receive prescriptions, yet they may not always interact with a pharmacist as it is common that pharmacies operate without the physical presence of a pharmacist.¹⁶ The predominant activities in pharmacies have been dispensing prescribed medicines, provision of over the counter drugs and sale of other retail goods. Professional services such as drug advice, counselling and health education are limited and until recently without direct remuneration.

The overview highlighted a gap between education, regulation and practice in Indonesian community pharmacy sector. This gap has presented ongoing challenges for both pharmacies and pharmacists reflecting the need for achievable recommendations. Therefore, the aim of the study was to systematically identify and prioritise a range of potential recommendations to improve practice in Indonesian community pharmacy from the perspective of pharmacy stakeholders.

2. Methods

2.1. Study design and participants

We used consensus methods as a mean of achieving general agreement around potential recommendations for advancing community pharmacy practice in Indonesia. The consensus methods including the Nominal Group Technique (NGT) and the Delphi technique have a relatively long history of use in health and medicine and have been increasingly adopted in pharmacy practice research.^{18–20} The consensus methods have similar roots with Focus Group Discussion (FGD) in which participants are invited to brain-storm ideas and opinion. However, they are somewhat different as they involve structured environment and balanced participation for problem-solving.²¹

The study used and modified the NGT as developed by Delbecq et al. for identifying strategic problems and generating potential and innovative solutions for the problems.²² The technique allows members of the group equal opportunity to express their views, vote for their preferences and engage in a group discussion. With this way, domination of particular individual(s) during the group discussion and undue influence on the results of the discussion may be minimised. Accordingly, the results reflected a balanced consensus achieved by the group. This has become the key strength of the technique as compared to FGD.²¹ Furthermore, the NGT can be conducted within a few hours, with less resources and may involve lay people such as a wide-range of pharmacy

stakeholders who are target participants in this study making it a preferable method for this research as compared to the Delphi technique.²¹

An NGT involves small number of participants, usually between six and fifteen participants with the group discussing one or two questions.^{23–25} The core process in the NGT generally comprises of four stages: silent generation, round robin, clarification and voting (ranking).²² However, modifications to this process have been common depending on the resources and level of consensus wished to be achieved by the research team.^{26–28}

Four nominal group discussions were held in July 2017 during a pre-conference workshop of the 17th Asian Conference on Clinical Pharmacy.²⁹ The ACCP conference is one of the foremost and best-known conferences in Indonesia covering issues of clinical pharmacy in the hospital and community setting. Information and details about the workshop were advertised through the conference website. Interested individuals registered to participate in the workshop and were provided with an information sheet explaining the study and asked to sign a consent form prior to attendance.

Overall, 34 pharmacy stakeholders participated and were assigned to four nominal group discussions. The characteristics of the participants are presented in Table 1. The study was approved by the Human Research Ethics Committee of the University of Sydney (approval number 2014/820).

2.2. Procedures

The workshop was conducted in two parts. The first part was a 45-min presentation describing the key findings of the researchers' project which investigated stakeholder perspectives on pharmacy practice and practice change in Indonesian community pharmacy. The presentation included an overview of the current situation based on the researchers' findings, and challenges to the development of practice in community pharmacy including areas for action as proposed by the research team. The second part was the 90 min NGT discussion (Fig. 3). Participants were invited to join one of four groups according to their interest and assigned with one following areas of action for discussion: Group 1 (Individual pharmacist empowerment) consisted of seven participants, Group 2 (Community pharmacy network recognition) had ten participants, Group 3 (Education and curriculum improvement) had eight participants and Group 4 (Law and regulation enforcement) had nine participants. In general, each group composed of participants with mixed professional background, experiences and location of practice. During the group discussions, the investigator acted as moderator who rotated between four groups.

2.3. Data analysis

Both group discussion and forum discussion were audio-recorded

Table 1
Characteristics of participants.

Characteristic	n = 34
Female	26
Background	
•Pharmacy organization representatives	6
•Practicing pharmacists	17
•Academics and researchers	10
•Administrator and regulator	1
Domiciliary	
•Java island (Jakarta, West Java, Central Java, Yogyakarta and East Java)	24
•Sumatera island (North Sumatera, Riau, West Sumatera and South Sumatera)	5
•Kalimantan island (East Kalimantan)	1
•Sulawesi island (Central Sulawesi and South Sulawesi)	3
•Papua island (Papua)	1

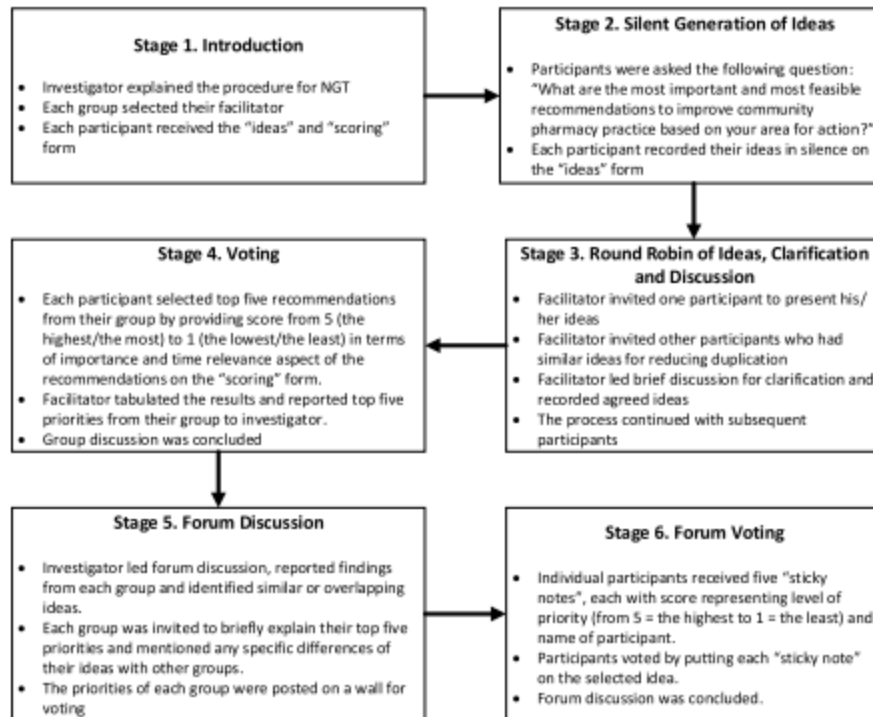


Fig. 3. The NGT process.

and subsequently transcribed verbatim. As the discussions were conducted in Indonesian, the transcripts were back translated to English by the lead investigator and reviewed by research team for the quality of translation.

The lead investigator calculated the total score for each recommendation and created a ranked list of priorities from group recommendations (Table 2). Recommendations that are relatively similar in nature were pooled together into a group of priorities to condense the list with the score was accumulated from each recommendation (Table 3). This has reduced the number of recommendations into priority recommendations. Accordingly, recommendation that generated highest score e.g. remuneration for professional pharmacy services may not reflect the best priority of recommendations. Such prioritisation was deemed possible given the degree of interdependence between recommendations. The list was then reviewed and subjected to thematic analysis.

The thematic analysis began with one researcher (AH) independently reviewing the transcripts and developing an initial coding framework based on the list of recommendations (Table 2). The researcher followed the standard procedure of analysing qualitative data using thematic analysis by coding relevant individual statements, collating codes into potential themes, refining and allocating remaining data into relevant potential themes.³⁰ The framework was then discussed within research team to develop overarching themes and sub-themes. During this process, priorities that were deemed closely related were grouped together and aggregated into a new overarching theme. This process was undertaken several times with some revisions required to clarify the research findings. The discussion was also important to resolve any discrepancies among researchers and to ensure that all recommendations were captured in the final framework. A final

Table 2
Recommendations generated from group discussions.

No.	Recommendations	Score
1	Introducing remuneration for professional pharmacy services	63
2	Establishing pharmacy quality accreditation	52
3	Enforcing mandatory pharmacists' attendance	43
4	Developing role model of good pharmacy practice	36
5	Encouraging peers to deliver pharmacy services	33
6	Teaching ethics and philosophy of profession for pharmacy students	28
7	Revising standard for pharmacy premises, facilities and location	22
8	Extending the duration of Apothecary program	19
9	Extending the duration of internship program	19
10	Providing training for preceptor and conducting periodic follow up for preceptorship	18
11	Enforcing the implementation and supervision of regulation	18
12	Conducting more periodical pharmacy visits and monitoring by authorities	17
13	Broadening public campaign on pharmacists' roles in drug safety	13
14	Setting minimum qualifications for becoming preceptor	12
15	Promoting more outreach program involving pharmacy and pharmacists	12
16	Collecting evidence of pharmacists' contribution	12
17	Improving delivery and variety of topics in Apothecary program	9
18	Building professional image of pharmacists	9
19	Developing community pharmacy network	4
20	Improving drug supply chain by removing sub-distributors in the distribution of pharmaceuticals	3

Table 3
Priority of recommendations.

Priority of recommendations	Sum of the score
Recommendation 1. Encouraging pharmacists to practice responsibly Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Enforcing mandatory pharmacists' attendance Promoting the role of peers to encourage pharmacists' attendance 	76
Recommendation 2. Establishing pharmacy quality accreditation Major pattern of dialogue within this recommendation: <ul style="list-style-type: none"> Implementing pharmacy quality assessment (e.g. pharmacy star rating model) Revising standards for pharmacy premises, facilities and location 	74
Recommendation 3. Extending the duration of pharmacy education Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Extending the duration of the Apothecary program from one year to two years Longer duration for internship from one semester to four semesters 	65
Recommendation 4. Introducing remuneration for professional pharmacy services Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Lack of remuneration for pharmacy services No additional payment for working overload 	63
Recommendation 5. Developing the standard model of pharmacy practice Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Seeking and disseminating models of good pharmacy practice Building networks of care between community pharmacies Collecting evidence of pharmacists' contribution 	52
Recommendation 6. Improving the quality of preceptorship Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Training for preceptors and periodic follow up for preceptorship Setting minimum qualifications for becoming a preceptor 	30
Recommendation 7. Reforming and strengthening policies and regulations Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Enforcing the implementation and supervision of regulation Conducting more periodical pharmacy visits and monitoring by authorities Improving drug supply chain by removing function of sub-distributors in the distribution of pharmaceuticals 	28
Recommendation 8. Involving in public campaigns and outreach program Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Broadening public campaign on pharmacists' roles in drug safety Promoting more outreach programs involving pharmacy and pharmacists 	25
Recommendation 9. Building the nation-wide professional image of pharmacists Major patterns of dialogue within this recommendation: <ul style="list-style-type: none"> Branding through social media Participating in government initiated campaign program 	9

consensus thematic list was produced reflecting qualitative findings of the study.

2.4. Theoretical framework to aid analysis

The study analysed the recommendations from the group discussions by adopting a cultural theoretical approach to explore the relationship between culture-structure-agency.³¹⁻³⁴ There is increasing interest among pharmacy researchers in exploring the "culture" within the community pharmacy sector. Culture, however, is an elusive term which may cover inherently complex issues such as the cultural competence of pharmacists,³⁵ the organisational culture of the community pharmacy and pharmacy as a profession³⁶ and the cultural context in which community pharmacy operates (community context) and/or the network of pharmacies is established (country context).^{37,38} The term of

"culture" has been conceptualised as the opposite to the "structure". While "culture" has been perceived as flexible and concerns the beliefs, values and ideologies, "structure" has been described as a rigid, hierarchical form that constrains nature by ruling or regulating a society.³¹ The operation of both "culture" and "structure" has been determined by the role of "agency" which may concern individuals, group of individuals, groups of organisations or government.

By looking at the relationship between culture-structure-agency, this study was able to show how pharmacists and community pharmacy locate "power" and produce their own agency within the structure of the healthcare system. The culture of practice which is developed during the interaction between pharmacists, community pharmacy and the health system structure reflects the opportunity for change. This concept provides a framework for analysing the recommendations generated from the NGT and sheds light on their applicability in practice, as to why these recommendations may or may not be effectively implemented by community pharmacies in Indonesia.

3. Results

This section is organised into two parts. The first part comprises the quantitative findings of the study, namely the recommendations generated from the NGT, and the second part presents the overarching themes emerging from the group discussions reflecting the qualitative findings of the study.

3.1. Quantitative findings

In total, the groups identified twenty recommendations which were believed to be important in answering the nominal question (Table 2). These were then condensed into nine priority recommendations as explained in the data analysis section (Table 3).

3.2. Qualitative findings

Using thematic analysis, the priorities were grouped into four overarching themes which can be considered important areas for implementing change in the community pharmacy sector: (1) improving professional pharmacy practice, (2) reforming pharmacy education, (3) enforcing policy and regulation and (4) enhancing public recognition of pharmacists.

3.2.1. First theme: improving professional pharmacy practice

In general, participants recognised the professional roles of community pharmacists and the potential contribution of community pharmacy as a vehicle for improving community health. However, many participants were deeply concerned about pharmacists' common absence from the pharmacy in direct contravention of the regulation. In addition, the current regulation which allows pharmacists to work simultaneously in up to three pharmacies was a common topic in each group discussion with several participants raising concerns about the negative impact of this regulation which also fosters pharmacists' absence at pharmacy. One participant described her experience:

"We have to be strict in ensuring pharmacists' presence. IAI should withdraw the license if turns out pharmacists are not present ... but in reality, it is challenging because some members (of IAI) perceive it as ruining pharmacists' wealth. We had issue in [name of a city in East Java] with the word "wealth". There was a pregnant pharmacist who already had one child who applied for practicing in three pharmacies as regulated by the new regulation. She was obviously unable to attend these pharmacies and therefore we did not grant recommendation for her to practice. But she cried desperately and said that it is for her family's wealth and we could do nothing except give her recommendation" (Female)

Further, some participants raised the notion that provision of

professional pharmacy services is extremely difficult to apply in the current setting as pharmacy is predominantly focused on medicine selling. One participant proposed to change the identity and layout of pharmacy as a mean to disseminate professional practice

"If the lay-out of pharmacy is like what we see today, then no wonder retailing is dominant. We need to change the physical lay-out, pharmacist is at the front and medicines at the back. Pharmacy (currently) displays medicines at the front of the shop. With this change, people will look for pharmacists and might not proceed if there is no pharmacist (at the front) and pharmacists will start to think about service" (Male)

Corresponding to this notion, other participants argued the need to revisit the standard for pharmacy premises and location as many pharmacies are adjacent to each other and without careful consideration of safety and quality aspects. One participant argued that changing pharmacy premises is more feasible than any efforts to improve pharmacy practice

"What I see now is there are many pharmacies opened without considering the location particularly after location rules (500m distance between pharmacies) were lifted. Pharmacies are like merchant stores, like small kiosks. They might not have cooling fridge to store insulin. In [name of a city in East Java], they just put medicines on the display shelf exposed to the sun which I guarantee does not meet the requirements to store medicines. Some pharmacies installed TV for convenience reasons but close to the pharmacy rooftop which may trigger fire as heat meets the electricity and they even don't have a fire extinguisher. It is actually easier to change pharmacy by improving the premises rather than other efforts" (Female)

Pharmacy accreditation was also perceived as a crucial instrument to improve pharmacy practice. In fact, all participants agreed with the notion that pharmacy must be accredited to ensure the sustainability of good pharmacy practice delivered by the pharmacists and pharmacy. One participant appreciated the initiative conducted by IAI and Health Department to assess pharmacy quality in Yogyakarta.

"The Ministry of Health has what is called an accreditation board and I had experience of working as volunteer for that board. A community pharmacy can request accreditation by the board. Alternatively, pharmacy can adopt the approach in Yogyakarta where IAI and Health Department apply a rating model to pharmacy. It might be pleasant to see a pharmacy get five stars for service excellence" (Female)

While there was no disagreement that professional services must be conducted by pharmacists, the majority of participants highlighted the lack of remuneration for delivering such services. This triggered recommendations for setting remuneration for pharmacists providing professional services.

"Remuneration is crucial as pharmacists have a clear job description. I am often overloaded with work but receive no additional payment. I do health education and health promotion but they are free, then how am I supposed to deliver medication management and follow up to patients (if these are also free)?" (Female)

With respect to remuneration, some participants were aware that payers will not pay pharmacy for nothing. Therefore, they argued that pharmacy needs to develop a strategy to collect evidence of the contribution of pharmacy to community health which is currently lacking as pharmacies have limited capacity for documentation.

"Collecting evidence is important to show the benefits of pharmacy services because there are some good pharmacies. If these pharmacies can document their advice, their patients' education, clinical outcomes or whatever they do that improves patient's life then there is potential for recognition. However, the majority (of pharmacists) have not conducted (proper) practice so there is no such documentation" (Female)

3.2.2. Second theme: reforming pharmacy education

Reforming pharmacy education received much attention from participants as they viewed it as fundamental to improving the practice of pharmacy. There was agreement for extending the current five-year program to a six-year program. The justification for this extension is based on the fact that development of clinical knowledge and practical skills are lacking within the current pharmacy curriculum. However, there was mixed response from the participants regarding the format of the proposed education. Several participants proposed the extension of the apothecary program from a one year course to two years. Others wished that the extension of the apothecary program places emphasis on a longer duration for internships which is currently conducted in one semester (6 month) to four semesters (two years).

One participant who was highly supportive of extending the apothecary program outlined her plan for curriculum reform as follows:

"When I took the apothecary degree, I only did it for 2 semesters. One semester for theory and one semester internship which was also not fully practice based ... I propose two years program with first 6 months for theory and 18 months for internship, divided into 6 months general internship to understand the whole pharmacy healthcare system by rotating at industry and clinic = whether in community or hospital, and 12 months focused internship for example students assigned to ward placement for practical experience" (Female)

Several other participants, who preferred an extended internship posited that pharmacy students would have a richer learning experience in developing practical and decision-making skills. Consequently, theoretical courses should be provided in the Bachelor program prior to undertaking the apothecary degree. One participant expressed this recommendation by adding the need to develop a national curriculum as she observed only a few universities have such a program.

"Students must undertake intensive 2 years internship so they become really competent after graduation. This means 4 years of Bachelor program and another 2 years for internship. In addition, there should be national syllabi for internship so it is not only graduates from [name of several A accredited school of pharmacies] who are excellent. Others can be excellent too" (Female)

Extension of the apothecary program would however require many more high-quality preceptors with qualifications. Few such preceptors are currently available within the apothecary curriculum of the majority of pharmacy schools. In addition, one participant proposed the idea that a preceptor could have the authority to direct interns to undertake a competency exam.

"There must be a minimum qualification for becoming a preceptor, for example they have practice experience at least 5 years, their practice is focused on service delivery, they must be knowledgeable and can assist interns because not every practitioner is a good mentor ... I suggest the preceptor can issue recommendation for interns to undertake a competency exam" (Female)

Other participants identified the need to maintain preceptorship quality and therefore he suggested issuing guidelines for preceptorship and requirements for preceptors to attend workshops in preceptorship to improve their role in assisting students.

"There should be guidelines in preceptorship and preceptors must attend workshops to enhance their role" (Male)

Apart from the focus on reform of education through improvement of the apothecary program, there was a recommendation to provide better understanding of ethics and philosophy of the profession for pharmacy students. One participant who initially raised this concern argued that the absence of pharmacists is a form of malpractice and negligence which compromises patient safety. Therefore, it is fundamental that students must understand the ethics and philosophy of their profession.

"When pharmacists are not present, they do not conduct professional and ethical roles as well as deliberately letting patients be at risk ... pharmacists are not aware of this issue and therefore, they are taking it lightly to be absent ... what they always demand is remuneration but there is a more philosophical problem, they have violated their oath of practice. I suggest we educate the altruistic side first that when you are not present, you have harmed others, you harm your profession" (Male)

3.2.3. Third theme: enforcing policy and regulation

Participants identified that enforcement of policy and regulation is crucial to ensure good pharmacy practice. The discussion about policy and regulation actually occurred across all four discussion groups, primarily relating to pharmacists' absence, however no new policy frameworks or regulations were proposed by participants to improve the current situation. The fact that policy related recommendation sits in the seventh place in the priority table reflects that policy improvement was not considered as a top priority recommendation. There seemed to be a general satisfaction with the range of policies and regulations enacted in Indonesian community pharmacy sector, and most of the discussion was about the poor implementation of the regulation in practice. One participant noted the need for more monitoring and site visits by authorities (e.g. BPOM) to minimise pharmacists' absence. However, she also blamed the authorities for justifying the irresponsible practice given that some staff of BPOM are also working in such pharmacies.

"Of a hundred pharmacies in [name of a city in Central Sulawesi], only four have full time pharmacists in charge ... there should be a penalty for that but unfortunately BPOM only audits every three years. In fact, it is difficult because there are BPOM staff working at those pharmacies" (Female)

However, in contrast, another participant commented that the head of BPOM has issued a directive prohibiting its staff from an association with a community pharmacy.

"There was a directive from the head of BPOM which prohibits BPOM staff from being involved in community pharmacy operation either as a pharmacist practitioner or owner. It is effective as in Palembang (a city in Sumatera), BPOM staff are no longer affiliated to community pharmacy" (Female)

These two contradictory arguments highlight that the execution of the policy varies at the practice level and/or between region indicating the complexity and challenges for regulation enforcement across Indonesia. The problem might be amplified as other institutions such as the police also have the authority to investigate medicines supply at a pharmacy. One participant who holds a prominent position in a pharmacy organization said that police audit is not necessary as it is a form of intervention to the profession. However, he emphasized that to some extent the audit may be effective in encouraging pharmacists to return to the dispensary.

"Many pharmacists complained that they were often visited by undercover police. While I consider it as a form of intervention to the profession, I guess there is "hidden benefit" that many pharmacies were investigated and forcedly closed by the police. I protested (to Police) but to be honest those (pharmacies) were without pharmacists. I actually do not expect police to come but with this way pharmacists are concerned and start to be present during pharmacy hours" (Male)

Rather than focusing on the role of authorities to enforce the regulation, some of the participants highlighted the role of peer groups to endorse pharmacists' presence. This effort might be more encouraging for pharmacists.

"Pharmacist's presence must be at the top priority. There are many policies mandating pharmacists to be present. Regulation requires

pharmacists to be present (at pharmacy). Ethical profession requires pharmacists to be present ... we (peer group) must enforce that requires is not appropriate and it is a disgrace to the profession" (Male)

3.2.4. Fourth theme: enhancing public recognition of pharmacists

Overall, participants agreed that pharmacists must create a better image to improve their role recognition among the public. Part of this recommendation is a suggestion for pharmacists to use a dedicated social media account to interact with the public. However, the participant who raised this idea was aware that pharmacists must develop their own original branding which can be easily and instantly noticed by the public

"I think pharmacy should have a social media account to educate people but not pharmacists as individuals. It can be a team of care collaborating with other (health professionals). What is more important is that pharmacists develop their own branding and be confident with the branding. A public image where people will say "Oh this is the pharmacist. Ask them about medicine" (Female)

One participant recommended community pharmacists be actively involved in public campaigns and outreach programs on medicine use as these programs were often conducted by other professions

"Pharmacists need to conduct more outreach programs, more campaigns on medicine use. It is often doctors who take such initiatives. We need to be confident to say "I am a pharmacist and this (medicine) is my expertise" (Female)

The Ministry of Health actually has promoted a national campaign, aimed to raise community awareness about the appropriate and safe use of medicine, which involves community pharmacists as the main facilitator (Gema Cermat). Similarly, IAI has also introduced Dagusibu which emphasises self-management of medicines by patients under the supervision of pharmacists. However, the majority of participants argued that, despite the importance of these existing programs, their effectiveness is limited due to frequent absence of pharmacists in the pharmacy.

"When people get sick they seek the best doctor but not with the pharmacists. They go to whatever pharmacy. We need to educate people so they look for the best pharmacists. Dagusibu, Gema Cermat are the campaigns for such purposes but it is shameful that pharmacists are not there (at pharmacy)" (Female)

4. Discussion

This study aims to identify and prioritise potential recommendations for advancing community pharmacy practice in Indonesia. In this paper, we identified nine potential recommendations which were subsequently clustered into four overarching themes: improving professional practice, education, policy and enhancing public recognition of pharmacists. These themes form the basis of the discussion of this study.

The four themes provide a direction that there is a need for careful consideration on how the key recommendations may be effectively implemented within the context of community pharmacy sector. To assess the applicability of the recommendations in practice a culture-structure-agency framework was applied. Within this framework, we began our analysis by interrogating the health system (structure), and incorporating the cultural contexts surrounding the everyday practice of pharmacists and the role of community pharmacy and how these two groups found their agency to negotiate and change the structure (culture).

The findings of this study demonstrate that the structure in terms of the regulatory and policy framework has provided a legal basis for community pharmacy and pharmacists in Indonesia to participate within the healthcare sector. This is very important considering

pharmacy practice is in the state of infancy in many other developing countries. The fact that there are policy instruments and regulations in place have presented opportunities to promote changes in community pharmacy. However, these findings also highlighted that the top down structure has not been effectively enforced leading to limitations in practice, one of which is the common absence of pharmacists.

Although there is a common perception that community pharmacy is known as a place to obtain medicines, it was found that the dialectical element is missing from the relationship between pharmacists and consumers. As a dialectical space, a prescription and community pharmacy enable pharmacists to engage in conversation with consumers and exchange information about medicines and health-related conditions before making informed decisions regarding treatment options.^{39,40} The absence of pharmacists in the community pharmacy creates a space which allows non-pharmacists to undertake the roles of pharmacists. As this situation becomes more prevalent with no immediate solution provided by the profession and the government, communities begin to establish a new culture of viewing and interacting with pharmacists. The public perceives less need to interact with pharmacists as their primary care needs in obtaining medicines have been fulfilled by other agents. As a consequence, pharmacists start to "disappear" from public recognition. In the long term, this may lead to a reduction in the authority of pharmacists in community pharmacy.

The interplay between structure and agency as described earlier suggests that the process for advocating change is particularly dependent on the role of agency to convey the transformation. The discussion below provides an alternative entry to understand how pharmacists locate their agency and negotiate the structure in everyday roles as both community health advisor and educator as well as health professional. We would further explore how this may be achieved in relation to the four themes emerged from the NGT.

4.1. Breaking down the solutions

The first theme relates to the nature of pharmacy as a setting for professional practice. The recommendations to physically and socially upgrade community pharmacy to accommodate a forward-pharmacist approach appears feasible as it opens up opportunities for interaction with pharmacy clients. This aligns with the findings of Rapport et al. that improving the community pharmacy workspace will enhance "a professional sense of self and meet the demands of the public".⁴¹ Furthermore, the recommendation to revise the standard for premises and facilities and quality accreditation for pharmacy appears to be crucial in order to maintain professional practice. The development of standards, guidelines and accreditation has been highlighted as an attempt to reduce the variation in the qualification of pharmacists and distribution of pharmacies across the country while at the same time promoting "best practice" as both pharmacists and pharmacies have the essential values to optimal patient care.⁴²

The second theme emerging from the discussions relates to the nature of pharmacists as health professionals. Reforming education is perhaps the most fundamental way to change the culture of a profession. In some developing countries, pharmacy education comprises six years including two years for skills advancement through practice placements.^{43,44} While the recommendation to create six years of pharmacy education is common in other developing countries, there are some issues with respect to the Indonesian context. Firstly, extension of the course duration will have an impact on cost both for the schools and more importantly for students. Secondly, the extension will demand longer internships which is problematic as there are relatively few suitable role models who practice at a high professional standard. Existing "good" pharmacies will be overtaxed with too many students and this may further downgrade the quality of preceptorship. Thirdly, a longer course duration for the apothecary program will increase the current bottleneck of graduates at the end of the B.Pharm program given only a few universities are eligible to conduct the apothecary

program. Despite the different country context and practice setting, pharmacy education stakeholders in Indonesia can learn from their neighbouring country, Thailand, by exploring how they transformed a 5-year Bachelor of Science in Pharmacy program into a 6-year PharmD (Doctor of Pharmacy) program in 1999.⁴⁵ The transformation was initiated by collaboration under a US-Thai consortium within which Thai pharmacy educators and practitioners were prepared to develop the first Thai PharmD program. This suggests that a significant transition in pharmacy education in Indonesia requires cooperation between stakeholders within and beyond the country level.

The third theme relates to the strong need to secure a new culture as proposed in the first and second themes. On the one hand, it is essential that professional practice be audited to ensure the quality and safety of services delivered to communities. This approach is common in many sectors including community pharmacy. On the other hand, this may signify an enforcement approach which requires firm and consistent effort by authorities. This is a problematic issue in Indonesia given the people charged with enforcing regulations are practitioners themselves. Previous research demonstrated that good governance that addresses transparency and ensures the framework for action is one step closer towards achieving good pharmacy practice.^{46,47} Therefore, separating the role between authorities and practitioners, and thus removing a significant conflict of interest, is indeed necessary in Indonesia for creating control and good governance in pharmacy sector.

The fourth theme concentrates on the need to broaden the impact of the new culture. Participation in public campaigns and outreach programs as suggested in the group discussion offers a pathway to introduce this identity. In addition, the association of pharmacists (IAI) has mandated that its members wear a pharmacy coat and pharmacist's badge during practice as well as display pharmacists' names and working hours at the pharmacy.⁴⁸ This can be considered an effort to introduce pharmacists' identity to public. In so doing, pharmacists must be present at the pharmacy. Therefore, this approach implies that stronger image branding may not necessarily contribute to public recognition unless the pertinent issues as mentioned in the prior themes have been addressed.

4.2. The way forward

Good community pharmacy practice cannot be provided without pharmacists.⁴⁹ Indonesian pharmacists should start embracing and actively playing their role as a provider of pharmacy services. Strategic attempts including broadening participation of pharmacy within JKN must be initiated. Alongside this work, there is a need to build evidence-based information and research showing the potential contribution of pharmacists to health. Ibrahim et al. noted that developing countries have not invested in research, thus leading to a lack of evidence.⁵⁰ The initial steps might involve cross sectional studies with a representative sample of key stakeholders in pharmacy including pharmacists, doctors, and other health care professionals, health policy makers and consumers to provide comprehensive and detailed knowledge of the current situation and the value of pharmacists' presence in practice.⁵¹ Such a study has never been conducted in Indonesia.

4.3. Strengths and limitations

To the best of our knowledge, this is the first study to prioritise recommendations provided by pharmacy stakeholders for advancing the practice of community pharmacy in the context of a developing country. Although based on a small sample, the problems identified in this study are common to many developing countries. This suggests that the recommendations might be relevant for implementation in such countries. Nevertheless, the study does have some limitations. Firstly, it must be acknowledged that the study participants were self-selected with no additional screening concerning practice experience and prerequisite knowledge related to particular topic of the group discussion.

However, the interest of participants in choosing to attend the workshop and join particular group discussions demonstrated intention and motivation to improve the current pharmacy situation, a value which is important for understanding practice change. Secondly, the fact that only one investigator conducted the NGT is another limitation. During the 90 min, one researcher had to rotate between groups. There is a possibility of researcher bias which may have undervalued some groups and overvalued others. While it is necessary to employ two or more investigators for the NGT rather than relying on ad-hoc facilitators among participants, the investigator strived to minimise this problem through the help of students' assistants for tabulation and recording process and providing materials about the workshop and the NGT in advance to participants.

5. Conclusions

This study has identified nine priority recommendations with the potential for advancing community pharmacy practice in Indonesia. The recommendations target improvement in four overarching area comprising professional practice, education, policy and the professional image of pharmacists. While there is much to be done by Indonesian pharmacy stakeholders to improve the situation, the framework and discussions in this study offer an alternative for pharmacists and community pharmacies to advocate changes within the challenging health system structure. Further work is therefore needed to provide evidence of pharmacists' contribution to healthcare.

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Declarations of interest

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Appendix A. Supplementary data

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