

# **Minor ailment services from community pharmacy**

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Minor ailment services from community pharmacy

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## Certificate of original authorship

I, *Sarah Michelle Dineen-Griffin*, declare that this thesis, is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Discipline of Pharmacy, Graduate School of Health at the University of Technology Sydney, Australia. This thesis is wholly my own work unless otherwise reference or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis. This document has not been submitted for qualifications at any other academic institution. This research is supported by the Australian Government Research Training Program.

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## Abstract

**Background:** Governments including the United Kingdom and Canada endeavour to optimise health care systems through investment in primary care reform. Community pharmacists are moving, encouraged by policy, to deliver self-care support in pharmacy. International studies indicate the role and scope of pharmacists in primary care could be expanded with clinical and economic savings.

**Methods:** Chapter 1 presents a systematic review of randomized controlled trials evaluating self-management support interventions following the Cochrane handbook and PRISMA guidelines. Chapter 4 describes the qualitative research (a focus group with stakeholders, working meetings with general practitioners (GPs) to develop treatment pathways, and semi-structured interviews with community pharmacists) to co-design an Australian model minor ailment service (MAS) applicable to the Australian setting. Chapter 5 presents a protocol for a cluster-randomized controlled trial (cRCT) quantitatively evaluating the clinical, humanistic and economic effectiveness of MAS. MAS pharmacists were trained in treatment pathways pre-agreed with GPs and communication systems with GPs, and received monthly practice facilitator support. Control patients received usual pharmacist care (UC). Chapter 6 details the statistical analysis undertaken using modified Poisson regression. Chapter 7 details the cost utility analysis (CUA) conducted alongside the cRCT. Deterministic and probabilistic sensitivity analysis were performed.

**Results:** A theoretical model was developed providing structure to self-management in practice (Chapter 1). Chapter 4 presents the community pharmacy MAS model with the following elements: (1) In-pharmacy consultation, (2) treatment protocols on a technology platform (HealthPathways), (3) communication channels between pharmacy and GPs (HealthLink), (4) educational training, and (5) practice change support. Chapter 6 highlights findings from the cRCT. Patients (n=894) were recruited from 30 pharmacies and 82% (n=732) responded to follow up. Patients receiving MAS were 1.5 times more likely to receive an appropriate referral (relative rate (RR)=1.51; 95% confidence interval (CI)=1.07-2.11; p=0.018), and were 5 times more likely to adhere to referral, compared with UC patients (RR=5.08; 95%CI=2.02-12.79; p=0.001). MAS pharmacists were 2.6 times more likely to perform a clinical intervention (RR=2.62, 95%CI=1.28-5.38; p=0.009), compared with UC. MAS patients (94%) achieved symptom resolution or relief at follow up, while this was 88% with UC (RR=1.06; 95%CI=1-1.13; p=0.035). MAS patients had a greater mean difference in EQ-VAS at follow up (4.08; 95%CI=1.23-6.87; p=0.004). No difference in reconsultation was observed (RR=0.98; 95%CI=0.75-1.28; p=0.89). The CUA revealed MAS as cost-effective. MAS patients gained an additional 0.003 QALYs at an incremental cost of AUD \$7.14, compared to UC. The resulting ICER was AUD \$2,277/ QALY. The probabilistic SA revealed ICERs between AUD -\$1,150 and \$5,780/ QALY.

**Conclusion:** Findings suggest MAS should be implemented within the Australian context. A series of recommendations are made including the development of self-care policy in Australia to provide a policy framework for MAS.

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# Dissemination of Research

The research described within this thesis has been disseminated as follows.

## Peer reviewed publications

1. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. Helping patients help themselves: a systematic review of self-management support in primary health care. *PloS one*. 2019;14(8): e0220116.
2. **Dineen-Griffin, S.**, Benrimoj, S. I., Williams, K. A. & Garcia-Cardenas, V. Co-design of a minor ailment service: Involving service users and healthcare professionals. *BMC Health Services*. 2020 **(Submitted – Under Review)**
3. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Rogers, K., Williams, K. A. & Benrimoj, S. I. Evaluation of a collaborative protocolized approach by community pharmacists and general medical practitioners for an Australian Minor Ailments Scheme: Protocol for a cluster randomized controlled trial. *JMIR Res Protoc*. 2019;8(8): e13973.
4. **Dineen-Griffin, S.**, Benrimoj, S. I., Rogers, K., Williams, K. A. & Garcia-Cardenas, V. A cluster randomized controlled trial evaluating the clinical and humanistic impact of a pharmacist-led minor ailment service. *BMJ Qual Saf* 2020;0:1–11.
5. **Dineen-Griffin, S.**, Williams, K. A., Vargas, C., Benrimoj, S. I., & Garcia-Cardenas, V. Cost utility of a minor ailment service provided in the community pharmacy setting. *Cost Effectiveness and Resource Allocation*. 2020. **(Submitted – Under Review)**

## Reports

1. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. An Australian Minor Ailments Scheme: Evaluation of a collaborative protocolized approach by community pharmacies and general medical practitioners; 2019. ISBN-13: 978-0-646-80883-3.
2. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. Evaluation of a collaborative minor ailment service in community pharmacy: Findings from a pilot study in Western Sydney primary health network. 2018.

## Conference proceedings

1. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. A Collaborative approach for an Australian Minor Ailments Scheme. *What's New in Practice. 79<sup>th</sup> FIP World Congress of Pharmacy and Pharmaceutical Sciences*. Abu Dhabi. 2019. (Oral and Poster Presentation).
2. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. Enhancing self-management support in primary health care: a systematic review of randomized controlled trials. *FIP Pharmacy Practice Research Symposium* Lisbon, Portugal. 2019. (Oral Presentation).

3. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. Innovative practice: Minor Ailments – triage to treatment. *Pharmaceutical Society of Australia 2018 Conference* Sydney, Australia. 2018. (Oral Presentation – invited speaker).
4. **Dineen-Griffin, S.** Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. Innovation of collaborative healthcare models: minor ailment services in community pharmacy. *UTS Annual Research Showcase*. University of Technology Sydney, Australia. 2018. (Oral Presentation – invited speaker).
5. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. Evaluation of an integrated model of minor ailment care in the Australian health care system. *Congreso Simpodader Annual Conference*. Granada, Spain. 2018. (Poster Presentation).
6. **Dineen-Griffin, S.** Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. (2017). Session: Primary Health Networks. *Pharmaceutical Society of Australia 2017 Conference*. Sydney, Australia. (Panel Interview – guest panellist).
7. **Dineen-Griffin, S.**, Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. A model of collaborative primary health care: integrating consumer self-care, community pharmacy and general practice in the management of minor ailments and usage of non-prescription medications. *Pharmaceutical Society of Australia (PSA) Annual Conference*. Sydney, Australia. 2017. (Poster Presentation).
8. **Dineen-Griffin, S.** Garcia-Cardenas, V., Williams, K. A. & Benrimoj, S. I. An Australian Minor Ailment Scheme. *Pharmaceutical Society of Australia Annual Seminar*. Western Australia, Australia. 2016. (Oral Presentation – invited speaker).



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# Preface

This thesis is presented in fulfilment of the doctoral requirements for UTS. The thesis is structured as a PhD by compilation. Eight chapters are presented throughout the thesis, comprising a coherent suite of published works where copies of peer reviewed publications form chapters of the manuscript. To meet journal requirements for manuscript submission spelling varies between US English and British English. Sarah M Dineen-Griffin is the primary author of each publication. Coauthors include supervisors and collaborators who contributed to the concept, design, data collection, data analysis, data interpretation, and revision of manuscripts.

Chapter 1 describes a systematic review of published literature (1). The review was undertaken as part of the early exploratory work to capture the breadth of literature around self-management support interventions to identify and describe the main components of self-management support from a large body of published literature. Early insights from the review suggested a dearth of published evidence relating to self-management in community pharmacy. It was then decided to expand the review to include published literature from other primary care disciplines. The findings captured and synthesized the overarching components of self-management into a theoretical model. The model consists of a one-on-one consultation with a health care professional, such as a community pharmacist. The preliminary work contributed to understanding and investigating how self-management services could be practised in community pharmacy.

Chapter 2 presents the contextual background information of this research by examining self-care and self-care models in community pharmacy. The role of the community pharmacist in relation to self-care and minor ailment services is described. The chapter concludes by highlighting the gaps and opportunities in practice and international literature detailing the premise for undertaking the research.

Chapter 3 provides the aim and objectives of individual studies within the thesis and provides a description of the methodological approach to meet objectives. A detailed description of methods is presented under the relevant chapters of this thesis.

Chapters 4-7 discusses the empirical studies undertaken, each addressing specific objectives. Chapter 4 details a qualitative study undertaken with the aim of co-designing a MAS relevant to Australian community pharmacy (2). The co-design process involved an initial focus group with stakeholders to agree on service model elements and semi-structured interviews with community pharmacists during feasibility testing of the service. Chapter 5 details the protocol for a cRCT to evaluate the clinical, humanistic and economic impact of the community pharmacist delivered MAS (developed in chapter 4) compared to UC, in the Australian setting (3). Chapter 6 describes the clinical and humanistic evaluation results obtained from the cRCT (4). Chapter 7 details the results of the economic evaluation undertaken alongside the cRCT (5).

Chapter 8 discusses the overall research. The chapter focuses on describing how the research methods addressed the overall objectives and discusses contributions to existing knowledge in community pharmacy and the wider literature. The chapter reflects on the overall strengths and limitations of the research, describes the implications of the research findings and areas for future research. The chapter concludes by drawing conclusions from the overall research and provides recommendations for practice and policy.

Appendices provided at the end of this thesis include copies of ethics approval, a summary of abbreviations, and a declaration outlining authors contributions to co-authored papers.

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