PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a Postgraduate degree from the University of Saskatchewan, I agree that the Libraries of this University may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis work or, in their absence, by the Head of the Department or the Dean of the College in which my thesis work was done. It is also understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis. Requests for permission to copy or to make other use of material in this thesis in whole or part should be addressed to my supervisor, Dr. David Blackburn (contact information as follows) or, in his absence, the Dean of the College of Pharmacy and Nutrition.

Dr. David Blackburn
College of Pharmacy and Nutrition
University of Saskatchewan
110 Science Place
Saskatoon, SK, Canada, S7N 5C9

ABSTRACT

Cardiovascular disease is the leading cause of death in Canada. Despite improvements in cardiovascular risk factor identification and management over the past couple decades, many patients are still not reaching their guideline-recommended blood pressure, cholesterol, or blood glucose targets. Although numerous studies have demonstrated benefits to incorporating pharmacists onto primary care teams to facilitate cardiovascular risk reduction, such initiatives are not currently being implemented on a widespread basis in Canada. Part of the reason for this may be that most studies have been conducted in specialized, tertiary care clinics, while the majority of Canadians receive care from family physicians.

CCARP II was a prospective, before and after clinical initiative implemented to help bridge this gap between clinical research and current clinical practice. The purpose of CCARP II was to implement and evaluate a pharmacist-led collaboration to identify and manage cardiovascular risk factors in a real-world family medicine setting.

The pharmacist screened 566 patients for uncontrolled cardiovascular risk factors over the 9-month study period. Of all patients screened, 186 (32.9%) were at moderate or high cardiovascular risk with one or more risk factors above target. Of those, 113 patients (60.8%) were referred back to the pharmacist by their physician for ongoing monitoring and follow-up. In this group of patients, statistically significant reductions in systolic blood pressure, LDL cholesterol, and the total cholesterol: HDL ratio were observed over the study period. In patients started on new medications over the study period, a high rate of persistence (87.8%) was observed.

CCARP II demonstrated that there is still a need for systematic screening for unidentified or uncontrolled cardiovascular risk factors in adult patients visiting their physicians; almost one-third of patients in our study had one or more uncontrolled risk factors identified. This initial pilot project was successful in identifying patients with above-target cardiovascular risk factors, and subsequently aiding in the reduction of these risk factors towards target levels.

ACKNOWLEDGEMENTS

First and foremost, I am so grateful for the support and guidance I have received from my supervisor, Dr. David Blackburn. Your dedication, knowledge, and enthusiasm have made this journey not only an amazing learning opportunity, but also an enjoyable and enriching experience.

I would also like to acknowledge the support of my Advisory Committee members: Drs. Derek Jorgenson, Kerry Mansell, and Tessa Laubscher. Thank-you for sharing your time and expertise throughout this project; your input has been invaluable.

I would also like to acknowledge the staff at the Saskatoon Community Clinic for their help and support with this project. In particular I would like to thank Drs. Bettin, Dosman, Rajakumar, and Wu for the time and effort they put into making this project a success. I would also like to thank Marilyn Mearns, Chief Pharmacist, and the rest of the pharmacy staff for their encouragement and support; and the Health Records staff for their assistance and for sharing their limited space.

DEDICATION

This thesis is dedicated to my family, for their constant love and support. In particular, this thesis is dedicated to my husband Steve and daughter Elodie. Steve: Thank-you for your unwavering faith in me, your never-ending patience, and for the sacrifices you have made so I could pursue this dream. I will love you always. Elodie: May you have the courage to take the road less travelled, and the wisdom to follow your heart.

TABLE OF CONTENTS

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

LIST OF ABBREVIATIONS

ACEI	Angiotensin Converting Enzyme Inhibitors
ARB	Angiotensin II Receptor Blockers
BP	Blood Pressure
BUN	Blood Urea Nitrogen
CAD	Coronary Artery Disease
CCARP II	Collaborative Cardiovascular Risk Reduction in Primary Care II
CHD	Coronary Heart Disease
CrCl	Creatinine Clearance
CRI	Cardiovascular Risk Improvement index
CV	Cardiovascular
CVD	Cardiovascular disease
DHP-CCB	Dihydropyridine Calcium Channel Blocker
EF	Ejection Fraction
HbA1c	Hemoglobin A1c
HCTZ	Hydrochlorothiazide
HDL-C	High Density Lipoprotein Cholesterol
HF	Heart Failure
K	Potassium
LDL-C	Low Density Lipoprotein Cholesterol
MI	Myocardial Infarction
MD	Medical Doctor

PIP	Pharmaceutical Information Program
PVD	Peripheral Vascular Disease
RCT	Randomized Controlled Trial
SBP	Systolic Blood Pressure
SCr	Serum Creatinine
SD	Standard Deviation
Statins	3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors
TC	Total Cholesterol
TG	Triglycerides
TIA	Transient Ischemic Attack