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Towards enhanced cardiovascular disease prevention in Primary Health Care: pragmatic evaluation using embedded mixed methods

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For every complex problem there is an answer that is clear, simple, and wrong.

H.L. Mencken

Abstract

Background

Cardiovascular disease (CVD) and other lifestyle related chronic diseases are increasing at an alarming rate both in Australia and around the world. While Primary Health Care (PHC) has a key role in addressing CVD prevention, a large evidence to practice gap exists. The Expanded Chronic Care Model (ECCM) has emerged as a leading approach to chronic disease management. This model proposes a comprehensive approach to disease management that adds prevention and health promotion to direct clinical care. While elements of the ECCM have been implemented within Australia, a full comprehensive application and evaluation of the model has not been carried out. This research addresses this gap in knowledge.
Using the ECCM as a basis, the role and capacity of the community-based lifestyle modification workforce to support PHC in the management of CVD and behaviour change for risk reduction were examined. The feasibility, effectiveness and sustainability of this augmented approach to care were examined along with broader implications related to reorientation of PHC towards prevention.

Methods

A mixed methods approach, embedded within an overarching case study in a single Australian jurisdiction (the Australian Capital Territory), was used to provide an integrated understanding of the real-world challenges of undertaking CVD management and prevention in contemporary PHC practice. The research design was guided by a number of interrelating theoretical and framing approaches governing different aspects of the research including: the transtheoretical model (stages of change); normalisation process theory; the expanded chronic care model and the complex adaptive system approach. A wide range of data was collected to examine the feasibility and effectiveness of the approach and to understand critical success factors for its implementation and sustainability. A one-group pre-post quasi experimental study was conducted to estimate health effects or assess process challenges and outcomes. Quantitative data from patient surveys and general practice clinical information systems were gathered and analysed. Process evaluation was conducted using surveys and clinical information systems data. Qualitative data were collected using semi-structured or focus

group interviews with: intervention participants; patients not responding to the intervention invitation; general practice staff; lifestyle advisors (health coaches); allied health professionals; and community-based lifestyle modification programme providers. All data were analysed separately using descriptive and inferential statistics for the quantitative data and both thematic and single coding analyses for the qualitative data. Pattern matching was used to test the study findings against case study propositions.

Results

The intervention led to positive health and systems outcomes. There was a statistically significant reduction in population CVD absolute risk of 2.26%. Study programme participants were mostly satisfied with the service provided and all reported making positive changes to the health behaviours relevant to them. Patients who did not respond to the invitation to participate in the intervention reported varying levels of heart health education by general practitioners and practice nurses and only 44% had received a 'heart and stroke check' in the last two years. Interviews with these non-respondents highlighted that: existing relationship with a GP; apprehension to address CVD risk; and a low priority of addressing CVD risk influenced their choices not to participate. Further qualitative investigation revealed that more effort would be needed across multiple levels and stakeholders to implement such a complex intervention and embed evidence-based change into practice. Key barriers identified were: current funding mechanisms; the challenging nature of lifestyle modification; and the low value proposition of CVD prevention. The community-based sector, including allied health professionals and lifestyle modification programme providers, were highly motivated to contribute to CVD prevention but were underutilised and considered the level of funding available to be inadequate. The low value placed on and the 'hard work' of prevention was also noted. A need to improve cross-sector linkages were also highlighted.
Overall, the case study propositions were confirmed, with the Expanded Chronic Care Model proving a useful framework to develop a whole-of-system approach to CVD prevention. An emergent theme from the research was that this chronic disease management system demonstrated many of the features of a complex adaptive system. These findings were synthesised into a complexity-informed Enhanced Chronic Care Model, providing both an explanation of the study outcomes and suggesting how best to progress 'evidence to practice' translation.

Conclusion

Reorientation of primary health care systems towards prevention continues to be highly resistant to change. The research undertaken here demonstrated that moving towards a CVD prevention-orientated PHC will need: 1. An improved value proposition for CVD prevention, 2. Better local health intelligence, 3. Enhanced relationships between all stakeholders,4. A PHC workforce that has the skills to leverage added value to the system and 5. A more supportive policy environment.

List of publications contributing to thesis

1. Volker, N, Davey, RC, Cochrane, T, Williams, LT & Clancy, T 2014, 'Improving the Prevention of Cardiovascular Disease in Primary Health Care: The Model for Prevention Study Protocol', *JMIR Research Protocols,* vol. 3, no.3, e33.

2. Volker, N, Williams, LT, Davey, RC & Cochrane, T 2016, 'Community-based lifestyle modification workforce: an underutilised asset for cardiovascular disease prevention*', Australian Journal of Primary Health*, vol. 22**,** pp 327-31.

3. Volker, N, Williams, LT, Davey, R. C, Cochrane, T & Clancy, T 2017, 'Implementation of cardiovascular disease prevention in primary health care: enhancing understanding using normalisation process theory,' *BMC Family Practice*, vol. 18, no. 1, pp 28.

4. Volker, N, Clancy, T, Cochrane, T& Davey, R 2014, *HeartLink Final Report* Centre for Research & Action in Public Health, University of Canberra, Canberra.

Manuscripts currently under review

Volker, N, Davey, RC, Cochrane, T, Williams, LT & Clancy, T
'Can a complexity lens provide focus for future models of cardiovascular disease prevention interventions in primary health care? The MoFoP Study'.
Submitted to the *International Journal of Integrated Health Care.*

Conference presentations

1. Nerida Volker, Rachel Davey, Tom Cochrane & Lauren Williams
Community-based lifestyle modification providers: allies or poor cousins?
Primary Health Care Research Conference 2013.

2. Nerida Volker, Rachel Davey, Tom Cochrane, Tanya Clancy & Lauren Williams
   Chronic Care Models for Prevention: a framework for management of cardiovascular disease risk
   Primary Health Care Research Conference 2013.

3. Nerida Volker, Rachel Davey, Tom Cochrane & Lauren Williams
   HeartLink, better connections to reduce cardiovascular disease risk.
   Primary Health Care Research Conference 2012.

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List of Abbreviations

AIHW	Australian Institute of Health and Welfare
ABS	Australian Bureau of Statistics
ACCHO	Aboriginal Community Controlled Health Organisation
ACT	Australian Capital Territory
AHP	Allied Health Professional
APMA	Australian Practice Managers Association
APCCP	Australian Primary Care Collaborative Programme
BEACH	Bettering the Evaluation and Care in Health
BP	Blood Pressure
CAS	Complex Adaptive System
CDM	Chronic Disease Management
CCM	Chronic Care Model
CVAR	Cardiovascular Absolute Risk
CVD	Cardiovascular Disease
ECCM	Enhanced Chronic Care Model
GP	General Practitioner
ITT	Intention to Treat
LMP	Lifestyle Modification Program
MBS	Medicare Benefits Schedule
MCS	Mental Health Composite Scale
NCD	Non-Communicable Disease
NPT	Normalisation Process Theory
NVDPA	National Vascular Disease Prevention Agency
PCMH	Patient Centre Medical Home
PCS	Physical Health Composite Scale
PHN	Primary Health Care Network
PHC	Primary Health Care
PN	Practice Nurse
RACGP	Royal Australian College of General Practice
RCT	Randomised Control Trial
WHO	World Health Organisation

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Preface

I did not always dream of being a dietitian. However, I did want a career with purpose, and what better purpose than to work to ensure that people have the basic human right of good nutrition. Over my career, a commitment to social justice and desire to work collaboratively with like-minded colleagues has led me on an incredible journey. As an Accredited Practising Dietitian, I have worked at all levels of Australian government, and in many roles with the non-government sector. I have worked in the bush, managed community health teams and been an accreditor for community health centres. I have worked in the Aboriginal Community Controlled Sector, at a national level, and locally with Winnunga Nimmityjah Aboriginal Health Service. I led professional services at the Dietitians Association of Australia and with the Heart Foundation I led an interdisciplinary team which included dietitians, nurses, school teachers, urban planners and fitness leaders. Most recently, I have shared my experiences as a university lecturer. I have been the funder and the fundee, the regulator and the regulated, the teacher and the student. I see health as a system as experience has taught me that you cannot make a difference by working in a straight line.

As is true of all research, all of these experiences have influenced this research. While working with the Heart Foundation, it was a short meeting with Professor Rachel Davey, then newly arrived in Australia, that led to the development of a proposal for *HeartLink*. The *HeartLink* pilot program forms the basis of this doctoral study. *HeartLink* aimed to improve assessment, and management, of cardiovascular disease absolute risk in general practice and provide enhanced support for health behaviour change in the practice, and community settings. I worked on many aspects of the implementation of *HeartLink* including the development of the health coaching service and delivering many professional development activities. The aim of my doctoral research was to measure the health and process outcomes achieved by *HeartLink*, but also to delve deeply into the work undertaken by all stakeholders to implement a complex intervention in the real world.

In case study research, the researcher is often considered an intruder who is there to observe how a system dynamic unfolds (Anderson et al. 2005). While my background in healthcare is extensive, I did feel like an intruder during some aspects of the study. I had never worked in a general practice and each *HeartLink* practice was a unique organisation with its own culture and way of doing the business of primary health care.

Nevertheless, not all of the context for the study was unfamiliar. As a health professional, I had a shared background with many of the practitioner participants in the study. I have also spent many years working with patients of the same age, and experiencing the same health issues, as the *HeartLink* participants.

Malterud (2001) challenges researchers to identify personal motivations and preconceptions about their study, and their study participants. As a health professional, I came to this doctoral study with a desire to build on my existing experience and contribute new insights to an important area of practice. As a researcher, I acknowledge my role as 'researcher-as-instrument' and was mindful of how I brought my professional, personal and researcher worlds together to achieve the best outcome, incorporating reflexivity into all aspects of my research process (Hammersley & Atkinson 1995).