POPULATION HEALTH AND PUBLIC HEALTH IN AUSTRALIAN RURAL GENERAL PRACTICE: A CASE SERIES OF RESEARCH, CLINICAL APPLICATIONS AND EDUCATIONAL STRATEGIES

A Thesis submitted to meet the requirements of the degree of

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Declaration

• I certify that this Thesis complies with rule 9 (2) of the University of Newcastle doctoral degree by research rules.

• I certify this Thesis constitutes my own original research.

• Thesis chapters specify my contribution to work published conjointly with other researchers.

• I hereby certify that the work embodied in this Thesis is the result of original research and has not been submitted for a higher degree to any other University or Institution.

John Fraser __________________
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For Libby, Emily and Anna, without you all of this would not have been possible.

I wish to acknowledge the support of my Thesis supervisors Professor John Marley and Professor Dimity Pond and also my work colleague, Associate Professor Christian Alexander.

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Table of Contents

DECLARATION......................................................................................................................... 2

ACKNOWLEDGEMENTS: ........................................................................................................ 3

TABLE OF CONTENTS............................................................................................................ 4

ABSTRACT ...............................................................................................................................7

EXECUTIVE SUMMARY.............................................................................................................. 9

BACKGROUND ......................................................................................................................... 9

AIMS ..................................................................................................................................... 11

METHODS ............................................................................................................................. 12

RESULTS ...............................................................................................................................14

CONCLUSIONS....................................................................................................................... 16

CHAPTER 1: INTRODUCTION .............................................................................................. 19

DEFINITIONAL ISSUES............................................................................................................. 22

SIGNIFICANCE OF RESEARCH PAPERS IN CHAPTER 1 .................................................... 28

CHAPTER 1: PUBLICATIONS ................................................................................................. 32

1.1 Population health and public health in Australian General Practice......................... 32

1.2 Fraser J, Professional autonomy: Is it the future of general practice? ......................... 32

IMPLICATIONS OF PAPERS IN CHAPTER 1 TO THESIS AIMS .................................................. 33

CHAPTER 2: APPLYING POPULATION HEALTH AND PUBLIC HEALTH APPROACHES IN RURAL AUSTRALIA.......................................................................................................... 36

PERIOD AND GEOGRAPHIC LOCATION OF RESEARCH IN CHAPTER 2 ......................... 37

DEFINING HEALTH NEEDS .................................................................................................... 38

DEFINING A POPULATION ..................................................................................................... 42

SIGNIFICANCE OF RESEARCH PAPERS IN CHAPTER 2 .................................................... 43

CHAPTER 2: PUBLICATIONS ................................................................................................. 51

2.1 Information technology improving health care delivery in Arnhemland........................ 51

2.2 Evaluation of a child health program to prevent and treat anaemia in Arnhemland. 51

2.3 Permethrin: A top end viewpoint and experience..................................................... 51

2.4 Use of a men’s group in health promotion in rural areas......................................... 52

IMPLICATIONS OF PAPERS IN CHAPTER 2 TO THESIS AIMS .................................................. 53

CHAPTER 3: IMPORTANCE OF CASE STUDY DESIGN IN RURAL HEALTH RESEARCH ................................................................................................................................................. 56

SIGNIFICANCE OF RESEARCH PAPERS IN CHAPTER 3 .................................................... 59

CHAPTER 3: PUBLICATIONS ................................................................................................. 62

3.1 High incidence of squamous anal carcinoma in Arnhemland................................... 62

3.2 Acute pelvic pain associated with an intra-osseous lipoma of the hip joint.............. 62

3.3 Dyspnoea worsened by salmeterol........................................................................... 62

3.4 Shoulder Radiographs and Cautionary Tales........................................................... 62

3.5 Ethics of HIV testing in general practice without informed consent: A case series. 62

3.6 Using brown snakes to organise patient free days.................................................. 63

IMPLICATIONS OF PAPERS IN CHAPTER 3 TO THESIS AIMS .................................................. 64

CHAPTER 4: ETHICS OF CONDUCTING AND PUBLISHING RURAL HEALTH RESEARCH ................................................................................................................................................. 66

SIGNIFICANCE OF PAPERS IN CHAPTER 4 .............................................................. 68

CHAPTER 4 PUBLICATIONS................................................................................................. 70

4.1 A case report: ethics of a proposed qualitative study of hospital closure in an Australian rural community ................................................................. 70

4.2 Publish and perish: A case study of publication ethics in a rural community ......... 70

IMPLICATIONS OF PAPERS IN CHAPTER 4 TO THESIS AIMS .................................................. 71
CHAPTER 5: RESEARCH, POPULATION HEALTH AND PUBLIC HEALTH APPROACHES TO RURAL HEALTH WORKFORCE RECRUITMENT AND RETENTION. 73

SIGNIFICANCE OF RESEARCH PAPERS IN CHAPTER 5 ................................................................. 75
CHAPTER 5 PUBLICATIONS .............................................................................................................. 82
5.1 The Promotion of Health Careers to High School Students in the New England Health Area: The Views of High School Career Advisers ......................................................... 82
5.2 Health Career Promotion in the New England Area of New South Wales: A Program to Support High School Career Advisers ............................................................... 82
5.3 Australian rural high school students' interest in health careers: implications for our future workforce? ......................................................................................................................... 82
5.4 Promoting health careers to our future rural workforce. ................................................................ 82
5.5 The Medical Specialist Workforce Servicing the New England Health Area.............. 83
5.6 Occupational Violence in an Australian Health Care Setting: Implications for managers ................................................................................................................................. 83
5.7 Professional career needs of general practitioners and registrars working in northwestern New South Wales .............................................................................................................. 84
IMPLICATIONS OF PAPERS IN CHAPTER 5 TO THESIS AIMS ................................................... 85

CHAPTER 6: RESEARCH, POPULATION HEALTH AND PUBLIC HEALTH APPROACHES TO RURAL HEALTH PROFESSIONAL CONTINUING MEDICAL EDUCATION ................. 88

SIGNIFICANCE OF RESEARCH PAPERS IN CHAPTER 6 ................................................................. 93
CHAPTER 6 PUBLICATIONS .............................................................................................................. 97
6.1 Hepatitis C education needs of rural general practitioners working in northern New South Wales ................................................................................................................................. 97
6.2 Hepatitis C caseload and models of care for rural GPs working in northern New South Wales ................................................................................................................................. 97
IMPLICATIONS OF PAPERS IN CHAPTER 6 TO THESIS AIMS ........................................................... 98

CHAPTER 7: RESEARCH AND EDUCATIONAL APPROACHES IN TRAINING A RURAL HEALTH WORKFORCE ............................................................................................................. 100

CHAPTER 7 PUBLICATIONS .............................................................................................................. 105
7.1 A guide to using role-plays in GP registrar teaching ................................................................... 105
7.2 Teaching practical procedures in general practice: A primer for supervisors of medical students and registrars ................................................................................................. 105
7.3 How to plan, deliver and evaluate a training session ................................................................... 106
7.4 The New England Advanced Life Support in Obstetrics Workshop and Resources Package 2003 ..................................................................................................................... 106
7.5 Evaluation of an interpractice visit program for rural Australian General Practice Registrars ............................................................................................................................... 106
IMPLICATIONS OF PAPERS IN CHAPTER 7 TO THESIS AIMS ........................................................... 108

CHAPTER 8: TRAINING THE NEXT GENERATION: DEVELOPING POPULATION HEALTH AND PUBLIC HEALTH TRAINING IN RURAL AREAS ............................................. 110

SIGNIFICANCE OF PUBLISHED PAPER IN CHAPTER 8 ................................................................. 111
CHAPTER 8 PUBLICATIONS .............................................................................................................. 118
8.1 Evaluation of a general practice registrar training post in public health in rural New South Wales ................................................................................................................................. 118
8.2 General practice training in public health: Two parallels converging .................................... 118
8.3 The use of bupropion for smoking cessation in rural New South Wales ................................... 119
8.4 Caregivers’ inability to identify childhood adiposity: a cross-sectional survey of rural children and their caregivers’ attitudes .................................................................................. 119
8.5 Evaluation of the impact of a Research Methods Support Group to increase research capacity in the New England Regions of rural New South Wales ........................................ 119
IMPLICATIONS OF PAPERS IN CHAPTER 8 TO THESIS AIMS ........................................................... 120

CHAPTER 9: CONCLUSIONS AND FUTURE DIRECTIONS ............................................................. 122

APPENDICES .................................................................................................................................. 126
1 FRANCES HARDEY FAULDING MEMORIAL FELLOWSHIP AWARD ........................................... 126
Abstract

Background

General practice’s population health and public health role is being promoted internationally to improve health outcomes. 1-6

This Thesis aims to:

- Describe and evaluate projects which are relevant to exploring the interface of population health and public health with Australian rural general practice; and

- Describe and evaluate projects which can increase population health and public health expertise and capacity amongst our future rural general practice workforce.

Methods

This Thesis uses a descriptive design. A series of research papers published in the peer reviewed literature are presented in each chapter. These papers are used as case studies to explore the aims of this Thesis. A variety of quantitative and qualitative methods have been used to conduct research in remote communities of the Northern Territory, rural South Australia and New South Wales from 1992 to 2005.

Results

Public health and population health can interface with Australian rural general practice in sustainable models described in case studies within this Thesis.
There is a continuum of roles in this interface from population health in practice, public health, ‘new’ public health and leadership. Population health activities include screening and promotion of lifestyle factors to patients.\(^7\)

Public health activities can be developed to extend the reach of health programs to the broader community. This may include participation in population based surveillance systems and health promotion projects.

Promoters of ‘new’ public health\(^8,9\) support an expansion of public health’s scope to include advocating social development through community participation and empowerment. Leadership can extend to policy development and liaison with general practice, population health and public health practitioners to promote collaborative models of health care.

A sustainable model of increasing rural workforce recruitment via developing workforce capacity in public health and population health has been developed and evaluated as part of this Thesis.

Conclusions
This Thesis presents rural Australian case studies demonstrating integration of population health and public health roles with general practice. Vertically integrated workforce models have been developed, as part of this Thesis, which can facilitate recruitment to the rural health workforce. In the long term, educational models have been developed and evaluated as part of this Thesis. These models can increase the population health and public health expertise and capacity of this workforce.
Executive Summary

Background

An expansion of general practice’s population health and public health role is promoted internationally. \(^1\text{-}^6\) Advocates of this process consider improvements in collaboration between general practice with population health and public health can improve health outcomes. \(^1\text{-}^6\)

Clearer definitions of the aims and goals of this process are required to facilitate integration between the disciplines. Australian general practice, population health and public health are distinct disciplines with similarities and differences. Key stakeholders including health professionals, government and the public often differ in their viewpoints about what constitutes an appropriate interface between general practice with population health and public health.

Despite these different viewpoints, there appears to be broad support to foster integration between general practice, population health and public health. All have the potential to complement each other working in collaboration. This is based upon environmental and social determinants of health \(^10\text{-}^12\) being intrinsically linked to the clinical presentations of patients. In practice, barriers limit this approach. \(^1\text{,}^5\) An inverse care law continues to exist in health care provision with the “availability of good health care varying inversely with the need for it in the population.” \(^13\)

Workforce shortage results in an emphasis on acute care at the expense of preventative services especially in rural areas. \(^14\) Population health, public
health and medicine including general practice have evolved into different disciplines with (at times) competing values and philosophies.

In order to meet the health needs of populations, workforce shortages have (due to necessity) lead to synergic clinical, population health and public health roles for many health professionals in rural and remote Australia. $^{14-17}$ This synergy will be explored in depth throughout the chapters of this Thesis.

Addressing equity of access to health services and improving health outcomes are a concern for general practice and the broader health profession in the 21st century. $^{18}$ There is a prominent emphasis on evidence-based medicine and efficient use of limited health resources in our society.

Despite this, residents of rural Australia experience limited access to health services and general practitioners (GPs) find (at times) limited applicability of tertiary health care research to patients in a rural general practice setting. $^{19,20}$ Barriers to the implementation of relevant research into clinical, population health and public health practice limits the application of existing evidence to improve rural health care delivery. $^{19,20}$

Case studies are an important tool in rural health research to describe new diseases and epidemics, to recognise side effects, to study mechanisms and to evaluate therapy and education. $^{21}$ This case study research generates hypotheses for more detailed research to confirm hypotheses.
A prerequisite to developing this evidence (clinical, population health and public health) is to build rural health research capacity. Equipping rural general practitioners with a combination of general practice skills (including procedural medicine), population health and public health expertise is complementary to this process.

The rationale for this approach is that to effectively address a community’s health needs, a general practitioner’s clinical role is complemented by population health and public health skills. Residents of rural areas expect treatment for acute and chronic conditions. This is a means for general practitioners to gain credibility with the communities within which they work. General practitioners trained in population health and public health have skills and the opportunity to work with key stakeholders within communities. There are opportunities to conduct applied research in order to plan, develop and evaluate preventative and health promotion programs. This combination of skills has great potential to influence and advocate for improvements in rural health status. 15,22

Aims

This Thesis aims to:

- Describe and evaluate projects which are relevant to exploring the interface of population health and public health with Australian rural general practice; and
- Describe and evaluate projects which can increase population health and public health capacity amongst our future rural general practice workforce.
Methods

This Thesis uses a descriptive design. A series of research papers published in the peer reviewed literature are presented in each chapter. These papers are used as case studies to explore the aims of this Thesis. Chapters discuss the significance of each paper’s research findings in their own right and the implications of each case to support the arguments of this Thesis. A variety of quantitative and qualitative methods have been used to conduct research in remote communities of the Northern Territory, rural South Australia and New South Wales from 1992 to 2005. Ethics approval has been obtained from respective regional ethics committees. Chapters and papers describe methods in depth.

- Chapter 1 (Introduction) focuses on defining this field of study and explores interfaces between population health, public health and general practice.
- Chapter 2 (Applying population health and public health approaches in rural Australia) describes examples of projects with population health and public health approaches which have been conducted while continuing to provide general practice services to the local community.
- Chapter 3 (Importance of case study design in rural health research) describes examples of case studies encountered in rural general practice which have been published in the peer reviewed literature.
- Chapter 4 (Ethics of conducting and publishing rural health research) explores ethical differences in planning and publishing rural health
research. This is relevant to increasing the evidence base of rural health research.

- Chapter 5 (Research, population health and public health approaches to rural health workforce recruitment and retention) demonstrates the application of strategic research to develop an evidence base to assist workforce program development. These programs have the ultimate aim of improving recruitment and retention of rural health professionals. Maintenance of a skilled and motivated rural health workforce is a prerequisite to the achievement of an increase in the clinical, population health and public health capacity of health professionals in rural areas of Australia.

- Chapter 6 (Research, population health and public health approaches to rural health professional continuing medical education). This chapter uses a case study of rural general practitioners’ (GPs’) views on hepatitis C continuing medical education to explore barriers between available evidence and its implementation in rural areas.

- Chapter 7 (Research and educational approaches in training a rural health workforce). This chapter describes and evaluates educational programs to increase training capacity for rural health professionals. This is relevant to this Thesis due to the synergy between clinical (including procedural) medicine, population health and public health roles in rural practice.

- Chapter 8 (Training the next generation: Developing population health and public health training capacity in rural areas). This chapter describes and evaluates a program to increase population health and public health capacity for GP registrars in training and to expand rural health research
capacity for all health professionals. Population health and public health projects undertaken during training are included in this chapter.

- Chapter 9 (Conclusions and future directions).

Results

Population health and public health can interface with Australian rural general practice in sustainable models described in case studies within this Thesis. There is a continuum of roles in this interface from population health in practice, public health, ‘new’ public health and leadership including policy development. Population health activities include screening and promotion of lifestyle factors to patients. Public health activities can be developed to extend the reach of health programs to the broader community including patients not presently accessing general practices. This may include participation in population based surveillance systems and health promotion projects coordinated by divisions of general practice.

Promoters of ‘new’ public health support an expansion of public health’s scope to include advocating social development through community participation and empowerment. Leadership can extend to policy development and liaison with general practitioners, population health and public health practitioners to promote collaborative models of health care.

The extent of this involvement will depend on community need, available workforce and the interest of clinicians to expand skills in this area of interest. Case studies of models presented in this Thesis are an important basis to support further research to promote the integration of general practice with...
A sustainable model of increasing rural workforce recruitment via the development and provision of training in public health and population health has been developed and evaluated as part of this Thesis.  

Population health and public health integration with Australian general practice is important and is receiving increasing emphasis. This is reflected and recognised by myself receiving national and state awards for components of this Thesis. These projects demonstrate sustainable models of providing clinical services with a population health and public health emphasis and workforce recruitment and training opportunities for general practitioners in population health and public health.

I was awarded the Francis Hardey Faulding Memorial Research Fellowship Award 1995 for a Research Treatise in General Practice by the Royal Australian College of General Practitioners. The treatise entitled 'The Implementation and Application of Information Technology to improve Primary Health Care 1992-94.' comprised case studies of projects applying population health and public health approaches in rural Australia.

I was awarded the New England Area Health Service Quality Award for Consumer Participation 2003 and the National Rural and Remote Quality Improvement Award Australian Council on Healthcare Standards 2003 for the project ‘Promoting health careers to our future rural workforce.’ This project comprised a case series of projects emphasising research, population
health and public health approaches to rural health workforce recruitment and retention. I was a finalist, in the education and training section in the Baxter 2004 NSW Health Awards for the project ‘General practice training in public health: Two parallels converging’. This project describes an educational model for increasing population health and public health capacity of rural GP registrars in training.

In 2005, I was awarded the General Practice Education and Training Medical Educator of the Year Award. This recognised my contribution to medical education development, research and delivery in the New England region of New South Wales.

In 2005, the vertically integrated rural workforce models presented in this Thesis attracted international recognition. A series of collaborative projects have linked the New England region of New South Wales with rural health professionals in Northern Thailand.\textsuperscript{25,26} There is scope for ongoing cooperation between the two regions which share many similarities in terms of rural health professional shortages and an urban rural division with worsening morbidity and mortality linked to remoteness.\textsuperscript{27,28}

Documentation of these awards and international programs are listed in the appendices of this Thesis.

\textit{Conclusions}

This Thesis presents rural Australian case studies which demonstrate integration of population health and public health roles with general practice.
Vertically integrated workforce models have been developed, as part of this Thesis, which can facilitate recruitment to the rural health workforce. Educational models have been developed and evaluated which can increase the population health and public health skills of the general practice workforce as components of this Thesis. An external review of these models has recommended further development and expansion of these programs to increase the population health and public health capacity of the Australian general practice workforce.\textsuperscript{23,24}

A case for a continuum of required population health and public health skills for GPs is supported by this Thesis. Core population health skills are required by all GPs.\textsuperscript{29,30} Based on GP interest and community health needs there is scope to expand skills in population health, public health \textsuperscript{22,31} and ‘new’ public health including development of skills in community empowerment and social development.\textsuperscript{8-10} This continuum of skills is supported by the recommendations of the Public Health Working Group (which I chaired) who assisted in the development of the revised Royal Australian College of General Practitioners’ Curriculum. \textsuperscript{32}

There is scope and need for some GPs to develop leadership in the interface between general practice, population health and public health to assist in policy development in the 21\textsuperscript{st} century to improve health service delivery and health outcomes in general practice.\textsuperscript{1,33} This is particularly true, in rural Australia \textsuperscript{34} where the high morbidity and mortality of the population emphasises the importance of this approach.
Evidence based practice and policy development are needed to guide this process and also to address the poor health status of Australia’s rural population. This requires development of a rural health evidence base (in clinical medicine, population health and public health). Strategies to build rural health research capacity are required to produce this evidence. Equipping rural general practitioners with a combination of general practice skills (including procedural medicine), population health and public health expertise is complementary to this process. This training can be used as a recruitment tool to attract more general practitioners to work in a rural area. Offering this training to general practitioners can provide variety and increased job satisfaction assisting in retention.

The GP registrar in population health/public health training model has been sustained in the New England region for four years, with ongoing demand for this type of training from GP registrars. There has been recognition of the suitability of this training and recommendations for it to be expanded to other regions of Australia. The GP of the future needs clinical, population health and public health skills to manage a multidisciplinary team. This combination of skills is consistent with recommendations of the World Health Organization in training health professionals into the 21st century. This proposition is further explored in chapter 9 in future directions.