

**THE FEASIBILITY OF IMPLEMENTING
CARDIOVASCULAR DISEASE PREVENTION
PROGRAMS IN COMMUNITY PHARMACY**

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Abstract

Cardiovascular disease (CVD) is the greatest contributor to the adult burden of disease in Australia and internationally. Community pharmacists can effectively intervene to reduce CVD risk, but remain underutilised in primary care. The aim of this thesis is to investigate the feasibility of implementing pharmacist-delivered CVD prevention programs into Australian primary care. This thesis presents seven published peer review manuscripts addressing this aim, plus two additional unpublished manuscripts. These identify a rationale for engaging community pharmacists, and provide insights into the feasibility of different intervention models that might reasonably be adopted in practice.

Research for the thesis occurred in three phases. *Phase One* identified rural population needs for additional CVD prevention measures. Randomly selected electoral roll samples (n=3320) from three rural Australian regions were invited to undertake a comprehensive CVD risk assessment and self-report questionnaire. Findings highlighted poor control of key CVD risk factors stemming from widespread failure to diagnose and, if diagnosed, failure to adequately treat. It was also identified that individuals with uncontrolled CVD risk visited community pharmacists regularly, offering opportunities for additional intervention. The second project, examining patients at high risk of diabetes, found that medicines-use guidelines were not appropriately followed if lifestyle intervention could not

achieve CVD risk factor targets. This suggests a need for additional medication management interventions.

Phase Two developed and tested the feasibility of a community pharmacist intervention for the primary prevention of CVD. This intervention adhered to best practice principles for complex intervention development. The intervention systematically identified and addressed multiple cardiovascular health needs, while also integrating patient-centred care and behavioural change strategies. Seventy patients aged 50–74 years and without known CVD or diabetes were recruited from 10 community pharmacies to receive CVD risk assessment and five pharmacist-delivered counselling sessions. The primary outcome was change in mean estimated five-year risk of CVD. Post-intervention, a relative risk reduction of 25% +/- 8% was achieved, along with significant improvements to several individual risk factors. Clinical benefits and stakeholder feedback suggests this is a feasible model to test via randomised controlled trial (RCT).

Phase Three examined the effects of a continuous quality improvement (CQI) program for hypertension management on community pharmacist quality of care. Fifty-five pharmacists from metropolitan and rural Victoria were randomised within strata to one of three groups receiving different levels of CQI support (usual care, guidelines plus written advice, or comprehensive support). Primary outcomes were changes to proportion of treated patients reporting improved blood pressure (BP) management in several areas. Outcomes were inconclusive due to reduced sample at follow up, but suggested no intervention effect. Program adherence by participants was explored as an alternative objective. This identified several features of current practice environments limiting the effectiveness of CQI

initiatives. It suggests that initial efforts to deliver voluntary interventions such as health promotion will wane despite goodwill from pharmacists.

In conclusion, community pharmacists appear competent to deliver much-needed interventions for CVD prevention, but consistent implementation of effective interventions will require improved professional incentives (e.g. remuneration) and supportive systems for preventative care.

Declaration by Candidate

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signature:



Date:

26/9/2012

Kevin Mc Namara

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List of Related Publications by the Candidate

All publications listed below emanated partially or entirely from the research described in this thesis.

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Glossary

absolute cardiovascular risk	probability of a cardiovascular event occurring in a defined time period
anthropometric	relating to dimensions of the human body, e.g. weight, height, waist
antihypertensive	blood pressure-lowering
antiplatelet	prevent the formation of blood clots
biomedical factors	physiological parameters, e.g. blood pressure, lipid profile
cardiovascular disease	any disorder affecting the ability of the heart or blood vessels to function normally
cardiovascular event	a severe or acute condition relating to the heart or blood vessels, including the following: myocardial infarction, stroke, transient ischaemic attack, peripheral vascular disease, angina and congestive heart failure
co-morbidity	the presence of one or more conditions (or diseases) in addition to a primary disease or disorder
continuous quality improvement	systematic and ongoing evaluation of services as compared to accepted practice standards, and implementation of strategies to address identified deficiencies in the quality of care
coronary heart disease	a condition of the heart caused by narrowing of the blood vessels that supply the heart muscle

diastolic BP	the pressure in the arteries when the heart is at rest
dyslipidaemia/hyperlipidaemia	abnormal blood lipid (fat) levels
familial hypercholesterolaemia	a genetic disorder causing dyslipidaemia
high density lipoprotein (HDL) cholesterol	a type of lipoprotein, commonly referred to as 'good' cholesterol; high blood levels are thought to decrease the risk of heart disease
HAPA model	model for patient behavioural change where health professional support transitions from generating an intention to change, to planning change and supporting maintenance of new behaviours
home medicines review	assessment of patient medication and related issues undertaken by a pharmacist, normally undertaken in the patients home
hypertension	high blood pressure
implementation	efforts designed to get best practice findings and related products into use via effective change/uptake/adoption interventions
low density lipoprotein (LDL) cholesterol	a type of lipoprotein, commonly referred to as 'bad' cholesterol; high blood levels are thought to increase the risk of heart disease
medicines adherence	the extent to which a person takes their medicine in accordance with recommendations from a health professional
monotherapy	a single therapeutic agent
myocardial infarction	commonly known as a 'heart attack'; it is the death or damage of a part of the heart muscle due to insufficient blood supply to the heart muscle

primary care	essential healthcare made available in the community as the first contact in the medical management of a condition
systolic BP	the pressure in the arteries when the heart contracts
therapeutic inertia	health professional's failure to respond with treatment changes to unmet treatment targets
triglycerides	the most common type of fat in the body, it is found in the blood and fat tissue; high levels are linked to heart disease

Acronyms

ACEI	angiotensin converting enzyme inhibitor
ARA	angiotensin II receptor antagonist
ATSI	Aboriginal or Torres Strait Islander
AUDIT	Alcohol Use Disorders Identification Test
BMI	body mass index
BP	blood pressure
CALD	culturally and linguistically diverse
CES-D 10	Center for Epidemiologic Studies Short Depression Scale
CHD	coronary heart disease
CHIP C	Controlling Hypertension through Innovation in Primary Care (study name)
CI	confidence interval
CO	Corangamite Shire
COACH	Coaching patients On Achieving Cardiovascular Health
CP	community pharmacist
CVAR	cardiovascular absolute risk
CVD	cardiovascular disease
DALYs	Disability Adjusted Life Years
DBP	diastolic blood pressure
DPP	Diabetes Prevention Project
DQT	Diet Quality Tool
EHRM	European Health Risk Monitoring
GGT	Greater Green Triangle
GP	general practitioner
HAPA	Health Action Processes Approach
HBPM	home blood pressure monitoring

HIPS	Health Improvement and Prevention Study
HDL	high density lipoprotein
HMR	home medicines review
IQR	interquartile range
KYN	‘Know your numbers’ blood pressure awareness program
LC	Limestone Coast region
LDL	low density lipoprotein
MMAS	Morisky Medicines Adherence Scale
MONICA	MONItoring of CARDiovascular events
MRFI	multiple risk factor intervention(s)
NHFA	National Heart Foundation of Australia
NHHRC	National Health and Hospital Reform Commission
NHMRC	National Health and Medical Research Council
NSF	National Stroke Foundation
PAART	Pharmacist Assessment of Adherence, Risk and Treatment (study name)
POC	point of care
PRECEDE	Predisposing, Reinforcing, and Enabling Constructs in Educational/Environmental Diagnosis and Evaluation
PROCEED	Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development
RA	research assistant
RRMA	Rural, Remote and Metropolitan Area (Classification system)
SBP	systolic blood pressure
SE	standard error
SNAP	Smoking, Nutrition, Alcohol and Physical Activity (Guidelines)
TABS	Tool for Adherence Behaviour Screening
TC	total cholesterol
TG	triglycerides
WHO	World Health Organization
WI	Wimmera region

