Carving a Niche for Australian Practice Nurses in Chronic Heart Failure Management

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A thesis submitted in fulfillment of the requirements for the degree of

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College of Social & Health Sciences

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I, Elizabeth Jane Halcomb, declare that this Thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the School of Nursing, Family & Community Health, College of Social & Health Sciences, University of Western Sydney, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted, either wholly or in part, to any other educational institution.
Dedicated to:

My Father, Reginald George Watts

and

My Mother, Janet Watts

For their love, support and encouragement to achieve my dreams and for giving me the opportunities that they didn’t have.
ACKNOWLEDGEMENTS

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ABSTRACT

Chronic and complex conditions are a significant concern within contemporary health care systems. The dynamic nature of health service delivery necessitates the investigation of innovative evidence-based models of care to optimise health management within finite resource availability, consumer demands and workforce considerations.

The ageing population and improvements in survival from acute cardiac illness have seen an increasing incidence of heart failure (HF). Heart failure represents a significant burden on both the individual and the wider community. Despite effective pharmacotherapy and established evidence-based management guidelines, the overall prognosis from HF is poor. The complexity of the disease process and the highly developed evidence-base makes HF an excellent exemplar for the management of a range of chronic conditions.

Studies undertaken as part of this ‘Carving a Niche for Australian Practice Nurses’ Project have led to the development of a model of care that integrates the role of the practice nurse with those of other health care providers to improve outcomes for people with chronic and complex conditions. Three distinct, yet interrelated, investigations informed the development of this model of care. The Western Sydney Cardiac Awareness Survey and Evaluation (WESTCASE) documented the epidemiology of HF and patterns of usual general practice management within Western Sydney. Data derived from this study illustrated the significant and growing burden of HF on the community. General practice screening uncovered significant challenges in identifying those with HF, discordant intersectorial communication and an absence of systems supporting chronic disease management in primary care. However, consumers reported a strong affinity with and respect for both the general practitioner and general practice staff.

The Australian Practice Nurse and Chronic Heart Failure (APACHE) Study explored the practice nurse workforce, with emphasis on the capacity for increasing the practice nurse role in HF management. Personal, professional and workplace characteristics, the current role and barriers and facilitators to developing the practice nurse role were identified. Encouragingly, most participants were optimistic about the potential to develop the practice nurse role in areas such as HF management.
Finally, a *Consensus Development Conference* was held to synthesise current research evidence and expert opinion. Key stakeholders from clinical general practice, HF experts, nursing academics, and policy makers developed strategic directions for practice nursing in HF management. This statement provides motivation and strategic direction for clinicians, politicians and policy makers to increase efforts to enhance the practice nurse role in the management of chronic cardiovascular disease.

Whilst the model of care developed from these investigations requires empirical testing to validate its utility, it is currently being incorporated in clinical planning and ongoing pragmatic research. The systematic, sequential derivation of data from this ‘*Carving a Niche for Australian Practice Nurses*’ Project will inform the development of primary care and provide a conceptual framework for future intervention studies in Australian general practice.
ANTHOLOGY OF PUBLICATIONS

CONFERENCE PRESENTATIONS


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<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>ACE</td>
<td>Angiotensin Converting Enzyme</td>
</tr>
<tr>
<td>ADGP</td>
<td>Australian Divisions of General Practices</td>
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<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
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<tr>
<td>APACHE</td>
<td>Australian Practice Nurse and Chronic Heart Failure Study</td>
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<td>APNA</td>
<td>Australian Practice Nurses Association</td>
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<tr>
<td>BEACH</td>
<td>Bettering the Evaluation and Care of Health</td>
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<td>BMA</td>
<td>British Medical Association</td>
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<td>CASE</td>
<td>Cardiac Awareness Survey and Evaluation</td>
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<td>CHAT</td>
<td>Chronic Heart Failure Assistance by Telephone Study</td>
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<tr>
<td>CME</td>
<td>Continuing Medical Education</td>
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<td>CVD</td>
<td>Cardiovascular Disease</td>
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<td>DRG</td>
<td>Diagnostic Related Group</td>
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<tr>
<td>EPC</td>
<td>Enhanced Primary Care</td>
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<tr>
<td>EIRE</td>
<td>Centre for Epidemiology, Indicators, Research and Evaluation</td>
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<tr>
<td>FTE</td>
<td>Full-Time Equivalent</td>
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<tr>
<td>GP</td>
<td>General Practitioner</td>
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<td>HF</td>
<td>Heart Failure</td>
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<td>HIC</td>
<td>Health Insurance Commission</td>
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<td>HIE</td>
<td>Health Information Exchange</td>
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<td>HOIST</td>
<td>Health Outcomes Statistical Toolkit</td>
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<td>Human Research Ethics Committee</td>
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<td>ICD</td>
<td>International Classification of Disease</td>
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<td>In-patient Statistics Collection</td>
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<td>NHS</td>
<td>National Health Service</td>
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<td>New South Wales</td>
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<td>PIP</td>
<td>Practice Incentive Program</td>
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<td>Rural, Remote, Metropolitan Areas Classification</td>
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<td>SAND</td>
<td>Supplementary Analysis of Nominated Data</td>
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<td>Sydney West Area Health Service</td>
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<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>UWS</td>
<td>University of Western Sydney</td>
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<tr>
<td>WESTCASE</td>
<td>Western Sydney Cardiac Awareness Survey and Evaluation</td>
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<tr>
<td>WHO</td>
<td>World Health Organisation</td>
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<tr>
<td>WSAHS</td>
<td>Western Sydney Area Health Service</td>
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<tr>
<td>WSDGP</td>
<td>Western Sydney Division of General Practice</td>
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GLOSSARY

**Enrolled Nurse**
Also known as Registered Nurse Division 2 in Victoria. A person who has undertaken a program of approximately twelve months (usually in a College of Technical and Further Education) and is licensed under an Australian State / Territory Nurses Act to provide nursing care under the supervision of a Registered Nurse (Registered Nurse Division 1)

**Heart Failure**
Heart failure occurs as a complex interplay of structural, functional and biologic processes that produce abnormal cardiac function that is unable to provide adequate blood flow to meet cellular metabolic needs. There are many different pathophysiological process by which either pump performance is altered or circulatory dynamics are distorted. Systolic HF refers to the inability of the heart to pump normally, whereas diastolic HF refers to the inability of the heart to fill with blood at normal filling pressures despite adequate ventricular contraction. Heart failure is a progressive disorder that develops from an initial onset of ventricular systolic dysfunction to produce symptoms resulting from fluid overload (e.g. pulmonary oedema) and inadequate end-organ perfusion (e.g. renal failure).

**Methodology**
The researchers’ approach to systematic inquiry based on the assumptions of their research paradigm. For example: qualitative, quantitative, mixed-methods.

**Paradigm**
A means of looking at the world. “A conceptual model of a person’s worldview”. A paradigm is composed of a range of philosophical assumptions that direct the researchers’ approach to the research. These beliefs include aspects such as the nature of reality (ontology), nature of knowledge (epistemology), and approach to systematic inquiry (methodology).

**Practice Nurse**
A person recognized as a registered or enrolled nurse who provides nursing care in the setting of general practice.

**Registered Nurse**
Also known as Registered Nurse Division 1 in Victoria. A person who has undertaken a basic education program of not less than three years (now in universities) and is licensed to practice nursing under an Australian State / Territory Nurses Act.

**Research Method**
The research method is “the steps, procedures, and strategies for gathering and analyzing data”.
REFERENCE LIST


Chapter 1.

Introduction: The Case for the Exploration of Innovative Models of Heart Failure Management in Australian General Practice
1.1 The Increasing Burden of Chronic Disease

Chronic and complex diseases, such as heart failure (HF), are becoming an increasingly important health concern within contemporary society\(^1\). Life expectancy has increased in the industrialised world secondary to improvements in nutrition, sanitation and medical innovation\(^2\). However, the increasing period during which individuals experience significant disability from chronic illness has led to what is often described as the burden of chronic disease\(^2\). It has been estimated that some 70 to 80\% of people in advanced, industrial nations now face death by a slow and gradual decline within the context of multiple chronic illnesses\(^2,3\). In addition to this growing burden of chronic disease, the traditional focus of Australia’s health system has been on acute, episodic management, rather than integrated systems of care\(^4\). Yet it is this integration of a range of services from multiple care providers that is most important to optimally address the needs of the chronically ill\(^4\).

The ‘Carving a Niche for Australian Practice Nurses’ Project is set against a background of increasingly complex chronic diseases and a climate of economic rationalism. Despite a marked decrease in mortality rates over the last four decades, cardiovascular disease (CVD) remains the leading cause of death for Australian adults\(^1\). In 2001, the Australian Institute of Health and Welfare (AIHW) reported that one in five Australians had CVD, with 1.1 million disabled as a result\(^1\). Improved survival following myocardial infarction, optimisation of the management of hypertension and other co-morbid conditions such as cerebrovascular disease and diabetes have transformed the landscape of CVD\(^5-9\). These improvements in survival from the acute presentations of CVD have, paradoxically, contributed to an increase in the prevalence and disease burden from chronic HF\(^8,10\).

Heart failure is a leading cause of admission to acute care facilities and represents a significant health problem throughout the developed world, contributing significantly to premature morbidity and mortality, as well as diminished quality of life\(^2,11-14\). It represents a significant burden not only to the individual but also to the wider community as a consequence of the high costs of care and increased morbidity in those affected\(^15\). Absence of accurate data collection mechanisms impedes the precise quantification of disease burden. Philips et al.\(^16\) estimate that currently more than 300 000 Australians have HF, although Stewart et al.\(^8\) calculate that in excess
of 500 000 Australians may be affected. It is forecasted that, in the next decade, significant increases will be seen in the incidence and prevalence of HF internationally\(^8,17,18\).

Despite effective pharmacotherapy and established evidence-based management guidelines, the overall prognosis from HF is poor\(^19\). Kelly\(^20\) uniquely summarises the dilemma with which we are faced by identifying that in the past we have expended much energy on improving life expectancy and reducing mortality. However, in the future we need to concentrate our efforts on reducing illness and minimising disability in the living\(^20\). It is no longer adequate to manage the hospitalised HF client according to best practice standards. It is increasingly evident that the real goal of HF management must extend into the community to improve the health and quality of life of affected individuals along the illness trajectory\(^21\). This Chapter will broadly define the scope of the problem of HF, describe the current policy and political environment and outline the plan for the Thesis. The notion of the nursing in general practice will be introduced and differentiated from the emerging nurse practitioner role in the Australian health care system. An overview of the Project purpose and design will provide a clear understanding of the direction that the Thesis will take and the investigations that comprise the ‘Carving a Niche for Australian Practice Nurses’ Project. The significance of the Project to nursing scholarship and practice will also be demonstrated.

1.2 Policy Directions

The Australian Federal Government has recognised the importance of the increasing burden of chronic disease through a number of strategic policy decisions including:

- collaboratively identifying the areas of cardiovascular health, cancer control, injury prevention and control, mental health and diabetes mellitus as national health priority areas upon which to focus health research and expenditure\(^1,22\).

- the provision of strategic funding opportunities for novel models of care such as Ministerial Funding and special calls for expressions of interest by the National Health and Medical Research Council.

- commencing the development of a National service improvement framework for heart, stroke and vascular disease\(^23\).
The National Heart, Stroke and Vascular Health Strategies Group have developed a specific strategy to improve the cardiovascular health status of the Australian population by improving preventative management and supporting the dissemination of best practice principles\textsuperscript{(15)}. This strategy identifies seven key areas where there is deemed to be the greatest potential for improvement in health service delivery and patient outcomes. These key areas are: “heart, stroke and vascular diseases in Aboriginal and Torres Strait Islander peoples; consumer engagement and information; prevention of heart, stroke and vascular diseases; cardiac emergency and acute care; stroke emergency and acute care; chronic HF; rehabilitation after an acute myocardial infarction, stroke or vascular event”\textsuperscript{(15)}(p. 2).

In New South Wales (NSW), the development of a range of clinical frameworks for chronic and complex diseases has been a major step in the recognition of the scope of the local problem of chronic illness and the formulation of strategic and sustainable management strategies traversing acute and community-based care providers\textsuperscript{(11, 12, 24, 25)}. A significant component of this health planning involves the movement of healthcare delivery from the acute care settings to community-based health provision. Similar trends have already occurred internationally. For example in the United Kingdom (UK) clinical service frameworks have been established since 1988\textsuperscript{(26)}. The aim of these frameworks has been to determine national standards and identify key interventions for defined services or care groups; apply strategies to support implementation of models of care; establish mechanisms to ensure advancement towards agreed aims within a pre-specified time-scale; formulate strategies to improve quality and decrease variations in service provision\textsuperscript{(26)}. Additionally, since the early 1990s the focus of the UK general practitioner contract and associated health policy has been on the enhancement of primary care services\textsuperscript{(27-30)}. Likewise, in 2001 the New Zealand (NZ) Ministry of Health\textsuperscript{(31)} released its strategic plan for the development of primary care services, focusing on the provision of care through multidisciplinary models to enhance delivery of and access to health services.

1.3 Primary Care Delivery

Although there is no universally endorsed definition of primary care, it is generally agreed that it incorporates the following core principles; “universal access to care
and coverage on the basis of need; commitment to health equity as part of development oriented to social justice; community participation in defining and implementing health agendas and inter-sectoral approaches to health(2) (p. 107). The concept of shifting healthcare delivery towards primary care models is not new. As early as 1978 the World Health Organisation (WHO) identified primary care as the most appropriate means of making their ‘Health for All’ policy a reality(32). Primary care was seen as a potential solution to address the inadequate health care models that had developed internationally(33). In the Australian health care system, general practitioners provide front line management of health needs within the community. However, across the country there is significant diversity in service provision both between practitioners and across geographical areas. The complexity of funding models, a range of systems issues and the economic imperatives of general practices working within a private business model have led to fragmentation between acute and primary care in Australia(34). Therefore, strategic development of new models of care needs to consider not only how to enhance the delivery of primary care, but also to explore novel ways in which this fragmentation can be addressed.

1.4 The Shift to Primary Care Models

In 2002, NSW Health released a report entitled ‘Strengthening health care in the community’(35), that described the current model of health care delivery (Figure 1-1). This model depicts the large proportion of the community who are impacted upon by population health initiatives and the relatively fewer individuals who require acute care interventions. Perhaps most importantly, however, the model identifies that the areas, which border the various levels of health care delivery, are those most problematic in terms of coordination and intersectorial collaboration(35). It is at these points in the care continuum that innovative models of care can potentially have the most significant impact upon health outcomes. This concept highlights the potential importance of this study in terms of addressing a recognised gap between community-based, general practice management and acute care services using a novel, yet sustainable and strategic model of health care provision. The augmentation of the practice nurse role in chronic disease management has the potential to address a significant proportion of needs on both a population and community basis.
Currently, some 85% of the Australian population visit a general practitioner annually, with increased service utilisation commonly seen in those of advanced age or with chronic illness and complex health needs. With the increasing emphasis on general practice in the provision of primary care, the role of the general practitioner, and indeed the general practice team, is likely to increase in the coming decades. However, without strategic planning and the development of systems and processes, general practice may not be in a position to meet such increasing demands on its services. This is due to a range of complex health system issues, including; an ageing medical workforce, a lack of financial incentives, issues of medical indemnity, medicolegal issues and difficulties in medical recruitment and retention, particularly in rural and remote regions. It is timely, therefore, to undertake investigations to both document baseline characteristics of Australian general practice and investigate alternative, sustainable models of service provision to meet the changing needs of both the population and the general practice environment.

Recent national health reforms, including the introduction of Enhanced Primary Care (EPC) items and the Practice Incentive Program (PIP), have provided financial incentives for the general practice management of chronic diseases. Many such initiatives have, to date, focused upon rural and remote general practitioners and the specific target areas of diabetes and asthma management. Therefore, whilst potentially useful in expanding general practice services, variation of these initiatives and Medicare rebates by geographical location potentially contributes to the creation of a two-tiered service, whereby urban and rural areas receive increasingly disparate health care services. Additionally, in spite of individuals with asthma and diabetes being able to access regular follow-up and evidence-based, disease specific interventions, such comprehensive service delivery is not available to those with other chronic disease processes such as HF, CVD and mental illness.
In conjunction with these recent health reforms and an increasing evidence base for the role of interdisciplinary management in chronic conditions\(^{(43, 44)}\), the potential role of the practice nurse has been recognised. Until 2004, the Australian Medicare system would only reimburse practices for nursing services if they were directly supervised by the general practitioner\(^{(45)}\). Such funding arrangements did not encourage general practices to provide nursing services\(^{(46)}\). Additional item numbers introduced as part of the Medicare Plus package have allocated direct reimbursement for practice nurses who provide immunisations or wound dressing services, without requiring direct general practitioner supervision\(^{(47)}\). In 2005, an additional item number was added for pap smears undertaken by accredited practice nurses in regional, rural and remote areas\(^{(48)}\). Such changes in health system funding indicate formal recognition of the practice nurse role within national policy environments. Within this context, a unique opportunity exists for novel utilisation of the practice nurse to provide dynamic, collaborative health care in areas such as chronic disease management within innovative and collaborative models of care\(^{(46)}\).

### 1.5 Emergence of the Practice Nurse Role

The WHO has long recognised the central role of the nurse in moving ahead the primary care agenda\(^{(49)}\). As early as 1975, research demonstrated that the practice nurse had the potential to improve morbidity, mortality and quality of life in chronically ill Australians\(^{(50)}\). Such findings, although reported in the literature\(^{(50-52)}\), were not widely implemented in general practice. In recent times, significant progression of the practice nurse role within Australia has been achieved. The Australian Practice Nurses Association (APNA) was founded in 2001 and the Inaugural National Practice Nurse Conference was held in 2003 sponsored by the Royal College of Nursing, Australia (RCNA)\(^{(39)}\). The Australian Divisions of General Practice (ADGP), at the local, State and National level, have also demonstrated increasing levels of support by sponsoring networking opportunities, specialised educational sessions and collaborative disease-management programs. To date, initiatives in the practice nurse role have been driven external to the nursing profession. The time is ripe, however, for the nursing profession to take a leading role in the development, strategic planning and evaluation of the practice nurse role\(^{(34)}\).
Internationally, the role of the practice nurse is well established as a cornerstone of primary care. In the UK, the practice nurse role has burgeoned since the introduction of the general practitioner contracts in the early 1990s which provided incentives for general practices to reach population health and screening targets\(^{(27, 53-55)}\). Likewise, in NZ, the practice nurse movement has experienced rising momentum, supported by government subsidies to provide infrastructure for workforce development\(^{(31, 56-58)}\). Conceptually, there is emerging evidence to support the development of the practice nurse role in chronic and complex disease management\(^{(39)}\). This is fuelled by a significant body of current literature describing the benefits of specialist nurse-led and collaborative programs for HF management\(^{(14, 59-62)}\). Further research, however, is required to demonstrate the efficacy of practice nurse participation in the management of chronic disease within the context of Australian general practice.

At the commencement of this Project over 40% of Australian general practices employed nurses\(^{(63)}\). Peak bodies such as the Australian Nursing Federation\(^{(49)}\) and the Australian and NZ Council of Deans of Nursing and Midwifery\(^{(64)}\) openly support the development of the practice nursing role as a means of providing effective primary care to Australians. With increases in funding already committed to by the Federal government, it is estimated that some 1000 new nursing positions will be created in general practice in the near future\(^{(63)}\). This enhancement of the capacity of Australian general practice represents significant potential as an alternative to current models of health care delivery. In order to achieve optimal improvements in service provision and patient outcomes, however, strategic planning and evidence-based program implementation is essential.

1.6 Confusion in Nomenclature

A major difficulty underlying the practice nurse debate is the confusion between the differing nomenclature of nursing roles\(^{(33)}\). Titles can vary according to geographic location, client focus, the nature of clinical practice or the specialty area. The States and Territories have various classification systems and titles for their nurses and, currently, there is no nationally agreed titles, role descriptions or competency standards\(^{(33)}\). Internationally, there is also confusion with significant differences in job descriptions, educational preparation and scope of practice between providers.
Considering the almost simultaneous move towards implementing nurse practitioner programs and developing the practice nurse role in Australia, it is important to define the practice nurse as distinct from a nurse practitioner. Further, the opposition from some circles and contemporary debate surrounding the nurse practitioner role likely impedes the development of the practice nurse role in primary care.

The practice nurse is either a Registered or Enrolled nurse who provides nursing care within the setting of general practice under some degree of supervision from their employing general practitioner(s). This is intended to be, at least partially, a collaborative model in which the practice nurse and general practitioner work in complementary roles to increase available services and improve the quality of care delivered in general practice. In contrast, a nurse practitioner is a specialist and autonomous advanced practice clinician providing health care within a defined specialty field which may or may not be within the general practice or primary care setting. The nurse practitioner incorporates aspects of diagnosis and treatment within their role and substitutes for a doctor in a range of pre-defined, protocol driven, clinical tasks. Although the efficacy of the nurse practitioner role in general practice has been evaluated with mixed success in various randomised control trials, it represents a separate issue to that of practice nurse role development.

Some comparisons have also been drawn between physicians’ assistants in the United States and practice nurses. Unlike physicians’ assistants, practice nurses have a specific knowledge base, professional authority, a level of personal accountability and exercise clinical judgment in their own field of clinical expertise. The differentiations between the roles of community-based nursing care providers are discussed in Chapter 3.

Amongst those nurses employed within the general practice setting there is some resistance to being labelled ‘practice nurses’. It is argued that such a title leads consumers to perceive that such nurses are not fully qualified but simply ‘practising’ to become a ‘real’ nurse and work in the acute care setting. Additionally, this title does not afford open and clear recognition between levels of nurse accreditation (i.e. Registered Nurse, Enrolled Nurse, Assistant in Nursing), thus creating potential problems in terms of consumers and other health professionals appreciating clinical skill and competency levels. In the absence of a more descriptive title, the term
‘practice nurse’ has been used in this Thesis to describe any person holding nursing qualifications recognised by State / Territory Nursing Regulatory Authorities who is employed to provide nursing care in the general practice setting.

### 1.7 Purpose of the Project

The overarching aim of the ‘Carving a Niche for Australian Practice Nurses’ Project was, to systematically and empirically derive a collaborative, multidisciplinary model of care to inform clinicians, policy makers and health planners identify strategic future directions upon which to base general practice management of HF. In order to achieve this aim three discrete, yet interrelated investigations were undertaken as can be seen in Figure 1-2.

![Figure 1-2 Project Design](image)

**Figure 1-2 Project Design**

The Western Sydney Cardiac Awareness Survey and Evaluation (WESTCASE) sought to document the epidemiology of chronic HF and its usual management in general practice within Greater Western Sydney. This was achieved through two discrete studies. The first study was a synthesis of existing epidemiological data obtained from the published literature and through the mining of local administrative datasets.

The second study comprised an audit of usual HF management in general practice, patient / family interviews and consultation with key informants. The data collected from this investigation was intended to function as both a baseline dataset and a benchmark upon which to measure the effectiveness of subsequent practice nurse interventions. Additionally, it sought to distinguish aspects of general practice
management that could potentially be enhanced through collaborative care models incorporating the general practitioner and the practice nurse.

The *Australian Practice Nurse and Chronic Heart Failure* (APACHE) Study aimed to explore the current role, scope of practice and demographics of the Australian practice nurse. This was achieved with a mixed method approach, combining a national postal survey and telephone interviews to collect data. In particular, the APACHE study sought to define the current scope of practice nurses in chronic disease management and, more specifically, HF. The study also sought to identify constraining and facilitating factors that shaped health care delivery within the primary care setting. This descriptive component was considered essential considering the paucity of evidence at the outset of the Project to demonstrate the capacity for practice nurse involvement in chronic disease management.

Informed by these two investigations, a consensus development conference was held with the aim of formulating a consensus statement that synthesised the research knowledge with the exert opinion of key stakeholders. This statement was designed to assist in strategic planning for general practice based management of HF and more clearly define the role of the practice nurse in this model of care.

As a means of summarising the finding from the investigations that comprised this Project, a theoretical model of care is proposed (Chapter 7). Whilst this model requires further empirical testing to validate its utility, it will inform the development of primary care and provide a conceptual framework for future intervention studies in Australian general practice.

Whilst HF was the focus of this Project due to the significant burden of the problem and the need to narrow the scope of enquiry, it was postulated that an effective model for HF management could potentially be transposed to inform the subsequent management of a range of other chronic disease processes\(^{(76)}\).

The specific research questions that this Project sought to address were;

1. *WESTCASE Study*

   (a) What are the baseline contemporary patterns of HF-related hospitalisation, mortality, and morbidity within Western Sydney?
(b) What is the contemporary experience of clinicians, consumers and their families in relation to HF management in general practice?

(c) What aspects of current general practice management of HF can potentially be addressed by models of care incorporating the practice nurse in care delivery?

2. *APACHE Study*

(d) What is the current role and scope of practice of the practice nurse in the Australian health care system?

(e) What are the barriers and facilitators to the expansion of the practice nurse role to incorporate HF management?

3. *Consensus Development Conference*

(f) What are the key components of a sustainable model of care for the practice nurse role in HF management in primary care?

### 1.8 Problem Statement

Models of HF management involving a specialist HF nurse have been demonstrated in randomised control trials to be beneficial to patient outcomes (Appendix D). The rising incidence of HF, secondary to the ageing population and increased survival from acute cardiac events, has created a demand for specialist intervention that is exceeding available resources within the acute care sector. Further, in Australia, the distinction between State and Federal funding precludes effective integration and articulation of intersectorial services. In parallel, there is a move towards enhancing community-based management of chronic and complex disease both nationally and internationally. Such an approach serves to create synergies and efficiencies between primary and secondary prevention strategies. This Thesis seeks to systematically and empirically develop a model of care appropriate to address HF management in Australian general practice. Should this model of intervention be evaluated as favourable it could potentially be extrapolated to other chronic conditions\(^{(78)}\).

### 1.9 Project Design and Thesis Structure

This Chapter has served to provide a contextual background and rationale for this study, as well as providing an overview of the overall research plan and a description of how the individual investigations are interrelated. Chapter 2 explicates the two
studies that comprise the WESTCASE investigation. This investigation provides both a population perspective of HF and an insight into general practice HF management in a discrete geographical context. The implications of these findings for the development of models of care for HF in general practice are explored. Chapter 3 provides an integrated literature review relating to practice nursing internationally, with a particular emphasis on the UK and NZ experience and the emerging discipline within Australia\(^{(34)}\). Additionally, this Chapter explores concepts of role theory in relation to practice nursing and the contemporary nature of collaborative practice between practice nurses and general practitioners. A detailed description of the APACHE Study methodology and a rationale for this mixed methods approach to the investigation is provided in Chapter 4. Chapter 5 presents the results of the APACHE study, a discussion of the relationship of findings to the contemporary literature and implications for clinical practice and policy development. Chapter 6 describes the implementation of the consensus development conference method, provides a justification for using this approach and reports the consensus statement resulting from the conference process. Finally, Chapter 7 proposes a potential model of care for HF in Australian general practice, discusses the findings of the research in relation to the research questions, addresses the overall limitations of the study and offers recommendations for the further development of clinical practice, education and research on the role of practice nurses in HF. The potential to generalise the findings of this investigation to other chronic disease processes is also discussed.

The data collection tools, details of Human Research Ethics Committee (HREC) clearances and Information / Consent forms are contained in the Appendices to this Thesis. The layout and style used conform to those required by the School of Nursing, Family and Community Health, College of Social and Health Sciences, University of Western Sydney (UWS). To enhance the clarity of the work, a reference list is provided at the end of each chapter.

### 1.10 Context of the Project

At the commencement of this Project no national investigation had been conducted to explore the demographics and role of the Australian practice nurse, although several smaller scale, local investigations had been conducted in the previous three
decades\cite{33, 46, 50-52, 79-87}. National surveys had, however, been previously undertaken in England\cite{53} and Scotland\cite{88} with fascinating results. The variations in health systems, differences in community demographics and the models of primary care delivery made it important to explore the phenomenon in Australia. It was identified, from discussions with key stakeholders and Internet searches, that a small number of studies related to Australian practice nursing were either in progress or soon to commence. Where possible, contact was made with researchers identified as currently working in the area to discuss the focus of their current research. The largest project identified as being underway was that being conducted by the Royal Australian College of General Practitioners (RACGP) and RCNA. When contacted the RACGP and RCNA project team were unable to discuss the nature or content of their project as the final report was being compiled and had not yet been officially released. Therefore, the only information available was that publicly accessible via the Internet. From this information, it appeared that the focus of the project centred upon the educational needs of practice nurses and the availability of educational programs. The final report was published in 2004\cite{39} and, therefore, was released after the completion of the APACHE survey data collection and during the data analysis phase. The results of the RACGP and RCNA investigation could, therefore, not have been utilised to inform the planning of this Project.

1.11 Significance of the Project to Nursing and Health Care

The potential for nurses to undertake a critical role in the future of health care delivery has been supported by Halfden Mahler, a former Director-General of WHO, who proposed that nurses could potentially become the driving force behind the ‘Health for All’ movement\cite{33}. He envisaged this would complement the movement of nurses from hospitals to the community, where they became resources to the community, rather than to the doctors within the acute setting\cite{33}.

The emerging importance and potential of practice nursing in Australia necessitates investigation of the potential integration of the role with both community and acute care providers. The ‘Carving a Niche for Australian Practice Nurses’ Project has defined and scoped the nature of nursing in general practice within the context of a dynamic policy environment. This scoping reflects the importance of the individual characteristics of general practices to practice nurses. Other health professionals also
have a keen interest in defining the boundaries in areas where they have potential overlap in their clinical practice with practice nurses or where there is a collaborative relationship\(^{(27, 33, 89, 90)}\). The model of care derived from this Project has the potential to empower practice nurses to develop expanded practice roles and undertake strategic professional development to maximise their effectiveness within the health care system and improve patient outcomes.

In summary, this Project provides empirical data to inform development and evaluation of models of care for people with chronic and complex care needs in Australian general practice. Although the ‘Carving a Niche for Australian Practice Nurses’ Project was initially scoped to specifically improve the management of people with HF, as the Project progressed it was found that this scope was too narrow for general practices where the prevalence of HF in each individual practice was low and patients not as readily identifiable as in the acute setting. Heart failure, however, provides a useful exemplar condition to direct and guide chronic and complex condition management in the Australian general practice setting\(^{(78)}\).

### 1.12 Reference List


Chapter 2.

The Western Sydney Cardiac Awareness Survey and Evaluation
2.1 Introduction

This Chapter describes the Western Sydney Cardiac Awareness Survey and Evaluation (WESTCASE). Existing data underscores that in spite of the overarching principles of HF management, interventions need to be tailored specifically to contextual issues\(^{(1-4)}\), particularly in the general practice setting\(^{(5)}\). In order to develop a sustainable and feasible model to evaluate a practice nurse intervention, it was considered critical to map general practice HF management in a discrete geographical context. Therefore, this study sought to provide contextual information to inform the subsequent phases of the Project. Specific consideration was given to the perspectives of population characteristics, systems and processes, in addition to that of patients and their families. Due to its size, cultural and linguistic diversity and heterogeneity of clinical practice, the Western Sydney Area Health Service (WSAHS) was selected as the study site.

The conduct of two distinct, yet interrelated, studies are reported within this Chapter. The first study is a synthesis of existing epidemiological data obtained from the published literature and local datasets. This study provides a population perspective to inform service delivery with WSAHS. The second study comprised an audit of usual HF management in general practice, patient interviews and consultation with key informants. This study sought to assess the current systems and processes within general practice and obtain a local perspective of the existing models of care. Extensive consultation with the Western Sydney Division of General Practice (WSDGP) during the planning of this investigation identified that they had a particular interest in exploring system and process issues. As such they were a key stakeholder and important local champion for the Project.

Each study provides descriptive data about a somewhat different element of the context, systems and processes of general practice health care within Western Sydney. The combination of these elements has elucidated key issues to inform the development of a model of care for HF in general practice. The methodological approach of each study, their findings and the conclusions that can be drawn from these data are described. Ethical considerations, strengths and limitations of the studies are also discussed.
2.2 **Purpose of the Investigation**

The overarching aim of the WESTCASE investigation was to identify conceptual, contextual and process issues to inform the development of a model of care for HF in general practice. Whilst the APACHE study, presented in Chapters 4 and 5, will provide evidence for the capacity for practice nurse involvement in chronic disease management interventions, it was identified that systems, process and contextual issues need to be considered to ensure the viability and sustainability of any proposed model of care\(^{(6, 7)}\).

The specific aims of the WESTCASE investigation were to:

(a) describe patterns of health care utilization, hospitalisation, mortality and morbidity within Western Sydney to provide a baseline for long-term monitoring of trends and planning for future service delivery.

(b) audit usual care in general practice within Western Sydney and identify target areas for subsequent intervention.

(c) consult with key informants from within Western Sydney to identify contextual issues for consideration in model of care development.

(d) identify the contemporary experience of consumers and their families in relation to HF management in general practice to ensure that subsequent models of care incorporate a consumer perspective.

(e) identify factors amenable to collaborative practice, substitution by the practice nurse and enhancement of services through practice nurse intervention.

2.3 **Setting**

On 1\(^{st}\) January 2005, in the closing stages of this investigation, the NSW Area Health Service boundaries were redistributed. An amalgamation of the WSAHS and Wentworth Area Health Services formed Sydney West Area Health Service (SWAHS). The data in this investigation examines the situation in what was the WSAHS. However, some of the most recent data has been classified using the new Area Health Service boundaries, despite referring to data collected before the redistribution of boundaries. Where this is the most current data available, it has been included in the discussion.
The WSAHS is a moderately sized geographical region, incorporating the local government areas of Auburn, Baulkham Hills, Blacktown, Holroyd and Parramatta. The Health Service was formed in 1988 and is comprised of a major tertiary referral centre at Westmead, three smaller acute hospitals (Blacktown, Mt Druitt and Auburn Hospitals) and two facilities for rehabilitation, chronic and palliative care (St Josephs’ and Lottie Stewart Hospital). The WSAHS is one of the fastest growing areas in NSW, with a total population of 677,870 adults reported in the 2001 census. This region has a culturally diverse community, including the largest urban Aboriginal population in Australia. Despite the rich character fostered by this cultural diversity, it presents significant challenges for the provision of culturally sensitive health services. It is predicted, given the prolonged engagement characteristic of the practice nurse role, that they have the potential to target these marginalised groups within the community.

In addition to cultural diversity, Western Sydney is recognised for significant socioeconomic deprivation. Figure 2-1 graphically depicts the relative socioeconomic indices by Area Health Service. From the 2001 census data, Auburn, Blacktown and to a lesser extent Holroyd local government areas, are more disadvantaged than the average NSW metropolitan local government area. Socioeconomic deprivation has previously been associated with adverse outcomes for people with chronic illnesses such as CVD.

![Figure 2-1 Socioeconomic Indices for Areas (SEIA) by Area Health Service](13, 14)
The National Centre for Monitoring Cardiovascular Disease\(^{(15)}\) asserts that Indigenous Australians and those at socioeconomic disadvantage are significantly more likely than other Australians to consume tobacco, be less physically active, have poorer nutritional intake, higher alcohol consumption and hypertension. It is not surprising, therefore, that these groups have a higher incidence of chronic diseases such as diabetes, CVD and HF\(^{(16)}\). Indigenous Australians are reported to have mortality rates 2.6 times higher and hospitalisation rates 1.4 times greater than those of other Australians for heart, stroke and vascular diseases\(^{(15)}\). This has significant public health consequences in terms of the ease of access of such groups to primary and secondary disease prevention programs and the early diagnosis and management of clinically significant disease. Community engagement and promotion of Aboriginal Health Care Workers are considered critical in improving health related outcomes among Australian Aboriginals\(^{(17)}\). Many of the roles and functions of the practice nurse could, potentially, be specifically tailored to meet the needs of local Indigenous populations and other culturally and linguistically diverse groups. Further, many aspects of the practice nurse could be conducted interchangeably or synergistically with Aboriginal Health Care Workers.

Given the cultural and linguistic diversity, high population of Indigenous Australians and significant prevalence of CVD within the WSAHS, this was considered an appropriate site in which to consider the development of a practice nurse intervention. Additionally, the Area Health Service had a composition of both small and large general practices represented by a single Division of General Practice. Successful engagement of key stakeholders at both Divisional and practice level also facilitated the conduct of this investigation.

**Study One: Synthesis of Epidemiological Data**

To date, there remains a lack of a gold standard diagnostic criteria for HF, a factor that has led to considerable heterogeneity of data in both clinical trials and epidemiological investigations\(^{(18-26)}\). Existing datasets have been identified as being inherently biased towards symptomatic left ventricular dysfunction and an underestimation of mild to moderate HF\(^{(1,23)}\). This stems from the extensive use of in-patient data, which measures only those with sufficiently severe disease or complications to require acute care admission. Whilst it is estimated that 80% of
initial diagnoses of HF occur during hospitalisation, a significant group with mild to moderate HF may not be captured in an acute hospital dataset\(^\text{22, 27}\). Difficulties in diagnosis and identification of patients are not confined to the acute care setting. Although limited evaluation has been conducted in Australian primary care, early evidence indicates that some 2% of patients with HF are undiagnosed by their general practitioner\(^\text{28}\). Also of concern, the preoccupation of data upon the acute care setting means that debate, discussion and discourse regarding HF management is often confined to acute care.

In addition to difficulties with the diagnosis of HF, there are issues of coding or data retrieval. For example, in some investigations, only the primary diagnosis field is used to identify HF admissions\(^\text{29}\). However, the evidence suggests that secondary HF admissions considerably outnumber primary HF admissions\(^\text{30}\). Although facilitating homogeneity of the data collection, exclusive use of primary diagnosis fails to recognise those in whom HF was coded as a second or subsequent diagnosis. The absence of standardised definitions and variances in the coding and retrieval of medical records significantly impacts upon data quality\(^\text{18, 22, 31}\). Given the caveats discussed above, the WESTCASE data provides a picture of HF in an Australian setting. The current absence of local data that identifies the incidence of HF in Australia\(^\text{15}\), or within the WSAHS\(^\text{32}\) specifically represents a significant challenge in the planning of future service delivery and development of models of care. The available data are a complex series of datasets and published papers that can each contribute small pieces of information to the developing picture of HF in Western Sydney. In spite of the focus of this investigation on a specific locality it is likely that this systematic and empirical method can inform development of models of care for practice nurses in other regions\(^\text{33}\).

### 2.4 Study Aim

This study sought to utilise existing datasets to explore and document contemporary patterns of hospitalisation, mortality and morbidity within the WSAHS to provide a baseline for monitoring of trends and planning for future service delivery. As the HF illness experience is characterised by frequent hospitalisations and a need for continuity of care, datasets exploring both acute and community care were accessed.
2.5 **Study Methods**

This study involved a comprehensive review of the published epidemiological literature and mining of local administrative datasets. The data collected from these two sources were compared and contrasted before being synthesised into the following descriptive report.

2.5.1 **Literature Review**

Initially, the international and Australian published literature was systematically searched for papers that explored the epidemiology of HF. CINAHL and MEDLINE electronic databases were searched to identify relevant literature published in the English language. Keywords used in this search included: ‘heart failure’, ‘cardiovascular disease’, ‘cardiac*’, ‘epidemiology’, ‘prevalence’ and ‘incidence’, in a variety of combinations. Additionally, the reference lists of retrieved articles were searched for further publications. Relevant locally held journals were hand searched for pertinent articles and the Internet was examined using the ‘Google’ search engine for related organizations, reports or electronic documents. Individual authors or organisations were contacted if there was any indication that unpublished material may have been available. Once collected, the literature was critically reviewed and synthesised using summary tables and narrative summary techniques.

2.5.2 **Mining Local Datasets**

Existing datasets were explored with the supervision of the WSAHS Centre for Epidemiology, Indicators, Research and Evaluation (EIRE)(9, 32). Data relating to the WSAHS for 1989-2003 was gathered from databases including the Australian Bureau of Statistics (ABS), the In-patients Statistics Collection (ISC) in the Health Outcomes Statistical Toolkit (HOIST) Data Warehouse and the WSAHS Health Information Exchange (HIE). Where appropriate, this data were compared and contrasted with that from the series of epidemiological investigations published by NSW Health(13, 34, 35) and the AIHW(36-39). In some areas, the only available information for comparison or description was from the international literature. Data tables were gathered electronically and imported in Microsoft Excel™ to facilitate data management and analysis. Once the scope of the available data was identified, it was interrogated to ascertain patterns and trends.
2.6 Results

2.6.1 Incidence

The incidence of a disease describes the number of new cases occurring during a specified period\(^\text{(15)}\). Most commonly this is derived by calculating the number of new cases identified on disease registers and then extrapolating this information to the entire population\(^\text{(15)}\). Data on the incidence of disease are important as an indicator for measuring the effect of causative factors, lifestyle changes and primary prevention strategies\(^\text{(16)}\). There is much less known about the incidence of HF than its prevalence\(^\text{(40)}\). As previously identified, there are no accurate Australian data available currently on either the national incidence or prevalence of CVD\(^\text{(15)}\). The report published by Stewart et al.\(^\text{(29)}\) is the only attempt to date to reveal the representative burden of HF in the Australian setting. Although the findings of the report are based on projected data, it represents the best available evidence. Stewart et al.\(^\text{(29)}\) report that from the hospitalisations during 2000 it was possible to calculate an incidence rate of 116 newly hospitalised cases per 100 000 Australians per annum. Although the authors acknowledge that this represents somewhat of a plateau, the ageing population and improved survival from cardiac illness are postulated to drive a growing epidemic in the future\(^\text{(29)}\).

The plateau identified by Stewart et al.\(^\text{(29)}\) is also noted in other international datasets\(^\text{(41-44)}\), with recent trends in the USA also demonstrating somewhat of a plateau in HF incidence\(^\text{(44)}\). The Framingham and Rochester studies which have utilised uniform entry criteria and case ascertainment during the decades of follow-up do not suggest increases in the incidence of HF\(^\text{(42-44)}\). Within the Framingham cohort the lifetime risk for developing HF is reported as being one in five for both men and women\(^\text{(45)}\). A major limitation of the Framingham study is the fact that HF was identified using clinical criteria alone, thus potentially excluding those without left ventricular systolic dysfunction and underestimating the true incidence of the disease\(^\text{(40, 42, 45, 46)}\). Additionally, the cohort of participants were almost entirely Caucasian, thus potentially limiting the generalisability of the findings to those from other multicultural backgrounds who commonly make up contemporary Australian communities\(^\text{(45)}\). Table 2-1 describes the incidence of HF reported in major contemporary studies.
The belief that the incidence of HF will increase in the coming years is based upon several sound arguments, including the improved survival from cardiac disease, the ageing population and lifestyle factors, such as the increased prevalence of type II diabetes and obesity.

(a) Improved Survival from Heart Disease

Improved medical therapies for heart disease such as pharmacological treatment with angiotensin converting enzyme (ACE) inhibitors, aspirin, beta blockers and rapid thrombolysis and revascularisation, have clearly significantly improved the survival rates of those with CVD\(^{(16, 18, 21, 29, 44, 46, 52)}\). Combined with an increased uptake of sophisticated diagnostic techniques, such as echocardiography and brain type natriuretic peptide, this has led to a fall in the Australian case fatality rate for acute cardiac events by 12-16% between 1993-94 and 1999-2000\(^{(16, 23)}\). These rates of improved survival renders a greater number of individuals with risk factors for HF, many of whom will logically go on to develop HF later in life\(^{(18, 29)}\). Additionally, whilst improvements in hypertension management may well have decreased the incidence of cerebrovascular accidents, as individuals with hypertension age they are at an increased risk of developing HF\(^{(44)}\). This is particularly true in women\(^{(53)}\). Further, the incidence of first myocardial infarction itself improved in the 1990s likely because of the use of lipid lowering drugs, anticoagulants and antihypertensives\(^{(16, 18, 23)}\). However, the tendency for increased obesity and reduced physical activity has significant potential to reverse these trends in the 21st century\(^{(16, 18, 23)}\).
(b) Ageing Population

Currently, we face the long forecasted point in time where the baby boomer generation of those born in the aftermath of World War II are now reaching advanced years\(^\text{(19, 21, 29, 54)}\). The increase in the numbers within this generation has also been buoyed by the medical advances of recent decades that have improved survival compared to previous generations\(^\text{(38)}\). In Australia, between 1991-2001 the male population aged over 65 years increased by 29%, from 836,300 to almost 1.1 million, and the female population aged over 65 years increased by 22%, from 1.1 million to nearly 1.4 million\(^\text{(38)}\). The greatest growth in this group was seen in those aged over 85 years, with an 85% increase for males and 67% increase for females\(^\text{(38)}\). Table 2-2 provides a breakdown of the estimated Australian resident population by age based on ABS data for the June quarter 2003\(^\text{(38)}\).

### Table 2-2 Estimated Resident Population, Australia June 2003\(^\text{(38)}\)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Estimated Population</th>
<th>% of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-69</td>
<td>720,072</td>
<td>3.62</td>
</tr>
<tr>
<td>70-74</td>
<td>629,877</td>
<td>3.17</td>
</tr>
<tr>
<td>75-79</td>
<td>537,980</td>
<td>2.71</td>
</tr>
<tr>
<td>80-84</td>
<td>368,189</td>
<td>1.85</td>
</tr>
<tr>
<td>85-89</td>
<td>190,953</td>
<td>0.96</td>
</tr>
<tr>
<td>90-94</td>
<td>75,981</td>
<td>0.36</td>
</tr>
<tr>
<td>95-99</td>
<td>18,823</td>
<td>0.09</td>
</tr>
<tr>
<td>100+</td>
<td>3,766</td>
<td>0.02</td>
</tr>
<tr>
<td>Total 65yrs+</td>
<td>2,545,641</td>
<td>12.80</td>
</tr>
<tr>
<td>All ages</td>
<td>19,881,946</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Kelly\(^\text{(54)}\) forecasts that life expectancy will extend from 47 years in 1900 with some 4% of the population over 65 years, to 82 years in 2026, with 20% of the population over the age of 65 years. This will represent an increase from 1.3 million Australians aged over 65 years in 2002, to 2.2 million Australians aged over 65 years by 2020\(^\text{(23)}\). The increase in those aged over 85 years is projected to nearly double over this period, growing from 140,000 to 270,000 and comprising some 3% of the population in the next thirty-years\(^\text{(23)}\). Figures 2-2 and 2-3 graphically depict this population projection. Such growth in the proportion of elderly people within our community has clear implications for the increasing incidence of chronic illness. The specific effect of the ageing population on HF, however, is somewhat unclear due to the lack...
of age specific data on HF in Australia from which to make accurate projections. However, there is a generally accepted link between the incidence of HF and advancing age\(^{(55)}\). Whilst, currently, the WSAHS has a relatively young population, this is forecasted to change in the future, with a significant growth in the over 65 year age group expected in the next decade (Table 2-3).

![Figure 2-2 Australia Population Projection to 2030\(^{(23)}\)](image)

**Figure 2-2** Australia Population Projection to 2030\(^{(23)}\)

![Figure 2-3 Changing Age structure of the Australian population – from Pyramid to Coffin\(^{(56)}\)](image)

**Figure 2-3** Changing Age structure of the Australian population – from Pyramid to Coffin\(^{(56)}\)
Table 2-3 Resident Population of the WSAHS by Age 2001-11\(^{(11)}\)

<table>
<thead>
<tr>
<th>Age Group (in years)</th>
<th>Auburn</th>
<th>Baulkham Hills</th>
<th>Blacktown</th>
<th>Holroyd</th>
<th>Parramatta</th>
<th>Western Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>11 952</td>
<td>30 180</td>
<td>64 484</td>
<td>17 478</td>
<td>28 766</td>
<td>152 860</td>
</tr>
<tr>
<td>15-29</td>
<td>13 370</td>
<td>29 570</td>
<td>58 127</td>
<td>19 534</td>
<td>31 738</td>
<td>152 339</td>
</tr>
<tr>
<td>30-44</td>
<td>13 896</td>
<td>30 256</td>
<td>60 670</td>
<td>19 607</td>
<td>35 001</td>
<td>159 430</td>
</tr>
<tr>
<td>45-64</td>
<td>10 826</td>
<td>37 259</td>
<td>52 538</td>
<td>18 627</td>
<td>29 914</td>
<td>149 164</td>
</tr>
<tr>
<td>65-74</td>
<td>3 073</td>
<td>6 544</td>
<td>11 965</td>
<td>5 511</td>
<td>9 024</td>
<td>36 117</td>
</tr>
<tr>
<td>75+</td>
<td>2 734</td>
<td>4 610</td>
<td>7 411</td>
<td>4 504</td>
<td>8 700</td>
<td>27 959</td>
</tr>
<tr>
<td>All ages</td>
<td>55 851</td>
<td>138 419</td>
<td>255 195</td>
<td>85 261</td>
<td>143 143</td>
<td>677 869</td>
</tr>
</tbody>
</table>

Projection\(^{#}\) for 2006

<table>
<thead>
<tr>
<th>Age Group (in years)</th>
<th>Auburn</th>
<th>Baulkham Hills</th>
<th>Blacktown</th>
<th>Holroyd</th>
<th>Parramatta</th>
<th>Western Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>13 876</td>
<td>29 337</td>
<td>64 207</td>
<td>19 950</td>
<td>28 122</td>
<td>152 492</td>
</tr>
<tr>
<td>15-29</td>
<td>15 802</td>
<td>31 122</td>
<td>63 019</td>
<td>19 041</td>
<td>31 911</td>
<td>160 895</td>
</tr>
<tr>
<td>30-44</td>
<td>16 480</td>
<td>31 646</td>
<td>63 427</td>
<td>20 611</td>
<td>35 693</td>
<td>167 857</td>
</tr>
<tr>
<td>45-64</td>
<td>14 593</td>
<td>43 275</td>
<td>65 596</td>
<td>21 885</td>
<td>35 020</td>
<td>180 369</td>
</tr>
<tr>
<td>65-74</td>
<td>3 548</td>
<td>8 483</td>
<td>14 076</td>
<td>5 860</td>
<td>10 088</td>
<td>42 055</td>
</tr>
<tr>
<td>75+</td>
<td>3 215</td>
<td>5 437</td>
<td>8 941</td>
<td>4 873</td>
<td>9 681</td>
<td>32 147</td>
</tr>
<tr>
<td>All ages</td>
<td>67 514</td>
<td>149 300</td>
<td>279 266</td>
<td>89 220</td>
<td>150 515</td>
<td>735 815</td>
</tr>
</tbody>
</table>

Projection\(^{#}\) for 2011

<table>
<thead>
<tr>
<th>Age Group (in years)</th>
<th>Auburn</th>
<th>Baulkham Hills</th>
<th>Blacktown</th>
<th>Holroyd</th>
<th>Parramatta</th>
<th>Western Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>14 443</td>
<td>30 141</td>
<td>62 976</td>
<td>16 113</td>
<td>26 971</td>
<td>150 644</td>
</tr>
<tr>
<td>15-29</td>
<td>17 219</td>
<td>32 770</td>
<td>66 522</td>
<td>19 135</td>
<td>32 556</td>
<td>168 202</td>
</tr>
<tr>
<td>30-44</td>
<td>17 362</td>
<td>33 335</td>
<td>64 564</td>
<td>20 051</td>
<td>35 009</td>
<td>170 321</td>
</tr>
<tr>
<td>45-64</td>
<td>17 042</td>
<td>46 493</td>
<td>74 222</td>
<td>23 400</td>
<td>37 716</td>
<td>198 873</td>
</tr>
<tr>
<td>65-74</td>
<td>4 226</td>
<td>11 854</td>
<td>17 905</td>
<td>6 705</td>
<td>11 284</td>
<td>51 974</td>
</tr>
<tr>
<td>75+</td>
<td>3 371</td>
<td>6 271</td>
<td>10 507</td>
<td>5 012</td>
<td>9 953</td>
<td>35 114</td>
</tr>
<tr>
<td>All ages</td>
<td>73 663</td>
<td>160 864</td>
<td>296 696</td>
<td>90 416</td>
<td>153 489</td>
<td>775 128</td>
</tr>
</tbody>
</table>

Source: HOIST, NSW Health

\(^{#}\) Projections based on Estimated Resident Populations using 1996 Census data

\(\text{(c)}\) \textbf{Lifestyle Risk Factors}

The impact of lifestyle risk factors on the development of CVD and HF is well recognised\(^{(57-63)}\). Heart failure can result from any disorder that places the myocardium under a chronically increased volume or pressure load, produces increased metabolic demand or produces primary myocardial damage\(^{(64)}\). The most common causes of HF are related specifically to cardiac muscle dysfunction caused by etiologies such as hypertension and myocardial ischaemia\(^{(40)}\). Together myocardial infarction and ischaemic heart disease precipitate an estimated two thirds of cases of systolic HF\(^{(21)}\). In Australia, hypertension accounts for 40-50% of HF admissions and is a common cause of diastolic HF\(^{(21)}\).

Several lifestyle risk factors commonly predispose an individual to myocardial ischaemia and acute cardiac events. Understanding the epidemiological trends of
these factors can assist in projecting the future development of HF. Campbell\cite{25} identified that in 1995 over 80% of Australian adults had at least one cardiovascular risk factor, such as smoking, physical inactivity, hypertension or obesity. The personal nature of lifestyle risk factors, however, relies largely upon self-report measures to record their prevalence. It is difficult, therefore, to ensure the accuracy of data. This means that available data may, in fact, underestimate the real prevalence of lifestyle risk factors in the community.

In some respects, significant improvements in the health of Australians have been achieved in recent decades. For example, over the last twenty years the prevalence of hypertension has halved within the 25-64 year age group\cite{38} and, compared to 70% of men and 30% of women who smoked daily in the 1950s, only 20% of Australians over 14 years smoked daily in 2001\cite{15, 38}. However, hypertension still affects 30% (3.7 million) of Australians aged over 25 years\cite{38}. In 1999-2000, 50% of Australians (>6 million) had blood cholesterol levels exceeding 5.5mmol/L\cite{38} and amongst those aged 25-64 years the prevalence of obesity has doubled over the last two decades, with one in five now obese\cite{23, 38}. Obesity is not an individual problem, rather the entire population has gradually increased in weight\cite{65}. The normal bell curve of weight distribution within the population has remained, but has shifted significantly to the right\cite{65}. The WHO has recognised this rise in obesity as a worldwide epidemic\cite{66}. During the 14-year Framingham Heart Study follow-up, compared to participants with a normal body mass index, overweight and obese women experienced a 50% increase in the incidence of HF, whilst overweight men saw a 20% increase and obese men a 90% increase in the occurrence of HF\cite{62}. The risk of developing HF rose with increasing obesity and remained significant even in models that incorporated other HF risk factors\cite{62}. Therefore, it is reasonable to postulate that increases in obesity within the community will be associated with an increasing incidence of HF in the not too distant future\cite{25}.

Although not specifically a lifestyle factor, the incidence of diabetes, particularly type II, has increased\cite{58}. Major contributing factors to this increase include both poor diet and increasing obesity\cite{58}. Of the 7.6% Australians aged over 25 years identified with raised blood glucose levels in 1999-2000, approximately half were unaware that they had diabetes\cite{15}. Whilst there is limited data available to develop a complete picture of trends of diabetes prevalence within Australia, it is estimated that there has
been a significant increase between 1981 and 1999-2000 from 3.0-7.6%\textsuperscript{(15)}. Such escalation in the occurrence of diabetes will also likely contribute to an increased incidence of HF\textsuperscript{(25, 58)}.

There is limited data available on lifestyle risk factors within the WSAHS, although the socioeconomic deprivation is likely correlated with a greater occurrence of such factors\textsuperscript{(15)}. Table 2-4 provides data from a series of NSW investigations that describe the changing incidence of key HF risk factors\textsuperscript{(32)}.

**Table 2-4 Changes in Risk Factors and Health Conditions that can lead to HF\textsuperscript{(32, 67, 68)}**

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Health Promotion Survey 1994 - Baseline</th>
<th>1998 NSW Health Survey</th>
<th>2002 NSW Health Survey</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current smoking (daily or occasionally) 18+yr</td>
<td>M: 30.4% F: 24.6% P: 27.5%</td>
<td>M: 23.9% F: 18.9% P: 21.4%</td>
<td>M: 29.4% F: 18.2% P: 23.8%</td>
<td>M: -3.3% F: -26.0% P: -13.4%</td>
</tr>
<tr>
<td>Obesity (BMI&gt;30) 18+yr</td>
<td>M: 11.2% F: 11.9% P: 11.5%</td>
<td>M: 15.3% F: 12.9% P: 14.1%</td>
<td>M: 14.6% F: 13.0% P: 13.8%</td>
<td>M: 30.3% F: 9.2% P: +20.0%</td>
</tr>
<tr>
<td>Diabetes 18+yr</td>
<td>M: 3.5% F: 4.3% P: 3.9%</td>
<td>M: 4.1% F: 3.8% P: 3.9%</td>
<td>M: 6.0% F: 3.5% P: 4.8%</td>
<td>M: 71.4% F: -18.6% P: +23.1%</td>
</tr>
<tr>
<td>Major acute coronary event rate</td>
<td>All ages</td>
<td>All ages</td>
<td>All ages</td>
<td>All ages</td>
</tr>
</tbody>
</table>

M=male; F=female; P=person

As has been identified, the rate of major acute coronary events has been in decline. Major acute coronary events are calculated as the sum of non-fatal hospital admissions with a minimum length of stay of three days for acute myocardial infarction and deaths from coronary heart disease\textsuperscript{(16)}. In the 30-40 year age group, the rate of major acute coronary events in NSW has fallen by 30% in the last 10 years.

Despite this apparently promising finding, self-reported, doctor diagnosed, diabetes prevalence has increased by 23% and obesity increased by 20% in the 10 years from
1994. In the 1998 NSW Health Survey\(^{(67)}\), 16% of adults aged 18 years and older reported that they had been told by a doctor that they had high blood pressure. The increasing trend of such factors infers that without intervention, the burden of CVD is likely to escalate in the near future. Saliently, many of these risk factors are modifiable in community settings and likely amenable to interdisciplinary, general practice interventions\(^{(10)}\).

In considering the implications of this survey data, the study method should be reviewed. The 2002 NSW Health Survey\(^{(68)}\), for example, interviewed 15,442 individuals across all Area Health Services, which represented an overall response rate of 67.6%. Whilst this may initially seem representative of the wider population, this is not so true when considered in terms of individual Area Health Services. In this survey, the WSAHS contributed the smallest response of all Area Health Services with 850 participants (response rate 60.6%). Whilst the reasons for this are not explicated in the report, the multicultural nature of the community and the socioeconomic deprivation means that not all households in the area have telephones. This is a likely contributor to this low participation rate from within the WSAHS. Although some interviews were undertaken in Arabic, Chinese, Italian, Vietnamese and Greek, 98.8% were conducted in English\(^{(68)}\). This clearly does not well reflect the information known about languages spoken at home both in the WSAHS and the wider community of NSW\(^{(8)}\). Eighty-three percent of survey participants were born in Australia, which is somewhat higher than the wider NSW community, where 70.5% of the population are Australian born\(^{(68)}\). Interpretation of the survey data, therefore, must consider that those groups who are most disadvantaged and marginalised within the community are not well represented within the sample.

**(d) Predicting Future Events**

Predicting future trends of incidence of HF is difficult. Pressures from population ageing and continuing improved survival from acute coronary events can likely be anticipated to increase incidence and prevalence of HF\(^{(29)}\). Predicted continuing increases in the incidence of obesity and diabetes would likely add to this increasing disease burden. However, the incidence of CVD has been falling substantially over recent decades and is currently continuing to fall. The impact of this on the epidemiology of HF may not yet be clear, but should at least exert some downward
force on incidence rates. The net impact on HF mortality and hospitalisation trends has been relatively neutral in the past decade. This may change if the current epidemic of obesity and related lifestyle risk factors is not addressed as a priority through the implementation of strategic and sustainable management interventions.

Although health professionals have the skills and knowledge to identify those at high risk of HF and implement evidence-based therapies to prolong life, lifestyle factors have a significant role in risk reduction. Therefore, progress in secondary HF prevention requires a significant social, economic and political commitment from society as a whole\(^{(69)}\).

### 2.6.2 Prevalence

Disease prevalence is the number of cases of disease with a population at a specific point in time\(^{(15)}\). Therefore, it is dependant upon the incidence, severity and duration of recognised cases\(^{(15, 44)}\). As such, as the number of acute cardiac events declines and premature death from CVD is reduced, the prevalence of HF paradoxically increases\(^{(46)}\). Data demonstrating HF prevalence is difficult to obtain and comparatively analyse due to variability in diagnostic criteria, research methods, geographical area, population demographics and data sources utilised\(^{(1, 40, 44)}\). For example, prevalence rates calculated using population based data will likely report higher prevalence rates as they will include cases that are not so severe as to require hospitalisation who would be missed in acute hospital admissions data\(^{(42, 44)}\).

Evidence from the Scottish register of hospitalisations and morbidity suggests that the prevalence of HF in the general population may be far greater than has been estimated from clinical trials, particularly in the elderly cohort\(^{(70)}\). The rationale for this discrepancy is related to the fact that the exclusion criteria for clinical trials, whilst important for the nature and scope of the research, fail to consider a significant group of elderly and predominately female patients in whom HF is a significant health issue\(^{(54, 70-72)}\). Lloyd-Williams et al.\(^{(73)}\) identified, however, that even with few exclusion criteria, recruitment of elderly HF patients to research programs is problematic. Issues such as perceiving that they were too old, ill, frail, housebound, or with too many co-morbidities were reported as reasons for declining to participate in research\(^{(73)}\). Table 2-5 compares the characteristics of a sample used in clinical
trials research with that of a community-based sample and highlights the variability of demographic characteristics.

**Table 2-5** Characteristics of HF in Clinical Trials versus a Community Sample

<table>
<thead>
<tr>
<th></th>
<th>Clinical Trials</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>63</td>
<td>77</td>
</tr>
<tr>
<td>Sex (% women)</td>
<td>21</td>
<td>51-60</td>
</tr>
<tr>
<td>Primary Cause</td>
<td>Coronary Artery Disease</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Preserved Left Ventricular Ejection Fraction (%)</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Compliance</td>
<td>Optimal</td>
<td>Less than optimal</td>
</tr>
<tr>
<td>Co-morbidity</td>
<td>Limited</td>
<td>Prevalent</td>
</tr>
</tbody>
</table>

Regardless of the data source, there is a clear trend for significant increases in the prevalence of HF with age. Whilst overall prevalence rates for HF are reported as being between 3-12 per 1000, the prevalence reported in older age groups ranges between 30-100 per 1000. Combined with what we already know about the projected increase in the Australian population aged over 65 years, this has significant implications for disease burden and health care delivery.

In 2001, the National Heart Foundation and Cardiac Society of Australia and NZ published their projections for the prevalence of coronary heart disease, hypertension and HF in older Australians. As can be seen from Figure 2-4, this projection depicts an alarming rise in all types of CVD over the coming decades.

![Figure 2-4 Projected Prevalence of CVD, Hypertension and HF in Australians](image)
CHAPTER TWO

2.6.3 Access to General Practitioners

In NSW during 2001-02, there were 1 467 persons per full-time equivalent (FTE) general practitioner\(^{(74)}\). This fell slightly in 2002-03 to 1 463 persons per FTE general practitioner, with a range of 846 to 1 463 persons\(^{(74)}\). Compared to the other States and the Territories, NSW had an average ratio of population per general practitioner, having a slightly higher ratio than Tasmania (1 400 persons per FTE general practitioner), Victoria (1 403 persons per FTE general practitioner) and Queensland (1 424 persons per FTE general practitioner) and somewhat lower ratio than Western Australia (1 701 persons per FTE general practitioner), Australian Capital Territory (1 706 persons per FTE general practitioner) and Northern Territory (2 223 persons per FTE general practitioner)\(^{(74)}\). Nationally, there were 1 446 and 1 419 persons per FTE general practitioner in 2001-02 and 2002-03 respectively\(^{(74)}\). Although the ratio was slightly higher in rural, as compared to urban areas, this difference was not significant and is reported to be decreasing\(^{(74)}\).

During the study period, the WSDGP reported that 660 general practitioners were members of the Division of General Practice. This was estimated by the Division to only slightly under represent the number of practising general practitioners in the WSAHS. There was limited information available, however, in regards to the FTE of these practitioners. Of critical importance is that although 46% of Sydney's population lives in greater Western Sydney there are three general practitioners in the rest of Sydney compared to one general practitioner in greater Western Sydney\(^{(75)}\). Considering that it is estimated, in the next 20 years, that 25% of Australia’s population growth will occur in greater Western Sydney\(^{(75)}\) it is essential the strategic planning of general practice services is urgently undertaken to ensure adequate service provision into the future. It is for this reason that planning and development of a new medical school has been commenced at UWS Campbelltown campus\(^{(75)}\). A key focus of curriculum development within this course is to develop and foster community-based interdisciplinary interventions\(^{(75)}\).

2.6.4 Hospital Separations

In Australia, during 2000, it is estimated that some 35 000 hospital admissions annually occurred with a principal diagnosis of HF, and a further 64 000 occurred with HF as a major contributory factor\(^{(29)}\). It is further estimated that these
admissions represented 1.4 million bed days\(^{(29)}\). In 2001-02, there were 41,874 hospital separations throughout Australia with a primary diagnosis of HF\(^{(38)}\), representing 0.7% of all hospitalisations and 9.5% of hospitalisations for heart, stroke and vascular disease\(^{(15)}\). Whilst there is a high frequency of hospitalisation amongst all individuals with HF, international rates of HF related hospital admission significantly increase in those aged over 65 years\(^{(22)}\). At least 20% of all acute care admissions for those over 65 years are due to HF, making it the highest ranking diagnostic related group (DRG) (International Classification of Disease (ICD) 9 code 428) for admission in this age group\(^{(71, 72, 76)}\). It has been reported overseas that the numbers of hospitalisations in the over 65 years has increased by 159% in recent years\(^{(76)}\). It is unclear whether this is at least partially related to an ageing population, or an increased prevalence of specific chronic disease processes. Whilst estimates agree that similar patterns of acute care admission occur in the Australian context, to date such hospital admission data are not as succinctly or accurately documented\(^{(1)}\). Figure 2-5 demonstrates the trends in hospitalisation with HF or hypertension as a primary diagnosis in Australia from 1993-94 to 2000-01 and Figure 2-6 depicts the age specific hospitalisation rates with HF as principal diagnosis, by gender in Australia during 2000–01. Although these graphs do not well demonstrate an increasing trend in hospitalisations, this is more related to the effectiveness of pharmacotherapy, such as beta blockers, rather than representing the underlying trend\(^{(77)}\).

**Figure 2-5** Trends in Hospitalisation with HF or Hypertension as a Primary Diagnosis, Australia 1993-94 to 2000-01\(^{(23)}\)
Figure 2-6  Age Specific Hospitalisation Rates with HF as Principal Diagnosis, by Gender, Australia 2000–01\(^{(23)}\)

A major issue relating to knowledge of HF hospitalisation rates is a lack of interrogation of existing data at a local level to identify trends and service issues. Medical records of acute hospital admissions are coded at a hospital level and data forwarded to central repositories. To date, few Australian investigations have formally critically analysed this data and applied the local information to improve service delivery and quality of care\(^{(78)}\). A lack of interrogation of the data also means that pooled data may contain significant errors in terms of coding variation that would be virtually undetectable in aggregated datasets. Such a gap in knowledge is significant and clearly requires further investigation.

In addition to issues with data collection, it is recognised that data on HF hospitalisation rates do not directly demonstrate disease incidence\(^{(14)}\). It must be considered that the data represents episodes of disease. It is not possible to ascertain from hospitalisation data whether one person has been hospitalised on multiple occasions or if multiple persons have been hospitalised on a single occasion\(^{(14, 79)}\). Additionally, factors such as local admissions policies, bed availability and prehospital morbidity can confound the data\(^{(14)}\).

Hospital separation data were retrieved from the ISC in the NSW Health HOIST data warehouse. In order to maintain consistency and greatest reliability in the data, cases were defined as patients discharged with a principal diagnosis of HF (ICD 10, I50). Whilst the limitations of this definition were identified, it was considered that this definition was most appropriate given the nature of the investigation.
In the financial years 1999-2000 and 2001-02, NSW hospitals recorded an average of 13 486 separations for HF per year at an age standardised rate of 239 per 100 000 adults 20 years and older. As can be seen from Table 2-6, during the same period, WSHAS had an annual average of 1 186 HF separations and a slightly higher age standardised rate of 272 per 100 000. As well as being higher than the State average, the age standardised rate per 100 000 population in the WSAHS was higher than that of the combined urban Area Health Services, and only just below that of the combined rural Area Health Services.

Table 2-6 HF Hospital Separations by Residence for Patients >20 Years\(^{(32)}\)

<table>
<thead>
<tr>
<th></th>
<th>Separations per year</th>
<th>Directly standardised separation rate per 100,000 population (99% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>13 486</td>
<td>239 (237 - 240)</td>
</tr>
<tr>
<td>Urban AHS</td>
<td>9 286</td>
<td>222 (221 - 224)</td>
</tr>
<tr>
<td>Rural AHS</td>
<td>4 099</td>
<td>286 (283 - 290)</td>
</tr>
<tr>
<td>WSAHS</td>
<td>1 186</td>
<td>272 (267 - 278)</td>
</tr>
<tr>
<td>Blacktown</td>
<td>446</td>
<td>368 (355 - 381)</td>
</tr>
<tr>
<td>Parramatta</td>
<td>261</td>
<td>207 (197 - 217)</td>
</tr>
<tr>
<td>Holroyd</td>
<td>208</td>
<td>308 (293 - 325)</td>
</tr>
<tr>
<td>Baulkham Hills</td>
<td>150</td>
<td>207 (195 - 221)</td>
</tr>
<tr>
<td>Auburn</td>
<td>120</td>
<td>284 (265 - 305)</td>
</tr>
</tbody>
</table>

Source: ISC / HOIST

As can be seen from Table 2-7, the HF separation rates varied among local government areas within the Area Health Service. Within the five local government areas comprising WSAHS, Blacktown had the highest HF separation rate, and Baulkham Hills the lowest. This is consistent with the finding of McAlister et al.\(^{(80)}\) who identified the negative effects of socioeconomic status on the health of the community and its impact upon the utilisation of primary care. Blacktown local government area is a relatively socioeconomically disadvantaged region within the area and also contains the highest urban indigenous population in Australia\(^{(32)}\). The higher hospitalisation rate is consistent with a greater incidence of HF and likely suboptimal access to and utilisation of primary care services in this municipality.

In the decade from 1989-90 to 1999-2000 total HF separations per year in those over 65 years within the WSAHS have increased by 65.4% from 678 to 1 037 separations per year (Figure 2-7). This apparent increase has, however, occurred secondary to
increases in local population as can be seen from the relatively static standardised separation rate. Regardless of the cause, this trend demonstrates an increasing demand for acute care services to manage HF within the WSAHS that must be considered in the planning of new services. Data from the HOIST / ISC predicts that HF separation in the WSAHS will increase to 1,339 in 2006, 1,458 in 2011 and be around 1,648 by 2016. Given the high rate of service utilisation and significant readmission rates seen in the HF population, there is a clear need to explore models of care that reduce this utilisation by facilitating evidence-based management within the community setting.

![Figure 2-7 WSAHS HF Hospital Separations in those Aged over 65 years](image)

Although Figure 2-8 is clustered by the new Area Health Service boundaries, it is useful to highlight the geographical variation in HF hospitalisations within NSW. Such information supports the hypothesis that sustainable programs of HF management must be sufficiently flexible to meet local needs.

![Figure 2-8 HF Hospitalisations by Health Service and Gender, NSW 2002-03](image)
2.6.5 **Length of Hospital Stay**

It has been reported that, in Australia, the average length of hospital stay for HF has decreased from between nine and ten days in 1993-94 to between seven and eight days in 2000-01\(^{(23)}\). It is difficult to ascertain the rationale for this reduction. It could be postulated to be related to enhancements in acute therapy, improvements in the primary care sector that are able to support patients discharged earlier or simply the added burden on the resources of the health care system that inhibits lengthy admissions. Factors such as female gender and advancing age are reported as being the most likely factors contributing to longer than average hospital admissions\(^{(23)}\). Shorter lengths of hospital stay have likely contributed to the increase in post acute care discharge programs and again identifies a potential role for the practice nurse\(^{(10)}\).

Scanlon\(^{(84)}\) reports that the introduction of chronic disease programs in NSW has been demonstrated to have a positive impact on reducing the number of bed days relating to CVD and HF. These programs have reduced the number of bed days for CVD by 29 096 during 2000-03. Further, the current implementation of clinical guidelines through the Clinical Services Framework, is expected to minimise acute care resource requirements\(^{(85)}\).

Within the WSAHS during 1997-2000, 21% of all bed days in those aged over 65 years were related to diseases of the circulatory system. Sixteen percent of these bed days were related to HF\(^{(32)}\). Accounting for 3.4% of the total number of bed days in those over 65 years, HF was responsible for the second largest number of bed days behind only rehabilitation\(^{(32)}\). Improvements in the availability of primary care services has the potential to effect reductions on this, as individuals are able to receive continuing care either in their own home or from their local general practice.

2.6.6 **Hospital Readmissions**

Rehospitalisation rates are commonplace in HF, particularly in the elderly, where up to 45% of patients are readmitted to hospital within six months\(^{(19, 23, 40, 81-83)}\). This is despite the finding that between 50-75% of acute care admissions are potentially preventable\(^{(44)}\). A readmission rate of 20% within 28 days was documented in the Australian Newcastle HF Project\(^{(83)}\), 35% within one year from the Hunter Region Heart and Stroke Register\(^{(86)}\) and 36% within one year in the Westmead Study\(^{(24)}\).
Zannad et al. (20) reported that in their cohort of advanced HF patients, more than 80% of those surviving at one year had at least one hospital readmission. Factors related to increased readmission rates in this group include non-compliance with medication regimes, inadequate post-discharge follow-up, failure to address lifestyle factors that predispose disease exacerbations and a failure to seek medical assistance when signs and symptoms of deterioration occurred following hospital discharge (87-89). Unlike many other chronic illnesses, the severity of HF can frequently be reduced by improving patient compliance, since the application of evidence-based therapy can potentially significantly reduce exacerbations of HF and improve quality of life (87, 90, 91). In addition to the contribution of severity of disease and patient functional status, caregiver factors such as stress, depression and level of support, have been identified as having a potential effect on readmission rates (82). Reduction of hospital readmissions is likely to affect the greatest reduction of health care expenditure within the current health care system (30).

Analysis of data from the WSAHS HIE for the period January 1 2000 to June 30 2003 found that among those admitted to the tertiary referral hospital with a principal diagnosis of HF, 78% were readmitted at least once during the three-year period. Most readmissions occurred during the three to six months directly following initial hospital discharge. Thirty-one percent of those readmitted to hospital had their initial readmission within 30 days of discharge and 59% within six months. The most frequent diagnosis in those readmitted was HF (24%), followed by all other circulatory disorders (22%). Forty-eight percent of readmissions were for a non-circulatory diagnosis. It was not clear whether this diagnosis was related to HF.

Analysis of an internally matched file from the NSW ISC for 2000-01 showed that 10% of WSAHS separations where HF was the principal diagnosis were re-admitted within one month and 14% within three months. The corresponding NSW rates at one and three months were 11% and 15% respectively. Therefore, the WSAHS data are not significantly different from the State averages. This is a positive finding, given the lack of a specific, coordinated HF management program within the WSAHS at the time of data collection (92). However, it does demonstrate scope for increased post-discharge support for HF patients in the community and general practice setting to potentially reduce such frequent hospital readmissions.
2.6.7 Health Care Expenditure

Heart failure management places a substantial burden on health care systems internationally and is estimated to account for 1-2% of the total health costs of industrialised nations\(^\text{30, 40, 93}\). More than 70% of this expenditure is related to acute hospitalisation\(^\text{4, 22, 23, 30, 94-98}\). It has been estimated that reducing the length of hospital stay by as little as one day or halving re-admission rates could result in annual savings of UK£50-120 million per annum\(^\text{30}\). It should be remembered, however, that although hospital expenditure may represent the most substantial direct financial cost, significant indirect costs also contribute to the burden of disease, such as lost productivity, carer burden and reductions in quality of life\(^\text{98}\).

Australian health expenditure accounted for some 9.3% of gross domestic product in 2001-02, with AUD$66.6 billion spent on healthcare\(^\text{38}\). This represents a gradual increase compared to 8.7% in 1998-99 and 8.1% in the early 1990s\(^\text{38}\). When classified by disease or injury group, health expenditure was highest for CVD\(^\text{98}\), being 11% of the total health expenditure or an estimated AUD$5.4 billion during 2000-01\(^\text{38, 98}\). CVD has the highest per person expenditure of any medical condition in those aged over 65 years\(^\text{38}\). In 2000-01 CVD in those over 65 years cost an average of AUD$1,455 per person\(^\text{38}\). The inflation adjusted expenditure for CVD has increased by 28% between 1993-94 and 2000-01\(^\text{98}\). In 2000, Stewart et al.\(^\text{29}\) estimated that the total direct cost of HF in Australia exceeded AUD$1 billion.

Contemporary HF management models rely on acute hospitalisations to manage both deteriorations in the underlying disease process and escalating symptoms occurring secondary to inadequate primary care\(^\text{44}\). Since current evidence estimates that 75% of hospital readmissions may be preventable, future models of care must address both advancements in the management of the disease process and also increase the effectiveness of primary care to support self-management within the community\(^\text{44}\).

It is estimated that 25% of hospital admissions fail to recognise HF as a factor contributing to admission\(^\text{1}\). This may stem from a lack of incentives to identify HF in the current health system. Therefore, current cost estimates of the burden of HF may significantly underestimate acute care costs. Additionally, comprehensive economic analysis is likely to reveal a significantly larger burden when aspects such as carer burden and lost productivity are added to traditional cost estimates\(^\text{1}\).
2.6.8 Heart Failure Deaths

Regardless of whether HF is diagnosed on the basis of being actively treated for clinical manifestations, through screening programs or presenting asymptptomatically, it is a progressive and terminal condition\(^{(40)}\). Despite recent advances in pharmacotherapy and interventional procedures which have improved the outcome from acute cardiac events, the outcome from HF is generally poor, as has been reported from both the Framingham and Rochester population based studies\(^{(19, 42, 99)}\). The prognosis from HF is worse than that from many forms of malignancy, including cancer of the breast, colon and rectum, kidney and metastatic cancer of the prostate and has not changed considerably in the last decade\(^{(4, 19, 20, 42, 44, 99-101)}\). In 2001, HF accounted for 3,205 deaths in Australia among those aged 45 years and over\(^{(23, 102)}\).

The Framingham study has provided longitudinal follow-up of a cohort of more than 10,000 individuals with HF\(^{(48, 103, 104)}\). This study has demonstrated a median survival of 1.7 years for men and 3.2 years for women, a finding that has not altered over the 40 years during which data have been collected\(^{(20, 48, 103, 104)}\). Superior survival from HF has only been demonstrated in those who survive for 90 days post-diagnosis, who have a one-year survival rate of 79% in men and 88% in women and a five-year survival rate of 35% in men and 53% in women\(^{(48, 103, 104)}\). In contrast, during the same period the five-year survival rate for all cancers was reported as being approximately 50%\(^{(40)}\). In their comparison of the five-year survival of cancer (bladder, large bowel, prostate, breast, ovarian) and HF, Stewart et al.\(^{(100)}\) identified lung cancer as the only form of cancer with a worse survival profile than HF.

MacIntyre et al.\(^{(70)}\) investigated population based hospitalisation and death data from the Scottish National Health Service (NHS) Linked Patient Database and demonstrated a worse prognosis amongst their cohort of community dwelling patients than had been previously reported in clinical trials. They reported that within one-month of hospital admission, 20% community dwelling patients had died. By one-year, nearly half were deceased and 75% had died by five-years\(^{(70)}\). Median survival in this group was demonstrated to be approximately 18 months\(^{(70)}\).

Despite these alarming figures about the poor prognosis of HF, the true contribution of HF to mortality within the general community is likely underestimated, considering the large number of deaths in the elderly in which HF significantly
contributes to the terminal state but is not recorded on official death certificates or is lost in the coding process\(^{(40)}\). Table 2-7 identifies the number of deaths attributable to HF as compared to all cause mortality, coronary heart disease and total heart, stroke and vascular diseases in Australia during 2002.

Table 2-7 Causes of Death, Australia 2002\(^{(15)}\)

<table>
<thead>
<tr>
<th>Number of Deaths</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(% of all deaths)</td>
<td>(% of all deaths)</td>
</tr>
<tr>
<td>Cardiovascular Disease</td>
<td>13 855 (20.1%)</td>
<td>12 208 (18.8%)</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>1 033 (1.5%)</td>
<td>1 696 (2.6%)</td>
</tr>
<tr>
<td>Total Heart, Stroke &amp; Vascular Diseases*</td>
<td>23 988 (34.8%)</td>
<td>26 308 (40.6%)</td>
</tr>
<tr>
<td><strong>All causes of death</strong></td>
<td><strong>68 885 (100.0%)</strong></td>
<td><strong>64 822 (100.0%)</strong></td>
</tr>
</tbody>
</table>

*including CVD and HF

Heart failure is an important underlying cause of death but is not recorded nearly as frequently as other cardiovascular causes of death. During the period 1997-2000, there were only 281 deaths coded as being the result of HF in the WSAHS (Table 2-8). This represents some 2% of all deaths in those aged over 20 years. Since 1997, in addition to being the major underlying cause of death, HF has been recorded as being a contributory factor in a large number of deaths. When all contributory causes of death are considered, a total of 1 917 adult deaths revealed HF as an associated factor. This accounts for 13.4% of all adult deaths within the WSAHS.

In those aged over 65 years, 274 HF deaths were recorded from 1997-2000 in the WSAHS (Table 2-9). This represents 2.6% of all deaths in this group. When deaths with HF listed as a contributory cause were added, the total increased to 1 792 deaths. In these cases, other forms of CVD, pneumonia and chronic lower respiratory disease often accompanied HF. Heart failure was at least a contributing factor in 16.9% of all deaths during 1997-2000 in those over 65 years within the WSAHS.
Table 2-8  Major Causes of Death, All Ages. Underlying and Contributory Causes of Death, 1997-2000, WSAHS\(^{(32)}\)

<table>
<thead>
<tr>
<th>Underlying cause of death (% of deaths)</th>
<th>Multiple cause of deaths (% of total deaths)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I20-I25 Ischaemic heart disease</td>
<td>23.4</td>
</tr>
<tr>
<td>I60-I69 Cerebrovascular diseases</td>
<td>9.2</td>
</tr>
<tr>
<td>C15-C26 Malignant neoplasm of digestive organ</td>
<td>7.2</td>
</tr>
<tr>
<td>V01-Y98 External causes</td>
<td>6.0</td>
</tr>
<tr>
<td>C30-C39 Malignant neoplasm of respiratory &amp; intrathoracic organs</td>
<td>5.9</td>
</tr>
<tr>
<td>J40-J47 Chronic lower respiratory disease</td>
<td>4.9</td>
</tr>
<tr>
<td>C81-C96 Malignant neoplasm of lymphoid, haematopoietic &amp; related tissue</td>
<td>2.9</td>
</tr>
<tr>
<td>I30-I49, I51, I52 Other forms of heart diseases</td>
<td>2.6</td>
</tr>
<tr>
<td>I70-I79 Disease of arteries arterioles and capillaries</td>
<td>2.0</td>
</tr>
<tr>
<td>C50 Malignant neoplasm of breast</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>150 Heart failure</strong></td>
<td><strong>2.0</strong></td>
</tr>
</tbody>
</table>

Source: HOIST and ABS

Table 2-9  HF as an Underlying and a Contributory Cause of Death by Age at Death, 1997-2000, WSAHS and NSW residents\(^{(32)}\)

<table>
<thead>
<tr>
<th>Age at death</th>
<th>HF as an underlying cause of death</th>
<th>HF as a contributory cause of death</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of deaths</td>
<td>% of deaths</td>
<td>% of deaths</td>
</tr>
<tr>
<td>WSAHS</td>
<td>281 (2.9%)</td>
<td>1 636 (19.9%)</td>
<td>1 917 (22.8%)</td>
</tr>
<tr>
<td>NSW</td>
<td>4 156 (3.3%)</td>
<td>20 719 (20.1%)</td>
<td>24 875 (23.4%)</td>
</tr>
<tr>
<td>&gt; 65 yrs</td>
<td>274 (2.6%)</td>
<td>1 518 (14.3%)</td>
<td>1 792 (16.9%)</td>
</tr>
<tr>
<td>WSAHS</td>
<td>4 045 (2.8%)</td>
<td>19 426 (13.7%)</td>
<td>23 471 (16.5%)</td>
</tr>
<tr>
<td>NSW</td>
<td>100 (0.40%)</td>
<td>1 091 (4.3%)</td>
<td>1 191 (4.7%)</td>
</tr>
<tr>
<td>45-64 years</td>
<td>6 (0.24%)</td>
<td>106 (4.3%)</td>
<td>112 (4.5%)</td>
</tr>
<tr>
<td>WSAHS</td>
<td>100 (0.40%)</td>
<td>1 091 (4.3%)</td>
<td>1 191 (4.7%)</td>
</tr>
<tr>
<td>NSW</td>
<td>1 (0.11%)</td>
<td>12 (1.3%)</td>
<td>13 (1.4%)</td>
</tr>
<tr>
<td>20-44 years</td>
<td>11 (0.11%)</td>
<td>202 (2.1%)</td>
<td>213 (2.2%)</td>
</tr>
</tbody>
</table>

Source: HOIST and ABS

Not surprisingly, some causes of death were more commonly associated with HF as a contributory factor than others (Table 2-10). More than 20% of deaths due to ischaemic heart disease, for example, had HF as a contributory cause. Where HF was the underlying cause of death, other heart disease, pneumonia, renal failure, chronic lower respiratory disease and diabetes were common coexisting contributory causes.
## Table 2-10  HF Related Underlying Causes of Death and Major Contributory Causes of Death, 1997-2000, WSAHS and NSW Residents

<table>
<thead>
<tr>
<th>Underlying cause of death</th>
<th>WSAHS</th>
<th>NSW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total as underlying cause</td>
<td>% co-existing condition</td>
</tr>
<tr>
<td><strong>Ischaemic heart disease (ICD10 I20-I25)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-existing contributory causes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other heart disease (I30-I49,I51,I52)</td>
<td>3 361</td>
<td>1 043 (31%)</td>
</tr>
<tr>
<td>Heart failure (I50)</td>
<td>3 361</td>
<td>1 043 (31%)</td>
</tr>
<tr>
<td>All forms of diabetes (E10-E14)</td>
<td>720 (21%)</td>
<td>9 146 (23.1%)</td>
</tr>
<tr>
<td>Organic mental disorders (F00-F09)</td>
<td>388 (12%)</td>
<td>3 858 (9.7%)</td>
</tr>
<tr>
<td></td>
<td>240 (7.1%)</td>
<td>2 064 (5.2%)</td>
</tr>
<tr>
<td><strong>Diabetes (E10,E11)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-existing contributory causes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischaemic heart disease (I20-I25)</td>
<td>79 (63.2%)</td>
<td>1 122 (21.3%)</td>
</tr>
<tr>
<td>Other heart disease (I30-I49,I51,I52)</td>
<td>23 (18.4%)</td>
<td>282 (21.3%)</td>
</tr>
<tr>
<td>Heart failure (I50)</td>
<td>25 (20%)</td>
<td>211 (15.8%)</td>
</tr>
<tr>
<td><strong>Heart Failure (I50)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-existing contributory causes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other heart disease (I30-I49,I51,I52)</td>
<td>82 (29.1%)</td>
<td>852 (20.7%)</td>
</tr>
<tr>
<td>Pneumonia/influenza (J10-J18)</td>
<td>66 (23.4%)</td>
<td>1 132 (27.6%)</td>
</tr>
<tr>
<td>Renal failure (N17-N19)</td>
<td>68 (24.1%)</td>
<td>4 108 (18.2%)</td>
</tr>
<tr>
<td>Chronic lower respiratory disease (J40-J47)</td>
<td>45 (16.0%)</td>
<td>746 (18.2%)</td>
</tr>
<tr>
<td>Organic mental disorders (F00-F09)</td>
<td>27 (9.6%)</td>
<td>395 (9.6%)</td>
</tr>
<tr>
<td>Cerebrovascular disease (I60-I69)</td>
<td>27 (9.6%)</td>
<td>375 (9.1%)</td>
</tr>
<tr>
<td>Diabetes (E10-E14)</td>
<td>38 (13.5%)</td>
<td>275 (6.7%)</td>
</tr>
<tr>
<td><strong>Pneumonia and influenza (J10-J18)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-existing contributory causes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signs &amp; symptoms (R50-R69)</td>
<td>32 (17.0%)</td>
<td>385 (14.2%)</td>
</tr>
<tr>
<td>Other heart disease (I30-I49,I51,I52)</td>
<td>25 (13.3%)</td>
<td>260 (9.6%)</td>
</tr>
<tr>
<td>Heart failure (I50)</td>
<td>18 (9.6%)</td>
<td>218 (8.1%)</td>
</tr>
<tr>
<td>Ischaemic heart disease (I20-I25)</td>
<td>23 (12.2%)</td>
<td>295 (10.9%)</td>
</tr>
<tr>
<td>Other bacterial diseases (A30-A49)</td>
<td>33 (17.6%)</td>
<td>323 (11.9%)</td>
</tr>
<tr>
<td><strong>Chronic obstructive pulmonary disease (J44)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-existing contributory causes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other heart disease (I30-I49,I51,I52)</td>
<td>90 (17.3%)</td>
<td>867 (13.1%)</td>
</tr>
<tr>
<td>Heart failure (I50)</td>
<td>104 (20.0%)</td>
<td>1 261 (19.1%)</td>
</tr>
<tr>
<td>Pneumonia/influenza (J10-J18)</td>
<td>135 (25.9%)</td>
<td>2 057 (31.1%)</td>
</tr>
<tr>
<td>Ischaemic heart disease (I20-I25)</td>
<td>112 (21.5%)</td>
<td>1 131 (17.1%)</td>
</tr>
</tbody>
</table>

Source: HOIST and ABS

### 2.7 Study Limitations

The specific limitations of each aspect of the aggregated data have been discussed throughout the Chapter. The major limitation of this study, however, is that the collected data are, at best, an indirect estimate of disease burden in particular in relation to community-based data\(^{(24, 32)}\). The resources required to conduct a more comprehensive epidemiological evaluation of the burden of HF are clearly beyond
the scope and resources of this Project. Further, a key limitation of these data is the absence of data specifically related to general practice management of HF. This aspect will be explored in the literature review for the subsequent study in this investigation. Pooling the findings from existing data sources, as has been done in this study does, however, provide sufficient contextual information to both inform the proposed model of care and identify strategic directions for further investigation.

2.8 Implications for Policy, Research and Clinical Practice

This synthesis of the available data begins to illustrate the growing problem of HF in regions such as the WSAHS and provide a baseline for examining trends in morbidity, mortality and service utilisation. This picture clearly demonstrates the need for strategic, long-term planning for future service delivery, with particular emphasis on primary care services, and underscores the need to target vulnerable populations at high risk of developing HF within the community setting to reduce their dependence on acute care services. Of particular consideration are the clear evidence of a socioeconomic differential and the shortage of primary care services in an area of perhaps greatest need.

Study Two: General Practice Audit and Key Informant Consultation

2.9 Study Aims

A significant evidence-base demonstrates the efficacy of both pharmacological and non-pharmacological treatments in improving mortality and quality of life for those with HF. However, there remains a demonstrable gap between such evidence and current clinical practice, particularly in the primary care setting (28, 102, 105, 106). Additionally, whilst we are aware of the increasing burden of CVD in Australia from hospital-based data collections, there has been limited epidemiological evaluation undertaken in the general practice setting (29). The discrepancies that exist between the Bettering the Evaluation and Care of Health (BEACH) (60, 102) and Cardiac Awareness Survey and Evaluation (CASE) (28) datasets prompts a need to compare existing datasets and identify issues (107). Additionally, the CASE dataset did not capture information about non-pharmacological or diagnostic aspects of evidence-based practice. Therefore, the primary aim of this study was to explore the current usual care provided to those aged over 65 years presenting to general practice in relation to
HF management to identify target areas amenable to collaborative practice, substitution by the practice nurse and enhancement of general practice services through practice nurse intervention.

Randomised controlled trials have demonstrated the efficacy of multidisciplinary teams, involving specialist nurses, to manage HF in the outpatient setting (1-3, 108-114) (Appendix D). This is largely due to the chronic and complex health issues involved in HF management. To ensure that the proposed model of care considers the perspectives of a range of multidisciplinary professionals and consumers, key informants from within WSAHS / WSDGP and local consumers were consulted to explore their experiences in general practice HF management and identify the contextual and process issues for consideration in the model of care development.

2.10 Literature Review

In terms of Australian general practice data, information regarding presenting problems and health care delivery is measured through the BEACH Program (60, 102). The BEACH program is a continuous national investigation of general practice run by the General Practice Statistics and Classification Unit of the University of Sydney in collaboration with the AIHW and Department of Health and Ageing (60, 102, 115). Data collection for this program first began in 1998 and is undergoing a process of regular reporting and evaluation (115). Each year 1 000 general practitioners are selected randomly from Health Insurance Commission (HIC) data and surveyed over 100 consecutive encounters (115). These data provide information on 100 000 encounters annually which are subsequently weighted to represent all general practitioner encounters in Australia (115). In addition to data obtained about each encounter, participating general practitioners complete two additional data forms. One of these forms relates to the general practitioners’ own demographic, professional and occupational characteristics (e.g. age, hours worked, experience) and the other to aspects of health and healthcare not captured in the encounter based information (60). The specific nature of this supplementary analysis of nominated data (SAND) is varied in five week periods, thus encompassing data from 100 general practitioners (60). SAND data relates to aspects of lifestyle (e.g. smoking, body mass index, alcohol) or prevalence of disease (60, 115).
Whilst the BEACH dataset represents the best available Australian general practice data, it does have several limitations. The ADGP estimated that during 2002-03 some 21 561 general practitioners were practising across Australia\(^{(74)}\). A sample of 1 000 general practitioners therefore represents only 4.6% of the total practising general practitioners. Despite the random nature of the sampling strategy, there is a potential for this small sample to poorly represent the wider general practitioner population. The process of weighting encounters and extrapolating data, although necessary, means that inferences are being made about the representativeness of the data and the ability to generalise it nationally. Considering the relatively small number of general practitioners that have been sampled, the generalisability of the data must be carefully considered.

At the commencement of this project, BEACH data had been used to produce two reports relating to CVD in general practice\(^{(60, 102)}\) and two additional reports relating to generalised issues of general practice activity and healthcare delivery\(^{(116, 117)}\). From the BEACH data, HF is reported to represent 0.6% of all problems managed in Australian general practice, presenting at a rate of 0.9 per 100 encounters\(^{(102)}\). From Medicare claims data for general practitioner consultations it is evident that HF accounts for 899 000 encounters per year, with 71 000 new cases diagnosed in general practice annually\(^{(102)}\). As might be expected, the majority of patients (63.9%) presenting for management of HF were aged greater than 75 years.

During HF related encounters, general practitioners reportedly treated a significant number of co-morbid health problems. Hypertension (10.3 per 100 HF encounters) and diabetes (9.4 per 100 HF encounters) were the most common conditions treated concurrently with HF, with other common co-morbidities including chronic pulmonary disease, atrial fibrillation / flutter and ischaemic heart disease\(^{(102)}\). The number of problems addressed during general practice encounters has been demonstrated to be significantly higher in those with HF than in those without, indicating the considerably higher incidence of co-morbidities in this group\(^{(23, 102)}\).

Despite the apparent significant rates of HF seen in the general practice setting, there is evidence to suggest that HF is currently under diagnosed in Australian general practice\(^{(23, 28)}\). In 2001, Krum et al.\(^{(28)}\) published a prospective evaluation of consecutive patients aged over 60 years who presented to their general practitioner
over a six month period\textsuperscript{28}(CASE). Three hundred forty-one general practitioners throughout Australia participated, each enrolling 80 consecutive patients aged over 60 years. For the 2,485 participating patients previously diagnosed with HF, aetiology and diagnostic assessment were documented\textsuperscript{28}. The remaining 19,575 participants were assessed for the presence of HF and, if HF was suspected, further investigations based on the WHO HF guidelines were undertaken\textsuperscript{28}.

From this study it was evident that some 13.2\% of participants had HF, 11.2\% (n=2,485) had a previous diagnosis and 1.9\% (n=420) were newly diagnosed\textsuperscript{28}. Of those patients who had been previously diagnosed with HF, 96\% had undergone both electrocardiograms and chest x-rays and 64\% had had echocardiography performed\textsuperscript{28}. In contrast, only 22\% of potential HF patients were noted to have undergone echocardiography in the previous year\textsuperscript{28}. In the preceding year, 66\% of those patients diagnosed with HF had been referred to a specialist. Seventy percent of patients diagnosed with HF had either not been admitted to hospital with a diagnosis of HF or their hospital admission status was unknown in the previous year.

In terms of pharmacological intervention, 58\% of those previously diagnosed with HF were prescribed ACE inhibitors, with those experiencing left ventricular dysfunction most likely to have received this intervention\textsuperscript{28}. Only 12\% of patients were prescribed beta blocker drugs, with less than 50\% receiving beta blockers approved for management of HF\textsuperscript{28}. In those patients who were prescribed these medications, significant numbers were receiving less than the recommended target dose\textsuperscript{28}. Whilst these findings were suboptimal for those who had been previously diagnosed, use of pharmacotherapy in newly diagnosed patients was less adequate. In those who were newly diagnosed with HF, only 51\% were prescribed ACE inhibitors, 37\% diuretics, 8\% beta blockers and 17\% calcium channel blockers\textsuperscript{28}.

The identification of suboptimal diagnosis of HF in Australian general practice is significant as it supports the assertion that current Australian epidemiological data likely underestimates the incidence and prevalence of HF in the community population. Also of significance is that the general practitioners participating in this survey had volunteered to do so and, therefore, might be considered to represent a subgroup of clinicians most interested in HF management\textsuperscript{46}. These findings highlight the need for urgent intervention at a general practice level to improve the
diagnosis and implementation of best practice management for HF. Such intervention clearly has the potential to improve current health outcomes, potentially reduce hospitalisations and thus reduce the burden of HF on the community.

2.11 Study Methods

This study involved two phases of data collection, namely key informant consultation and general practice audit. The data collected from both phases of the study were compared and contrasted before being synthesised into the following descriptive report.

2.11.1 Key Informant Consultation

Key informants were identified through a review of local organisational structures and in the course of meetings with the WSDGP and WSAHS Cardiovascular Staff. Key informants included members of the NSW Chronic Care Collaborative Team, consumer representatives, general practitioners, practice nurses, Aboriginal Health Care Workers and WSDGP staff. A range of structured and unstructured interactions were undertaken between these informants and the researcher. Data relating to the consumer perspective was sourced from the concurrent evaluations of the Chronic Care Collaborative that were being undertaken within the WSAHS\(^{(92, 118)}\).

During the key informant consultation, data were collected through field notes / reflective journaling, participant observation and peer debriefing with the research supervisors and research associates involved with the Project. The major questions posed during the interactions included:

(a) What are the barriers to the implementation of evidence-based HF management in contemporary general practice?

(b) What factors are amenable to collaborative practice between the general practitioner and practice nurse, substitution by the practice nurse and potential enhancement of services through practice nurse intervention?

(c) What is the experience of consumers in receiving management of HF?

Data were analysed using a process of content analysis and compared, contrasted and synthesised with the audit data.
2.11.2 General Practice Audit

This audit utilised a standardised proforma to collect data directly from general practice medical records and the Minnesota Living with Heart Failure® Questionnaire (Appendix C) to collect symptom information from a patient perspective. A copy of the Minnesota Living with Heart Failure® Questionnaire was mailed to each potential participant. Participants were asked to return the completed instrument with their consent to participate. Once consent was gained, the research team accessed the medical records and collected data to complete the audit tool.

(a) Medical Record Audit Tool

From the information gained from previous Australian investigations it was decided that, for comparative purposes, some aspects of the CASE data proforma\(^{28}\) would be utilised, with permission from the authors, as the basis of the audit tool. After discussion with clinical experts and key stakeholders in general practice, the following factors were also considered important for consideration in the audit:

- assessment of activities of daily living;
- quality of life measurement;
- the presence of a patient summary sheet in the medical record;
- utilisation of multidisciplinary care planning;
- use of allied health services;
- referral to medical specialists;
- frequency of hospitalisation / readmission.

Once identified, these factors were considered in terms of the relative benefit of collecting the data and the potential burden of the item upon the participant. The draft audit tool was reviewed by a range of clinical experts in general practice and HF management, key stakeholders in general practice, and experts in general practice audit to obtain feedback about the ability of the instrument to derive information related to the study aims. The feedback consisted of recommendations about the clarity of some of the items and the layout and design of the tool. This process of peer and expert review demonstrated the internal content and face validity of the audit tool\(^{119}\).
Before commencing pilot testing, approval for the study was gained from the UWS HREC (UWS Study Registration Number: HEC 04/017)(Appendix A) and the Board of WSDGP. The audit tool was piloted on a series of medical records to determine the effectiveness of instructions, understanding of questions, acceptability of the study to respondents and ensuring that the data collection was consistent with the study aims\(^{(120, 121)}\). This sample was drawn, by convenience, from a group practice of consenting general practitioners who had been involved in the original expert consultation regarding instrument development.

The feedback from this pilot investigation demonstrated the need for some minor formatting changes and greater clarity in terms of some of the data items to ensure consistency of data coding. These changes were made before the main audit was commenced. A copy of the audit tool is located in Appendix C.

(b) The Minnesota Living with Heart Failure\(^{®}\) Questionnaire

The Minnesota Living with Heart Failure\(^{®}\) Questionnaire is a disease specific, measure of the patients’ perceptions of the degree to which HF affects their life\(^{(122)}\). This self-administered questionnaire consists of 21-items that comprehensively explore physical, socioeconomic and psychological impairments related to HF. The participant is asked to rate the severity of each item on a five-point Likert scale from ‘very little’ impact on their life to ‘very much’. Higher scores denote a greater perception of impairment of quality of life. A total score is then calculated, to quantify the extent of impairment. This tool has demonstrated utility in many trials designed to evaluate the efficacy of medical therapy and non-pharmacological interventions\(^{(123, 124)}\). It has been well evaluated for psychometric rigour and has been previously used in an Australian population\(^{(1, 122)}\).

Permission to utilise the Minnesota Living with Heart Failure\(^{®}\) Questionnaire instrument was gained before the commencement of the investigation (Appendix C).

2.11.3 Sampling Strategy

The support of WSDGP was identified as being vital to the conduct of the project. A series of meetings were held with key members of the Division including, the Chief Executive Officer, Chronic Disease Program Manager, General Practice Liaison Officer and Practice Support Officer. General practitioner members of the Division
were informed about the study through Divisional newsletter advertisements, weekly faxes from the Division and direct consultations with either the researcher or Divisional staff. Interested general practitioners were asked to contact the researcher for further information and to register their interest in participation.

Once the general practitioner provided written informed consent, patients currently attending the practice with a diagnosis of HF were identified. Where possible, Medical Director™ was searched for patients aged over 65 years with a condition of ‘CHF’, ‘CCF’, ‘HF’ or ‘heart failure’ coded. Participating general practitioners were asked to review these lists and identify any additional patients that may have not been coded with HF as a diagnosis within the computer system. A separate list was generated of patients who were currently prescribed a combination of ACE inhibitors and beta blockers to help stimulate the general practitioners ability to identify incorrectly coded patients. The final list of HF patients was reviewed by practice administrative staff to exclude patients who had not attended the practice in the previous six months, those who were deceased, or those identified by the practice staff as having a psychological impairment (e.g. dementia) that precluded informed consent.

Financial constraints of the study prohibited the translation of information sheets and consent forms into the range of community languages, therefore, participants who are unable to provide informed consent in English were not included in the study. However, as the general practitioners participating in this study provided medical management in English, this limitation excluded few potential participants.

2.11.4 Ethical Considerations

(a) Informed Consent

Before any information was accessed, each general practitioner was asked to provide written consent (Appendix B). No information regarding any individual patient was provided to the researcher prior to written consent being obtained from the patient. Practice staff sent each patient identified as being a potential participant an information sheet, consent form (Appendix B) and a copy of the Minnesota Living with Heart Failure® Questionnaire (Appendix C) with a reply paid envelope. Given the age and possible vulnerability of potential participants, general practitioners or
practice staff was asked to confirm the ability of the identified patients to provide informed consent. Contact details for the researcher were provided on the information sheet to facilitate potential participants asking questions regarding the project. Practice staff were also briefed regarding the study so that they could also answer any questions should potential participants approach them for information.

Practice staff were provided with a list of patients who were potential study participants so that if they presented to the practice during the recruitment phase they could be asked whether they had received the information. Given concerns about patient confidentiality, the practice staff were not advised which patients had agreed or declined to participate in the study. As can be seen from these forms, the potential participant was informed that their participation in the study was purely voluntary and, should they choose to participate, they were free to withdraw at any time without penalty. Decisions regarding involvement in the study were also identified as being unrelated to the care received from the general practitioner. Practice staff were clearly instructed by the researcher of the need to avoid the coercion of patients to participate\(^{(125)}\). This factor was considered important as many potential participants were frail elderly people who relied heavily upon the general practice for their medical care\(^{(125)}\). It was desirable, therefore, to avoid any undue stress on the doctor-patient relationship.

(b) Privacy and Confidentiality

The data collector coded each audit tool at the time of data collection. A separate code for each general practitioner and patient was used. A separate list contained each patient code and their corresponding medical record number if used at the general practice. Where a medical record number was not used in the practice, the patients’ initials and date of birth were used to facilitate crosschecking with medical records should it be subsequently required. This list was stored in a secure location as described by the National Statement on Ethical Conduct in Research involving Humans\(^{(126)}\) and was only accessible by the researcher and her immediate supervisors.
2.11.5 Data Management and Analysis

Data from the audit form and the Minnesota Living with Heart Failure® Questionnaire was directly entered into the Statistical Package for the Social Sciences™ (SPSS) Version 11.5 for Windows. An individual not previously involved in data entry then crosschecked this file against the hard copy of the audit tool to assess data accuracy. Data were also checked for outlying, null or invalid responses. Such checking revealed a high level of data accuracy. Since most of the data were either nominal or ordinal data, descriptive statistics were used to analyse and interpret the data.

2.11.6 Recruitment Issues

Despite the early enlistment of key stakeholder support and initial enthusiasm for the Project from WSDGP, recruitment of general practitioners for this study was highly problematic. Despite the implementation of rigorous, meticulous and systematic recruitment strategies and a prolonged recruitment period of 18 months, only six general practitioners were recruited (response rate 0.9%). These doctors identified 28 patients, of whom nine agreed to participate in the study (response rate 32.1%). Upon review of the medical records, two participants were identified as not having evidence of HF or CVD. Therefore, data were extracted from seven medical records.

Difficulties in recruiting both significant numbers of general practitioners and general practice patients are well documented in the literature. Postal recruitment has been identified as inefficient and eliciting poor response rates, however, this method has obvious advantages in terms of cost particularly in relatively large, geographically dispersed groups. The literature reports that personal visits and telephone recruitment are more effective approaches to general practitioner recruitment, although these are significantly more resource intensive. Considering the nature of this project, key stakeholders, such as local general practitioner champions and members of the Board of WSDGP, were utilised to support recruitment strategies. A range of strategies were implemented, based on the evidence-base presented in the published literature and the experience of the researcher supervisors and associated experts. These strategies included;
- Each practice received brief information about the study by weekly fax from the WSDGP on two occasions. Despite providing contact details for both the researcher and the Divisional liaison person no replies were forthcoming.

- Each general practitioner received two monthly newsletters from WSDGP containing information regarding the study. Although, when prompted, some general practitioners recalled seeing the information, there was insufficient curiosity generated to stimulate any expressions of interest in participation.

- Divisional staff were asked to identify individual general practitioners who had an interest in chronic illness management, CVD or HF. During the recruitment phase of the project, the WSDGP Chronic Disease program co-ordinator was made redundant at short notice and not replaced. Her specialist knowledge of local general practitioners who had participated in chronic disease programs was, therefore, lost to the researcher. Despite making contact with other staff within the Division, they had limited knowledge of the specific details of local chronic disease initiatives or individual general practitioner contacts. A HF workshop for general practitioners and practice nurses within WSDGP held in conjunction with UWS during the study period attracted numerous general practitioners, however, no additional practices were recruited.

- One hundred general practitioners were individually contacted via telephone, email or facsimile to provide information about the study. General practitioners who were targeted were those with practice nurses and those who were identified by staff from WSAHS as having an interest in CVD, chronic illness, HF, research or quality assurance. A difficulty encountered during telephone contact in this study was gaining access to the general practitioner. Whilst it was relatively easy to make telephone contact with the reception staff, access to the general practitioner was often restricted. This finding was also reported by Veitch et al.\(^\text{131}\) who identified that doctor-to-doctor contact was often more effective than contact by other members of the research team. Given the nature of the research as a PhD project, during contacts, emphasis was placed on links to the University and recognised local experts in HF and general practice. This method of recruitment facilitated appointments to visit three general practices for further discussions about participation.
Practices identified as having an interest in the study were visited personally by the researcher. Where telephone contact had not been effective in reaching the general practitioner or where further information was desired, appointments were made to see potential general practitioner participants at their practice. The researcher visited four practices within WSDGP, recruiting one to the study.

Additional recruitment was conducted in conjunction with the Chronic Heart Failure Assistance by Telephone (CHAT) Study to increase the profile of the audit and increase the potential return for the general practitioner and patient.

During each interaction with the general practitioner or practice staff an emphasis was made on personal contact between the researcher and potential participant to develop a positive professional relationship\(^\text{[130, 131]}\). Additionally, the importance of the study, its clinical relevance and the potential benefits to the general practitioner, practice, Division and future patients were emphasised\(^\text{[131, 134]}\). These strategies were utilised in an attempt to increase clinician ‘buy-in’ and ownership of the Project\(^\text{[132]}\). Key points were identified to ‘sell’ the study to general practitioners. These included:

- the benefits of obtaining accurate baseline data, such as, the validation of the need for current services and the potential to develop business cases for additional services;
- access to expert assistance in developing systems for HF management in general practice\(^\text{[130]}\);
- the opportunity to critically reflect upon contemporary usual care;
- identification of links between the research and the UWS and research supervisors / associates with established track records in HF and general practice research\(^\text{[130]}\);
- inclusion in the research team in terms of supporting the development of the study and in any subsequent publications / conference presentations\(^\text{[130]}\).

Whilst incentives may have enhanced participation\(^\text{[131]}\), the UWS HREC advised that the provision of any such incentives would not be permissible. This was also considered in the context of the minimal time input required of participating
clinicians. In spite of the provision of a proposal for Continuing Medical Education (CME), this was only undertaken by 15 general practitioners who attended the HF workshop. These doctors subsequently declined to participate in the audit activity.

Care was taken in the design of the study to minimise burden on the general practitioners and practice staff\(^{(127, 132)}\). Indeed, the only input required from the practice was the identification of potential participants, attachment of address labels to study packs, and the provision of a quiet space for the research team to undertake data collection. Either the researcher or a research assistant undertook data collection at a mutually convenient time.

As has been previously highlighted in the literature\(^{(127, 131, 134)}\), the fundamental difficulty in the recruitment of the general practitioners was their attitude to and interest in the research project. Whilst this study did not propose any intervention, there was some concern expressed in regards to the collection of audit data by an individual external to the practice. It was emphasised that there would be no comparison of individual practices and that all analysis and reporting would involve the pooling of data from all participating general practitioners within the Division. No individual participants would be able to be identified, although this was dependant upon their desire to be included as co-authors in subsequent publications. Should individual general practitioners or practices have a desire to review their own audit data for purposes of quality assurance and professional development, it was agreed to make this data available to them, with the pooled data for comparison. Other than the individual general practitioner / practice, no individual data would be made available to any other person or organisation.

An additional factor that complicated the recruitment process was political issues within WSDGP. The recruitment period represented an uncertain period within the Division, with financial and political pressures being exerted by a variety of groups. This instability culminated in the closure of the Division in late 2004. Whilst this situation transpired with no relationship to the study, in retrospect, dissatisfaction within the Division may have contributed to difficulties in recruitment.

The recruitment difficulties identified in this study are not unique. At the same time as this audit was being conducted, the CHAT study was in the process of enrolling
participants into its national, National Health and Medical Research Council and Medical Benefits Fund of Australia funded investigation. Despite the significant resources of this study, such as a fulltime research assistant, senior research fellow and two affiliated PhD candidates, and its close links to bodies such as the National Heart Foundation and Monash University, it has experienced recruitment challenges similar to those faced in this audit. The CHAT study sought to recruit 666 patients over a three-year period to a randomised control trial of a semi-automated telephone intervention for HF management in rural, remote and outer metropolitan areas. In the first year of recruitment, only 260 patients were recruited. This is in spite of resource intensive recruitment strategies including a dedicated Project team, national mail out, facsimile mechanism for return of data forms, regular follow-up phone calls, engagement of local and national clinical champions and video conference through the Rural Health Education Foundation.

Pitterman has previously identified a reluctance of Australian general practitioners to allow other researchers to access their patients. This issue was potentially compounded in this investigation, when the UWS HREC required patient contact and written consent before permitting the research team to access the medical record. Whilst the ethical and privacy implications were appreciated, the increased complexity of the study likely contributed to recruitment difficulties.

The initial plan was to identify HF patients through coding in medical software such as Medical Director. Initial data retrievals identified significant issues with this plan, such as the failure of many practices to remove deceased patients’ records from the computer systems, variable coding practices between clinicians, limited incentives for general practitioners to actually enter codes into computer systems and a lack of systems and processes to check data quality. Subsequently, general practitioners were asked to identify patients within their practices who had a diagnosis of HF, using data retrieved from their computer systems as a stimulus. It was recognised that a limitation of this method of patient recruitment might have been that some HF patients may have been inadvertently excluded from the study. The privacy and ethical issues surrounding consent precluded any more extensive search of medical records for additional potential participants. It was also identified that the implementation of any subsequent intervention for HF patients would only
be undertaken in patients that were identified as suitable participants by the general practitioner. Participating general practitioners were given the opportunity to refer additional patients who presented for consultation during the data collection period and had not been previously identified by other means.

Despite the significant investment of time and resources in recruitment for this study, access to general practice was limited. This may largely be a consequence of the extensive screening being currently undertaken in general practice, funded by pharmaceutical companies, which attracts remuneration for the general practitioner\(^{136}\). In spite of the problematic nature of recruitment, useful data were obtained related to systems and process issues while discussing recruitment with general practitioners and practice nurses. Regardless of the identified limitations, the key aim of this audit was to explore issues related to systems and processes rather than derive specific outcome data.

### 2.12 Results

A range of formal and informal consultations were undertaken with key informants over an eighteen-month period. These included individual conversations, group meetings and a formal workshop for general practitioners and practice nurses. These conversations and interactions rendered rich and lucrative data to inform practice nurse interventions. As these interactions were conducted in parallel to the medical record audit, it was possible to seek clarification of issues raised during the audit process. Additionally, data relating to the consumer perspective was sourced from the HF Chronic Care Collaborative project that was being concurrently undertaken within the WSAHS. The results presented below represent a synthesis of the data collected from the general practice audit and key informant consultation.

Two major areas for consideration emerged from the data, namely; (1) general practice and health system issues; and, (2) issues relating to the consumer. Whilst some issues relating to nursing role were identified, these were not explored as they were to be the focus of the subsequently reported APACHE study (Chapter 4 and 5).
2.12.1 General Practice and Health System Issues

(a) Variations in Data Management Systems

General practice staff identified that a diverse range of data management systems were being utilised in their practices. These ranged from paper based medical records to a variety of electronic software programs. While all of these systems likely had the capacity to effectively manage the large volume of data collected in general practice, few were used consistently or optimally by all clinicians within the practice.

Informants identified that many practices has a system of flagging disease specific patients to facilitate follow-up and recall. In particular, diabetes and asthma were targeted due to the financial incentives for providing regular follow-up care to these groups. In fact, a key observation of the researcher was the constant presence of marketing and reminder prompts on computerised data systems, such as Medical Director™. As the investigation progressed, issues and concerns were generated in relation to data coding and consistency. A review of the literature in this area revealed limited literature, although it had been acknowledged that current databases for identifying patients in Australian general practice were inadequate\(^{131}\). This inadequacy is likely due to the lack of standardised data definitions, between clinicians in a single practice and on a Divisional, State or National level. No informant reported having a designated individual responsible for monitoring data quality within their practice. However, one practice reported that one of their general practitioners was designated as being ‘in-charge’ of the information technology within the practice. Further investigation revealed that this role related more to the maintenance of computer systems rather than the monitoring of data quality.

Searches of Medical Director™ databases during the recruitment for the audit identified a range of coding errors and inconsistencies. Perhaps the most significant of these was the variable coding practices between clinicians, whereby some clinicians coded patients based on only their primary diagnosis, others coded patients only for specific reasons (e.g. study participation, personal interest in disease specific groups, availability of funding items), and others did not use the coding features of their data management systems at all. Another coding issue related to practices failing to separate known deceased patients’ records. This added complexity to data retrieval and reporting of contemporary data by necessitating the removal of some
records. General practitioners identified that there were limited incentives to undertake comprehensive data management within their practices and many could not see the value in investing time in such tasks. These general practitioners expressed that their current clinical practice was largely based on the episodic management of acute presentations, rather than planned, regular follow-up and, therefore, derived limited benefit from complex data management systems.

There is some Australian literature in the acute care sector, which demonstrates that hospital datasets and specialist registries have significant issues relating to poor data quality\(^{(78)}\), despite often having dedicated data managers. Without strategic planning, infrastructure or expert support it is unsurprising that general practice data are suboptimal. This issue is a double-edged sword, on one level the absence of effective data management and accurate coding of data providing effective recall and reminder systems for chronic disease are problematic. However, without sufficient incentives placing value on planned, regular follow-up, there is limited motivation for investment of resources in optimisation of data management.

**(b) Absence of a Systematic Disease Management Approach**

Discussion with key informants and observation of medical records revealed the absence of an integrated disease management approach for HF. There was not a prospective plan for monitoring of the patients health status and evaluation of the effectiveness of interventions. General practice visits were often patient driven and reactive to episodes of acute decompensation. In particular, none of the medical records that were reviewed had a clear, prospective plan for aspects of care such as medication titration and regular monitoring of physical parameters such as daily weight. This is not to say such management was not being undertaken on an informal basis. However, documentation of systematic disease management was not observed.

**(c) Discordant Intersectorial Communication**

The medical record audit revealed variable levels of communication between the acute and primary care sectors. Whilst hospital discharge summaries and specialist reports were available for some occasions of service, there were a significant number of hospital admissions and specialist referrals that did not have corresponding documentation. This was a key issue of concern among all general practitioners interviewed. It is recognised that this may have occurred for a range of reasons,
including poor medical record management systems within the practice leading to loss or misfiling of reports, patients receiving medical care from multiple practices or changing practices, leading to reports being sent to the incorrect address. However, general practitioner informants did recognise that they frequently did not receive communication from acute care specialists regarding changes in their patients’ condition, despite being responsible for patient management post-discharge. It was also identified that it was often complex to obtain information regarding acute care management post-discharge due to the lack of clearly established, standardised processes of intersectorial communication.

(d) Absence of Incentives for Chronic Disease Management

The current Medicare funding of general practice was recognised as encouraging doctors to provide high volume, short duration consultations\(^{(5)}\). Clinicians even perceived financial penalties to result from the provision of longer duration, coordinated preventative care\(^{(5)}\). Despite the introduction of specific item numbers to provide incentives for chronic disease management initiatives, such as health assessments in the elderly and immunisation or wound care by practice nurses, these incentives were considered insufficient. Informants also acknowledged the prohibitive effects of what they considered the significant administrative input required to access these incentive programs and the complex eligibility criteria that must be met. Indeed, no patients within the audit had a formal care plan documented or other evidence that formal care planning had been undertaken. Additionally, whilst three patients had a patient summary sheet in their medical record, only one had been updated in the preceding six months. This is a significant finding given the fact that the practices employed a practice nurse who could potentially undertake some of these tasks and, as evidenced by their participation in the research, had an interest in chronic disease management and practice development.

Clinician informants also identified that to truly incorporate evidence-based chronic disease management principles within their practice would require significant change to current work practices. Whilst they reported that some colleagues would consider this a positive change, they also identified a large number of clinicians who were satisfied with current models of care who would be reluctant to modify current clinical practice. It was also identified that such significant change to the culture and
provision of general practice services would require substantial support and infrastructure to establish new systems and processes, and develop a multidisciplinary team. There is limited scope within the current environment to obtain funding for such support and infrastructure, or sufficient incentives to enhance chronic disease management services within the practice. Considering the small business model of Australian general practice, it is unlikely that such significant changes will occur without financial incentives for Practitioners to do so.

(e) Implementation of Evidence-Based Practice

There has been some discussion in the literature describing the barriers to general practitioners implementing evidence-based HF management\(^{(137, 138)}\). The complexity inherent in the utilisation of cardiac pharmacology in general practice is clear. Whilst the use of ACE inhibitors and beta blockers in Australian general practice has previously been demonstrated to be suboptimal\(^{(28)}\), the small sample size in this audit inhibits inferences from being drawn in this group. What was recognised from the audit data, however, was the absence of documentation of interventions such as influenza and pneumococcal immunisation, development of an action plan to manage exacerbations, documentation of regular physical examinations, body weights and fluid evaluations. Table 2-11 reports the percentage of audit patients who had evidence of the specific intervention recorded in their medical record. Whilst this provides an overview of the problem, caution must be used in its interpretation due to the small sample size.

Once recognised, this issue was raised with key informants to seek clarification as to why these interventions were not being recorded or undertaken. Some general practitioners expressed that the audit data over represented the incidence of such oversights and was likely indicative of a failure to accurately document the specific aspects of each patient interaction. However, a number of general practitioners reflected on their own clinical practice and identified that although poor documentation likely played some role, the generally episodic nature of general practice and the absence of adequate systems and processes to provide prompts and reminders likely led to such interventions “slipping through the cracks”. The issue of having insufficient time for reflection on clinical practice or incentive to undertake continuous quality improvement initiatives were also seen as contributing factors.
2.12.2 Patient and Family Issues

(a) Lack of Emphasis on Self-Management Activities

Despite the significant evidence to substantiate the efficacy of self-management principles in HF\(^{(139, 140)}\), there was limited documentation of activities that promote self-management (e.g. daily weights and documentation of dry weight). This is likely contributed to by the considerable amount of time required to undertake such interventions and the lack of financial and other incentives for their conduct. Clinicians also identified that although they attempted to provide health education and encourage patient self-management during consultations, they generally lacked time to do this and documented such interventions poorly when they were undertaken.

(b) Absence of Action Plans and Responsibility between Providers

A clear issue identified in the audit was the absence of action plans and delineation of responsibilities among care providers. Letters between medical specialists and general practitioners were included in the clinical notes but again there was variability in the type and nature of information contained within these communications. Patients, and their family, reported some confusion as to the specific roles of various care providers. This led to a degree of uncertainty about the plan of care and the action to take in the event of symptom exacerbation. Such confusion may have contributed to a delay in seeking treatment for worsening symptoms which, in turn, facilitated progression of the exacerbation.
(c) Respect and Affinity with the General Practitioner

Encouragingly, both the key informant and audit data identified that chronically ill patients, such as those with HF, frequently visited the same general practitioner. This was a promising finding to promote continuity of care, establishment of therapeutic relationships and enhance the ability to provide ongoing intervention. Interviews with patients in the general practice reflected a strong affinity with not only the general practice but also clinical and non-clinical support staff.

(d) Lack of Clear Information on Discharge from Hospital

General practitioners, practice nurses and patients described the challenges in achieving reliable and consistent information on hospital discharge. One patient recalled being sent home over the Christmas period after emergency coronary artery bypass surgery without clear instructions to either himself or his general practitioner. This man was, subsequently, admitted to hospital two weeks later in acute pulmonary oedema. The reason for this hospitalisation was identified as medication misadventure. This issue is resonated in the published literature and a key issue in systematic HF management. These observations were confirmed in an audit of patients discharged from hospitals in WSAHS (n=48) which revealed that only two general practitioners (4%) received clear plans for medication titration.

(e) Impact of Heart Failure on Activities of Daily Living

During patient recruitment for the audit, participating general practitioners largely remarked that many patients had limited impairment on their activities of daily living secondary to their HF. These remarks were, largely, confirmed by the subjective data reported in the patients’ medical records. However, a different story was identified from the data collected from the patients’ perspective using the Minnesota Living with Heart Failure® Questionnaire. As can be seen in Table 2-12 the total mean score was 49 (Range 16-86, SD 28). From the ratings of individual items, it is evident that items relating to the physical domain were rated slightly higher than other items. Although it is difficult to glean any meaningful data from this single measure in a very small sample, clearly this snapshot provides confirmation of the significant burden of disease as described in the literature.
Table 2-12  Responses to the Minnesota Living with Heart Failure® Questionnaire

Did your heart failure prevent you from living as you wanted during the last month by:

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. causing swelling to your ankles, legs, etc?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2. making you sit or lie down to rest during the day?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3. making your walking about or climbing stairs difficult?</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4. making your working around the house or yard difficult?</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>5. making your going places away from home difficult?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>6. making your sleeping well at night difficult?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>7. making your relating to or doing things with your friends or family difficult?</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>8. making your working to earn a living difficult?</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9. making your recreational pastimes, sports or hobbies difficult?</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>10. making your sexual activities difficult?</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. making you eat less of the foods you like?</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12. making you short of breath?</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>13. making you tired, fatigued, or low on energy?</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>14. making you stay in a hospital?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15. costing you money for medical care?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16. giving you side effects from medications?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>17. making you feel like you’re a burden to family and friends?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>18. making you feel a loss of self-control in your life?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>19. making you worry?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20. making it difficult for you to concentrate or remember things?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>21. making you feel depressed?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>49</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

Whilst the sample size was clearly too small to undertake statistical analysis of the findings, the information obtained provided an important insight into the discordance between the patients’ perceptions and the medical record. Despite four of the medical records reporting that the general practitioner had asked about the patients’ social circumstances, only one medical record correlated well with their level of impairment on the Minnesota Living with Heart Failure® Questionnaire. This patient was also the most obviously physically impaired patient in the cohort, being unable to independently manage her own self-care. The other medical records reported the patients’ living arrangements, rather than a detailed assessment of their activities of daily living or health related quality of life. This observation should serve to highlight an area requiring further evaluation and emphasis in clinical practice.
2.13 **Limitations**

The significant challenges of general practice recruitment have been previously discussed in this Chapter. Clearly, the resulting small sample size of HF patients in the audit component of this data collection represents a significant limitation of this arm of the study. However, this study allowed empirical documentation of systems issues in WSAHS. These data together with information from the NSW Chronic Care Collaborative have led to systematic development of interventions to improve HF management. An example of this is the development of a CVD course for Aboriginal Health Care Workers and the implementation of a medication titration schedule for HF patients discharged from hospital.

There are also inherent limitations in using administrative datasets, such as medical records\(^{(78)}\). In particular, the data quality within general practice has been recognised as being suboptimal\(^{(131)}\). As has been discussed, the extent to which the findings of the audit represent documentation inadequacies as compared to areas for clinical practice development is uncertain and requires further evaluation.

Whilst key informants were recruited for this investigation on the basis of their professional affiliation, ability and willingness to articulate their perceptions and experiences\(^{(141)}\), the fact that they were from within a single Area Health Service / Division of General Practice has the potential to limit the generalisability of findings. The experiences of these informants may potentially have been affected by specific local clinical practices, resource constraints and local systems issues. In an attempt to overcome this, the researcher has provided the reader with a detailed description of the setting to provide a context in which to interpret the subsequent findings. It is also explicated that this study provides a snapshot of the contemporary issues upon which to commence this exploration.

2.14 **Implications for Policy, Research and Clinical Practice**

This mixed methods evaluation has provided an insight into the experiences of key informants in HF management within WSDGP and identified some of the contextual and process issues for consideration in the model of care development. The key considerations emerging from these data are that:
(a) the current mechanisms of funding and service delivery render significant limitations to chronic disease management in general practice;

(b) scrutiny of intersectorial collaboration and ways to promote continuum of care issues need to be urgently attended;

(c) current information systems and the absence of standardised datasets represent significant challenges to research, evaluation and practice development;

(d) workforce issues and time constraints have a significant impact on the capacity of general practice to adequately address systems and process issues;

(e) there is evidence of inferior health outcomes related to socioeconomic status;

(f) general practice services need to be tailored to the sociodemographic and cultural attributes of communities.

This insight clearly demonstrates the need to provide support, in the form of resources and infrastructure, to assist in establishing effective systems and processes for chronic disease management in general practice. These resources need to be intersectorial and sufficiently flexible to meet the needs of individual practices.

2.15 Conclusion

This Chapter has provided a description of the aims, methods and results of the two studies that comprised the WESTCASE investigation. Based on the data presented, community-based interventions are imperative for both primary and secondary prevention of CVD. Practice nursing has significant potential to positively impact across a range of cardiovascular diseases, in particular HF.

The evidence presented in this Chapter outlines the growing nature of HF as a major health problem in industrialised countries. Globalisation infers that this syndrome will likely infiltrate the less developed world in the near future\(^\text{(54)}\). The significant burden of HF mandates a need for sustainable primary prevention and the development of systematic interventions to identify and manage disease. A growing body of evidence suggests that multidisciplinary, coordinated interventions have the potential to provide significant improvements in quality of life, increase the application of evidence-based guidelines in the clinical setting and reduce readmission rates and associated hospital costs\(^{2, 3, 88, 89, 91, 97, 140, 142, 143}\).
models have focused purely on post-discharge interventions\(^{12}\). Hospitalisation for HF is in itself a grave prognostic marker, particularly in the elderly\(^{144}\). The potential to intervene early in the HF illness trajectory may likely improve health related outcomes and, in particular, delay disease progression. Additionally, the high occurrence of patient non-compliance reported in the literature evidences the need to ensure that models of care meet consumer expectations and needs.

Heart failure occurs from multiple etiologies and presents as the result of a complex interplay between social, psychological and biological factors\(^1\). Such complexity infers that there is unlikely to be a single panacea for this problem, but rather that a suite of potential solutions can offer improvement dependant upon local health context and specific patient needs. Current literature describing models of care has been derived from international contexts. Before the application of such models, research needs to be undertaken in the Australian political, social and economic environment. The predictions of the subgroup of those aged over 65 years growing to some 20% of the total Australian population by 2026\(^{54}\) mandates urgent attention to the development of coordinated, sustainable and cost-effective means of addressing this pressing public health issue\(^{96}\) and concentrate our efforts on reducing illness and minimising disability in the living\(^{54}\). Undeniably, the funding mechanisms of services in Australia favour community-based services coordinated by primary care clinicians. The practice nurse role is emerging as a promising role for management of a range of chronic conditions. Encouragingly, the latest Federal budget has recognised this in the introduction of additional item numbers for chronic care\(^{145}\). In order to develop these services in a manner that promotes adaptation and sustainability, development must occur in accordance with the requirements and characteristics of Australian general practice.

### 2.16 Reference List


Chapter 3.

Practice Nursing: A Comprehensive Review of the Literature
3.1 Introduction

The role of the practice nurse is gradually evolving in the Australian contemporary health care setting in line with the shift from secondary to primary health care\(^{(1, 2)}\). This follows some two decades after the WHO’s Alma-Ata Declaration recommended primary health care as a means of facilitating Health for All by 2000\(^{(3)}\). Significant barriers have been encountered in the development of the specialty. These barriers include the unique employment structure and nature of clinical practice, the relative isolation from other nursing services and distinctive professional needs of this group.

The development of practice nursing in the UK and NZ provides important experience that can inform the development of the role in the Australian environment.

Although nurses are more commonly employed in the general practice setting, little is known or published about their work, particularly within an Australian context\(^{(4-6)}\). To date practice nursing has rarely been recognised as a career path for Australian nurses\(^{(7)}\), with the stereotype of the practice nurse being the wife of a general practitioner who undertakes secretarial work and assists the general practitioner as directed\(^{(4, 8-10)}\). Over the past decade, however, practice nursing has evolved from an administrative position that requires some nursing skills, to a clinical nursing position requiring some administrative skills\(^{(9, 11)}\). The AIHW\(^{(12)}\) reports that, in 2001, nurses working in medical practices comprised some 2.1% of the national nursing workforce. By 2003 the National Practice Nurse Workforce Survey\(^{(13)}\), identified some 2 349 nurses as being employed within general practice. Despite such relatively small numbers, the political and organisational level changes occurring in Australian general practice provide significant scope for an increase in the number of practice nurses and an expansion of their clinical role\(^{(6, 14, 15)}\).

This Chapter provides a comprehensive review of the literature that describes the historical background and policy development that has shaped the current shift towards nursing in general practice. It also identifies the role of the practice nurse within this setting and recognises opportunities for further role expansion. Whilst the emphasis of this review will be on the Australian health care system, international literature will be utilised to demonstrate current knowledge on practice nursing issues and provide an evaluation of contemporary models of nursing in general practice.
Subsequently, this review will be used to inform the development of this Project and provide a background context upon which to conduct the planning and implementation models of care for HF management in Australian general practice.

3.2 The Changing Nature of Health Care

In recent years there has been a shift in health service delivery from institutional to community and home-based care for many acute and chronic conditions throughout the world\(^1\)\,(16-22). Outpatient management is growing in popularity for fiscal reasons, in addition to patients’ personal preferences. There is an increase in early hospital discharges and there have been moves to enhance shared care between acute care providers and general practitioners\(^{(23-26)}\). This change in focus has stemmed from the finite nature of health resources, improved survival from what were previously fatal conditions, an increasingly ageing population and the shifting priorities of peak international health bodies\(^{(27-29)}\). As identified, clients are asserting a preference to be managed in their own familiar environment rather than the acute care setting where possible\(^{(30)}\). Thus, there is an increasing prevalence of chronic illness within the community that requires ongoing, and increasingly complex, management\(^{(16, 20, 31-35)}\). Without additional resources, existing primary health providers are unlikely to be able to meet such an increasing demand for their services\(^{(19, 36, 37)}\). Given that contemporary models of care are, increasingly, unable to meet the needs of those with major chronic illness\(^{(35, 38)}\), alternate models need to be explored in terms of both their cost to the health system and added value to consumers\(^{(19, 39)}\). This has increasingly become the focus of several policy initiatives.

General practice is seen to offer greater flexibility, higher levels of efficiency and more client focused health care delivery than is possible in the acute care sector\(^{(25)}\). The potential for general practice to make an important contribution to the changing health care system becomes clear given that 85% of Australians attend their general practice each year\(^{(23, 40-42)}\). Such high service utilisation places general practice in a prime position to implement comprehensive screening, disease prevention and chronic disease management programs\(^{(22, 43-45)}\). NSW Health\(^{(22)}\) identified that, in their review of general practitioner workload, one third of participants reported that chronic disease management represented 75% of their total workload and a further half of the participants reported chronic disease management as comprising 50% of
their total workload. During 2002-03 approximately 11% of all problems managed in Australian general practice were related to heart, stroke or vascular disease\textsuperscript{45}.

The general practice workforce is evolving throughout the developed world. Although the factors driving this change may be somewhat variable and specific to each country\textsuperscript{34}, there are clear commonalities. These common issues include a rising demand for general practice services; a need for cost containment; unacceptable variations in the quality of care delivered; deviations from evidence-based practice; difficulties in service access, particularly where there are rural and remote regions or deprived metropolitan areas; and medical workforce shortages\textsuperscript{46, 47}. Many countries, including the UK\textsuperscript{48, 49}, NZ\textsuperscript{11, 48, 50} and, more recently, Australia\textsuperscript{51-54} have responded to these issues by developing the role of practice nurses. The specific nature of the development of the roles and responsibilities of practice nurses in each country, however, has been shaped primarily by the specific model of general practice funding utilised within the health system\textsuperscript{48}.

In the Australia Federal Budget 2001-02, funding of AUD$104.3 million was allocated to general practitioners in areas of high workforce pressure to employ additional practice nurses over a four-year period\textsuperscript{10, 43, 55-57}. This was divided into funding for employment (AUD$86.6 million), training / professional support (AUD$12.5 million) and scholarships to encourage rural nurses to return to the workforce (AUD$5.2 million)\textsuperscript{51}. The aim of this funding was to both encourage general practices to employ nurses and develop the nursing workforce in the general practice setting. Although this funding was available only to areas of workforce shortage, in particular rural and remote regions, it has prompted evaluation of the impact of this significant change to the culture and practice of primary care in Australia and the potential role for the practice nurse.

The range of key stakeholders and the diversity of general practice settings has led to recognition that the proposed development of practice nursing will be complex and multifaceted\textsuperscript{55}. In order to optimise acceptability of models of care to practice nurses, it is important that the development of these models is nursing driven rather than imposed by others. It is important, therefore, that nursing as a profession takes an active role in the development of the specialty and works to drive reforms in the evolving nursing role\textsuperscript{58}. 
3.3 Role Definitions in Community-Based Nursing Services

There has been some debate, particularly in the UK, as to the role boundaries between practice nurses, community nurses and other community-based care providers\(^{(59-61)}\). Originally the role of the practice nurse was intended simply to provide assistance in the general practitioners’ treatment room\(^{(5, 11, 62)}\). The new and expanding role of the practice nurse crosses the boundaries of what was previously the exclusive territory of other community-based care providers, including general practitioners, community nurses and allied health workers\(^{(28, 63-66)}\). This creates the potential for role conflict, role overlap and role ambiguity both between nursing specialties and with other health professionals\(^{(25, 67)}\). Therefore, care needs to be taken to ensure that practice nurse role development focuses upon bringing about improvements in health service delivery and patient outcomes.

Whilst all professional groups have identified that role distinctions in community-based health services are important to avoid role overlap, there has been little empirical evidence to demonstrate the distinctions in roles to date. The presence of significant geographical variations in primary care serves only to further complicate this situation\(^{(24, 28)}\). Despite the growth in practice nursing in the UK, it is only in recent years that research-based evidence of the nature and scope of the nursing role has been achieved\(^{(25)}\). In general, however, a community nurse currently provides clinically orientated care within the clients’ home (e.g. postnatal and neonatal assessment, chronic wound care), compared with a practice nurse who generally provides a combination of preventative and clinical care within the general practice setting (e.g. pap smear, immunisations, health checks)\(^{(68-71)}\). Visits by the practice nurse to the clients’ home tend to be for specific purposes, such as blood sampling or elderly health assessments, where the client is physically unable to attend the general practice. Increasingly, care provided by the community nurse is usually under the direction of an acute care specialist following hospital discharge or using predefined care pathways to provide assessment and follow-up (e.g. postnatal care, baby development), the practice nurse provides care under the guidance of the general practitioner. Poulton\(^{(29)}\) describes the role of the practice nurse as having “an emphasis on detection and assessment of undifferentiated needs and involvement in the recognition and management in the early stages of conditions”(p. 3). Ungerer\(^{(5)}\) deviates from this somewhat, arguing that practice nurses “may provide primary care.
for patients with acute, self limiting conditions and those requiring chronic and complex case management” (p. 4). Current expert opinion seems, anecdotally, to perceive the Australian practice nurse role as being a subspecialty of generalist community nursing. However, given the diversity of the Australian environment, there is significant geographical variation in service provision and, therefore, role enactment. Further debate and policy development needs to occur to determine the optimal configuration and role structure of community-based nursing services within the Australian context.

Apart from the role differences, Australian practice nurses differ from community nurses in terms of their employment characteristics. Practice nurses are directly employed by either individual or groups of general practitioners, in contrast to community or district nurses who are employed by local health authorities (34, 44, 70-73). This structure has significant implications for professional isolation and clinical supervision of the nurse (74). The roles, responsibilities and scope of practice of the practice nurses, community nurses and health visitors can probably be best described as having fluid boundaries, with the differences reflecting the employer perceptions (75) in addition to a combination of personal and professional preferences (25, 76). Whilst the flexibility of community nurse boundaries is often controlled by nurse or health service managers, the practice nurse is governed by their employer who, in Australia, is the general practitioner (34, 68, 77). This control over the nurses’ workload and specific role has obvious appeal to encourage general practitioners to employ their own practice nurses (28, 68, 72, 78). Practice nurses too have reported that they consider the lack of nursing bureaucracy in their workplace to be advantageous and potentially alluring (18, 28, 79). Having a hierarchical structure where nurses are directly responsible to medical practitioners can, however, serve to only deepen the medical-nursing divide and compound the isolation of practice nurses from the wider nursing profession.

Willis et al. (4) report that there is evidence in the UK to demonstrate that the increase in numbers and change in role of practice nurses has had an adverse impact upon attendances at previously established health visitor programs (24, 34). Such adverse impact may, however, be related to a lack of collaboration between practitioners and multidisciplinary coordination of service provision. Additionally, this evidence does not report or compare the overall uptake of preventative services within the
community. This conflict can also, to some extent, be seen as a territorial debate about ownership of client groups. Health visitors have traditionally concentrated their intervention on those under five years and only recently broadened their scope of practice to include families and adopt a community-based approach to better meet consumer needs and changing expectations\(^{(80)}\). In contrast, practice nursing has evolved as a consequence of the changing health landscape and needs creating by the increasing burden of chronic and complex disease and contemporary health funding models. In the Australian health system, there is not an equivalent role to the UK health visitor, with such services being undertaken by a range of specialist and generalist community nurses. It is important to note, however, that any modifications to the role of nursing in Australian general practice will have a flow on effect to other areas of nursing and their scope of practice\(^{(34)}\).

### 3.4 The Boundaries of Medicine and Nursing in General Practice

Some critics of the practice nurse movement have condemned the development of the practice nurse role as being little more than a means of producing pseudo doctors to solve the medical workforce crisis\(^{(64, 81)}\). Although the role fulfilled by practice nurses is poorly defined\(^{(82, 83)}\), the boundary between medical and nursing work is generally loosely defined, dynamic, unclear and contested not only in general practice but throughout the health care system\(^{(81)}\). Expanded nursing roles, however, are emerging in a range of specialty areas both in the acute setting and in community-based services\(^{(84)}\). Some examples include nurses leading chronic disease management teams\(^{(85-87)}\) and specialist women's health services\(^{(88)}\). It can be argued, that the roles of all practitioners in the contemporary health system are required to evolve to meet the changing needs of the modern health consumer, the fiscal and resource constraints of the health system in which they work and the fluctuating human resource and workforce issues which impact upon the delivery of care\(^{(64)}\). Indeed, even the Royal College of Nursing\(^{(64)}\) identifies that there is considerable uncertainty about the future direction of nursing as a whole in the rapidly evolving healthcare workforce. It is not the intention of the practice nurse movement to replace general practitioners. The primary care provided by doctors and nurses is different, as are their roles in the acute care setting, although the specific variances may be difficult to define and articulate\(^{(69)}\). The aim of practice nurse role development is to promote interdisciplinary models.
Broadbent\textsuperscript{(81)} describes the differences between medical and nursing role using a the model in Figure 3-1. This illustrates that whilst the role of the doctor is primarily concerned with technical medicine, the nursing role is closer to the health promotion end of the spectrum. However, there is a degree of role overlap between professions. The extent of this overlap is variable between clinicians, with personal character traits, degree of clinical experience and workplace environment combining to define the way in which the role is enacted.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3-1.pdf}
\caption{Medical and Nursing Roles\textsuperscript{(81)}
One area in which the practice nurse and general practitioner can complement each other’s roles is in terms of establishing relationships with their clients. The nursing literature highlights the advanced communication and interpersonal skills that the nurse has to offer\textsuperscript{(89, 90)}.
Charles-Jones et al.\textsuperscript{(89)} describe the nurses’ professional identity as being framed “in terms of communication and compassion”\textsuperscript{(p. 83)}. In their survey of practice nurses, Atkin and Lunt\textsuperscript{(90)} reported that all practice nurses and a majority of general practitioners felt that practice nurses were more accessible to clients than the general practitioner and had more time to listen to the client. It becomes evident, therefore, that medical and nursing roles can be complementary in terms of increasing both the range and quality of services available to consumers in general practice. Enhancement and diversification of service delivery offers significant potential to improve patient outcomes, particularly in areas such as chronic and complex disease management.

3.5 \textit{International Development of the Practice Nurse Role}
Practice nursing is significantly more advanced internationally than it is in Australia. In particular within the UK and NZ, practice nursing is a cornerstone of primary care delivery. Understanding the historical developments of the practice nurse role in
these environments can provide important lessons to inform role development in Australia. It is also important, however, to identify the similarities and differences between international and local health systems in order to provide a context through which to interpret the issues.

3.5.1 The United Kingdom Experience

The British General Practice charter was first written in 1965\(^{(62)}\). In the following year, the terms of service were revised to permit the delegation of tasks to nurses and enable the general practitioner to be reimbursed 70% of ancillary staff salaries, including those of practice nurses\(^{(34, 36, 68, 71, 77, 91, 92)}\). A major difficulty in this task delegation was the lack of regulation concerning the specific tasks which doctors were permitted to delegate\(^{(71)}\). Since the British Department of Health and Social Security left decision making about acceptable delegation to local health authorities, widespread variation occurred between geographical areas. Additionally, the employee-employer relationship between individual general practitioners and practice nurses had significant impact upon the nurses’ perceived ability to decline to undertake delegated tasks\(^{(75, 81, 91)}\). Many argue that this remains a problem today, with general practitioners having a poor understanding of the potential role and professional scope of practice of nurses\(^{(44, 76)}\).

In 1968, the Health Services and Public Health Act extended the sphere of health authority employed nurses from clients’ homes into surgeries and clinics\(^{(34)}\). By 1972, the general practitioners terms of service were extended to include delegation to health authority employed nursing staff. In 1977 the Department of Health and Social Security recommended that all health authorities should have a formal policy on the extended role of the nurse\(^{(91)}\). However, the nature of the employment of practice nurses by private general practices meant that there was no compulsion to have uniform policy, have nurses attend training or undertake skills accreditation organised by the health authority or indeed even comply with health department policy\(^{(91)}\). At this time, changes were also taking place in the structure of general practice. Sixty per cent of general practitioners were working in practices of three or more doctors rather than solo practices\(^{(34, 71)}\). Additionally, primary health care teams were being established, with district nurses, health visitors and sometimes social workers, psychiatric nurses or counsellors being attached to general practices\(^{(71)}\).
In 1986 the Department of Health and Social Security published their Report of the Community Nursing Review (Cumberlege Report)\(^{(93)}\). The Cumberlege Report suggested the phasing out of the practice nurse and cessation of general practitioner reimbursements for nursing wages\(^{(77)}\). It argued that current practice nurse reimbursements were contributing to workforce fragmentation. It also identified that the NHS were, in effect, paying twice for some services when they reimbursed both the practice nurses wages and paid a fee for the service to the general practitioner\(^{(34, 77, 94)}\). The report recommended that practice nurses be governed under the community nursing team, although this would not necessarily coincide with individual general practices. Other key criticisms identified in the report involved the lack of educational preparation and the professional isolation of practice nurses\(^{(83, 94)}\).

The publication of the government white paper *Promoting Better Health*\(^{(95)}\) in 1987, only a year following the Cumberlege Report, and the subsequent 1990 general practitioner contract\(^{(96)}\) saw a marked increase in the employment of practice nurses in the UK\(^{(4, 8, 25, 60, 81)}\). The recommendations of the Cumberlege Report were largely overlooked in the Government’s health reforms. The white paper and general practitioner contract instead encouraged health promotion in primary care through financial incentive payments to general practitioners\(^{(81, 97)}\). To receive remuneration general practitioners needed to demonstrate that they undertook health promotion, provided consultations for those aged over 75 years and offered check-ups to those who had not attended the practice in three years\(^{(28, 81)}\). The scope of payments also changed, so that rather than receiving payment for individual items of services, it was necessary for general practitioners to reach predetermined population screening targets\(^{(81)}\). The focus of the general practitioner contract upon health promotion and chronic disease management provided new scope for the practice nurse role\(^{(18, 34, 78, 89, 97)}\). The increase in health promotion and chronic disease management activity was largely not seen by the general practitioners as being within their scope of practice. Such rejection stemmed from feelings that the changes had been imposed upon, rather than being negotiated with them\(^{(81)}\). This rejection can also be seen as a demarcation strategy on the part of the general practitioners to preserve and exert control over the clinical responsibilities which they perceive to be fundamental to their own professional role\(^{(81)}\). Not all general practitioners shared this perspective, some viewed the role fragmentation inherent in allocating this task to practice nurses
as being detrimental to their ability to provide holistic care for their patients\(^{34}\). This perspective was discouraged by the difficulties faced by these general practitioners in achieving set targets and thus receiving financial rewards.

In addition to providing a discrete role for nurses in general practice, the 1990 general practitioner contract provided significant financial incentives to support general practitioners in employing practice nurses\(^{25}\). The employment of the nurse directly by the general practitioner also increased the level of control that the general practitioner had over the practice nurses’ workload and clinical practice. It was this combination of expanded role and financial support, therefore, that stimulated the rapid expansion of the UK practice nurse workforce\(^{25}\).

As part of their investigation of practice principals in England and Wales, Robinson et al.\(^{73}\) explored attitudes and responses to the General Practice Contract. They identified that in order to fulfil the requirements of the Contract, 50.7% of general practitioners had created a new practice nurse position and 83.1% had expanded their practice nurses’ previous role. Twenty-two per cent of general practitioners had also considered purchasing additional nursing time from their district health authority. In total, 69.1% of participating general practitioners approved of the changes forced by the 1990 contract to their practice. Major tasks for which practice nurses were employed in this period were to facilitate health promotion clinics, elderly health assessments and new client registration checks.

Broadbent\(^{81}\) reports that the practice nurses appreciated the new health promotion role and were receptive to the health system changes. However, still no improvement was made in terms of reducing practice variability or establishing uniform conditions of employment. Indeed, in many cases, it was this high level of flexibility in the positions that made them so attractive to nurses. Although driven by nationwide health reform, the growth of practice nursing was not part of a central government plan but rather perceived local needs that were seen to be left unmet\(^{44, 60, 98}\). The subsequent ad hoc nature of practice nurse growth has led to “an uncertain and ill-defined role”\(^{60}\)(p. 7) where there was significant diversity in roles between clinicians\(^{29, 59, 72, 92, 99}\). Practice nurses generally developed their own individual roles based upon local needs, practice demands and their perceived skill level and competence\(^{25, 29, 31, 60, 89}\). As has been discussed, the significant diversity of the work
of practice nurses makes it extremely difficult to articulate a precise role description\(^8\). It must be remembered, that it is this flexibility to meet the specific needs of clients within the individual practice that makes the practice nurse such a valuable resource\(^{44, 57}\).

Since the introduction of the 1990 general practitioner contract the workload of both general practitioners and practice nurses has increased significantly. Richards\(^{18}\) has identified that such increased workload may be responsible for the low morale, dissatisfaction and exhaustion observed amongst British general practitioners. In contrast, the increasing practice nurse numbers may have alleviated the stresses of increased workload on the practice nurse, as demonstrated by their relatively high levels of job satisfaction\(^{18}\). The increase in practice nurse workload has evolved through their increased involvement and diversification of activity in chronic disease activities such as asthma management\(^{100-103}\), diabetes\(^{104-106}\) and CVD screening\(^{107-111}\), health promotion activities such as smoking cessation\(^{112-114}\), and alcohol minimisation\(^{115}\); or through an extended management role in mental illness\(^{116-118}\), Parkinsons’ disease\(^{119}\), minor illness\(^{120-124}\), or family planning\(^{125}\).

In 2004, a new contract was introduced within the NHS\(^{126}\). This was a fundamental change to the previous contract, as rather than being a General Practitioner contract this document was called the General Medical Services Contract\(^{126}\). Such a shift in terminology implies that the document is no longer a contract agreed to solely by the general practitioner, but also involves other practice staff as key stakeholders in the contractual process\(^{127, 128}\). The aims of this contract are to enhance the degree of clinical flexibility which allows individual practices to determine the specific range of services that they wish to provide, to reward practices for the provision of quality organisation and care provision, to facilitate the modernization of current practices and simplify the contractual mechanisms for claiming payments\(^{126}\). In contrast to the previous emphasis on client numbers within a practice, the emphasis has moved to meeting health care needs, managing practice workloads and providing quality clinical care\(^{128}\). This increase in funding acts as a catalyst for practice nurses to take on expanded roles and assume responsibility for organisational aspects of the practice in addition to their clinical responsibilities\(^{21}\).
In 2004 the NHS implemented the Agenda for Change initiative. Agenda for Change specifies remuneration, career structure and employment conditions for all nurses within the NHS\(^{(21)}\). Whilst general practitioners, rather than the NHS, employ many practice nurses in the UK, moves are underway to role out the Agenda for Change to the general practice. Combined with extended prescribing for nurses\(^{(129)}\) and the provision of after hours services\(^{(130, 131)}\), practice nurses are achieving a significantly increased status in the delivery of healthcare in the UK\(^{(21)}\). Opportunities are arising for nurses to become partners in clinical practice and provide services that have previously been the exclusive domain of the general practitioner\(^{(21, 98, 132)}\).

An important issue at the macro level that has positively impacted upon UK practice nurse role development is the funding and systems structure of British general practice\(^{(133)}\). Unlike other health systems that rely on fees for items of service, the British structure makes the employment of practice nurses virtually financially neutral\(^{(133)}\). This minimal cost, combined with the obvious benefits of the practice nursing role, has significantly enhanced the uptake of practice nursing. Additionally, patients in the UK have to register to receive care from a single general practice. This has significant implications for patient management and practice organisation as it specifically defines the population for whom the practice provides care.

Table 3-1 summarises the published investigations that describe the role of the practice nurse in the UK and identifies some of the issues relating to the development of the specialty. There are several limitations that can be identified from these investigations. Firstly, despite the evidence of significant geographical variations in clinical practice and role enactment\(^{(60, 70, 134)}\), most of these investigations utilise relatively small samples from within a local area. Therefore, consideration of local factors should be undertaken before the results are generalised to the wider health system.

A second limitation is that many of them give an account of descriptive studies using self-report measures to collect data. Whilst such studies are invaluable in providing a descriptive picture of the practice nurse role, they do not measure the effects of the practice nurse upon patient outcomes, service delivery or workload. Given the notion that the most proactive practice nurses are those most likely to participate in research projects, this has the potential to significantly skew the data obtained.
Table 3.1 UK Practice Nursing Publications

<table>
<thead>
<tr>
<th>Reference</th>
<th>Sample</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Innovation in Primary Care (1999)</td>
<td>73 practice nurses completed a postal survey and 9 practice nurses underwent unstructured interviews (response rate 55%).</td>
<td>The nature of practice nursing differs between practices. The practice nurse role in chronic illness is rapidly evolving. Practice nurses are at risk of professional isolation. GPs do not manage nurses well.</td>
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<tr>
<td>Phillips &amp; Brooks (1998)</td>
<td>1251 female consumers completed a postal survey and 70 were interviewed (response rate 68%).</td>
<td>Health promotion, disease prevention and family planning do not appear to feature centrally in women’s expectations of practice nurse services. 75% of women had consulted a practice nurse. Most women expressed a preference to be seen by a general practitioner rather than a practice nurse for women’s health issues.</td>
</tr>
<tr>
<td>Jenkins-Clarke &amp; Dixon (1998)</td>
<td>10 General practices (GPs and attached community nurses – practice nurses, district nurses and health visitors) were observed for two weeks.</td>
<td>The majority of the work undertaken by practice nurses in order of activity was diagnostic testing, discussion and paperwork, treatment and health education. Tasks that general practitioners most commonly wanted to delegate included; advice and reassurance, screening, treatment of minor skin complaints, prescribing and contraception.</td>
</tr>
<tr>
<td>Mackereth (1995)</td>
<td>Postal survey of 56 practice nurses (90.3% response rate)</td>
<td>There was little conformity about what nurses do, apart from practical tasks. There was poor role definition regarding screening, health promotion and prevention. There was wide variation in the education practice nurses had received and discrepancies between what they were trained to do and the skills actually performed.</td>
</tr>
<tr>
<td>Atkin et al. (1993)</td>
<td>National practice nurse census – Stage One: national census</td>
<td>Most nurses run health promotion clinics and over half are involved in minor surgery clinics. Despite a high proportion of nurses having undertaken a formal orientation or introduction course, there is still a need for education and training in a range of areas.</td>
</tr>
<tr>
<td>Reference</td>
<td>Sample</td>
<td>Results</td>
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<tr>
<td>Atkin &amp; Lunt (1995)</td>
<td>National practice nurse census – Stage Two: interviews with key respondents</td>
<td>There is a perceived lack of clarity in the practice nurse job description. Core tasks were treatment room related. Nurses have considerable flexibility in determining their own role in the practice. The nurses’ role in chronic disease management varied between practices. Education and training needs are not formally appraised. Networks with other community-based nursing services were poorly defined.</td>
</tr>
<tr>
<td>Hibble (1995)</td>
<td>Practice nurses from 22 practices recorded their workload for 2 weeks both before (1989) and after (1992) the introduction of the GP contract.</td>
<td>Nursing time spent on administrative duties rose from 11.8% to 18.7%. The number of procedures undertaken by practice nurses rose from 36-54. Statistically significant (p&lt;0.001) increases in activity were observed in immunisations, blood sampling, dressings, counselling and breast examinations. Statistically significant (p&lt;0.001) decreases in activity were observed in antenatal and post-natal care, swab taking and wart treatment. In 1992 health promotion clinics accounted for 10.4% of the nurses’ time. The most common clinics were those for hypertension, health promotion, diabetes, weight control, well person, asthma, hormone replacement and elderly care.</td>
</tr>
<tr>
<td>Peter (1993)</td>
<td>131 practice nurses were surveyed (86% response rate).</td>
<td>Most practice nurses carried out extended duties, including health promotion. Many nurses reported inadequate employment contracts, practice facilities and functioning of the primary care team.</td>
</tr>
<tr>
<td>Robinson &amp; Robinson (1993)</td>
<td>63 practice nurses were surveyed (94% response rate).</td>
<td>Additional training and improved access to training is required for practice nurses. It is important to ensure than practice nurses have a room suitable to work in.</td>
</tr>
<tr>
<td>Greenfield et al. (1987)</td>
<td>300 practice nurses in West Midlands were surveyed (58% response rate)</td>
<td>Large variations in patterns of work were revealed and there was considerable extension of nursing roles in some cases. Nurses expressed a desire to extend their role to reduce its’ task orientated nature, although they felt that further education was required to facilitate this. There was evidence of a need for a clearer definition of the nurses’ role and more support from both health authorities and the professional nursing bodies. 45% of practice nurses identified that the attitude of the general practitioner prevented them from extending their role.</td>
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</table>
The sentinel investigation of British practice nurses was published in 1993 by Atkin et al. (49). This study was a national census aimed at describing the work and training needs of practice nurses working in England and Wales. This project employed a postal survey to elicit basic descriptive information about the practice nurses and their roles. In the main census, 16 604 surveys were distributed with a response rate of 81% (n=12 589). Lack of response was attributed to multiple factors including; nurses working at more than one practice and receiving more than one survey, nurses being on holidays / moved house or otherwise not contactable and general refusal to participate. A limitation of this study was that due to variances in local health services, through which contact information for the nurses was attained, different forms of survey distribution were utilised within the sample. Whilst such lack of uniformity in distribution may potentially affect the results, the authors report that analysis of the aggregated data did not support this hypothesis.

Whilst the data derived from this census is far too extensive to be described here, a summary of the main findings is included in Table 3-1. Several main findings, however, are of particular relevance to this investigation. Firstly, practice nurses were identified to undertake a variety of tasks beyond traditional nursing roles, including a more social dimension of client care (90). Such an extended role clearly requires specific educational preparation to ensure optimal client outcomes, particularly given the eclectic nature of the practice nurses previous experience and qualifications. Whilst practice nurses in this census felt adequately trained in specific clinical skills such as venepuncture and immunisation, there was a significant need expressed for education regarding more complex nursing issues such as chronic disease management. Additionally, participants expressed a desire to increase the provision of chronic disease clinics, particularly if they had increased confidence in their ability to provide high quality, evidence-based clinical care. This finding is significant in the context of this review as it reinforces the hypothesis that chronic disease management is a potential role for practice nurses and asserts the nurses’ desire to undertake such a role with adequate education and support. The significant differences at the policy and health system level between the UK and Australia necessitate investigation of these issues within the Australian context.
3.5.2 The New Zealand Experience

By the 1950s the majority of general practitioners in NZ operated solo practices, often relying on their wives to assist them in service delivery\textsuperscript{(11)}. The introduction of the Practice Nurse Subsidy Scheme in 1970 saw the first formal recognition of the role of practice nurses in NZ\textsuperscript{(7, 11)}. This scheme began as a 50\% reimbursement for rural general practitioners towards the salary costs of employing a practice nurse\textsuperscript{(11)}. In July 1974, a 100\% subsidy scheme was introduced for both rural and urban practices\textsuperscript{(11)}. In effect, this provided the general practitioner with a free employee who could undertake any tasks that the general practitioner directed. This change in funding brought about widespread growth in practice nurse numbers throughout NZ. However, the lack of a clearly defined job description mean that many nurses continued to undertake non-nursing duties, such as administration and babysitting, rather than assuming a full clinical load\textsuperscript{(11)}. Therefore, in 1983, the conditions of the funding were amended\textsuperscript{(7, 11)}. The Clinical Service Letter No 221 identified a range of conditions including: (1) the practice nurse must specifically undertake clinical nursing duties; (2) the practice nurse could only be subsidised for hours when the general practitioner was in attendance; (3) to receive subsidy for 40 hours per week a full-time receptionist must also be employed; (4) satisfactory workspace must be provided, and (5) no subsidy is payable if charges are made for services provided by the practice nurse\textsuperscript{(11)}. Adherence to these conditions was initially monitored by liaison officers. However, in 1991 this monitoring was removed, in favour of a joint declaration signed by both the practice nurse and general practitioner\textsuperscript{(11)}.

In 1997 a strategic plan for practice nursing was developed by the NZ Nurses Organisation\textsuperscript{(7)}. This plan identified the need for a clear career pathway, a marketing plan to boost the professional profile of this specialty and adequate employment conditions to facilitate recruitment and retention\textsuperscript{(7)}. Currently, NZ has a stringent education and accreditation program to support the professional development framework\textsuperscript{(50)}. The apparent positive effect that strategic planning and professional development has offered NZ practice nurses in terms of professional status and role development highlights the potential value of such planning in the Australian setting. Further research and evaluation, however, is required to substantiate such inferences.
The NZ Primary Health Care Strategy\(^{(140)}\), released in 2001, clearly articulates the need for a multidisciplinary approach to the delivery of primary care. “No single practitioner or type of practitioner can meet peoples’ needs completely. A range of practitioners with the skills to communicate and collaborate in the patients’ interest are needed”\(^{(140)}\)(p.18). Like the UK experience, government subsidies in NZ have been integral in the development of the general practice workforce and the relatively high availability of practice nurses in the general practice setting\(^{(140)}\).

Despite such clear advancements in the professionalisation and recognition of the practice nurse role in NZ, there is a paucity of published literature describing the practice nurse role and associated issues\(^{(7)}\). This is significant as it highlights the need for nurses to formally articulate their experiences, research findings and professional issues. The dearth of published literature highlights the relatively embryonic state of nursing academia in this country.

### 3.6 General Practice in Australia

Whilst there is much to be learnt from the UK and NZ experience of practice nursing, it is important to contextualise this in terms of Australian general practice and the intricacies of our national health system. The combination of the relatively unique Australian geography and population demographics presents distinctive challenges to the delivery of primary care\(^{(141)}\). Australia is recognised as being a culturally and linguistically diverse society. Apart from its Indigenous peoples, Australia is a nation of immigrants, comprised of diverse cultural groups, each of which has its own particular health issues\(^{(141)}\). These and other global factors, such as the international labour market and heath, education and social policies, present a distinctive context for health policy and funding initiatives\(^{(141)}\).

The Australian population is widely distributed across the continent with the majority of the population concentrated on opposite coastal regions\(^{(141, 142)}\). Half the area of Australia contains only 0.3% of the population, and the most densely populated 1% of the continent contains 84% of the population\(^{(142)}\). Such a widely dispersed population provides particular challenges for the delivery of general practice services, particularly in the more isolated regions of Western Australia, the Northern Territory, South Australia and Queensland\(^{(141)}\). Despite the difficulties associated with rural and remote areas, general practice activity is surprisingly consistent across
the country\textsuperscript{(41)}. Whilst minor differences are apparent in individual States and Territories in contrast to national figures, the magnitude of such differences fails to reach statistical significance\textsuperscript{(41)}.

Australian general practitioners play a vital gatekeeping role to the acute health system\textsuperscript{(41, 143)}. In this role, the general practitioner significantly influences patient outcomes, resource utilisation and health expenditure\textsuperscript{(7)}. For many Australians, their first point of contact with the health system is with their general practitioner\textsuperscript{(22, 34, 144)}. In 2001, the 21 338 Australian general practitioners provided at least one item of service to the estimated 19 413 240 Australian residents\textsuperscript{(41)}. The average number of Medicare claimed general practice attendances was 4.9 per head of population\textsuperscript{(41)}. As might be expected, significantly higher general practice attendance rates were noted amongst those aged over 65 years and fewer attendances observed in the younger age groups\textsuperscript{(41)}. Unlike the UK, Australians are free to choose their own general practitioner and change this doctor as frequently as they desire\textsuperscript{(27, 41)}.

The Australian health system is recognised as being highly complex in terms of its funding and structure\textsuperscript{(145)}. Funding for health services comes from not only the Commonwealth and State governments, but also health insurers, consumers and a range of other sources\textsuperscript{(22, 27, 145)}. In 2001-02 approximately 69\% of the national health expenditure was funded by governments, with 46\% by the Federal government and 23\% from State, Territory or local authorities\textsuperscript{(27)}.

Australian “general practitioners are independent private health care providers, remunerated via the Federal Government Medicare Benefit Scheme and patient fees. This is a blended payment system that includes fee-for-service and incentive payments”\textsuperscript{(p. 9)}\textsuperscript{(22)}. General practitioners are reimbursed 85\% of the scheduled fee for each consultation service by the Federal Government\textsuperscript{(41)}. Whether the remaining 15\% is paid by the individual client or borne by the general practitioner is dependant upon the individual practitioners’ billing arrangements\textsuperscript{(27, 41, 145)}. Some general practitioners may even require their clients to pay fees higher than the schedule fee for an item of service\textsuperscript{(41)}. It is reported, currently, that fewer general practitioners are accepting the schedule fee due to rising overheads and practice costs\textsuperscript{(40)}. This funding dilemma creates the potential for those without the means to pay for medical care presenting to the local Emergency Department, rather than visiting their general
practitioner or simply failing to seek early intervention or regular follow-up of chronic disease. Additionally, the Medicare system encourages high volume, short duration consultations and penalises longer duration, coordinated preventative care\(^2\). It becomes evident that the complexities of the health funding system subsequently impact upon the accessibility and delivery of general practice services.

A major obstacle, identified anecdotally, to expanding the Australian practice nurse role concerns the ability of the general practitioner to receive remuneration for services provided by the practice nurse\(^{146-148}\). This is in stark contrast to the UK, where financial incentives were provided to enhance the provision of primary care, regardless of the practitioner providing the service. In 1998 the PIP was introduced to recognise and reward Australian general practices providing quality care and working towards improving the standards of general practice\(^{149}\). Nurses can be seen to play an important role in assisting general practitioners to formalise systematic processes and quality activities in order to monitor standards of care delivered in their practices. Payments under the PIP scheme reward increased patient throughput and levels of participation in targeted incentives programs, focussed on the areas of diabetes and asthma. The payments also aimed to compensate for the limitations of the fee-for-service arrangements currently in place. All practices whose main location is situated outside capital cities and other major metropolitan areas are also paid a rural loading.

A range of EPC items have also been added to the Medicare benefits schedule to encourage general practitioners to undertake preventative activities such as health assessments of those aged over 75 years and multidisciplinary care planning in patients with complex chronic disease. To date, practice nurses play an important role in the implementation of these EPC items in many practices. It is likely that the efficiencies gained by involving nurses in these assessments can, at least, partially offset costs related to the employment of nurses but this is subject to formal economic modelling in individual practices\(^{150}\).

It was not until 2004 that the Medicare Plus package saw the introduction of item numbers specific to practice nursing services\(^{15,151}\). Initially these items covered only immunisations (Item 10993) and wound care (Item 10996)\(^{15}\), although were extended in January 2005 to include pap smears by accredited practice nurses in rural
and remote regions (Item 10998)\(^{(152)}\). Despite the initial enthusiasm with which these changes were viewed, they represent only a small step towards providing adequate financial support for the practice nurse role\(^{(147)}\). The effects of this funding enhancement for practice nurse services remain unclear and will require formal evaluation regarding their impact on service delivery and contribution to funding the development of the practice nurse resource\(^{(147)}\).

### 3.7 Divisions of General Practice

Divisions of General Practice were introduced in Australia in the early 1990s following the success of demonstration divisions trialled as part of the 1991-92 Commonwealth Government health care reforms\(^{(153)}\). The Divisions of General Practice program aims “to improve health outcomes for clients by encouraging general practitioners to work together and link with other health professionals to upgrade the quality of health service delivery at a local level”\(^{(p. 210)}\)\(^{(40)}\). The key roles of the Divisions are to provide a base to facilitate communication, a mechanism for the further development of general practice, a resource in terms of education and research and a vehicle to support involvement in policy development and decision making\(^{(23, 40)}\). This move to linking general practices within a local area is a positive step to decreasing their professional isolation and providing a platform to support quality improvement activities\(^{(2)}\). Additionally, Divisions can assist in the development of partnerships with other health providers within the community\(^{(154)}\). The nature of funding of the Division of General Practice ensures that Divisional priorities reflect contemporary government health policy and strategic direction, particularly relating to immunisation, diabetes, asthma, mental health, chronic disease, allied health services and enhancement of the practice nurse role\(^{(155)}\).

During 2002-03 there were 121 Divisions of general practice operating throughout Australia, 55 located in urban and 66 within rural areas\(^{(154)}\). Although membership to a Division is voluntary and generally requires paid subscription it is estimated that currently approximately 95% of general practitioners are Divisional members\(^{(2, 43, 155)}\). Figure 3-2 illustrates the contemporary geographical boundaries of the Divisions. This figure contrasts the significant variation in geographical size of the Divisions, which impacts upon the activities and structure of the Division.
Like the UK General Practitioner contract, Divisions of General Practice are primarily organisations led by general practitioners. Some 93% of the membership of Divisional Boards are composed of general practitioners and only 52% of Divisions afforded non-general practitioner Board members with voting rights. Non-medical general practice staff and consumers, therefore, have a limited representation. Despite this finding, there has been a statistically significant increase (p<0.05) over recent years in the number of non-general practitioner staff employed within general practice whilst the number of general practitioners have remained fairly constant. Such a finding reinforces the hierarchical nature of Australian general practice and foregrounds the negative power relationship between general practitioners and practice nurses.

The Divisional structure provides significant potential opportunity to support the development of the practice nurse role. In particular, positive outcomes have been reported where practice nurses have been employed as specialist practitioners to provide disease specific services across general practices within a Division. The advantages of employing practice nurses at a Divisional level include professional networking, continuing professional development and educational opportunities and the potential for nurses to develop specialist skills in a particular clinical area. Whilst anecdotal evidence has reported success with this model, there is little published literature to provide empirical evidence to evaluate the efficacy of such practice. Further research is warranted in the Australian setting to provide an insight into the relationship between practice nurse role development and Divisions of General Practice as well as to evaluate models of practice nurse organisation.
3.8 Practice Nursing in Australia

There is limited Australian literature that provides insight into the role of the practice nurse. A considerable proportion of the Australian literature published to date has been written by general practitioners\(^9, 156-160\). Whilst the contribution of general practitioners as key stakeholders in the development of the practice nurse role is invaluable\(^34\), the paucity of nursing literature reflects the fact that practice nursing is yet to be taken seriously as a specialty or career path for nurses\(^9, 35\). Indeed, until the early 1990s, State and Territory Nurses’ Registration Boards not uncommonly questioned the rights of practice nurses to renew practising certificates\(^9\). Whilst the UK literature demonstrates a growing specialty, there is clearly a need for further investigation of role boundaries and potential benefits within the Australian context.

As early as the 1970s, Linn\(^157\) demonstrated that Australian practice nurses could positively effect the health, morbidity and quality of life of patients with chronic illness (Table 3-2). A general practitioner, Linn worked in collaboration with a practice nurse to undertake a series of investigations regarding the efficacy of the health team in rural general practice. The major limitations of these investigations, is that they were undertaken by a single nurse and general practitioner in a solitary suburban general practice. Therefore, whilst the findings supported further investigation of the specialty of practice nursing, they did not in themselves provide sufficient evidence for widespread implementation of the practice nurse role. Despite a positive effect on patient outcomes and several subsequent publications\(^156, 157, 161\) to disseminate this knowledge, the findings were not used to inform developments in general practice. It was not until the mid 1990s that further research and additional publications regarding the practice nurse role began to emerge. This literature and its findings are summarised in Table 3-2.
TABLE 3-2
Summary of Australian Practice Nurse Publications

<table>
<thead>
<tr>
<th>Reference</th>
<th>Methodology</th>
<th>Location</th>
<th>Major Findings</th>
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<tbody>
<tr>
<td>Linn (1969)(^{(162)})</td>
<td>Survey of 300 consecutive cases (“sick aged”) attending a practice to ascertain value of a health team including the practice nurse</td>
<td>South Australia</td>
<td>Most important feature of the work of the practice nurse was team coordination, ensuring the continuity of hospital and domiciliary; Other duties of the practice nurse included – counselling, investigation of environmental factors affecting health, preventive health education, infant and child care, geriatric care, supervision of continuing physical and occupational rehabilitation, assistance with the organisation of multiple screening tests, participation in research and education programs.</td>
</tr>
<tr>
<td>Linn (1977)(^{(157)})</td>
<td>Survey of patients in over 100 practices in relation to practice nurses role in chronic illness in the aged</td>
<td>South Australia</td>
<td>Practice nurse had positive effect on the health, morbidity and lifestyle of this population.</td>
</tr>
<tr>
<td>Linn (1985 &amp; 1990)(^{(156, 161)})</td>
<td>Audit of practice nurses’ management during 426 consecutive home visits to 80 elderly patients</td>
<td>South Australia</td>
<td>Practice nurses were able to provide regular assessments of physical, functional and social status; practical assistance in activities of daily living; injections and wound dressings; early detection of medical and/or social deterioration and prevention of further loss of independence.</td>
</tr>
<tr>
<td>Dunt et al. (1991)(^{(163)})</td>
<td>Survey of job characteristics of 689 randomly selected nurses working outside hospitals and nursing homes – included 132 medical clinic nurses (MCNs) – specialist and general</td>
<td>Victoria</td>
<td>MCNs shared very few job activities with other community-based nurses; Most frequently performed activities of MCNs – technical care, interpretation of care requirements to patients, maintenance of patient records, liaison with other nurses; Only 49% of practice nurses provided health teaching, 33% counselling and less than 30% conducted health assessments or engaged in case sharing whereas more than 70% of each of the other categories of community-based nurses frequently undertook these activities.</td>
</tr>
<tr>
<td>Le Sueur &amp; Barnard, (1993)(^{(164)})</td>
<td>Survey of 256 practice nurses and 443 GPs in 130 practices to gather demographic data and identify clinical and managerial tasks of practice nurses.</td>
<td>Western Australia</td>
<td>No standard job description for practice nurses the scope of practice varied enormously from practice to practice; 89% of practice nurses carried out telephone assessments, 57% clinical assessments, 27% health promotion activities, 67% health education as part of routine activities; Limiting role expansion factors identified as lack of subsidy or medical benefits and lack of educational opportunities; Job satisfaction was high among practice nurses.</td>
</tr>
<tr>
<td>Reference</td>
<td>Methodology</td>
<td>Location</td>
<td>Major Findings</td>
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<tr>
<td>Keyzer et al. (1995)</td>
<td>Interviews with 14 practice nurses and observation of 10 practice nurses in</td>
<td>Victoria</td>
<td>All were RNs, most hospital trained; Time from initial training ranged from 5-40 years; Only a few practice nurses were engaged in any form of continuing education; All from a background of working in institutions, none with any community nursing training; Role boundaries were directed by the GP and autonomy was limited because of Medicare regulations about fee rebate; Model of care described as cross between an outpatients and emergency department; Nursing contact was primarily undertaken to support medical diagnoses / treatment.</td>
</tr>
<tr>
<td>Bonawit &amp; Watson (1996)</td>
<td>Survey of 277 general practices to explore demographic and occupational characteristics of practice nurses. 93 nurses responded.</td>
<td>Victoria</td>
<td>Many practices did not employ a practice nurse; Most practice nurses worked in practices with three or more GPs; Practice nurses have different and varied backgrounds; Most common post basic qualification was midwifery; 80% had been employed in general practice for more than five years; Most spent the majority of their time on clinical procedures, assisting with medical examinations, reception duties and answering patients’ questions about treatment; 24% made home visits and 5% hospital visits; There was interest in continuing education &amp; training; There was a need for professional links between practitioners.</td>
</tr>
<tr>
<td>Willis et al. (1998)</td>
<td>Qualitative investigation of a convenience sample of general practitioners and 11 practice nurses from rural and urban practices.</td>
<td>South Australia</td>
<td>Barriers to shared care between general practitioners and practice nurses were: Lack of Medicare reimbursement for nursing services, Lack of adequate training and education programs, Need to enhance the professional role of practice nurses.</td>
</tr>
<tr>
<td>Lockwood &amp; Maguire (2000)</td>
<td>11-month trial of placing nurses from a community-nursing organisation in four general practices to increase clinical integration through professional partnerships.</td>
<td>Western Australia</td>
<td>Improved patient access and quality of care; Increased service provision and efficiency; Improved networks with other providers; Improved knowledge about each other’s profession (i.e. GP and practice nurse); Opportunity to explore nurse role development in general practice; High level of patient and GP satisfaction; Nurses less satisfied; attributed to ‘gate keeping’ role of GPs.</td>
</tr>
<tr>
<td>Reference</td>
<td>Methodology</td>
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<tr>
<td>Patterson (2000)</td>
<td>Mixed methods case study of one division of general practice – telephone audit of all practices, mailed survey of 67 practice nurses and 164 GPs followed by in-depth interviews with seven practice nurses, 7 receptionists and five general practitioners to explore current role of practice nurses and influences on role development.</td>
<td>Queensland</td>
<td>60% of Practices did not employ currently licensed nurses; The typical practice nurse was a female, middle-aged, hospital-trained registered nurse who was not engaged in further education; The primary roles of Practice nurses consisted of assisting the GPs in the diagnosis and treatment of illness and injury and facilitating the efficient running of the practices. Their role was principally task oriented, medically prescribed, and general rather than specialised; The scope of practice of these nurses was: Determined by their prescribed role rather than their knowledge or expertise; Based on a biomedical model of health; Diverse and broad and encompassed: clinical, educative, administrative and supportive activities; nursing care of individuals across all stages of the lifespan; primary, secondary and tertiary disease/illness prevention; The nurses’ contribution to health care was constrained by: current funding arrangements for general practice; GPs’ control of the practice setting including their authority to delegate clinical activities to unlicensed personnel; isolation of practice nurses from the wider nursing profession and their lack of access to professional development opportunities specific to their needs; and, the practice nurses’ passive acceptance of their circumstances.</td>
</tr>
<tr>
<td>Condon et al. (2000)</td>
<td>Qualitative study to explore the concept of ‘shared care’ between GPs and practice nurses in eight general practices across five Divisions.</td>
<td>South Australia</td>
<td>Scope of practice of practice nurses essentially delegated clinical tasks, triage, some education and health promotion activities and administrative/housekeeping tasks; Wide variation in the way the practice nurse role was perceived and performed – some described a reactive approach while others were more proactive. Differences emerged from largely tacit negotiations between GPs and practice nurses; Shared care was not found except to some extent in wound care; Barriers to shared care identified as: GPs’ commitment to providing holistic care, concerns about medical liability, GPs’ beliefs that practice nurses were resources not peers, Medicare reimbursement arrangements, poor communication, individualistic rather than collaborative working styles and practice nurses’ reluctance to accept health education or promotion as part of their role; The role of the practice nurse was seen largely as improving the efficiency of the practice by increasing throughput of patients; Current Medicare reimbursement arrangements were seen as the major structural impediment to developing the practice nurse role.</td>
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Table 3.2 Summary of Australian Practice Nurse Publications continued.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Methodology</th>
<th>Location</th>
<th>Major Findings</th>
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</thead>
<tbody>
<tr>
<td>McKernon &amp; Jackson</td>
<td>Survey of general practitioners to ascertain their perceptions of the practice nurse role and their desire to ‘share care’ with nurses.</td>
<td>Queensland &amp; NSW</td>
<td>Major disincentives to employing a practice nurse were cost and lack of funding for services; Main role of the nurse was to do ECGs, apply dressings and undertake triage; 52% of participating general practitioners worked in a practice that employed a practice nurse.</td>
</tr>
<tr>
<td>Cheek et al. (2002)</td>
<td>Focus group discussions with 170 consumers of general practice to explore their perceptions of nursing and nurses in general practice.</td>
<td>National except for Tasmania and Western Australia</td>
<td>Lack of awareness and understanding about the scope of nursing in general practice; Suggested extended roles included developing care plans, providing education, prescribing continuing medication, undertaking Pap smears, specific treatments and relaying test results; Concerned about insurance and litigation issues; Consumers did not want nurses to diagnose, substitute for doctors, take away their choice or contribute to increased costs; Consumers trust GPs to employ suitably qualified and experienced nurses; Consumers want GPs and practice nurses to present a united front and work as a team.</td>
</tr>
<tr>
<td>Hegney et al. (2004)</td>
<td>Mixed methods – survey, focus group discussions and individual interviews. 106 general practice consumers were utilised to explore perceptions and expectations of expanded nursing roles in general practice.</td>
<td>Queensland</td>
<td>Consumers want the choice to consult GP and/or practice nurse; Consumers do not want additional costs imposed by having nursing services; Consumers generally trust the practice nurses who have treated them; Consumers perceive that an expanded role for practice nurses will increase their accessibility to the general practitioner and that nurses should provide a complementary role to GPs; Consumers want more information about the practice nurse’s qualifications, level of experience and scope of practice; Consumer expectations varied with geographical location; Consumers perceived a role for the practice nurse in home visiting; Perceptions of the practice nurse role varied with cultural needs.</td>
</tr>
<tr>
<td>Tolhurst et al. (2004)</td>
<td>Qualitative study – 27 general practitioners and 15 nurses from 19 general practices were interviewed.</td>
<td>NSW</td>
<td>Practice nurses are typically middle-aged women, employed part-time and have extensive professional experience; The nursing role is influenced mostly by the demographic characteristics of the practice population, the nurses’ expertise, general practitioners attitudes and their past experiences of working with practice nurses. The role is not significantly influenced by the size or urban/rural location of the practice; Practice nurses are currently an under-utilised resource in general practice. The role of the practice nurse needs to be documented and evaluated more fully.</td>
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</table>
Table 3.2: Summary of Australian Practice Nurse Publications continued.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Methodology</th>
<th>Location</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meadley et al.</td>
<td>Mixed methods – telephone audit of 180 general practices, survey of 44 practice nurses and focus group with seven practice nurses to explore demographics, diversity of roles, functions, and activities, self-assessment of levels of confidence, prior learning and projected education needs.</td>
<td>New South Wales</td>
<td>All practice nurses were female, average age 44.9 yrs, average 9.5 yrs as practice nurse; Practice nurses perform a range of procedures daily – 67 identified activities; No uniformity in role, functions and activities; Diversity resulted from differences in practices, skill level of nurse and relationships within the practice; Respondents felt competent in performing routine activities but less competent in more advanced skills e.g. cervical smears, breast examination, mental health assessment, health education, antenatal checks; Barriers to professional development included limited access, GP reluctance to support, competing priorities and demands and unrealistic expectations of the nurse.</td>
</tr>
<tr>
<td>Watts et al.</td>
<td>Action research project to explore the current and future roles of nurses in general practice, the educational needs of nurses and GPs and the current educational programs available to support the role of nurses in general practice.</td>
<td>National</td>
<td>Typical practice nurse is an RN, works part-time, works in a medium – large practice with two or more GPs, works with at least one other nurse, has worked in general practice less than five years, has little formal post basic education; Dimensions of practice nurse responsibility are clinical care, clinical organisation, practice administration and integration; The current role of the practice nurse is influenced by the professional characteristics of the nurse, the practice’s patient population, the business orientation of the practice, localised practice and community resources and structural arrangements at a national level; Education for general practice nurses is limited, largely non-formal, not accredited and predominantly delivered by local Divisions of General Practice; Education tends to focus on the National Health Priority areas, in particular, asthma and diabetes. It is likely to be appropriate for registered rather than enrolled nurses, varies in relation to cost, course availability and delivery mode, and likely to focus on the clinical components of practice nursing. There is minimal education to assist GPs in establishing collaborative practice; Current education for practice nurses is not adequate to meet demands of their current or projected future role.</td>
</tr>
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</table>
In their evaluation of shared care between practice nurses and general practitioners in Australia, Willis et al.\(^{167}\) identified that like the scope of the role, there was significant variation in the patterns of referral and work of the Australian practice nurse. They described this as being a continuum from the nurse working solely at the direction of the general practitioner to the nurse having almost complete control over their workload with the potential to get extra staff if required\(^ {167}\). Such diversity is important to recognise and consider in any subsequent strategic planning and structuring of practice nurse services.

In 2000, Condon et al.\(^{9}\) reported an exploratory investigation into the attitudes of practice nurses, their community-based nurse practitioner colleagues, and general practitioners who did and who did not employ practice nurses. A major limitation of the study was that it utilised a very small sample to accommodate the ideas of nursing and medical groups in both rural and urban settings. It did, however, provide a unique insight into the current status of the practice nurse in Australia.

Although there was a high degree of consensus regarding the scope of the practice nurse, the way in which the role was actually performed and perceived by the practice nurses and general practitioners varied widely\(^ {9}\). These differences appear to have emerged out of largely tacit negotiations between general practitioners and practice nurses, although had some relationship to the levels of experience of the nurse and the level of trust that the general practitioner had developed in the nurse and their abilities\(^ {9}\).

With the exception of wound management, where general practitioners reported seeking the advice of their practice nurse, shared care involved the sharing of tasks with the general practitioner working as the initiator and supervisor of the process of care delivery. The extended role of the nurse was seen by participants as being a threat not only to the general practitioner’s ability to deliver holistic management, but also as an abrogation of their responsibility to client care\(^ {9}\). This is in stark contrast to British studies that have reported that general practitioners are unwilling to undertake health promotion tasks, particularly within patient consultations\(^ {81}\). Condon et al.\(^ {9}\) reported that the role of the practice nurse in Australia is currently seen as a means of improving general practitioner efficiency rather than as providing any form of additional service to clients.
From this study it was concluded that the contemporary funding model, which requires that general practitioners sight care provided by practice nurses before financial remuneration can be claimed from Medicare\(^{(10, 53)}\), was the major impediment to the growth of the practice nurse role. Recent government initiatives and budget allocations have the potential to contribute to the timeliness of reviews of the practice nurse role. There remains, however, significant biases in the Australian health funding model against cost-effective services provided by allied health and multidisciplinary teams in general practice\(^{(174, 175)}\).

A further complication in attempting to gain national consistency on practice nurse role development is the various State and Territory legislation that determines the scope of nursing practice. Confusion and apprehension about the lack of national consistency have been reported and recommendations made to re-examine national guidelines to create national consistency\(^{(7)}\). This remains a critical issue to be considered in any exploration of nursing role development. At the time of writing this Thesis a project is underway to develop National competencies for Registered and Enrolled nurses working in general practice. The effect of such competency development on clinical nursing practice is, as yet, unclear and will require sustained evaluation in the future.

At the commencement of this investigation the sentinel investigation of Australian practice nursing had been reported by Patterson in her Doctoral thesis\(^{(169)}\) and associated publications\(^{(6, 10, 143, 146, 176)}\). This case study described the contemporary role of practice nurses, analysed their scope of practice and explored their contribution to primary health care. A recognised limitation of this investigation was that it was conducted within a single Division of General Practice. Despite this, the study provided an important insight into the practice nurse role and established an evidence-base to support the potential for practice nurse role expansion.

Initially, Patterson\(^{(169)}\) conducted a telephone and mail survey of the 67 practice nurses employed within the Division and the 164 employing general practitioners. An interesting observation made during the recruitment phase of this project was reluctance by some general practitioners to allow their staff to participate in the research. Additionally, interviews revealed that many administrative staff were undertaking nursing tasks without formal education or training\(^{(176)}\). Such findings
highlight the need to ensure adequate regulation of standards of care delivery in general practice. It also indicates a lack of understanding regarding professional role boundaries and poor recognition of the scope of nursing practice beyond simply the provision of technical aspects of treatment.

Of the 37 practice nurses and 84 general practitioners who responded to the survey, there was widespread disagreement about the nature of the practice nurse role\(^{(169)}\). Whilst the majority of practice nurses optimistically perceived suggestions of the potential for more autonomous functioning, the general practitioners asserted that they felt that the practice nurse role was designed for the practice nurse to undertake tasks specifically as directed. Any increased autonomous practice, they felt, would result in the delivery of second-rate medicine to consumers. It was apparent, however, that most nurses within the Division practiced within a largely medically directed practice model. Since few participating general practitioners had experience in working in collaborative models, this may have adversely shaped their perceptions of the potential scope of the practice nurse role. This finding also highlights the need for change in the culture of Australia general practice if the practice nurse role expansion is to be fully developed.

Patterson’s\(^{(169)}\) investigation has highlighted a range of occupational and professional issues that have been faced by practice nurses in both the UK and NZ. These issues include low rates of tertiary education, poor specialist preparation for work in general practice, an ageing workforce, a lack of collaborative, multidisciplinary practice models, poor recognition of professional role boundaries and a lack of regulation surrounding the delivery of health care in the general practice setting. Although this investigation has identified these issues in a single Division of General Practice, given the known geographical variations it is important to verify that this situation exists nationally and to explore the barriers and facilitators to potential role expansion from the perspective of the clinicians working in Australian general practice. Some of the barriers and facilitators that can be identified from the literature are presented in Table 3-3. This knowledge facilitates strategic and sustainable strategies for development of the practice nurse role.
<table>
<thead>
<tr>
<th>Enhancing</th>
<th>Constraining</th>
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<tbody>
<tr>
<td>Global shift from secondary to primary care</td>
<td>Predominantly episodic illness management — no national primary healthcare policy</td>
</tr>
<tr>
<td>Trend towards group rather than solo general practices</td>
<td>Narrow interpretation of primary healthcare</td>
</tr>
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<td>Publicly funded practices</td>
<td>Biomedical domination of primary &amp; secondary healthcare</td>
</tr>
<tr>
<td>National &amp; International health priority areas of chronic &amp; complex diseases</td>
<td>Complex interface between secondary &amp; primary care</td>
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<td>Trend to highly corporate medical centres with high turnover</td>
</tr>
<tr>
<td>Legislation</td>
<td></td>
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<tr>
<td>Introduction of nurse practice legislation</td>
<td>Nurse registration boards have variable requirements &amp; regulations regarding clinical practice</td>
</tr>
<tr>
<td></td>
<td>Issues regarding professional liability &amp; malpractice are poorly defined for practice nurses</td>
</tr>
<tr>
<td>Financial</td>
<td></td>
</tr>
<tr>
<td>Practice &amp; Division of General Practice grants for specific projects</td>
<td>Small business model of general practice in Australia</td>
</tr>
<tr>
<td>Commonwealth Government incentives to employ practice nurses, such as the PIP &amp; EPC</td>
<td>Limited subsidy / financial incentive to employ practice nurses (particularly for urban practices)</td>
</tr>
<tr>
<td>Medicare Plus item numbers for immunisation, wound care &amp; pap smear services</td>
<td>Current Medicare benefits largely restricted to medical practitioners, optometrists &amp; some dentists</td>
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<td></td>
<td>Economic rationalism</td>
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<td></td>
<td>Decreased profit margin of general practice</td>
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<td></td>
<td>Short-term nature of specific project funding &amp; the need to incorporate self sustainability into project development</td>
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<tr>
<td></td>
<td>Lack of a specific industrial award to define appropriate conditions of employment &amp; remuneration packages</td>
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<tr>
<td>Social</td>
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<tr>
<td>Nurses viewed as approachable, ethical &amp; trustworthy by the community</td>
<td>Negative power relationship between nurses &amp; general practitioners relating to employee-employer status, gender, socioeconomic status, nurses generally passive nature &amp; historical development of the professions</td>
</tr>
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<td></td>
<td>Cure more valued than care by consumers in primary care</td>
</tr>
<tr>
<td></td>
<td>Lifestyle benefits of practice nurse role valued more highly than career opportunities</td>
</tr>
<tr>
<td>Professional Issues</td>
<td></td>
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<tr>
<td>Nurse practitioner movement</td>
<td>Fragmented nursing organisations</td>
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<tr>
<td>Growth of the APNA</td>
<td>Limited understanding of the role of the practice nurse by other nurses &amp; health professionals</td>
</tr>
<tr>
<td>Development of Australian practice nurse research</td>
<td>Medical control of the scope of practice in primary care</td>
</tr>
<tr>
<td>Development of Australian practice nurse competency standards for both registered &amp; enrolled nurses</td>
<td>Isolation of practice nurses from the wider nursing community</td>
</tr>
<tr>
<td>Conduct of accredited practice nurse-specific education</td>
<td>Use of nurses for general administrative &amp; cleaning duties in addition to clinical nursing practice</td>
</tr>
<tr>
<td>Practice-nurse specific professional development opportunities (e.g. RCNA annual practice nurse conference)</td>
<td>Appropriation of nursing work to unskilled employees</td>
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<td></td>
<td>Lack of clearly defined career path, thus reducing the recruitment / retention of career-oriented workforce</td>
</tr>
<tr>
<td>Tertiary nursing education</td>
<td>Limited orientation to practice nursing or post basic practice nurse qualifications</td>
</tr>
<tr>
<td>Nursing curriculum underpinned by primary health care</td>
<td>Segregated medical &amp; nurse education</td>
</tr>
<tr>
<td>Availability of focussed educational opportunities through Divisions of General Practice &amp; RCNA</td>
<td>General paucity of health promotion &amp; primary healthcare training among current practice nurses</td>
</tr>
<tr>
<td>Trials of interprofessional education for nurses &amp; general practitioners</td>
<td>Poor access to appropriate, graded education, training &amp; accreditation for both registered &amp; enrolled nurses</td>
</tr>
<tr>
<td></td>
<td>Educational background of current practice nurses potentially discourages undertaking tertiary education</td>
</tr>
<tr>
<td>Knowledge/Supply</td>
<td></td>
</tr>
<tr>
<td>Shortage of rural &amp; remote general practitioners</td>
<td>Disproportionate representation of general practitioners in metropolitan areas</td>
</tr>
<tr>
<td>Dissatisfaction of nurses in the public health system</td>
<td>Global shortage of educated &amp; experienced nurses</td>
</tr>
<tr>
<td>Employment conditions in general practice could be more suitable to nurses lifestyle needs</td>
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<tr>
<td>Public/Demand</td>
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<tr>
<td>Increased demand &amp; public awareness for alternative health practitioners</td>
<td>High demand for low cost / bulk-billed services</td>
</tr>
<tr>
<td>Increased general practitioner visits nationally</td>
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</tr>
<tr>
<td>Consumers, particularly with chronic disease, requiring health education, lifestyle modification &amp; psychosocial support</td>
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</table>
In July 2001 a national workshop on practice nursing in Australian general practice was held to debate and reach consensus on some of the important issues related to the development of the practice nurse role\(^{(48)}\). This workshop concluded that the role of the practice nurse is to “enhance the quality and delivery of health care by providing nursing services in the context of general practice”\(^{(48)}\) (p. 2). The following were identified as crucial target performance areas for practice nurses:

- Providing clinical nursing services in the general practice context;
- Coordinating patient services;
- Management of the clinical environment by assisting the general practitioner to meet a number of relevant standards and legislative requirements;
- Health promotion and education by promoting patient, career, and community well being;
- Sustaining general practice by contributing to better management of human and material resources; and
- Improving health outcomes by contributing to and enhancing the management and prevention of ill health\(^{(48, 177)}\).

Whilst this workshop reached these decisions in 2001, to date, there has been limited formal evaluation of how the process of developing the practice nurse role in Australia has addressed these planned goals or the development of further strategic objectives to promote role development. Such research, therefore, needs to be undertaken as a priority.

### 3.8.1 Practice Nurse Recognition

Despite the clear advantages inherent within the role and the growth of the specialty internationally, practice nursing continues to have a relatively low professional profile in Australia. Australia lags considerably behind the UK and NZ in terms of the recognition and development of a career progression for the practice nurse\(^{(7)}\). As with all community nursing groups, there has been a paucity of published material describing either clinical practice or research matters within the Australian context\(^{(9, 151)}\). This has led to a failure of primary care nurses to develop a professional profile akin to the acute care nursing specialties. Only since the inception of this project...
have reports started to emerge regarding the workforce characteristics and professional needs of this group\cite{7,13,151}.

The isolated nature of the practice nurse role means that there is frequently poor representation of practice nurses in the management of health services or professional nursing groups\cite{5,57,92}. Williams\cite{34} identifies that many practice nurses may experience a level of tension between their allegiance to their employer and their profession. Even research exploring the role of the primary health team frequently leaves out or merely tacitly explores the role of the practice nurse\cite{82}. At a time when the focus of healthcare is shifting from acute care to primary care settings, it is disturbing that primary care nursing in general, and practice nursing in particular, have such a low professional profile and representation in decision making\cite{178}. Concerted efforts, therefore, must be made to increase representation at local, state and national levels with well-established evidence to support the case for professional development of the specialty.

### 3.9 Workforce Issues

Recruitment of medical practitioners into general practice in the UK is falling\cite{18,97,137}, whilst recruitment of practice nurses has quadrupled between 1985 and 1995\cite{18}. Similarly, in Australia the numbers of general practitioners have decreased, whilst the numbers of non-general practitioner practice staff has increased significantly in the last five years\cite{179,180}. Increasing retirement rates and the desirability for part-time work, particularly amongst female medical practitioners, have contributed significantly to reductions in the medical workforce, particularly in general practice\cite{18,97,98,181}. The Australian literature also reports difficulties in attracting general practitioners, particularly to rural and remote areas, despite the implementation of financial incentive programs to aid in staff recruitment and retention\cite{4,35}. In an attempt to avoid the inevitable reductions in service provision that will result from the continuing depletion of the medical workforce, it has been argued that some care should be strategically shifted from general practitioners to practice nurses and other allied health professionals\cite{181,182}. Many general practitioners have been demonstrated a willingness to delegate a considerable proportion of their workload to nurses to facilitate improvements in not only quality of care but also in their time management\cite{25,137}. The potential for shifting workload...
between practitioners seems to be possible, cost-effective and potentially acceptable for both those providing and receiving care\(^{(137, 183)}\). In fact, many of these tasks have been within the role of their acute care colleagues for some time. There has, however, been some significant variation in the attitudes of both nurses and general practitioners towards this extension of previous nursing roles within general practice and shifting of workload between practitioners\(^{(69)}\). The primary variable appears to be the motivation for the change. Whilst service improvement and resource rationalisation are seen as positive motivators, simply relief of workforce pressures is perceived as being an inadequate motivator.

The use of practice nurses to overcome the shortfall in the general practitioner workforce does, however, have significant impact upon the wider nursing workforce. Internationally, there is a well documented shortage of trained and experienced nurses\(^{(168, 170)}\). Additionally, the nursing workforce is ageing and there are significant problems relating to recruitment and retention of nurses\(^{(12, 64, 128)}\). Yet, “all recommendations to expand nurses roles have assumed that there are sufficient, if not surplus, nurses to undertake the additional work”\(^{(p. 72)}\\(^{(184)}\). Expanding the numbers of practice nurses has the potential to detract from the acute and community health systems already depleted nursing workforce\(^{(185)}\). Increased job satisfaction, more flexible work hours and other benefits of practice nursing may, however, contribute to improved retention of nurses in general practice\(^{(8, 9, 25, 77)}\). Additionally, improved primary care of acute illness and case management of chronic and complex disease may go some way towards outweighing detrimental effects on workforce numbers in the acute care setting. If the Australian healthcare system, however, is going to continue with moves to extend the practice nurse role in the delivery of primary care, then issues of workforce planning need to be addressed as a priority\(^{(7)}\).

### 3.10 The Struggle for Power

The nature of the practice nurse role and the way in which it has developed internationally, has led to significant professional isolation and interdependence on general practitioners\(^{(63, 73, 91)}\). This is significantly complicated by the fact that practice nurses are in a negative power relationship with their general practitioner colleagues\(^{(7, 19, 34, 48, 143, 175)}\). This phenomenon has occurred for several reasons. The doctor–nurse divide is pervasive and a complex aspect of the relationship between
doctors and nurses, being embedded in the historical development of both professions\textsuperscript{(7, 34, 81)}. Additionally, gender relationships which privilege the masculine often support the doctor-nurse divide\textsuperscript{(19, 34, 81)}. Perhaps the most visible component of the power struggle, however, is the employer-employee relationship, whereby the general practitioner wields the economic power over their nurse employee\textsuperscript{(75, 81)}. The historical developments of the practice nurse role have also compounded general practitioners experience of having almost sole control over the practice nurse workforce\textsuperscript{(186)}. Such a precedent and historical underpinnings may make it difficult to readily achieve significant changes in the power balance between the professions. With such barriers identified it is vital that practice nurses take ownership of their specialty and responsibility for its development in partnership with, rather than in response to, general practice professional bodies\textsuperscript{(58)}.

Atkin and Lunt\textsuperscript{(60)} assert that general practitioners regard practice nurses as being fundamental to the future growth of primary health care. As such, general practitioners see practice nurses in the future with greater responsibility, increased specialisation and greater degrees of flexibility\textsuperscript{(60)}. Difficulties may arise, however, related to the historical background to the different professions, whereby modern, independent minded nurses may have a differing perception to general practitioners accustomed to assuming complete authority\textsuperscript{(8)}. The modern collaborative model for health care requires practitioners to utilise a team approach rather than the hierarchical structure that has, historically, underpinned health care delivery\textsuperscript{(143)}.

### 3.11 Models of Nursing in General Practice

Hastings\textsuperscript{(17)} asserts that a key difference in nursing practice in ambulatory care settings such as general practice, compared to acute care nursing, relates to the issues of role clarity and professional boundaries\textsuperscript{(187)}. When an individual is admitted to hospital, there is frequently a requirement for nursing care due to self-care deficits relating to either specific disease processes or therapeutic regimes. This clear requirement for nursing care readily facilitates a collaborative model of practice for nurse and physician, comprising of mutually distinct but overlapping roles. There is a distinct contrast in the community setting, however, where the individual is assumed to be undertaking some level of self-care at home. In this setting, the requirement for traditional nursing care is much less distinctive. The nurses’ role, therefore, becomes
one of a doctors’ assistant or substitute for some component of the medical work (e.g. patient assessment, symptom management, wound care).

After undertaking two reviews of the literature relating to skill mix in general practice, Sibbald\(^{(46)}\) describes three distinct models of nursing in general practice (Figure 3-3). The first model, *enhancement*, involves nurses working in extended roles to add quality and value to the level of care provided by the general practitioner (Figure 3-3a)\(^{(35, 46, 188)}\). The scope of services provided is increased by adding nursing care to existing general practitioner service provision\(^{(10, 25)}\). Areas in which enhancement has shown potential include health promotion and chronic disease management\(^{(46)}\). In the UK, randomised controlled trials of health promotion have, to date, demonstrated that the benefits of practice nurse-led health promotion do not outweigh the current costs of such service provision\(^{(111, 189)}\). In terms of chronic disease management, however, the evidence from randomised controlled trials supports the effectiveness of practice nurse-led services in a range of chronic disease processes\(^{(108-110, 190, 191)}\).

![Figure 3-3 Models of General Practitioner / Practice Nurse Collaborative Practice\(^{(46)}\)](image)

The second model advocated by Sibbald\(^{(46)}\) involves practice nurse *substitution* for general practitioners by extending their role (Figure 3-3b)\(^{(34, 35, 188)}\). In this model, the general practitioner continues to provide the same services, however, the nurse also duplicates some of these tasks (e.g. immunisation, minor illness management). This model is primarily motivated by the growing shortage of general practitioners. Several systematic reviews and trials have been undertaken to compare the relative effectiveness of general practitioners and nurse practitioners\(^{(182, 192-201)}\). Generally, these investigations have demonstrated that nurses can attain equal patient outcomes to those of general practitioners, with potential advantages relating to superior...
communication and interpersonal skills\(^{(19, 122-124, 188, 192, 193, 202)}\). Considering that nurses are generally remunerated at a considerably lower rate than general practitioners\(^{(19)}\), this would appear to represent a significant cost saving\(^{(34)}\). However, to achieve these outcomes, practice nurses generally required longer consultation times and more frequent recalls than their general practitioner colleagues\(^{(97, 188, 193, 201, 202)}\). Such differences, combined with lower lifetime workforce participation rates amongst nurses\(^{(188)}\), likely negated any cost savings that might have been achieved\(^{(202)}\). There is limited evidence, therefore, to demonstrate that substitution improves the cost-effectiveness or quality of general practice services\(^{(34, 188, 202)}\).

The final model described by Sibbald\(^{(46)}\) is that of delegation (Figure 3-3c). The intention of this model is that improvements in efficiency can be achieved by dissolving traditional role boundaries and subsequently enabling staff to be deployed to maximise the utilisation of their available skills\(^{(21, 34, 97, 188)}\). This model requires that general practitioners delegate suitable roles to practice nurses and invest their time in activities that only they are able to perform, such as advanced clinical assessment and medical diagnosis\(^{(18, 46)}\). Additionally, practice nurses should operate at their highest skill level and delegate less complex activities such as clerical and administrative tasks to dedicated clerical and practice support staff\(^{(21)}\). Such a model can also create scope for nursing tasks to be divided between nurses of variable skill levels and clinical experience. True efficiencies in this model can, however, only be gained by the providers investing the time saved by delegating tasks in activities of greater value than those which they delegated\(^{(183)}\). There is limited substantive evidence to date that investigates how practitioners have utilised the time savings generated through task delegation\(^{(46)}\). Levels of delegation may also vary greatly between practices and health professionals depending upon factors such as interpersonal relationships, individual attitudes, concerns regarding training, accountability and potential for liability and traditional work practices\(^{(18)}\). Although attitudes to delegation amongst clinicians may appear positive\(^{(18)}\), the translation of these attitudes into practice represents a significant challenge and cultural shift.

Some contemporary work in the UK proposes elevating the general practitioner to the role of a consultant in primary care, with less important work being transferred to assistants and practice nurses\(^{(89, 183)}\). Such a hierarchy is proposed to mirror that commonly seen currently in the acute care sector\(^{(89)}\). Rather than creating the
multidisciplinary team approach favoured as being effective in improving outcomes in primary care, such a model further disconnects and segregates the roles of the practice nurse and the general practitioner. As such, it creates silos in which patients are categorised according to their diagnostic label and the perceived seriousness of their biomedical health, rather than managed holistically by a team of coordinated, multidisciplinary health professionals. The classification of clients based upon their biomedical condition also ignores the biographical model that has historically underpinned general practice, with its concern for the multiple dimensions of health\(^{(89)}\). This model would, however, preserve the role of the general practitioner having the dominant position in the power relationships that exist in primary care\(^{(89)}\).

The British Medical Association (BMA) takes an interesting stance regarding role substitution, suggesting that nurses should take on aspects of doctors’ work\(^{(64)}\). They contend that nurses should assume a coordination role both in the acute setting and within the community, acting as the initial point of contact with clients\(^{(64)}\). The role of the doctor would, therefore, become one of providing specialist advice and medical management when necessary\(^{(64)}\). The one caveat on this plan is that the BMA expects that Registered Nurses should undertake the majority of this care, rather than less skilled nursing staff or health care assistants\(^{(64)}\). Whilst such a stance is perhaps conceptually alluring it does not demonstrate consideration of the research evidence. Additionally, its implications upon the Registered Nursing workforce are significant and potentially unsustainable in the current healthcare climate.

The BMA model for role substitution also has significant implications for nursing as a profession. The provider substitution model can be argued to fail to capture the distinctiveness of the two professions and the ways in which they can potentially complement each other in the provision of patient care\(^{(7)}\). In this model the uniqueness of the nurses’ role is not clearly articulated, rather it is assumed that the general practitioner could perform all duties that nurses undertake in general practice\(^{(7)}\). There is a perception that nurses can substitute for the general practitioner in the provision of clinical care rather than adding value to the quality of patient care in their own right\(^{(7)}\). There is also a real risk that by assuming such vastly extended roles, nurses will lose their own professional identity, or become so entrenched in other roles that they will risk losing their core nursing values\(^{(64, 89, 98)}\). It is vital,
therefore, that as a profession nurses take an active role in debate about future roles in health care both in the acute and community sectors\(^{(92)}\).

In their evaluation of nursing in general practice, the RACGP and RCNA\(^{(7)}\) identified their vision for the future as a collaborative practice model, rather than the provider substitution model espoused by the BMA. This vision described a scenario in which practice nurses will work together with general practitioners, not in order to replace or substitute for them, but rather to add value and enhance the quality of patient care\(^{(7)}\). They asserted that the future of Australian general practice incorporates a team approach to health care delivery that can respond to adapt with, and successfully accommodate, the changing health needs of the Australian population\(^{(7)}\).

In this model, each professional is encouraged to demonstrate their unique, but overlapping scope of practice to enhance the quality of patient care. The general practitioner, however, retains the role of team leader, being responsible for delegating tasks to team members. Whilst the authors recognised the theoretical merits of this model, they identified that no adequate models of such teamwork in general practice are currently available\(^{(7)}\). In particular, limited investigation has been undertaken to investigate the impact of the previously described models of care upon either the quality of care delivered within the general practice setting or in terms of improvements in patient outcomes\(^{(4, 187, 203)}\). Such research is, therefore, clearly an important future priority.

### 3.12 General Practitioner – Practice Nurse Collaborative Practice

Whilst multidisciplinary, collaborative practice has been espoused as a benefit of the practice nurse in general practice, few studies have investigated the nature of such decision making in usual care. Within their ethnographic investigation of practice nurses understandings of accountability in clinical practice, Savage and Moore\(^{(75)}\) explored who was involved in so called multidisciplinary decision making. This study found that in daily clinical practice, decisions about individual clients tended to be made by general practitioners in isolation. Where these decisions required the input of various team members, then decision making occurred in stages. It was only the decisions that concerned groups of clients, such as practice policies or guidelines, which saw multidisciplinary practitioners come together for a finite period and contribute in a shared manner to decisions about care delivery. Richards et al.\(^{(18)}\)
supported this finding, arguing that interprofessional collaboration exists at a very low level within most practices.

A major limitation of Savage and Moore’s\(^{(75)}\) study was that it drew data from a single general practice. Difficulties in ethical approval and resource constraints also limited the periods of fieldwork and observation undertaken\(^{(75)}\). Despite such limitations, the findings of the study do offer a valuable insight into the difficulties of truly multidisciplinary care in general practice and limited opportunities for practitioners to meet and discuss cases.

It has been identified that although much has been written about collaborative care, the focus of this literature has been on collaboration between general practice and external care providers, rather than collaboration within individual practices\(^{(7)}\). Limited evidence exists to describe teamwork within the general practice\(^{(18)}\), as few studies have been conducted with this as a primary aim.

In their investigation, Lockwood and Maguire\(^{(168)}\) placed nurses from a local nursing service into four Australian general practices with the aim of establishing professional partnerships. It was the intention of the trial to develop the nurse role beyond that of the practice nurse and more towards the sphere of nurse practitioner. In combination, these factors may have produced a contrived relationship between the nurse and general practitioner that may not be truly typical of the relationship seen in the wider Australian general practice environment. Despite the aim to develop the nurses into autonomous advanced practitioners, this was significantly constrained by the participating general practitioners. The nurses reported feeling restricted in their clinical practice, lacking independence and having only a slowly developing role in health promotion and patient education\(^{(168)}\). Despite this feedback from the nurses, general practitioners reported some satisfaction in terms of the increased teamwork with the nurses, rather than their previous experience of being an isolated practitioner. It is not clear exactly how the authors defined teamwork, as specific collaborative activities were referred to but not described in detail. Further research is, therefore, warranted to investigate ‘real-world’ collaborative practice between general practitioners and practice nurses and evaluate the efficacy of collaborative models in improving clinical outcomes and quality of care.
Willis et al.\textsuperscript{(167)} conducted a qualitative exploratory study that sought to establish benchmarks for best practice relationships between general practitioners and practice nurses and identify the barriers and facilitators to ‘shared care’. Perhaps the major finding of this investigation was that shared care was a complex concept that held different meanings for individual participants. Whilst it was initially assumed by the investigators that shared care existed in general practice, this assumption was rejected by the study findings. The only area in which true shared care was identified to some extent was in relation to wound care\textsuperscript{(167)}.

Both general practitioner and practice nurse participants had a high level of agreement in terms of the advantages of the practice nurse role. However, this was largely seen as being of benefit to the consumers or practice rather than in terms of the collaborative relationship between practice nurse and general practitioner\textsuperscript{(167)}. Another important finding of this investigation was the degree of variation between individual practices. Although such variance can be justified as meeting the needs of different practice populations, it also highlights the need to establish generic nursing competencies and job descriptions to support the optimal use of the practice nurse resource.

A historical lack of partnerships between general practitioners and practice nurses within Australia has been acknowledged by the General Practice Strategy Review Group\textsuperscript{(53)}. The function of this Group was to evaluate the need for a changing approach to general practice service delivery in the new millennium, with a specific focus upon the establishment of collaboratives with other health care providers and agencies\textsuperscript{(53)}. Disappointingly, rather than describing the unique contribution of nursing to patient care, many submissions described the potential of the practice nurse to undertake a range of clinical tasks which focused on reducing general practitioner workload. The emphasis placed by this Report on collaborating with patients and fostering teamwork with other health professionals appeared positive. However, the language of the document places the general practitioner firmly in control with a delegative function to prescribe the jobs for others within the general practice team\textsuperscript{(53, 169)}. This perception clearly does little to foster multidisciplinary collaborative practice. Such workforce issues necessitate the exploration and evaluation of innovative models to meet the needs of all professional groups and, more importantly, add value to patient care in general practice.
3.13 Clinical Supervision

Considering the relative professional isolation of the practice nurse, there has been concern voiced as to the clinical supervision of such nurses. Atkin and Lunt (60) identify the need for practice nurses to recognise and accept the degree to which they are professionally accountable for their own clinical practice (204, 205). This accountability can be seen as being greater than in the acute care setting where a hierarchy of clinical supervisors and nurse managers oversee the delivery of nursing care. The issue of legal liability is particularly important for those nurses who work as independent contractors rather than employees of general practices and thus individually bear the liability for any negligent act (205). Such issues require careful consideration in light of current legal requirements prior to the further expansion of practice nurse services. This is particularly true when current research describes largely ad hoc and informal models of clinical supervision (25).

Atkin and Lunt (60) identified that the precise nature of clinical supervision in the workplace was seldom clearly defined, but rather loosely based on implicit assumptions which varied from practice to practice (60). This is a particularly important issue when it is considered in light of the lack of specific postbasic education, the multidisciplinary nature of the relationship between practitioners and the dual role of the general practitioner as both employer and clinical supervisor.

The clinical competency and scope of practice of the various nursing skill levels has been identified as being poorly understood by general practitioners (10, 175). Whilst Enrolled (Division 2) Nurses require the supervision of a Registered (Division 1) Nurse (56, 57), the definition of this supervision is often loosely interpreted. Additionally, a Registered Nurse does not require supervision by a manager, or a more experienced Registered Nurse (206). The lack of a clearly defined supervision structure leaves the nurse vulnerable to potential litigation. Whilst a majority of nurses in the UK practice nurse survey articulated that they were assertive in telling the general practitioner if they were uneasy about any aspect of their clinical work, a number felt pressured to undertake clinical tasks about which they were uncomfortable (60). The isolation of nurses in general practice also likely contributes to the pressure to undertake clinical tasks that the nurse might otherwise question.
There has been much controversy in some professional nursing circles relating to the lack of professional control over such a large group of nurses and the potential for nurses to become further subservient to medical practitioners in this environment\(^8\), \(^69\), \(^83\). Moreover, medical training has, historically, placed little emphasis upon human resource issues\(^8\). Combined with the effect of individual character and behaviour traits, it is not surprising that whilst some general practitioners prove to be excellent employers of practice nurses, others are less adequate in their approach. The ability of the practice nurse to form a professional relationship with the general practitioner is also inextricably linked to the implicit power differences related to the long history inherent in the doctor-nurse divide, societal gender boundaries, whereby we are socialised to recognise men as decision makers and the economic power wielded through the employee-employer relationship\(^44\), \(^69\), \(^81\).

Whilst job satisfaction has been cited as a positive aspect of working as a practice nurse, there has been a range of negative factors identified. Professional isolation has been identified as a major issue for practice nurses, with around 16% working alone in the UK\(^60\), \(^82\). The vast geographical distances present in the Australian context can be seen to potentially intensify this isolation\(^141\). Where present, professional networks tend to be spread over large geographical areas with contact in the form of electronic or telephone communication rather than face-to-face meetings. This has implications in terms of not only professional mentorship and clinical supervision but also continuing access to education and professional development\(^207\). Additionally, practice nurses have identified a deficiency of supportive relationships in the workplace\(^60\). Indeed, the most frequent source of discontent amongst practice nurses is reportedly related to their employment conditions\(^60\).

### 3.14 Education and Training

The issue of training needs, release from work to attend educational activities and funding is a central issue in practice nurse education and professional development\(^59\), \(^208\). The first aspect of this issue is related to the initial training of practice nurses. Atkin et al.\(^59\) report that in the UK most practice nurses are general nurses with few postgraduate qualifications relating to the clinical skills required in general practice. For example, of those involved in operating antenatal and postnatal clinics, 70% do not have either a health visitor or midwifery qualification\(^59\). Such deficits in formal
training have significant implications for the quality of care delivered and the professional accountability of individual clinicians. Additionally, it was identified that most nurses engaged in health promotion reported that the skills required for this activity are largely interpersonal and do not require additional education or training\(^{(59)}\). Such a finding indicates that there is a potential for practice nurses to either underestimate their educational needs or overestimate their ability to provide high quality care without empirical evidence to demonstrate patient outcomes. Further, educational deficits potentially impede the development of nursing practice and the exploration of new models of care. The major difficulty, however, is that there is wide variation in the skills required of practice nurses and also the practice nurses themselves come from diverse professional backgrounds\(^{(29, 63, 209, 210)}\). In contrast to the findings of Atkin et al.\(^{(59)}\), other authors report that the nearly half of the practice nurses in their cohorts possess some kind of postbasic qualifications\(^{(90, 139)}\). Few of these studies, however, map these qualifications to duties carried out by the practice nurse in their daily practice.

Whilst some short courses have been established throughout the UK for practice nurses, a review of such courses has revealed that they are often inaccessible to the majority of practice nurses due to financial, time and travel constraints\(^{(59, 208)}\). The diversity of roles within practice nursing also presents significant difficulties in terms of curriculum development and clinical relevance. In Australia, at the commencement of this study, several university nursing schools offered postgraduate courses in practice nursing. Most of these courses were at graduate certificate level and many were delivered via distance education. Such courses are not mandatory and, although enrolment is adequate to sustain courses, the overall uptake on the part of nurses is low. As with all nursing specialties in Australia, however, there is a lack of recognition of specialist advanced training and formal postbasic qualifications in terms of increased remuneration or employment status\(^{(211, 212)}\).

In addition to initial training, a further issue is ongoing professional development. Although there are reports that practice nurses attend various study days, the literature also describes the difficulties faced by nurses attending such forums\(^{(59)}\). Issues of course costs, availability of study leave and travel required have all been identified as contributing to the current suboptimal involvement of practice nurses in
continuing education programs\(^{59, 77}\). To increase participation rates, continuing professional development needs to be made affordable and locally available\(^{177}\).

Despite these limitations, moves such as the creation of national practice nursing bodies, such as the APNA, and the establishment of specialty journals such as ‘Practice Nurse’, demonstrate increasing recognition of the need for professional development and specialty education. Although these advancements evidence a growing professional interest within the specialty, training remains fragmented, addressing perceived shortcomings in skills and rarely encompasses the overall role development of the practice nurse or links with other primary health care providers\(^{59, 63, 213}\). The issue of inadequate training in primary care is not confined to nurses, Richards et al.\(^{18}\) reports that most non-medical professions in primary care also experience a paucity of education and training opportunities.

Bentley\(^{63}\) and Stilwell\(^{94}\) both suggest that one way to view practice nurse education is the recognition that there is a need for foundation courses for novice nurses, task specific courses for more experienced nurses and regular continuing education for all. The RACGP and RCNA\(^{7}\), recognised this in their investigation through the recommendation that practice nurse be recognised as a viable career option that includes the range of beginning, competent, and advanced level nurses. The difficulty in establishing such a continuum, however, is the fluid nature of the workforce and the privately employed nature of the practice nurses.

### 3.15 Consumer Perceptions

Modern health care is placing increasing emphasis upon consumer satisfaction\(^{18}\). Health providers are being charged with providing healthcare that is seen to be responsive to the specific needs and demands of the community\(^{18}\). In 2002, the National Steering Committee on Nursing in General Practice conducted an Australia wide focus group analysis of consumer perceptions of nursing in general practice\(^{170}\). This study sampled an extensive group of participants from a range of rural, metropolitan and inner city areas, with variable degrees of personal experience with practice nurses. The detailed sampling strategy also provided participants of diverse adult age ranges who reported variable usage of general practices. The major limitation of the sampling, however, was the significant predominance of ‘English speaking birth country’ and ‘English language being spoken at home’ amongst the
sample. This is somewhat understandable when considered in light of the focus group methodology and the need to verbally convey stories to the researcher, however, it does not well reflect the multicultural and linguistic diversity of the Australian population. A further limitation was that few participants had personal experience with practice nurses. As such, the participants were reflecting more upon their preconceptions of what the practice nurse role might be as opposed to offering a personal experience of practice nurse interactions.

In terms of an awareness of services offered by nurses in general practice, the consumers who participated in the study readily identified clinical tasks such as injections, wound care, dressings, health assessment (e.g. blood pressure and weight measurement), counselling and support\(^{(170)}\). Fewer consumers identified the role of the practice nurse in health education, providing test results or health monitoring\(^{(170)}\). Whilst this may be a reflection of the general paucity of personal experience in the role of the practice nurse, it may also be seen as a negative or restricted public opinion of the role of nurses that requires significant work to amend. As was highlighted in the study “many consumers (other than carers) had difficulty thinking outside their previous personal experiences”\(^{(170)}\)(p. 27). Those who did immediately recognise the role of the practice nurse in education and support were those who were carers or who had a chronic illness, that is, those who were most likely to have previously required support or health education in the general practice setting\(^{(170)}\).

Such consumer confusion regarding the practice nurse role was also identified by Coyle et al.\(^{(214)}\) in their British study of consumer perceptions regarding practice nurses. Similarly, Phillips and Brooks\(^{(136)}\) reported that women in their study did not expect practice nurses to be involved in health promotion, disease prevention and family planning. Women in this study, somewhat surprisingly, reported that they preferred to see a general practitioner rather than a practice nurse to discuss women's health issues. These findings highlight the need to raise the community and professional profile of practice nurses to identify barriers to consumer satisfaction and enhance the acceptability of nurse-led models of care.

Participants in the Australian focus groups expressed two potentially contradictory themes regarding the clinic process that should be employed within a general practice. Some participants felt that a client should see the general practitioner first and then receive any required follow-up care by the practice nurse, if appropriate,
under the direction of the general practitioner\textsuperscript{(170)}. The other view expressed was that the practice nurse should act as a triage nurse, providing frontline assistance to clients and offering subsequent referral to the general practitioner if they considered it necessary. Participants who articulated this viewpoint, however, included the caveat that the practice nurse should not become a gatekeeper and inhibit the consumer from accessing the general practitioner if they so desired\textsuperscript{(151)}. These participants saw the practice nurse as being an enhancement of the general practitioner service and not a substitute for consultation with the general practitioner.

In addition to this theme, there was a concern voiced by some consumers in terms of the general accessibility of services. It was expressed that some consumers may not feel free to voice concerns about the level of care provided by a particular practitioner, be it a nurse or doctor, and thus be less able to access appropriate services particularly if there were increased barriers to access. A key message voiced by consumers was that any expansion of the practice nurse role in Australia must not jeopardise the choice of the consumer to seek primary health care from a general practitioner or result in any increased costs associated with the provision of primary health care\textsuperscript{(170)}.

Other areas that were not well understood by the consumers in this study included the practice nurse role and the variable qualifications of practice nurses\textsuperscript{(170)}. Some participants, particularly the elderly, articulated that the lack of clear identification of health care workers caused confusion about their role. The consumers commended those practices that actively introduced the practice nurse to their consumers and provided information about their role within the practice. Other consumers reported the presence of an individual who acted as an ‘assistant’ at the practice that they visited but they were unsure of their professional qualifications. Such lack of identification of individuals with their role has the potential to be problematic in terms of public recognition of practice nurses and appreciation of their role. It also opens up dangerous precedents for the potential utilisation of unskilled workers to perform skilled tasks. The equation of being an ‘assistant’ to the general practitioner may also be seen as an unhelpful stereotype that will likely impede any future moves to expand the practice nurse role. This issue has significant implications for quality assurance, standards of care and complaint resolution.
3.16 The Practice Nurse Role in Chronic Disease

It is well recognised that the ageing population and increased survival from acute conditions is increasing the incidence of chronic illness internationally\(^{(64, 145)}\). The current health system is ill equipped to deal with the growing epidemic of chronic illness\(^{(215)}\). In many conditions, such as chronic HF, drugs alone cannot improve quality of life\(^{(215)}\). Heart failure is, perhaps, the most dramatic example of a chronic condition with significant financial and resource burden and personal impact on society\(^{(215)}\). Skilful delivery of expert care is essential to reduce the burden of HF and maximise quality of life\(^{(215)}\). Despite recognition of the impact of chronic illness within the Australian National Health Strategy, there has not been a concomitant improvement in long-term support services for the chronically ill\(^{(216)}\). Contemporary usual health care has been demonstrated to fall short of client needs in many chronic conditions\(^{(217)}\). Additionally, many interventions and models of care are developed based upon the acute care environment and later transposed into general practice settings with minimal translation to address the different environmental and contextual issues\(^{(218)}\). Therefore, it is essential that research efforts be made to establish the most effective methods of providing primary care in terms of client access and availability of services, resource availability and allocation, as well as service outcomes. The primary care model previously adopted by community nursing providers is no longer readily achievable in contemporary clinical practice. This is due to the increasing burden of illness being managed in the community setting coupled with finite resource allocation. Such shortfall in service provision could prove to be fertile ground for the expansion of nursing services, particularly in the domain of practice nursing\(^{(69, 216)}\).

In the British GP Contract the NHS identified chronic HF as one of four conditions for which there was a perceived role for additional services such as disease specific clinics, screening, education and health promotion\(^{(8, 60)}\). In their national practice nurse survey, Atkin and Lunt\(^{(60)}\) identified that the role of the practice nurse in chronic disease management varied between practices, from supporting the general practitioner in conducting disease specific clinics to taking full responsibility for chronic disease management. Willis et al.\(^{(4)}\) argue, however, that practice nurses are not currently adequately trained to manage chronic and complex illnesses. Such an argument is supported in the Australian context in particular with the low numbers of
practitioners holding specific postgraduate qualifications\(^{(7)}\). To achieve equity in clients gaining access within the increasingly complex Australian healthcare system, however, there is a significant role for nurses to provide guidance and support to clients and their families, particularly those with chronic illness to navigate the complex maze of the contemporary health care system.

Currently, few investigations have evaluated models of care for chronic disease management incorporating the practice nurse. Those investigations that have been conducted have largely been undertaken in the UK and have focused on a range of health issues including asthma\(^{(100-103)}\), diabetes\(^{(105, 219)}\), CVD\(^{(107-111)}\), Parkinson’s disease\(^{(119)}\), minor illness management\(^{(120-124)}\) or health promotion activities such as smoking cessation\(^{(112, 113)}\) and alcohol minimisation\(^{(115)}\). Table 3-4 highlights the main findings of practice nurse trials relating to CVD management that have been reported to date. These studies identify that practice nurse-led care is acceptable to consumers in a number of chronic cardiovascular conditions \(^{(30, 108-110, 220)}\). Consumers reportedly value the time, support and reassurance that nurse-led preventative care and chronic disease management can offer\(^{(30, 220)}\). They perceive practice nurses to be sufficiently knowledgeable to manage this type of intervention, with the knowledge that prompt referral to the general practitioner can be achieved if necessary\(^{(220)}\). Similarly, practice nurses were reportedly willing to be involved in such initiatives\(^{(220, 221)}\). Whilst practice nurses felt confident in undertaking basic assessments, a knowledge deficit in terms of more complex cardiovascular pathophysiology and pharmacology was identified\(^{(220)}\). This led to less confidence in exploring the patients’ understanding of their condition. An emphasis on further education and training is, therefore, essential to ensure optimal care is delivered.

Current poor prescribing practices and difficulties in sustaining behavioural changes indicate that there is potentially an important role for the practice nurse is to help clients sustain behaviour changes (e.g. quitting smoking, dietary modification, reduces alcohol consumption) and to encourage prescription and compliance with evidence-based medication regimes whilst returning to active lifestyles\(^{(222)}\). To date, however, trials of lifestyle interventions for all patients in general practice such as the Oxcheck and British family heart study have shown to produce small, but not significant or cost-effective improvements in lifestyle risk factors\(^{(111, 189, 223-225)}\). Additionally, trials of simply coordinating existing care in CVD have been shown to
be insufficient in producing significant improvements in patient outcomes\(^{222, 226, 227}\). Trials in patients at risk of or diagnosed with CVD have, however, shown some benefits in terms of assisting patients to undertake and maintain behavioural and lifestyle change and encouraging to undertake rehabilitation programs\(^{108-110, 222, 226-229}\). In their study of secondary prevention clinics specifically aimed at those with a diagnosis of coronary heart disease, Campbell et al.\(^{108-110}\) identified significant health improvements, improvements in lifestyle factors, medication management and reductions in hospital admissions within one year. Similarly, McHugh et al.\(^{229}\) demonstrated that a practice nurse intervention for men on the waiting list for coronary artery bypass surgery could achieve reductions in smoking cessation (25% v 2%, p=0.001) and obesity (16% v 8%, p=0.01), as well as increasing the number of patients who achieved target systolic blood pressures (20% v 11%, p=0.001), improving mean general health status scores (SF-36), decreasing anxiety / depression (p<0.000) and increasing physical activity (p<0.000)\(^{229}\).

It has been consistently shown that behaviour change is more likely to occur if interventions are targeted to fit individual lifestyle and abilities\(^{101, 102}\). The concept that the practice nurse is located within the familiar and accessible setting of general practice has the potential to make them a more acceptable champion for the implementation of behaviour change strategies that are aligned to the individual and their specific needs. It is anticipated that such emphasis on behavioural modification and self-care will facilitate the implementation and sustainable benefits of this type of model. To verify these findings, further research is required to systematically evaluate evidence-based, practice nurse-led interventions that specifically target those at risk of chronic disease or those early in the illness trajectory. Client outcomes in chronic illness have the potential to be substantially improved by enhancing primary care services, not bypassing them in favour of specialist clinics\(^{217}\). Intuitively, if a systematic, disease management approach is implemented earlier in the illness trajectory potentially there will be an improvement in health outcomes and decreased demands for acute care services.

### 3.17 Nurse-led Chronic Disease Management

Both the Wagner\(^{37}\) and the WHO\(^{230}\) chronic care models depict a multidisciplinary team approach, involving a combination of medical, nursing and allied health
There is significant published literature reporting nurse-led HF interventions in a variety of acute care and community settings (Appendix D), although none have specifically investigated the role of the practice nurse in HF prevention or management. Given the strength of the existing evidence for the role of nurses in improving outcomes from HF, there is a significant potential for the current successful models of case management used in the acute setting to be transposed into general practice\(^{231}\). In many acute settings, however, current models of case management focus upon discharge planning or reduction in service use rather than measurable clinical improvement in client outcomes\(^{231}\). A critical question is whether a practice nurse has the ability to achieve the same results as the acute care case managers measured in terms of improved client health outcomes. This issue has not been the focus of much discussion and debate in the current literature and is an area in need of well-designed clinical research.

### 3.18 Implementing Evidence-Based Practice in General Practice

Chronic disease management in general practice generally involves a combination of appropriate prevention, early identification of risk factors and disease process, and implementation of best practice clinical management strategies\(^{43}\). Although no studies have formally evaluated the application of evidence-based practice by practice nurses, there are several papers explaining the current suboptimal application of evidence-based guidelines into usual HF management by general practitioners\(^{232, 233}\). Fuat et al.\(^{233}\) reported a qualitative study that examined the barriers to accurate diagnosis and effective management of HF in primary care. Barriers identified included; an uncertainty about clinical practice where general practitioners lacked confidence regarding diagnosis, were concerned about the necessity and usefulness of echocardiography and worried about medication use in the frail elderly with co-morbidities and polypharmacy\(^{233}\). Secondly, there was a lack of awareness regarding research evidence. Heart failure was perceived to be a complex and rapidly changing therapeutic field, there were doubts about the applicability of research findings in primary care and general practitioners expressed feelings of information overload. Finally, it was identified that there were the influences of individual preferences and organisational factors. General practitioner behaviour was influenced by negative clinical experiences, their past medical training and outside agencies\(^{233}\). Local factors that impacted upon guideline
implementation included the availability of diagnostics, interactions between general practitioners and specialists and local availability of specialist resources.\textsuperscript{(233)}

The findings of Fuat et al.\textsuperscript{(233)} are reinforced in terms of Australian HF management by the work of Philips et al.\textsuperscript{(232)} who investigated the barriers to diagnosing and managing HF in Australian primary care. Like the findings of Fuat et al.\textsuperscript{(233)}, Australian general practitioners reported difficulties in diagnosing HF such as knowing when to use echocardiography and understanding its significance, obtaining access to diagnostic and specialist cardiology services, deciding when to use and how to titrate medications such as ACE inhibitors and beta blockers, and issues surrounding communication within the health team.\textsuperscript{(232)}

Numerous studies have identified that improved guideline implementation requires not only education and training of clinicians, but also widespread behavioural change by clinicians.\textsuperscript{(234-239)} In their investigation, Harrison et al.\textsuperscript{(99)} revealed that UK general practitioners provided practice nurses with considerable autonomy in managing clients with chronic conditions, particularly those with defined practice guidelines and protocols. The rationale behind this was that the general practitioners felt that their practice nurses were largely more systematic in their application of guidelines than they would be in the same circumstances.\textsuperscript{(99)} Whilst systematic application of guidelines is, on the whole, a desirable intervention the need for accompanying clinical judgment must not be overlooked. The findings of this study are significant, however, in that they demonstrate general practitioner support for the potential utility of practice nurses as a facilitator of guideline implementation in general practice.

Lemelin et al.\textsuperscript{(234)} expanded on this concept by conducting a randomised control trial to evaluate a nurse-run intervention to improve preventative care across 46 Canadian health service organisations. The intervention involved multiple aspects including, audit and ongoing feedback, consensus building, opinion leaders and networking, academic detailing and education materials, reminder systems, client mediated activities and client education materials.\textsuperscript{(234)} Prior to implementing the intervention the preventative performance was equivalent in the intervention and control practices (31.9\% and 32.1\% respectively). Following the intervention the preventative performance rose to 43.2\% in the intervention and 31.9\% in the control groups, giving the intervention group and absolute improvement of 11.5\% (p<0.001).\textsuperscript{(234)}
Additionally, the intervention practices showed an absolute improvement in reducing inappropriate clinical practices by 4.4% (p=0.0019).

It can be concluded from this study that the use of nurse facilitators can significantly improve the preventative care performance of general practitioners. Lemelin et al.\textsuperscript{(234)} admit, however, that further research is required to elicit which of the strategies is most significant in facilitating behaviour change. For such an approach to succeed in general practice, significant barriers in terms of the power struggle between employing general practitioners and their practice nurse employees need to be addressed. The findings of this study do, however, support the potential for the development of the practice nurse role in this area.

### 3.19 Dissonance Between Best Practice & Usual Care in Heart Failure

There is currently a well established dissonance between contemporary practice and evidence-based practice in HF, particularly in primary care\textsuperscript{(232, 233, 240-242)}. Despite compelling evidence to support the improvements in HF related morbidity and mortality with pharmacological therapy such as ACE inhibitors, beta-blockers and aspirin, consistent and comprehensive utilisation in the primary care setting is often suboptimal\textsuperscript{(109, 240, 242-245)}. A possible explanation for this disparity is related to the complexity of HF management in the community population as opposed to clinical trial participants and the increasing evidence that infrastructure and resources are required to support the adoption and maintenance of best practice\textsuperscript{(222, 246)}.

There is also a high prevalence of lifestyle risk factors maintained after the onset of CVD\textsuperscript{(243)}. Although sustaining lifestyle change is extremely difficult, interventions to support behaviour modification can offer significant benefits to the promotion of lasting change\textsuperscript{(222)}. Currently, there are few systematic services that provide structured and sustained follow-up of those with HF as many programs only offer a discrete period of follow-up\textsuperscript{(227, 244)}. Multidisciplinary models of HF management, however, have been identified as being the gold standard\textsuperscript{(37, 230, 247-250)}.

Current clinical guidelines recommend aggressive outpatient monitoring of those with HF\textsuperscript{(251)}. Whilst interventions such as physician counselling and intensive physician follow-up have demonstrated some improvement in cardiovascular risk factors and quality of life\textsuperscript{(251, 252)}, multifaceted interventions are likely to be more...
effective\(^{(244)}\). There is increasing evidence which demonstrates that multidisciplinary and specialist nurse interventions have the potential to improve readmission rates in HF patients and reduce the length of stay of those requiring readmission (Appendix D). However, the ability to sustain reductions in readmissions and the costs of providing such intensive outpatient intervention requires further evaluation\(^{(253-255)}\).

Australian national and state bodies are currently addressing the issues of dissonance between clinical practice and evidence-based care. In NSW programs such as the Chronic and Complex Disease Program and the Clinical Services Framework for HF are examples of such initiatives\(^{(247, 248)}\). Additionally, funding of the primary health sector by the Commonwealth\(^{(55, 56)}\) is aimed at increasing their capacity to provide high quality outpatient management to reduce potentially preventable hospital readmissions. Practice nurses may offer a potentially sustainable solution to this dilemma, however, the development of such a role requires further evaluation to ensure its effectiveness in improving patient outcomes.

### 3.20 Conclusion

In conclusion, this Chapter has provided a comprehensive review of the literature describing the historical background and policy development that has shaped the current shift towards primary care and the emerging practice nurse role. It establishes the need for further research to explore the current role of practice nurses in Australia, with an emphasis on evaluating the practice nurse role in chronic disease management in terms of the acceptability of such a model to clinicians, consumers and policy makers as well as establishing its efficacy for improved patient outcomes.

### 3.21 Reference List


Chapter 4.

The Australian Practice Nursing and Chronic Heart Failure Study - Method
4.1 Introduction

This Chapter describes the methodological approach undertaken in this sequential explanatory mixed method investigation, known as the APACHE Study. It explains the philosophical underpinnings of the research and rationalises the use of a mixed method design. The Chapter provides a detailed and explicit description of the process of instrument development, sampling, data collection and the planned analysis of data. It includes a discussion of the ethical considerations relating to the conduct of the investigation. Finally, an exploration of the techniques employed to ensure the reliability and validity of the data and rigour of the study is provided.

4.2 Aims

The aim of this study was to describe the current role and scope of clinical practice of Australian practice nurses. Within this aim, there was an emphasis on exploring the potential for expansion of the practice nurse role in chronic disease and, more specifically, HF management. The paucity of Australian research evidence present at the outset of this investigation necessitated an exploration of the practice nurses’ capacity to participate in the management of chronic illness. Demonstration of this capacity would provide the evidence for strategic investigation of models of care, utilising the practice nurse, in areas such as HF management.

The specific aims of the APACHE study were:

(a) to identify the demographic and personal characteristics of nurses employed in Australian general practice.

(b) to review the previous employment, clinical experience and professional qualifications of Australian practice nurses.

(c) to explore the current role of Australian practice nurses, the tasks that they currently undertake and their perceptions of the potential for role expansion in the area of chronic disease management.

(d) to investigate Australian practice nurses’ perceptions of barriers and facilitators to the future development of their role in chronic disease management.

(e) to explore the potential capacity for practice nurses to undertake a chronic disease management role.
4.3 Research Design

The use of the survey method represents a cost-effective means of collecting information from a relatively large sample in order to elicit their knowledge, attitudes and behaviour regarding the concepts under investigation\(^1\)\(^-\)\(^3\). A self-administered survey was considered to be the most appropriate means of data collection for this investigation as a consequence of the widespread and variable distribution of practice nurses throughout Australia and the significant difficulties inherent in both contacting and accessing this group\(^4\). To overcome the limitations inherent in the use of the survey method, telephone interviews were used to follow-up the quantitative data collection. These interviews sought to illuminate and clarify the meanings behind the survey data, as well as explore and enhance understanding of the identified relationships\(^5\). Such use of interviews has been commonly reported in the research literature as being a viable means of further exploring the phenomena identified from survey data\(^5\)\(^-\)\(^7\).

The controversy regarding the relative values of qualitative, quantitative, triangulated or mixed method research designs has long been a source of debate amongst nursing scholars\(^8\)\(^,\)\(^9\). It is not the purpose of this discourse to provide in-depth analysis of the relative merits of the positivist and naturalist paradigms. Rather, this discussion seeks to argue that a combination of the two has the potential to provide more comprehensive data, and a greater insight into many complex nursing phenomena\(^9\),\(^10\). It has become recognized by many researchers that no single method or theoretical perspective in isolation has the ability to provide a comprehensive understanding of humans and their health related needs\(^9\),\(^11\)\(^-\)\(^13\). The complexity of modern human phenomenon mandates the implementation of more complex research designs to capture them more fully\(^8\),\(^14\). One research method, at best, provides a partial picture of a complex phenomenon that contains many perspectives or aspects that need to be understood\(^12\),\(^15\). A combination of methods or perspectives has the potential to provide a richness of detail and a more complete understanding of the phenomenon in addition to strengthening reliability, especially when there are multiple perspectives to consider\(^8\),\(^16\). This is of particular importance in this study because of its close links to the concept of change. When investigating change it is important to remember that in itself, change is not a one-dimensional concept\(^17\). Rather, it combines a measurement of the magnitude of any change (quantitative)
and a measure of what has changed and how it has changed (qualitative)\(^{(17)}\). The adoption of a purely positivist approach to this inquiry would overlook many unobservable, unquantifiable phenomenon that are essential components impacting upon the nurse and their capacity to deliver high quality nursing care. On the other hand, whilst a completely naturalistic perspective would facilitate an in-depth understanding of subjective perceptions there would be limited generalisability and validity, as well as the potential to inadequately address the role of external structures. Through rigorous analysis of these two dimensions, however, it is possible to provide a degree of confirmation and completeness of the data that would not have resulted from the use of either approach in isolation\(^{(17)}\).

### 4.3.1 Method Triangulation or Mixed Methods

Evaluation of the utilisation of mixed methods in nursing research to date highlights that most mixed method research reported in the nursing literature use the term ‘triangulation’ to describe any methodological approach which employs more than one data source to explore the issue\(^{(18)}\). Whilst triangulation is generally accepted to denote the use of multiple approaches to data collection, the combining of data sources, analysis procedures or conceptual approaches, such techniques are common to all mixed method research\(^{(9, 18)}\). Triangulation has also come to have variable meanings in the research literature\(^{(19)}\). A more advanced taxonomy, therefore, is required to provide the reader with easily identifiable distinctions in relation to study design. The term ‘mixed methods’ describes research which utilises both qualitative and quantitative data collection and analysis techniques in either parallel or sequential phases\(^{(18)}\). This differs from ‘multi method’ research, which utilises two or more data collection approaches from the same research tradition (e.g. participant observation and interviews or survey and population census data)\(^{(18)}\).

### 4.3.2 Issues in Applying Mixed Methods Designs

Whilst the use of mixed methods designs is becoming increasingly accepted in nursing research, several important theoretical issues remain regarding their application\(^{(18)}\). Tashakkori and Teddlie\(^{(18)}\) describe these issues as belonging to two categories, namely; substantive issues and practical issues. The substantive issues can more clearly be described as being related to the descriptions and complexity of the design and the inherent benefit of utilizing mixed methods\(^{(18)}\). The terminology
used to describe mixed method research is generally poorly understood and there is significant variation between researchers, with some terms used interchangeably\(^{(18)}\).

In this investigation, care has been taken to clearly explicate the meanings of terms used in relation to the mixed methods design to ensure that the reader has a clear understanding of the researchers’ intentions with respect to the description of the research design and data collection methods used (see Glossary, p. xxi).

The second issue surrounds the complexity of the research design in relation to the methodological rigour. Some authors continue to debate the epistemological issues, relating to the nature of knowledge, whereby apparently opposing and incompatible assumptions can be overcome to produce a rigorous research design\(^{(18-21)}\). Other authors simply do not recognise the importance of such debate to the utilisation of mixed methods designs in clinical research\(^{(5)}\). In this study, such issues have been highlighted, their impact discussed and justification provided regarding the appropriateness of the chosen design to the specific research problem.

Central to this debate are the concepts of convergence and completeness. By using multiple approaches to gain an understanding of the phenomenon, mixed methods can be used to provide a sense of ‘confirmation’ of the data through the enhancement of validity and confidence in the findings\(^{(8, 20-23)}\). Mixed methods, however, are rarely used to achieve convergent validity alone, but rather to reveal the various dimensions of the phenomenon of interest\(^{(19-23)}\). In this sense, the mixed method approach provides ‘completeness’ of the understanding of the concept under investigation. It is the utilisation of these two concepts that Tashakkori and Teddlie\(^{(18)}\) identify as providing the research design with significant complexity and rigour. Morgan\(^{(19)}\), however, identifies the additional concept of ‘complementarity’. He asserts that this alternative to convergence has been derived from the difficulties inherent when findings do not converge and the resource constraints on researchers conducting two studies using different methods to essentially establish the same thing\(^{(19)}\).

‘Complementarity’ seeks to elaborate, enhance findings, provide illustrations and clarification of the results of one method with the findings of the other complementary method\(^{(19, 24)}\). In the APACHE investigation, the use of telephone interviews serves to complement and enhance the primary survey data, providing subjective examples and an in-depth clarification of the initial survey findings.
The final substantive issue related to the application of mixed methods designs relates to rigour and the perception of some researchers’ that mixed methods are inherently good\textsuperscript{(18)}. Some argue that any research combining multiple methods should be considered more favourably than those using a single method in isolation\textsuperscript{(18)}. The researcher asserts that any research design should be specifically tailored to address the individual research question. It will be demonstrated, within this Chapter, that the use of a mixed method design was fundamental to the APACHE study given the complexity and multifaceted nature of the research problem and limited pre-existing knowledge of the phenomena from an Australian perspective. The discussion will also provide the reader with a clear decision trail, demonstrating the evolution of the study methodology, key decision making aspects, data collection methods and the implementation plan.

In relation to the practical issues surrounding the application of a mixed method design, a common concern is the need for a large research team with diverse research skills to successfully conduct the investigation. The nature of research training within a supported Doctoral program, however, provided an excellent opportunity for the researcher to further develop a wide range of research skills, under the supervision of highly skilled academic mentors, necessary to complete the ‘Carving a Niche for Australian Practice Nurses’ Project. Financial support for advanced research training and project support was also forthcoming from a range of sources, including UWS (Research Seed Grant, Top up Grant and Postgraduate Student Funding), the CHAT study, and an Australian Government, Department of Education, Science and Training, Australian Postgraduate Award.

4.4 Methods of Inquiry

The APACHE study used a nationwide postal survey of practice nurses as the principal method of data collection (Appendix G). A series of telephone interviews with survey participants complemented survey data by further exploring the issues raised in the survey and generating rich descriptive data from the perspective of the practice nurse (Appendix J). This research design is described by Morgan\textsuperscript{(19)} within the Priority-Sequence Model (Figure 4-1). This model describes the means by which to utilise both quantitative and qualitative methods in a single study for disparate, but complementary, purposes\textsuperscript{(19)}. 
Morgan (19) reports that the qualitative follow-up design used in this study is most often utilised in intervention studies where the intervention did not work as planned or when survey results contradict the original hypothesis. However, Tashakkori and Teddlie (18) advocate that a primarily quantitative study followed by a subsequent qualitative exploration (sequential explanatory design) is highly suitable for the detailed exploration of phenomena, particularly in situations such as that of the APACHE study where little is already known. Coyle and Williams (20) advocate the use of this design to identify subjective meanings behind the purely quantitative survey responses. Given the relative paucity of information relating to the demographics and role of Australian practice nurses and the multifaceted nature of issues surrounding the practice nurse role, it was necessary for the success of the overall Project to conduct this descriptive investigation (25). The collection of qualitative interview data subsequent to initial survey data facilitated a deeper exploration and explanation of the identified issues (18, 26). This detailed descriptive data provided the baseline information for the Project. Such baseline information will be utilised, amongst other evidence, to subsequently inform the consensus development process reported in Chapter 6.

**4.5 Study One: National Postal Survey**

**4.5.1 Survey as a Research Method**

The major advantage of the postal survey method utilised in this study was the ability to reach nurses throughout Australia in both urban and rural areas for a relatively modest expenditure (27). The wide geographical coverage offered by this approach was particularly important as a means to overcome both the physical and...
geographical isolation of Australian practice nurses. In terms of cost, a postal survey is reported to cost half as much as a telephone survey and only a quarter of the cost of administering a survey face-to-face\(^{(27)}\). An important component of this cost is the reduced human resources required in postal surveys, as compared to other survey methods\(^{(27)}\). By minimising costs it was possible to support recruitment of a larger number of participants, which has clear implications for enhancing the potential representativeness of the sample and reducing the potential for sampling bias\(^{(5)}\).

An important advantage of the survey approach was the near simultaneous delivery of data collection instruments\(^{(27)}\). This was particularly important in this study due to the rapidly changing healthcare, economic and political climate in which the contemporary practice nurse works. Such a rapidly shifting climate has the potential to affect the participants’ attitudes, behaviours and work practices. Additionally, the postal survey distribution facilitated a timely turnaround of data collection that would not have been possible via telephone or face-to-face survey administration\(^{(28-30)}\).

The unsupervised nature of survey administration meant that careful preparation was required to ensure that it stood alone in terms of the questions being unambiguous to all participants\(^{(27)}\). Thus, consultation with experts during the design phase and pilot testing prior to survey distribution was invaluable to establish the face validity of the instrument before formal data collection. The advantages of the unsupervised questionnaire are that there is an equal stimulus provided to all participants and there is potentially a more representative sample of positive and negative opinion\(^{(27)}\). The relative anonymity provided to participants may also encourage response. The disadvantages of the technique are, however, that there is limited control over who responds and it is possible for either more than one person to collaborate to complete the survey or for an individual to complete multiple survey forms\(^{(27)}\).

### 4.5.2 Survey Development

As no previously published Australian survey adequately explored the concepts and issues identified as the aims of this study, a survey instrument was developed by the researcher based upon other published practice nurse investigations\(^{(31, 32)}\), whilst taking into consideration pertinent issues related to chronic disease and HF management within the context of Australian primary care.
It is acknowledged that the acquisition of valued information is potentially based upon the investigators preconceived notions of the subject under evaluation\(^{(33)}\). Therefore, in order to overcome a potential limitation of a completely closed-ended survey design where respondents are unable to clarify their responses or provide any indication of their personal opinions outside preselected responses, some open-ended questions were included within the instrument\(^{(29)}\). Additionally, Krosnick\(^{(34)}\) observed that the reliability and validity of open-ended questions have been demonstrated to exceed that of closed-ended questions.

### 4.5.3 Item Generation

The process of item generation involved three phases; a systematic evaluation of published literature sources, a review of key research reports and consultation with key experts.

**\((a)\) Evaluation of Published Literature Sources**

A survey of the electronic databases CINAHL and MEDLINE, from 1980 to 2003, using key words such as ‘practice nurse’, ‘office nurse’, ‘general practice and nurs*’, both individually and combined with specific terms such as ‘chronic heart failure’, ‘heart failure’, ‘chronic illness’ and ‘chronic disease’ was undertaken. Evaluation of the reference lists of retrieved articles, a search for related documents on the Internet and hand searching of relevant professional journals completed the literature search strategy. Limited literature describing the role of the practice nurse in general and the practice nurse in chronic disease management was revealed as has been described in Chapter 3 and reported in the peer reviewed literature\(^{(35)}\).

Textbooks and papers that described the theoretical and methodological underpinnings of the research design and data collection strategies were also consulted to inform the item generation and survey development process\(^{(2, 34, 36-41)}\).

**\((b)\) Review of Key Research Reports**

In addition to the review of the published literature, consideration and critical analysis of three key reports related to practice nursing assisted in informing the survey development process. These included:

This report described the 1992 census of UK practice nurses. It provided valuable information and insight into the international context of practice nursing and identification of data items that would yield information to facilitate comparisons. Additionally, the structure and question route utilised in this census directly informed instrument development. Some of the key findings from this report included recognition of the ad hoc nature of the development of practice nursing, the variable nature of the practice nurses’ responsibility for chronic disease management and the conflict with other nursing and primary care providers. Whilst this report provided evidence for significant benefits to both patients and general practitioners from the expansion of practice nurse services, it highlighted a need to systematically support this role development in terms of education and training, models of care provision, employment conditions and clinical supervision.

• Patterson, E. A., *Primary health care nursing: A case study of practice nurses*, in School of Nursing, Faculty of Nursing and Health. 2000, Griffith University: Australia.\(^{(32)}\)

This report describes the findings of a Doctoral project that undertook a case study of Australian practice nurses within a single Division of General Practice\(^{(42-44)}\). Unlike the APACHE study’s focus on chronic disease, Patterson’s\(^{(32)}\) study provided an exploration of the current role of practice nurses, the factors that influence this role and the ways in which this role could be maintained or modified to ensure the continuing contribution of nursing to the health of Australians. The data collection tools used in this investigation were also appraised to inform instrument development, specifically in terms of the acceptability of question structures, syntax and formatting to Australian practice nurses.

This report identified that although less than half of the general practitioners surveyed identified that they perceived registered nurse training to be essential for the role of practice nurse, the majority of general practitioners considered that only some practice nurses would be competent to undertake advanced health assessments (e.g. cervical smears, mental health assessment). Such a finding was in contrast to the 82% of practice nurses who were agreeable to extending their role, whilst maintaining the clinical supervision of the general practitioner. The disparity
between these findings and those published overseas highlights the need for more detailed research within the Australian context.

- Cheek, J., Price, K., Dawson, A., et al. (2002). Consumer perceptions of nursing and nurses in general practice. Adelaide: Centre for Research into Nursing and Health Care, University of South Australia\(^{(45)}\).

This report describes the findings of a nationwide focus group investigation commissioned by the National Steering Committee on Nursing in General Practice in Australia. This investigation highlighted a range of significant issues identified by consumers, including; confusion about identifying nurses and their qualifications in general practice, concerns about nurses becoming gatekeepers for general practitioners, divergent views about appropriate models of service provision and a desire to avoid additional costs for service provision. These issues were considered in the development of the survey framework. The report also identified that practice nurse services are acceptable to Australian consumers and have the potential to expand current general practice services.

\textit{(c) Consultation with Key Experts}

Following the review of the literature and key research reports, consultation was undertaken with a range of experts. The experts included experienced practice nurses engaged in direct patient care, general practitioners, and nurses with experience in community-based nursing, HF and chronic illness management. Following these discussions, a preliminary item pool was established. These items were subsequently examined by nurse academics with significant research experience and expertise in survey development to evaluate the wording of questions and the survey design.

Following the steps described above, the following factors were considered significant in item generation:

- A growing number of practice nurses were being employed in Australia;
- There had been an increase in Commonwealth funding for the development of practice nursing, without concomitant strategically planned research to evaluate outcomes of practice nurse interventions;
- There was an apparent lack of coordination of the development of the practice nurse role;
International experience, particularly in the UK and NZ, highlighted the difficulties inherent in the adhoc development of practice nurse roles;

There is an increasing prevalence of chronic diseases, such as HF, in Australia;

Within the health sector there are rising costs, a trend for early discharge from acute care facilities and moves to enhance the primary care and general practice sectors;

There is a current paucity of communication between the acute care sector and general practice, leading to potential fragmentation and duplication of care;

There has been a decrease in the availability and accessibility of community service resources related to fiscal constraints and increased community need;

There is a paucity of knowledge of the current state of practice nurses within the Australian context in relation to HF and chronic disease management.

These factors were analysed and used to identify the specific survey objectives and the variables that were necessary to explore (37). Table 4-1 demonstrates how these variables and specific aims relate to the items contained within the survey.

**Table 4-1 Item Generation Structure**

<table>
<thead>
<tr>
<th>APACHE Objectives</th>
<th>Question Number(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) To identify the demographic and personal characteristics of nurses employed in Australian general practice.</td>
<td>13, 14, 15</td>
</tr>
<tr>
<td>(b) To review the previous employment, clinical experience and professional qualifications of Australian practice nurses.</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20</td>
</tr>
<tr>
<td>(c) To explore the current role of Australian practice nurses, the tasks that they currently undertake and their perceptions of the potential for role expansion in the area of chronic disease management.</td>
<td>30, 31, 34, 37, 39, 40, 41</td>
</tr>
<tr>
<td>(d) To investigate Australian practice nurses’ perceptions of barriers and facilitators to the future development of the practice nurse role in chronic disease management.</td>
<td>35, 36, 38</td>
</tr>
<tr>
<td>(e) To explore the potential capacity for practice nurses to undertake a chronic disease management role.</td>
<td>21, 22, 23, 24, 25, 26, 27, 28, 29, 32, 33</td>
</tr>
</tbody>
</table>
4.5.4 **Survey Format**

The final 41-item survey instrument included a combination of open and closed-ended questions, a Likert scale and items formatted in matrixes (Appendix G). Matrixes were utilised to elicit greater amounts of information from single items, thus reducing the burden on participants. All closed-ended questions also contained an option of ‘other’ which allowed participants to provide responses other than those specifically listed as response alternatives\(^{(18)}\). Standardised response formats, however, were utilised where possible to reduce the time taken to complete the survey and simplify data entry\(^{(37)}\). A combination of categorical, ordinal and numerical responses were utilised depending upon the nature of the question and also to vary the nature of response required in an attempt to maintain participant interest.

Three open-ended questions were included in the survey instrument to allow respondents to provide more in-depth answers to specific questions and allow them to convey the intricacies of the issues as they perceived them in their own words\(^{(1,46)}\). These included perceptions about the effectiveness of communication with acute care providers and community nurses, in addition to the identification of the most pressing issues facing practice nurses.

During the development of the survey, particular consideration was given to ensuring concrete questions, using complete sentences to reduce ambiguity and avoidance of unclear abbreviations, unnecessary jargon, bias, double-edged or loaded questions\(^{(29,37)}\). Considering the number of items, general layout and plan for survey distribution it was decided to use standard A4 paper in portrait orientation, printed on a single side\(^{(47)}\). Care was taken to limit the number of items and page length of the survey instrument whilst maintaining the readability of the font and page layout. The rationale for this is that the layout and length of the survey and the logical ordering of questions may be important in encouraging potential participants to complete the data collection\(^{(29)}\). Burchell and Marsh\(^{(48)}\) report that response rates to surveys decrease by 0.4% for every additional page. Therefore, the instrument was limited to 41-items and nine single sided pages.
4.5.5 **Validity**

Content validity verifies that the data collection tool actually measures the concepts under investigation\(^1,28\). Face validity refers to whether the measure appears to ask a range of suitable questions using appropriate language\(^1\). As previously discussed, the process of item generation was driven by a literature review that provided definitions and conceptual frameworks. A number of clinical and research experts reviewed the draft survey to provide feedback about its ability to derive information related to the study aims. The feedback consisted of recommendations about the clarity of some of the wording and the layout and structure of questions. There were also recommendations to include other aspects particularly in relation to the nurses’ perceptions of the potential to expand their role and the links with local acute care services, as well as the deletion of some extraneous questions. This process establishes both the content and face validity of the survey tool\(^28\).

4.5.6 **Piloting the Survey**

The original survey instrument was piloted among fourteen people to determine the effectiveness of instructions, understanding of questions, responsiveness, acceptability to respondents and ensuring that the findings were consistent with the study aims\(^2,29\). This sample, included six health professionals with significant clinical experience in practice nursing, community nursing, general practice or HF management, six researchers with extensive experience in survey design, one person without a healthcare background and an experienced registered nurse currently practising within an acute care setting with no previous involvement in the study.

The feedback from this pilot testing demonstrated acceptability of the survey in terms of the time required to complete the instrument. It also consisted of some further recommendations about the clarity of the wording, some minor grammatical considerations and comments regarding the depth and structure of the proposed question route. There were also recommendations to include other aspects related to the practice nurses’ perceptions of their future role, the most significant issues faced by practice nurses and their interaction with other care providers. Some extraneous questions were deleted as they provided similar responses to those elicited from other questions. These modifications and refinements reduced potential ambiguities and redundancies in the instrument.
4.5.7 Sampling Strategy

(a) Problems in Identification of the Population

Non-probability sampling was appropriate in this study due to the difficulty inherent in identifying nurses employed in general practice\(^{(49)}\). At the outset of this investigation there were no accurate lists or registers of Australian practice nurses. State / Territory Nurses and Midwives Registration Boards did not collect data regarding nurses employed in general practice separate to those employed in medical specialists’ rooms or other outpatient clinics. The absence of a central register also precludes calculation of response rates, thus reducing the potential generalisability of the results\(^{(27)}\).

At the commencement of the survey the APNA had a membership of 286 (NSW 83; Victoria 103; South Australia 22; Western Australia 10; Queensland 38; Northern Territory 1; Australian Capital Territory 1)\(^{(50)}\). From these data, it was recognised that APNA membership represented only a small proportion of nurses employed in general practice. Membership of the APNA was noted to be unevenly distributed across the country and anecdotal evidence confirmed the inference that that membership rates were not high amongst the practice nurse population\(^{(51)}\).

Divisions of General Practice had records of variable quality regarding nurses employed within member practices. Whilst some Divisions had regular contact and support networks for practice nurses, led by staff from the Division, others had limited knowledge of the practice nurses within member practices. In the 2002-03 Annual Survey of Divisions, 20% of Divisions reported that they did not know how many practice nurses were employed within their area\(^{(52)}\). This finding was confirmed through consultations between the researcher and local Divisional representatives. Additionally, limited information was available from those practices who were not members of a Division of General Practice.

The Centre for General Practice Integration Studies\(^{(53)}\) identified, from 1996 ABS Census data on private medical practitioners, that in 1995 over 3 000 nurses were employed in doctors surgeries. This classification, however, also included nurses working in medical specialists’ rooms and outpatient clinics in addition to those employed in general practices. Such data must, therefore, be interpreted with caution.
In 2003, the National Practice Nurse Workforce Survey\textsuperscript{(51)} was undertaken by the ADGP. The results of this survey were publicly released in early 2004 during the late recruitment phase of the APACHE study. This Survey\textsuperscript{(51)} received responses from 70\% of the 120 Divisions of General Practice, representing approximately 53\% of general practices. From these practices, 1 968 of the 2 349 (83.8\%) identified practice nurses responded to the survey\textsuperscript{(51)}. Despite such a large number of practice nurses being identified in this survey, recruitment through the Divisional network for the APACHE study was problematic due to inaccurate records and State privacy regulations that impeded survey distribution directly to practice nurses.

\textbf{(b) Recruitment of Participants}

The complexity inherent in identifying and accessing practice nurses throughout Australia prompted the research to capitalise on the conduct of the RCNA Inaugural Practice Nurse Conference held in Bunbury, Western Australia in November 2003 as an opportunity for data collection in a convenience sample and to initiate snowball sampling\textsuperscript{(2)}. Surveys (n=127) were distributed to delegates in the conference satchels. Despite the obvious advantages inherent in conducting survey research in the setting of a professional conference, such as the relatively easy access to a large group of otherwise geographically dispersed participants, limited literature describes this method of data collection\textsuperscript{(47)}.

A factor that significantly impeded this sampling strategy was the relatively poor attendance at the conference by clinical practice nurses. There was a significantly larger representation of nursing academics, policy makers and stakeholders in general practice in attendance at the conference. The potential bias relating to the sole use of conference attendees was also recognised. Of the 127 conference delegates, 81 were identified from the delegate list as nurses potentially employed in general practice. During follow-up contact with these individuals, 21 people identified that they were not currently employed as practice nurses. This left 60 delegates who were potentially employed as practice nurses. Due to the relatively small number of potential participants, and the likely poor representation of the general practice workforce, wider sampling was sought through the APNA, ADGP and State / Territory-based Nursing Organisations.
To comply with privacy legislation, a survey package was mailed to all APNA members by the APNA. An electronic copy of the survey form and the associated plain English information sheet was also placed on the public section of the APNA website to facilitate access to both members and site visitors.

All 121 Divisions of General Practice were contacted on two occasions via email, telephone or facsimile and provided with the survey form. Division staff were encouraged to distribute the survey to practice nurses within their Division. They were also advised that postage paid mail outs of the survey instrument were available if they were able to facilitate addressing the survey packs to avoid breaching privacy regulations. Five Divisions of General Practice requested postage paid copies of the survey instrument for distribution within their Division. These Divisions represented a range of areas, from capital city, to outer metropolitan, small rural and large rural regions. Two of these Divisions also reported hand delivering the study packages to practice nurses at Divisional events to encourage prompt response.

To reduce the potential bias in a sample recruited exclusively through Divisions of General Practice and the APNA, recruitment advertisements were placed in the journal of every State / Territory-based nursing organisations. Such journals are freely distributed to all nursing union members. All advertisements contained the contact details of the researcher and Internet links to the APNA website containing the survey form and the associated plain English information sheet.

A major difficulty was the variation in distribution technique and follow-up facilitated by the various Divisions of General Practice. Whilst some Divisions distributed the surveys personally at Divisional functions, others posted them with other Divisional material encouraging participation following survey distribution, whilst others simply facilitated the postage. Additionally, whilst some Divisions provided follow-up to potential participants to encourage response, others were unable or unwilling to undertake such follow-up. Since privacy legislation precluded direct contact of the potential practice nurses by the researcher, it was impossible to standardise the follow-up of potential participants. These technical inconsistencies have the potential to impact upon the response rates attained from each Division. However, the use of multiple recruitment techniques was the optimal strategy given the circumstances of the investigation.
4.5.8 Strategies to Manage Survey Response

Some health care professionals have been reported to be unwilling to undertake surveys, with some groups noted to be over burdened with repeated survey research\(^\text{4}\). Non-response is an important consideration as it may introduce bias into results as a consequence of differences between participants and non participants in terms of motivation and other potentially significant factors\(^\text{1, 3, 25, 30, 54}\). Methods of reducing non-response that are reported in the literature include advance and follow-up contact with potential participants, enhancement of survey presentation, personalisation of documentation, use of coloured envelopes, ink or paper, types of postage used (stamps versus reply paid) and monetary or gift incentives\(^\text{1, 3, 4, 29, 30, 48, 54, 55}\). Perhaps the most important aspect, however, is the perceived value of the subject matter and relevance to the participant\(^\text{2, 30, 48, 54}\). Research about survey response from general practitioners has demonstrated a clear correlation between non-response and lack of interest in the subject under investigation\(^\text{54}\). Although Carr\(^\text{29}\) reports that nurses are known to have a greater response rate than general practitioners there is a paucity of literature looking at the methodological aspects of nurses’ involvement in health survey research. The effect of seeking nurses to complete survey instruments on a nursing or healthcare topic may be significantly different from other professional groups who may have different values or levels of general interest in the topic area.

Several aspects of the final survey pack utilised in this investigation were deliberately planned to enhance response rates. The information sheet (Appendix F) was designed to engage the respondent in addition to outlining ethical considerations\(^\text{2, 3}\). A handwritten signature in blue ink was used to personalise the document and demonstrate researcher commitment, as it was not possible to include the individual names of potential participants on the letter for logistical and ethical reasons\(^\text{3}\). The UWS logo was utilised on both the information sheet and survey form to reinforce institutional support for the study. King et al.\(^\text{3}\) report that sponsorship of a survey by a university increases the prestige of the instrument and yields a higher response rate than sponsorship by other organisations. The title box on the first page of the survey instrument identified the purpose of the study to capture the participants’ attention and explicitly estimate the time required to complete the instrument to reinforce the commitment required\(^\text{29}\). Although there is inconsistent
evidence to support the inclusion of a deadline for return of surveys\(^{(3)}\), it was decided this would be included in the title box to encourage prompt returns, particularly in light of the timing of the initial distribution around the Christmas period. Bold typeface and shaded boxes were utilised to draw the participants’ attention to directions within the survey and divide the text of the questions to make the instrument more visually appealing\(^{(29)}\). At the conclusion of the survey a handwritten thankyou was included to personalise the instrument\(^{(2)}\). A self-addressed reply paid envelope was also included, as this has been demonstrated to enhance response rates\(^{(3, 30)}\). Although stamped mail is reported by several authors to yield better return rates than reply paid mail\(^{(3)}\), funding constraints made the use of reply paid envelopes necessary for most sites of distribution in this investigation.

The use of incentives has been demonstrated in the literature to increase response rates\(^{(3, 25, 30)}\). Despite this evidence, the UWS HREC advised that they would not permit any kind of incentives to be utilised to encourage response in this study under any circumstances\(^{(56)}\). Where possible, the researcher personally contacted or met with individuals who had agreed to facilitate survey distribution to increase the rapport with these persons and encourage their enthusiasm for the study. Feedback of preliminary results and data reports that could be used at an organisational level for planning also provided incentive to encourage response amongst Divisions of General Practice.

Several authors have described the beneficial effects of follow-up contacts in increasing response rates\(^{(48, 54)}\). Due to the anonymity of participants, it was not possible to specifically identify non-respondents. Where possible, potential participants were followed up on two occasions after the survey was distributed. This follow up occurred either via telephone, post, facsimile or email to remind potential participants that the success of the study relied upon their response and that their input was truly valued by the researcher. This communication also advised that they could contact the researcher for another copy of the survey instrument had the initial one been misplaced. A link to an electronic copy of the survey on the APNA website was also provided. When it was not possible to contact individual participants, Divisional representatives were sent reminders to follow-up potential participants.
4.5.9 Data Management and Analysis

Survey data were directly entered into SPSS Version 11.5 for Windows. Responses from the open ended questions were imported into Microsoft Word for Windows 2000™ and coded using NVivo 2.0™ as a tool to facilitate thematic analysis. To assess the accuracy of data entry, a random sample of surveys were selected (n=150) and crosschecked by an individual not previously involved in the data entry process. Such checking revealed a high level of data accuracy. Before commencing analysis, data were further inspected for outlying, null or invalid responses. Inconsistencies were identified and crosschecked with the original survey forms.

Since most of the data were either nominal or ordinal, predominantly descriptive statistics were used to interpret, examine associations and analyse the data\(^{(57, 58)}\). In order to reduce the large number of variables in the clinical skills data (Question 39, p. 323), factor analysis was undertaken\(^{(5, 59)}\). Factor analysis is a statistical procedure that allows exploration of relationships among variables and the establishment of groups of items that are interrelated\(^{(5, 59)}\). This technique was considered useful to identify the dispersion of the type and nature of activities across general practice settings, as well as facilitate examination of factors that might have impacted upon the conduct of clinical skills, such as experience, educational background, size or location of practice. Dixon\(^{(59)}\) asserts that the interpretation of factor analysis is not solely a statistical process, but also encompasses creative consideration of the subject matter. The definition of high factor loading is also subject to researcher interpretation and can vary from 0.30 to 0.55\(^{(59)}\). In this investigation a factor loading of above 0.30 was considered significant, although the logical grouping of clinical skills items was also considered. Expert statistical advice was sought from the School of Quantitative Methods and Mathematical Sciences, UWS. The consulting statistician also checked the veracity of the presented data.

4.6 Study Two: Telephone Interviews

4.6.1 Interviews as a Research Method

Interviews have been widely accepted as a common means of data collection in a range of health disciplines, as they facilitate interactive dialogue between the participant and researcher\(^{(18, 60-63)}\). Given this relationship and the emphasis on the exploration and inquiry of human phenomenon, interviews have, traditionally, been a
method of data collection associated with the naturalistic (qualitative) paradigm\(^{(9)}\). More recently, however, it has become accepted that data collection methods are not always linked solely to a single research paradigm and interviews have become recognised for their broader application in mixed methods research\(^{(18)}\).

Telephone interviews were chosen for this study in preference to face-to-face interviews or focus groups in order to facilitate the inclusion of nurses from a wide geographical distribution, to encourage participation by conducting the discussion at a time suitable to the participant without the need to travel and as a relatively cost-effective method of achieving these aforementioned aims\(^{(62, 64, 65)}\). Telephone interviews have been demonstrated to be an acceptable method of collecting information from nurses in several studies\(^{(64, 66, 67)}\). Additionally, those nurses who had been discouraged by their employers to complete the survey were able to freely participate in the telephone interviews in their own time, if they desired. Despite the relative advantages and disadvantages of telephone interviews discussed below, few inconsistencies in data quality have been observed and reported between face-to-face and telephone interviews\(^{(68)}\). The combination of postal survey and telephone interview has also been successfully utilised to provide a more comprehensive and complete dataset as was the underlying premise of this research design\(^{(6, 7, 26)}\).

A major reported disadvantage of the telephone interview is the absence of visual cues and inability to view the body language of the participant, which creates the potential for misinterpretation by the interviewer\(^{(64, 65, 69)}\). The fact that the topic area was not particularly sensitive in nature and the expectation that responses would not involve in-depth emotional responses potentially reduced this effect. Additionally, the physical surroundings of the participants in this study are likely not to be as important in providing a description of the context of the participant as would be the case in some other investigations where the social and cultural context are vitally important in understanding the participants’ perception\(^{(65)}\). A further consideration is that since the participants were professional peers of the interviewer, the perceived anonymity created by talking over the telephone may have actually enhanced the richness of the data as the participant felt more at ease\(^{(62, 65, 69)}\).

Whilst telephone interviewing may not be appropriate for those with disabilities precluding sitting for long periods, those with hearing impairments or language
difficulties\textsuperscript{(70)}, it was considered that since participants were currently employed as nurses they could be assumed to be able to participate. At the outset of the interviews, however, participants were advised that they could ask the interviewer to take a break at any stage during the discussion. Worth and Tierney\textsuperscript{(71)} assert that there may be difficulties in conducting telephone interviews where the researcher has not developed a prior relationship with the participant. Since participants in these interviews were recruited following their involvement with the survey component of the study, they did have some prior relationship with the researcher. Effort was made during the contacts involved in setting up the interviews to foster a greater sense of relationship between the participant and researcher. The initial discussion of the telephone contact in which the interview was undertaken was also utilised to foster a sense of relationship between the practice nurse and interviewer.

The final consideration in telephone interviewing is the potential technical mishaps that can affect the flow of the interview and subsequent data quality\textsuperscript{(69, 72)}. Technical difficulties related to recording equipment are problematic in all types of recorded interviews. The potential to lose valuable data through errors in recording can clearly be disastrous. In telephone interviews, however, additional technical difficulties are apparent in terms of establishing and maintaining telephone connections. Technical aspects of interviewing over the telephone were carefully considered before the commencement of the interviews. Care was taken by the researcher to locate themselves in a quiet room, away from interruptions and to arrange appointments with participants at a time convenient to them that would avoid undue distraction\textsuperscript{(65)}. Contact with the participant was established over a standard telephone line and interviews were recorded onto standard audiotape using conference phone set-up (ADDCOM Voice Link) and an audiocassette recorder (Sony TCM-313). Field notes were made during the interviews, although care was taken when recording these notes to avoid disturbing the flow of the interview by undue distraction of the researcher\textsuperscript{(69, 73)}. At the conclusion of each interview, the field notes were reviewed to ensure the essence of each conversation was captured\textsuperscript{(73)}. Coding of field notes and audiotapes was undertaken to facilitate subsequent analysis. Data, in the form of audiocassettes, field notes and transcripts, was stored according to the NHMRC national statement on ethical conduct in research involving humans\textsuperscript{(74)}. 
4.6.2 **Question Route Development**

Mateo and Kirchoff\(^{(75)}\) emphasise the importance of using a standardised approach to interviews. This was considered particularly important in this investigation where there were a significant number of interviews conducted by more than one interviewer. In contrast to the informal conversational interviews used in the pure qualitative approach or the rigid scripted interviews used in pure quantitative designs, mixed methods interviews tend to utilise an interview guide or semistructured research approach (Figure 4-2)\(^{(18, 73)}\). In light of these considerations, semistructured interview guidelines were formulated from a combination of the literature review, expert key informant consultation and the preliminary survey findings. These guidelines contained a series of open-ended questions that were posed to each participant during the telephone conversation. Seidman\(^{(72)}\) identifies that open-ended questions are problematic in that respondents may not provide sufficiently detailed responses. Standard stems and probes were, therefore, developed and included within the guidelines\(^{(69)}\). The stems assisted by providing a consistent context for the interview questions, and the probes encouraged participants to continue, expand on, or clarify their responses\(^{(69)}\). A copy of the guide used to direct the interview is located in Appendix J.

<table>
<thead>
<tr>
<th>Pure Qualitative Research</th>
<th>Mixed Methods Research</th>
<th>Pure Quantitative Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informal conversational interviews</strong></td>
<td><strong>Interview guide approach</strong></td>
<td><strong>Standardised open-ended approach</strong></td>
</tr>
<tr>
<td>Unstructured, exploratory, in-depth interviews, open-ended questions.</td>
<td>Topic areas pre-specified on an interview guide but the researcher may vary the wording or order of questions depending on the participant.</td>
<td>Open-ended, pre-specified questions, neither the wording or order of questions is changed by the interviewer.</td>
</tr>
<tr>
<td><strong>Scripted interviews</strong></td>
<td><strong>Fully structured interaction with equal stimuli for all participants, closed-ended questions.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4-2 Types of Research Interview**\(^{(18, 73)}\)

4.6.3 **Pilot Testing**

After the first two interviews, the researcher and primary supervisor reviewed the field notes and audiotapes to ensure adequacy and consistency of data as well as the utility of the interview schedule. The aim of this process was to identify any problems or issues in the interviews and provide clarification before completion of the data collection. Issues identified included a need to probe more deeply to explore issues raised by the participants and a need to seek clarification on the intended meaning behind some responses given. The relatively minor nature of the issues
identified in the initial interviews led to the decision to include these interviews in the final analysis\(^{(64)}\).

### 4.6.4 Participant Recruitment

Practice nurses who received the postal survey were asked to complete an ‘offer of further involvement’ in the research and provide their contact details to enable contact to be made with the researcher (Appendix F). Once contact details were received, an information sheet and consent form (Appendix I) were posted to the potential participant.

### 4.6.5 Data Management and Analysis

Details regarding the management of interview data and the process of transcription are often poorly described in published research\(^{(73)}\). Many investigations report that they audiorecord interviews for subsequent analysis and then somehow transform this audiotaped data into written text for subsequent analysis\(^{(60, 76)}\). Whilst several papers discuss how to manage interview transcripts\(^{(62, 77)}\), the contemporary literature provides limited direction and guidance regarding the specifics of the transcription and data management process\(^{(60, 63, 73, 76, 78)}\). This is a substantial gap in the literature considering the significance of the management of verbal data to the reliability and validity of the research process\(^{(73)}\).

Wellard\(^{(60)}\) asserts that transcription forms part of the data analysis process and should be clearly disclosed in the study methods. It is, therefore, essential for a transcription method to be employed that is congruent with the theoretical underpinnings of the specific investigation. This observation identifies the potential to employ alternate processes for managing verbal interview data other than conventional verbatim transcription techniques provided that they are consistent with the underlying philosophy of the methodology\(^{(73)}\). Given the mixed methods nature of the investigation a reflexive, iterative process was employed to manage the audiotaped data\(^{(73)}\). This process can be described in the following steps:

1. **Audiotaping of Interview and Concurrent Note Taking**

The combined process of audiotaping and making field notes during qualitative research is not new\(^{(61)}\). Whilst there is a danger that note taking will disrupt the flow of an interview, the emphasis during this phase needs to be the researchers’
impressions of the interaction rather than documenting verbatim responses. The subsequent presence of the audiorecording will allow the researcher to complete the participants’ response in greater detail at a time subsequent to the interview.

2. Reflective Journaling Immediately Post-interview

As soon after the interview as possible, to ensure that reflections remain fresh, the researcher reviewed their field notes and expand on their initial impressions of the interaction with more considered comments and perceptions. Reflections on the conduct of the interview and extraneous variables particular to the interaction were also noted. Major ideas, concepts or issues raised by the participant were documented.

3. Listening to the Audiotape and Revising Field Notes and Observations

After the researcher completed their field notes and reflective journaling, the audiotape was reviewed in consultation with the field notes. The purpose of this phase was to ensure that the notes provide an accurate reflection of the interaction. This required the researcher to listen to the audiotape several times, comparing it with the field notes and amending the notes until they provided a thorough and descriptive account of the interaction. These editorial changes were made in a separate notation to distinguish them from the researchers’ initial perceptions should this become necessary at a later time.

4. Preliminary Content Analysis

Once the researcher was confident that their field notes accurately represented the separate interactions, the process of content analysis was used to elicit common themes between interviews. Where the interview data are being utilised to provide confirmation or completion of an existing dataset, as is the case in this investigation, the datasets should be considered together to explore similarities and differences.

5. Secondary Content Analysis

The preliminary content analysis was reviewed by a second member of the research team, who has not previously been involved in the data collection, through a thorough review of both audiotapes and field notes. This task tested the audit trail and validates the development of themes from the data.
6. Thematic Review

This final stage of the analysis involved reviewing the secondary content analysis, making any necessary changes to established themes and relistening to the audiorecordings to identify illustrative examples with which to demonstrate the meaning of the themes from the participants’ perspectives.

4.7 Methods to Enhance Data Quality

Regardless of the data collection method employed, it is vital that strategies are implemented and explicated to ensure the rigour and quality of the data and the conclusions reached. The specific strategies to enhance data quality in this study are discussed below.

4.7.1 Mixed Method Design

The use of mixed methods of data collection is recognised as providing confirmation and completeness of data by overcoming the biases inherent in single investigator, single theory or single method of research\(^{(21, 79, 80)}\). As has been discussed in this Chapter, the use of telephone interviews has complemented the breadth and depth of data collection through the surveys. Using a between-methods approach has enabled a broad range of issues to be crosschecked, thereby achieving convergent validity and confirmation of the data. Additionally, the complementary nature of the interviews has provided a level of enhancement and elaboration of findings from the survey that would not have been possible from using a single method in isolation\(^{(9)}\).

4.7.2 Member Checking

Member checking refers to a process whereby the informants verify the research findings to ensure that their experiences have not been misrepresented\(^{(5)}\). In this study, member checking was undertaken through the use of the survey findings to stimulate the question route for the telephone interviews. Concepts that appeared to be important from survey analysis were checked and then further explored during telephone conversations. The relatively large sample size involved in the survey and the previously discussed geographical distribution precluded member checking by all survey participants.
4.7.3 **Peer Debriefing**

Peer debriefing involves presenting the process of data analysis to peers, colleagues and supervisors to ensure that a necessary level of rigour has been maintained\(^\text{[5, 81]}\). Such debriefing also provides the researcher with an opportunity to test their evolving insights and to be exposed to searching questions about the study\(^\text{[12]}\). As a Doctoral project, this investigation has been subject to regular scrutiny by research supervisors, academics from the UWS School of Nursing, Family and Community Health and fellow higher degree research students. Additionally, papers stemming from this study have been presented at national and international conferences and published in a range of peer reviewed journals (See Anthology of Publications, p. vii).

4.7.4 **Audit Trail**

An audit trail provides a detailed description of the evolution of the research, from the inception of the idea to the conclusions drawn from the data\(^\text{[5]}\). Such a trail allows the auditor to follow the decision trail used by the researcher to frame their enquiry. The initial chapters of this Thesis provide the reader with a clear audit trail for the ‘Carving a Niche for Australian Practice Nurses’ Project, from the comprehensive review that explored the literature to date regarding the international status of practice nursing, this methods chapter which describes the design of the study and the following results chapters which explicate the findings and discuss their significance to clinical practice. Additionally, a research journal was maintained by the researcher to outline her motivations, feelings and discussions throughout the duration of the Project. Information contained in this diary was discussed in peer debriefing sessions and the thoughts tested through debate with peers, expert advisors and research supervisors.

4.7.5 **Prolonged Engagement and Persistent Observation**

A significant step in the production of credible qualitative data is the investment of sufficient time in activities relating to data collection to develop a detailed understanding of the group under investigation\(^\text{[5]}\). The conduct of these interviews within the broader context of a Doctoral project has allowed the researcher to immerse herself for a prolonged period in the context of Australian general practice and culture of practice nursing.
4.8 Ethical Considerations

Permission to conduct the APACHE study was gained from the UWS HREC (HEC 03/166) before the commencement of recruitment and data collection (Appendix E). Consent was also gained from the APNA, RCNA, participating Divisions of General Practice and professional nursing organisations before distributing study materials to their members.

4.8.1 Informed Consent

Attached to the survey form was a plain English information statement explaining the purpose of the study (Appendix F). Consent to participate in the survey was implicit in the return of the instrument, as described by the NHMRC national statement on ethical conduct in research involving humans\(^{(74)}\). In accordance with NSW privacy guidelines\(^{(82)}\), survey participants were asked to consent to further contact from the research team for participation in the telephone interviews. Completion of the contact details section of the ‘offer of further involvement’ (Appendix F) implied consent for further contact for the sole purpose of recruitment of interview participants. On receipt of the documentation, the ‘offer of further involvement’ was completely detached from the survey form, to maintain anonymity and prevent linkage of contact information and participant responses.

An information sheet and consent form was, subsequently, sent to participants who consented to further contact reminding them of the researchers’ desire to conduct telephone interviews. Full contact details for the researcher were provided to facilitate potential participants asking additional questions regarding the study. Contact details were also provided for the primary research supervisor and UWS Human Ethics Research Officer should the potential participants have any issues that they did not wish to discuss directly with the researcher. Return of this consent form was required to demonstrate informed consent to undertake the telephone interviews. The participant received their own copy of both the information sheet and consent form in accordance with NHMRC national statement on ethical conduct in research involving humans\(^{(74)}\). As can be seen from these forms, the potential participant was informed that their continued participation was purely voluntary and, should they choose to participate, they were free to withdraw at any time without penalty from any individual or organisation involved in the research.
4.8.2 Privacy and Confidentiality

Using contact details publicly available to all conference delegates, such as name, designation and affiliation, conference delegates were contacted by the research team and reminded to complete and return the survey. All participants recruited through the professional nursing organisations and Divisions of General Practice were posted packages directly from these organisations, with reminders contained in normal correspondence. Therefore, the researcher was never provided with these individuals’ names or contact details. Survey data were coded only with the source of recruitment to facilitate tracking of responses. Only participant numbers identified the audiotapes and field notes from telephone interviews. Any identifying information, such as names or places, was removed from the field notes and interview transcripts. All data were kept in a secure location as described by the NHMRC national statement on ethical conduct in research involving humans\(^{(74)}\) and was only accessible by the researcher and her immediate supervisors.

4.9 Conclusion

This Chapter has provided a description of the methodological approach used in the APACHE study. It explains the philosophical underpinnings of this phase of the Project and provides a rationale for utilising a mixed method approach. Detailed descriptions of the instrument development, planning of the interview question route, as well as exploring the justifications for sampling, ethical considerations, data collection, management and analysis have been provided. In the following chapter the findings of the APACHE Survey are described and their implications for the development of the practice nurse role discussed.

4.10 Reference List


Chapter 5.

The Australian Practice Nursing and Chronic Heart Failure Study – Results and Discussion
CHAPTER FIVE  APACHE STUDY RESULTS

5.1 Introduction

This Chapter reports the findings of the APACHE Study and discusses the implication of these data for model of care development. Consistent with the sequential explanatory mixed method design of this investigation, the results of the national practice nurse survey and the telephone interviews are both reported within this Chapter. The nature of the convergence, confirmation and completeness of the two datasets has led to the decision to report the findings together to provide clarity and depth of findings.

The national survey served as an impetus to direct the question route for the subsequent interviews. The interview data, therefore, provides a more in-depth exploration of the main issues raised by the survey findings. The excellent response from the survey \( (n=284) \) and the relatively normally distributed demographic and personal data across a national survey allow some wider generalizations to be inferred from the data. Where possible, the APACHE findings are critically compared and contrasted to the findings of other published Australian literature. Australian literature has been used for comparison as the Australian health system clearly has some significant differences to those in the UK and NZ. However, in the absence of Australian literature, that reported from the UK or NZ has been used as a means of drawing comparisons and providing contrast.

5.2 Postal Survey

The response rate describes the number of actual participants divided by the number of possible participants\(^{(1)}\). There is no standard or optimal response rate\(^{(1)}\), with variation determined by the nature of the specific investigation and the population under consideration. Although published studies often report response rates within their methodology, it is difficult to ascertain the true experience of clinical researchers, as projects that have very low response rates are unlikely to be accepted for publication and, therefore, are not apparent in reviews of the literature\(^{(2)}\).

It is not possible to determine the precise response rate to this survey due to the nature of participant recruitment and the subsequent inability to calculate a response denominator. The reasons for this have been explored in the previous chapter of this Thesis. Whilst the number of practice nurses who were members of the APNA or
employed in each Division was provided to the researcher, it was difficult to evaluate the accuracy of these data. Multiple copies of the survey were returned, either by nurses who no longer worked in general practice or with the recipient not known at the postal address. Moreover, it is unclear how many nurses received more than one invitation to participate from various sources. Despite the increased participation through the provision of the survey online and the placement of advertisements in nursing journals, this did not allow identification of the number of practice nurses who gained access to the survey by these means.

Such a limitation has been recognised in other Australian investigations of practice nurses\(^3\). Whilst the specific response rate to the survey is unknown, the sample size reported here is comparable to that obtained by the RACGP and RNCA national telephone survey \((n=222)\) reported by Watts et al.\(^3\) and the professional, demographic and personal data demonstrates clear parallels to those found in smaller Australian practice nurse investigations\(^4\text{-}6\). Appendix H Table A provides a breakdown of APACHE survey participants and methods of participant recruitment and follow-up used in each situation.

### 5.3 Telephone Interview Data

All practice nurses who received a survey form were also asked for consent to be contacted for subsequent telephone interviews. The response to this request was considerable, with 86 of the 284 (30.3\%) participants initially providing their personal details for subsequent contact. Of these, 45 (52.3\%) returned a completed consent form. This response rate was significantly higher than had been originally predicted by the research team. Such a high response is potentially indicative of the nurses’ willingness to talk about their profession and wanting to support research and change within their specialty area. Interviews commenced with those participants who were able to undertake the interview at a time mutually convenient with the researcher in a timely manner. These interviews commenced following the initial analysis of the APACHE survey data.

In total, 10 interviews were conducted. After nine interviews had been undertaken, it was felt by the researcher that data saturation had been achieved. A further interview was conducted to confirm that no new information arose. After reviewing the field notes and audiotapes of the interviews, a supervisor confirmed data saturation. Each
interview lasted for between 15 and 75 minutes. The interview duration was controlled by the amount of information provided by the informant and their willingness to discuss this information with the interviewer. The explanatory and confirmatory information gained from these interviews has been integrated into the following presentation of the survey results where appropriate.

5.4 Survey Participant Characteristics

This section of the survey sought to explore the characteristics of Australian practice nurses to develop a baseline understanding of their professional background. Whilst each characteristic is examined in turn, Table 5-1 provides a summary of participant characteristics. These data serve to demonstrate the close relationship between the sample used in this study and previously identified trends in the characteristics of national nursing and practice nurse cohorts. This comparison allows the reader to recognise the potential representativeness of the sample and hence the likely generalisability of the findings to the wider population of Australian practice nurses. A clear understanding of the demographics and professional characteristics of the current practice nurse workforce is also important to strategically guide future role development in areas such as chronic disease and HF management.

Table 5-1 Summary of APACHE Participant Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>45.8</td>
<td>7.3</td>
<td>25-66</td>
</tr>
<tr>
<td>Total Nursing Work (hrs/week)</td>
<td>29.4</td>
<td>10.4</td>
<td>0-60</td>
</tr>
<tr>
<td>Hours Worked in General Practice (hrs/week)</td>
<td>26.3</td>
<td>9.7</td>
<td>4-50</td>
</tr>
<tr>
<td>Years Since Nursing Qualification (years)</td>
<td>24.9</td>
<td>7.7</td>
<td>1-45</td>
</tr>
<tr>
<td>Duration Worked as a Nurse (years)</td>
<td>20.8</td>
<td>8.1</td>
<td>1-44</td>
</tr>
<tr>
<td>Duration Worked as a Practice Nurse (years)</td>
<td>7.7</td>
<td>6.9</td>
<td>1-36</td>
</tr>
<tr>
<td>Paid Study Leave in Last Year (days)</td>
<td>4.3</td>
<td>3.7</td>
<td>0.5-20</td>
</tr>
<tr>
<td>Unpaid Study Leave in Last Year (days)</td>
<td>4.5</td>
<td>3.7</td>
<td>1-20</td>
</tr>
</tbody>
</table>

5.4.1 Personal Characteristics

Two hundred and eighty-two (99.3%) participants were female, one participant was male and another participant chose not to respond to this question. Whilst nursing has long been a female dominated profession, this finding indicates a possible under-representation of male nurses in this study compared to National and State / Territory workforce surveys, where male nurses accounted for between 7.3-8.4% of the total
CHAPTER FIVE

APACHE STUDY RESULTS

nursing workforce\(^{(7, 8)}\). However, this finding is comparable to those of other local practice nurse investigations, where few male practice nurses have been identified\(^{(4)}\).

Participants’ ages demonstrated a unimodal distribution (Figure 5-1), with a mean age of 45.8 years (SD 7.3) and range between 25–66 years. The mean age of Registered Nurse participants \((n=243, 45.9\text{ years, SD 7.4})\) was comparable with that of Enrolled Nurse participants \((n=18, 44.2\text{ years, SD 5.6})\). The relatively small number of Enrolled Nurses within the sample may preclude the identification of significant differences between the groups. These findings were not dissimilar to the national mean age for all employed nurses, which was reported as 43.1 years in 2003\(^{(9)}\). These consistent results highlight the ageing global nursing workforce\(^{(7, 8, 10)}\) and issues of educational background and future training needs\(^{(11)}\). Such concerns have significant implications for future recruitment and staff retention, as older nurses retire and recruitment of suitably educated staff is required to address potential workforce shortage.

![Figure 5-1 Participant Age Distribution](image)

5.4.2 Hours Worked

The average hours per week worked by all Australian nurses in nursing employment decreased from 32.4 hours in 1995 to 30.5 hours in 2001 and then increased to 32.5 hours per week in 2003\(^{(9, 12)}\). Similarly, APACHE survey participants reported working in all nursing employment for a mean of 29.4 hours per week (SD 10.4, Range 0-60 hours per week). Thirty-one (10.9%) participants declared that they worked more than 40 hours per week, while 218 (76.8%) participants reported working 35 hours per week or less. This is comparable with the national practice nurse telephone survey, reported by Watts et al.\(^{(5)}\), which identified that the typical
practice nurse is employed on a part-time basis. In that cohort, three quarters of participants reported working less than 35 hours per week\textsuperscript{(3)}. Figure 5-2 illustrates the distribution of nursing hours worked per week by participants. Such a distribution reflects the national nursing trends of a predominantly part-time workforce\textsuperscript{(7, 8)}.

![Figure 5-2 Nursing Hours per Week](image)

Two hundred and one (70.8\%) participants reported undertaking nursing employment solely within the general practice setting. Participants worked a mean of 26.3 hours per week (SD 9.7, Range 4-50 hours per week) as a practice nurse (Figure 5-3). From the interview data and comments on the survey forms, those participants who reported working full-time or more than 40 hours per week were, largely, those who were married to the general practitioner and thus had a level of personal investment in the success of the practice. There was no substantial difference between the number of hours worked in general practice by those who worked solely within general practice (Mean 23.4 hours per week, SD 9.7) and those who also practiced in other clinical areas (Mean 27.6 hours per week, SD 9.4).

![Figure 5-3 Practice Nurse Hours per Week](image)
The hours worked by participants outside of general practice, in other nursing employment, ranged from occasional infrequent work to 35 hours per week (Mean 11.5 hours per week, SD 7.9). Types of nursing employment undertaken outside general practice were diverse, as can be seen in Table 5-2. This is a significant finding in that it demonstrates that these nurses have currency of clinical experience in a range of settings. The knowledge and professional development gained through such experience could potentially influence the nurse in their role within general practice. However, the nurses working in clinical areas outside general practice are in fact a minority of the wider population of practice nurses.

Table 5-2 Nursing Work Outside General Practice

<table>
<thead>
<tr>
<th>Type of Nursing Work</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Work Outside General Practice</td>
<td>201</td>
<td>70.8</td>
</tr>
<tr>
<td>Other</td>
<td>27</td>
<td>9.5</td>
</tr>
<tr>
<td>Acute Hospital General Ward</td>
<td>15</td>
<td>5.3</td>
</tr>
<tr>
<td>Acute Hospital Specialty Area</td>
<td>14</td>
<td>4.9</td>
</tr>
<tr>
<td>Multiple Other Workplaces</td>
<td>10</td>
<td>3.5</td>
</tr>
<tr>
<td>Residential Facility</td>
<td>9</td>
<td>3.2</td>
</tr>
<tr>
<td>Community Services</td>
<td>8</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>284</td>
<td>100</td>
</tr>
</tbody>
</table>

5.4.3 Employment Classification

Employment classifications are significant in relation to the employment of practice nurses as they not only reflect recognition of clinical skills and professional expertise, but are also indicative of the remuneration that the nurse might receive. Two hundred and forty-three (85.6%) participants reported being employed as a Registered Nurse, with 18 (6.3%) participants employed as an Enrolled Nurse (Table 5-3). The proportion of Enrolled Nurses in this sample is slightly lower than that seen in other Australian workforce investigations which have reported between 8.1%\(^{(3)}\) and 11.0%\(^{(4)}\) of the nursing workforce being Enrolled Nurses. A further 17 (6.1%) participants were employed as either a clinical nurse consultant, clinical nurse specialist or nurse manager. Whilst this is a positive finding, as it reflects recognition of the extended skill set of these staff, the number of nurses recognised at this level likely underrepresents the number of nurses practising in such advanced roles\(^{(13)}\).

Of particular concern in this investigation is the six (2.1%) participants who identified themselves as ‘practice nurses’ by completing the survey, but reported
being employed under either non-nursing or ‘other’ classifications. These nurses, may be significantly disadvantaged and placed at legal and ethical risk due to this misclassification of their role. As these individuals reportedly were not employed under a nursing classification, professional educational opportunities may be limited, legal constraints may affect clinical practice and remuneration is likely to be inequitable to the nurses’ professional competencies and skill level. On the other hand, if these individuals are not recognised as nurses by the relevant State / Territory Nurses and Midwives Board, issues of professional regulation are raised. Patterson\(^{(4)}\) has previously identified that non-nursing personnel, such as receptionists, were undertaking nursing duties within general practice\(^{(14)}\). Taken together these findings raise issues relating to the regulation of health care providers, professional regulation and the potential for unqualified personnel to perform nursing duties that require specific clinical expertise and theoretical knowledge. As discussed in Chapter 3, issues relating to the professional regulation and supervision of practice nurses and the understanding of professional issues by employing general practitioners are of concern in the development of the practice nurse role. In spite of the small numbers of participants employed in non-nursing classifications, the misclassification of nurses represents a clear area for urgent improvement in industrial relations and professional control within general practice. Further, this represents a critical issue in clinical governance and representation of services to the general public.

### Table 5-3 Employment Classification

<table>
<thead>
<tr>
<th>Job Classification</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurse</td>
<td>243</td>
<td>85.6</td>
</tr>
<tr>
<td>Clinical Nurse Consultant</td>
<td>3</td>
<td>1.0</td>
</tr>
<tr>
<td>Enrolled Nurse</td>
<td>18</td>
<td>6.3</td>
</tr>
<tr>
<td>Nurse Manager</td>
<td>9</td>
<td>3.2</td>
</tr>
<tr>
<td>Clinical Nurse Specialist</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Non-Nursing Classification / Other</td>
<td>6</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>284</td>
<td>100</td>
</tr>
</tbody>
</table>

#### 5.4.4 Clinical Nursing Experience

Survey responses illustrated that the participants had varied clinical nursing backgrounds with diverse clinical specialty experience. Most commonly specialty areas in which participants identified having clinical experience included midwifery,
child / adolescent health, critical care (operating theatres, emergency department), cardiology and community-based service provision (palliative care, community nursing, immunisation and wound care). These findings are perhaps not surprising given that the most commonly cited specialty areas of all currently employed clinical nurses in both Victoria and NSW were medical / surgical nursing, geriatrics, perioperative / operating theatre / recovery, midwifery and mental health\(^{(7, 8, 12)}\).

It was evident, however, that the participants also had significant practical nursing experience. The mean number of years since participants had initially qualified as a nurse was 24.9 years (SD 7.7, Range 1-45 years)(Figure 5-4). Such a finding has significant implications in terms of the type of education that these nurses would have received at a pre-registration level and also identifies issues regarding ongoing education and training needs\(^{(11)}\). There is an absence of literature to identify the duration since initial qualification in the general Australian nursing workforce that can be used as a comparison to these survey data.

![Figure 5-4 Years Since Qualified as a Nurse](image)

Given that the participants were a female dominated group, there was significant potential for them to have had periods of absence from the workforce due to personal and social factors such as childrearing. To explore this, participants were asked to identify how long they had practiced as a nurse, excluding absences from the workforce exceeding six months. The mean duration that participants had been actively practising as a nurse was 20.8 years (SD 8.1, Range 1-44 years). In order to determine the duration of their clinical experience in general practice, participants were asked how long they had been employed as a practice nurse. These responses
revealed a highly clinically experienced cohort, with a mean duration of practice of 7.7 years (SD 6.9, Range 1-36 years). One hundred and thirty-three (47.8%) participants had over five years experience in practice nursing. This finding is similar to other Australian investigations, with Watts et al.\(^{(3)}\) identifying that 47.7% participants had worked in general practice for over five FTE years.

This influx of nurses into general practice since 2001-02 is not surprising, particularly in rural and remote areas as it coincides with the introduction of the PIP that provides financial incentives to support practice nurse employment in rural, remote and outer metropolitan areas\(^{(15)}\). These trends are encouraging to the development of models of care that incorporate the practice nurse.

During the period of employment as a practice nurse, 155 (54.6%) participants had worked in a single general practice, 62 (21.8%) participants had worked in two practices and 65 (22.9%) participants had worked at three or more general practices. Exploration of this issue revealed that a number of participants were involved in personal relationships with the general practitioners with whom they worked. This relationship and personal involvement with the business partially contributed to a lack of desire to change employment to other general practices. Currently, 258 (90.8%) participants were employed by a single practice, with 20 (7.0%) participants employed at two practices. Those participants currently employed at more than one practice were generally employed either by a corporate chain of practices or by a Division of General Practice.

This trend in employment has significant implications for nursing practice and the potential capacity to implement novel models of care. Although participants have, largely, worked for a significant duration as a practice nurse, this experience has been limited to relatively few practices. Considering the evidence of isolation between general practices, both in Australia\(^{(4)}\) and internationally\(^{(16-21)}\), this limits the exposure that the nurse has had to different models of service delivery. Therefore, it must be recognised that any proposed modification of work practices and models of service delivery within this cohort might offer significant challenges in the implementation phase.
5.4.5 Educational Background

Given the era during which the majority of participants undertook their initial pre-registration training, it was not surprising that 178 (62.7%) participants reported a hospital nursing certificate as their highest educational qualification (Table 5-4). Those nurses with a tertiary qualification were most likely to have more recently attained their nurses registration, where baccalaureate preparation has become an essential prerequisite to registration as a nurse (22).

Table 5-4 Highest Educational Qualification

<table>
<thead>
<tr>
<th>Highest Educational Qualification</th>
<th>All Participants</th>
<th>Registered Nurses</th>
<th>Enrolled Nurses</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Hospital Certificate</td>
<td>178</td>
<td>62.7</td>
<td>160</td>
<td>61.5</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>41</td>
<td>14.4</td>
<td>41</td>
<td>15.7</td>
</tr>
<tr>
<td>Graduate Certificate</td>
<td>25</td>
<td>8.8</td>
<td>25</td>
<td>9.6</td>
</tr>
<tr>
<td>Advanced Certificate</td>
<td>15</td>
<td>5.3</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>Associate Diploma</td>
<td>13</td>
<td>4.6</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>Unknown</td>
<td>5</td>
<td>1.8</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>3</td>
<td>1.0</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>1.1</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Doctorate</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>284</td>
<td>100</td>
<td>260</td>
<td>100</td>
</tr>
</tbody>
</table>

Survey participants reported fewer post basic nursing qualifications than is reported in contemporary State-based workforce surveys. Whilst only 20.4% (n=53) survey participants reported holding formal post basic qualifications, this was true for 45% of Division One Nurses employed in Victoria (7) and 61.7% of Registered Nurses employed in NSW (8). Additionally, 18% of Division Two nurses in Victoria (7) and 31.3% of Enrolled Nurses in NSW (8) reported holding post basic qualifications, compared to 16.7% (n=3) of participants. However, the relatively small number of Enrolled Nurses who participated in the survey should be considered when interpreting this finding.

The general paucity of post basic tertiary education programs, specific to the primary care nursing role, has had significant implications for role development (11). Several key components of nursing knowledge that are addressed in contemporary tertiary undergraduate nursing programs would not have been included in the hospital-based syllabus under which the majority of participants were educated. Such components
include advanced physical assessment, principles of evidence-based practice, critical analysis, primary health, research skills, workplace negotiation and leadership, health service funding and models of collaborative care delivery\textsuperscript{(11)}. Therefore, care needs to be taken in the development of continuing professional education to incorporate teaching of these concepts and skills rather than assuming previous knowledge. Further, in many of the earlier hospital-based training courses, models of care were often hierarchical and medically dominated\textsuperscript{(23)}.

### 5.5 General Practice Characteristics

The aim of this section of the survey was to develop an understanding of the nature of general practices that currently employ practice nurses. It was considered that this information would provide a context through which to explore the current role of the practice nurse and identify the potential for role expansion. These data would also identify the potential capacity of the practice team to undertake multidisciplinary, collaborative interventions in areas such as HF.

Participants were asked to identify the postal code of the main practice in which they were employed. This list was then mapped to a list of Divisional postal code boundaries\textsuperscript{(24)} to facilitate exploration of demographic data about Divisions\textsuperscript{(25, 26)}. Where there was a single postal code region within the boundaries of more than one Division of General Practice, the Division that covered the greatest proportion of the postal area was chosen. This occurred in only 14 of the 284 (4.9%) postal code regions. A list of the Divisions in which participants were employed, together with a demographic overview of each Division, is provided in Appendix H Table B.

#### 5.5.1 Locality of General Practice

Of the 121 Divisions of General Practice operating at the time of the study\textsuperscript{(26)}, participants represented 89 (73.6%) Divisions. Table 5-5 provides a breakdown of participants by Divisions of General Practice and State / Territory boundaries. As can be seen from this table, responses were obtained from Divisions within every State / Territory. Such widely distributed representation across geographical areas serves to further highlight the utility of this sample as a plausible representation of the wider Australian practice nurse population.
Table 5-5 Divisional Representation by State / Territory

<table>
<thead>
<tr>
<th>State / Territory</th>
<th>Participating Divisions</th>
<th>Active Divisions</th>
<th>% representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Capital Territory</td>
<td>1</td>
<td>1</td>
<td>100.0</td>
</tr>
<tr>
<td>New South Wales</td>
<td>28</td>
<td>37</td>
<td>75.7</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>1</td>
<td>2</td>
<td>50.0</td>
</tr>
<tr>
<td>Queensland</td>
<td>16</td>
<td>20</td>
<td>80.0</td>
</tr>
<tr>
<td>South Australia</td>
<td>9</td>
<td>14</td>
<td>64.3</td>
</tr>
<tr>
<td>Tasmania</td>
<td>3</td>
<td>3</td>
<td>100.0</td>
</tr>
<tr>
<td>Victoria</td>
<td>21</td>
<td>30</td>
<td>70.0</td>
</tr>
<tr>
<td>Western Australia</td>
<td>10</td>
<td>14</td>
<td>71.4</td>
</tr>
<tr>
<td>Total</td>
<td>89</td>
<td>121</td>
<td>73.6</td>
</tr>
</tbody>
</table>

Divisions of General Practice are classified as being rural if they have greater than 5% of their total population within the Rural, Remote, Metropolitan Areas Classification (RRMA) categories 4-7\(^{(25)}\). Of the 89 participating Divisions, 46 (51.7%) were classified as rural Divisions and the remaining 43 (48.3%) were classified as urban Divisions by ADGP\(^{(25)}\). One hundred and fifty-six (55.9%) participating nurses were employed within the urban Divisions, with a further 123 (44.1%) employed by the rural Divisions. It was not possible, from the information provided, to identify the RRMA classification of the practices in which the remaining five nurses were employed. To gain information about the location in which they practiced, participants were asked to classify their locality (Figure 5-5).

Figure 5-5 Locality of Employing General Practice

It was hypothesised at the outset of this investigation that there may potentially have been a greater number of practice nurses employed in rural and remote areas as these areas were specifically targeted by the PIP incentives and attracted specific financial incentives for practice nurse employment\(^{(15)}\). At the time of study recruitment,
metropolitan and urban areas did not qualify for these incentive payments. Additionally, issues of medical workforce shortage were widely recognised as being intensified in rural and remote regions. Although the distribution of the APACHE sample was similar to that of the RACGP / RNCA report\(^3\), this study may have been biased, as the funding body required that at least half the sample was from rural and remote areas\(^3\). Without specific knowledge about the distribution of practice nurse employment throughout Australia to which the APACHE findings can be compared, it is difficult to draw inferences from this data. The wide penetration of employment of nurses in general practice reinforces the notion that they are sustainable and viable partners in models of collaborative, multidisciplinary general practice.

### 5.5.2 Practice Nurse Employers

Of the 284 participants, 164 (57.7%) were employed by a group of general practitioners and 79 (27.8%) were employed by an individual general practitioner (Table 5-6). This is not surprising considering that a group of general practitioners would generally be considered to have a greater clinical workload than a solo general practitioner. Whilst the UK national census demonstrated a direct relationship between the number of general practitioners and the hours worked by the practice nurse\(^{27}\), this was not the finding of the APACHE survey. These differences potentially reflect health system variations. In the UK consumers are contracted to a single practice and, in Australia, patients are free to choose which general practitioner they present to on each occasion of service. Such differences will likely impact on the diversity within patient populations seen in each practice.

In Pattersons\(^4\) study it was revealed that 46% of nurses were employed in a practice with less than two FTE general practitioners. However, Watts et al.\(^3\) reported than only 6.3% of nurses were employed by solo general practitioners. These differences imply that practice nurse employment may be related to local issues, models of care and service needs, rather than national workforce trends. Further, the rapid change in funding for practice nurses between rural and metropolitan areas makes it difficult to establish current national trends.

The small numbers of participants employed by Divisions of General Practice, Area Health Services or Aboriginal Medical Services demonstrates a limited uptake of models incorporating nurses external to the individual practice setting. A major
factor contributing to this poor uptake may be the issue of funding and the low numbers of qualified Aboriginal nurses. The importance of community engagement has lead to a consistent trend in engaging Aboriginal Health Care Workers. The small number of nurses who were employed by Divisions of General Practice, Area Health Services or Aboriginal Medical Services reported being employed under various special projects and programs supported by special Divisional or project funding. This was distinct from funding for service delivery through the Medicare system and tended to be episodic and unsustainable. Such funding issues therefore need to be considered in the future development of new models of care.

**Table 5-6 Practice Nurse Employer**

<table>
<thead>
<tr>
<th>Employer</th>
<th>All Practice Nurses</th>
<th>Practice Nurse &lt;35hours/week</th>
<th>Practice Nurse ≥35hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Group of General Practitioners</td>
<td>164 57.8</td>
<td>119 57.5</td>
<td>45 58.4</td>
</tr>
<tr>
<td>Individual General Practitioner</td>
<td>79 27.8</td>
<td>61 29.5</td>
<td>18 23.4</td>
</tr>
<tr>
<td>Other</td>
<td>20 7.0</td>
<td>14 6.7</td>
<td>6 7.8</td>
</tr>
<tr>
<td>Division of General Practice</td>
<td>10 3.5</td>
<td>7 3.4</td>
<td>3 3.9</td>
</tr>
<tr>
<td>Area Health Service</td>
<td>7 2.5</td>
<td>4 1.9</td>
<td>3 3.9</td>
</tr>
<tr>
<td>Aboriginal Medical Service</td>
<td>2 0.7</td>
<td>1 0.5</td>
<td>1 1.3</td>
</tr>
<tr>
<td>Unknown</td>
<td>2 0.7</td>
<td>1 0.5</td>
<td>1 1.3</td>
</tr>
<tr>
<td>Total</td>
<td>284 100</td>
<td>207 100</td>
<td>77 100</td>
</tr>
</tbody>
</table>

**5.5.3 Practice Staff**

Participants were asked to identify the number of nurses employed in their practice, based upon whether they were a Registered Nurse or an Enrolled Nurse and whether they were employed on a part-time or full-time basis. 206 (72.5%) practices had no full-time Registered Nurses and 270 (95.1%) had no full-time Enrolled Nurses. This finding highlights the high prevalence of part-time employment in the practice nurse workforce. This has implications for nursing role development as well as service delivery, particularly considering that nursing staff work shorter hours than practices are likely to operate.

Of significance is the relatively small number of practices that employed a single nurse. Instead multiple nurses were employed on a part-time basis. Whilst practice nurses are frequently recognised as being professionally isolated\(^4, 28\), this finding identifies the potential for some level of collegial support and teamwork amongst
nurses within a majority of practices. This also has implications for the potential for different staff to develop specialist skills in particular areas of service need (e.g. womens’ and child health, diabetes, asthma or cardiovascular management). This potential for a range of specialisation likely increases the scope of services available within the practice, as well as offering potential career pathways for practice nurses, improving job satisfaction and promoting staff retention. Despite the limited implementation of this specialist model in Australia, anecdotal evidence suggests that it is acceptable to general practitioners, practice nurses and consumers.

Participants were also asked to identify how many general practitioners were employed in their practice on a full-time and part-time basis to give an indication of the size of the employing practice. A limitation of the survey instrument was that this information was sought as a number of general practitioners rather than as FTE. Retrospective evaluation of the survey form in light of the interview data indicated that this might be responsible for inaccuracies of these data. The relatively high number of part-time general practitioners, however, is well recognised by the ADGP as a demographic phenomenon of the Australian general practitioner population\(^{(26)}\).

### 5.6 Involvement of the Nurse in General Practice

Although the practice nurses participating in this study reported working in general practice for significant periods of time it is important, for the future development of models of care, to ascertain how well they were actually integrated into the practice environment and the service delivery model. The aim of this section of the APACHE survey was to explore workplace issues that may hinder development of the practice nurse role.

#### 5.6.1 Employment Conditions

Whilst the majority of participants did have access to a current policy / procedure manual \((n=203, 71.5\%)\), clinical practice guidelines or practice standards in the workplace \((n=233, 82.0\%)\) and a dedicated treatment area \((n=266, 93.7\%)\), there was still a significant number who did not have access to such basic resources. This has significant implications for the potential to expand the practice nurse role. Role development cannot optimally occur unless basic resources and workplace conditions are satisfactorily addressed.
Of the 225 (79.2%) practices that held regular team meetings, 258 (91.0%) participants reported attending these meetings. This encouraging finding demonstrates that the majority of participants are involved in practice management discussions. It was not apparent from the data why the remaining 26 (9.0%) participants did not attend such meetings. A limitation of this investigation was that the level of the nurses’ input and involvement in these meetings was not evaluated. The proposed enhancements in the role of general practice in HF management rely on the collaborative efforts of the multidisciplinary general practice team. Therefore, care needs to be taken to ensure that effective systems are in place to facilitate such teamwork and collaborative models through interdisciplinary communication.

The Australian Nursing Federation\(^{(29)}\) states that “all nurses employed in general medical practice must have a clear, unambiguous and agreed role description with a scope of practice that is appropriate to nursing, and which is consistent with the qualifications and skill of the nurse and the legislative framework of the jurisdiction in which the nurse is employed” (p. 1). However, only 188 (66.2%) participants in this investigation reported having such a job description. Previously published Australian studies have not formally explored the issue of written job descriptions, although a paucity of clear descriptions of the practice nurse role has been mentioned informally\(^{(4)}\). In the UK national census of practice nurses, 82.0% of participants were identified as having a job description, although the clarity and accuracy of this description were not evaluated\(^{(27)}\). Also evident from the British study was that the higher the grade of the practice nurse, the more likely they were to have a job description\(^{(27)}\). This finding implies that job descriptions were more likely to be held in those practices, which had a good understanding of the nature of the nursing role and the scope of nursing practice. The significant numbers of practices not having job descriptions may potentially reflect a poor understanding of the nature and scope of the nursing role and the value of documenting the scope of practice and clinical duties on the part of general practitioners. However, further investigation is required to support such an inference.

The absence of a job description is highly significant in terms of the legal liability of the practice nurse\(^{(30)}\). Without a clearly defined scope of practice to identify tasks that the employer has directed the nurse to perform as part of his or her employment, the nurse is potentially liable for actions that could be argued to be outside their
scope of normal practice. This clearly has significant implications for professional indemnity, role development and risk management within the practice setting.

5.6.2 Professional Supervision

The issue of professional supervision of practice nurses is complex and multifaceted. Professionally, nurses are independently responsible for their own clinical practice to their respective State / Territory Nurses and Midwives Registration Board. However, as employees of the general practitioner, there is some duty of care for the general practitioner to supervise the tasks delegated to the practice nurse, their workload and the competence with which they undertake clinical skills. Additional complexity is added in terms of the overarching supervision of professional conduct by peak nursing bodies which, until recent years, have had limited involvement in the provision of nursing services in general practice\(^{(6)}\).

Participants were asked to rate on a three point Likert scale whether they felt the degree of clinical supervision provided by their employer was too little, adequate or too much. The majority of participants \((n=248, 87.3\%)\) reported adequate supervision on the part of their employing general practitioner, with only eight \((2.8\%)\) participants reporting too little and 25 \((8.8\%)\) participants too much supervision. In the absence of formal job descriptions, this degree of satisfaction with supervision is likely related to personal preference rather than the effectiveness of professional mentorship per se. From information gathered during the interviews and participant recruitment process, several nurses identified the strong desire to be an autonomous practitioner and highlighted the lack of nursing hierarchy in general practice as a positive aspect of their governance structure. This has significant implications for professional development and isolation from the wider nursing profession.

5.6.3 Professional Development

Continuing professional education has long been recognised as an integral component of professionalisation\(^{(23)}\). The isolated nature of practice nursing, available time, funding and the vast scope of practice have all been cited as barriers to continuing education access\(^{(3, 31, 32)}\). Additionally, the lack of a specific industrial Award to define employment conditions precludes universal entitlements relating to study leave provisions, as is common practice in the acute care sector.
In spite of these aforementioned barriers to accessing education, 231 (81.3%) participants had undertaken either paid or unpaid study leave in the twelve months preceding the data collection. One hundred and sixty-eight (59.1%) participants reported taking paid study leave. These nurses received a mean of 4.3 paid study days (SD 3.7, Range 0.5-20 days). Additionally, 150 participants (52.8%) took unpaid study leave. This represented a mean of 4.5 unpaid study days per participant (SD 3.7, Range 1-20 days). Sixty-three (54.3%) participants who did not receive paid study leave took unpaid leave to attend educational activities, whilst 81 (28.5%) participants took paid educational leave only. Whilst the potential differences between Registered and Enrolled Nurses were evaluated, the relatively small number of Enrolled Nurses in the sample precluded meaningful comparisons.

Study leave is not necessarily a reliable measure of professional development, as education and training can potentially be undertaken in the nurses’ own time. However, study leave provisions provide an indication of an employers’ recognition of the need for continuing education. The number of participants accessing paid study leave in the APACHE study was somewhat higher than that reported by Patterson\(^4\), who found that only 35% of her sample were able to access paid leave, with 54% identifying the opportunity to take unpaid leave for educational purposes. Both sources, however, identified a lack of systematic, strategic and planned education programs within general practices to contribute to the nurses’ professional development. Similar to the findings reported by Watts et al.\(^3\), APACHE study participants had largely utilised study leave to attend short courses, conferences and seminars. Few participants indicated that they were undertaking tertiary study leading to a formal qualification. It was unclear from the data, whether this was most closely related to the paucity of tertiary courses specifically designed for practice nurses or to the issues of access and educational background of practice nurses.

### 5.6.4 Clinical Documentation

The nature of clinical documentation was explored to provide an insight into the degree of interdisciplinary collaboration in the delivery of patient care. Two hundred and seventy-seven (98.6%) participants conveyed that they were able to access the general practitioners notes relating to a patient. Surprisingly, seven (1.4%) participants declared that they were unable to access patients’ clinical notes. In spite
of these small numbers, this absence of a team approach has significant implications for future models of collaborative service delivery. Two hundred and thirty-seven (83.5%) participants recorded their interactions in a combined patient file with the general practitioner, whilst 35 (12.3%) participants kept clinical notes in a file separate to their general practitioner colleagues. Of particular concern are the five (1.8%) participants who did not maintain any documentation of nursing encounters. Whilst the specific nature of the role of these nurses within their practices is unclear, failure to undertake some form of documentation regarding patient encounters places them in a potentially precarious legal situation.

5.6.5 Information Technology

Two hundred and seventy-three (96.8%) participants reported using a computer in the workplace. Of those who used a computer, Table 5-7 describes the tasks for which the computer was used. This high use of computers is heartening, particularly when considered in light of the average age of the participants and the relative infancy of information technology in general practice. This finding highlights the ability of practice nurses to embrace new, unfamiliar skills and work practices.

It is significant to note that the majority of participants who reported using a computer did so to search for information. This recognition of the need to seek evidence to support clinical practice and the use of an appropriate source to search for information is an important step towards embracing chronic disease management.

It was not possible from the collected data to identify how frequently the computer was used to search for information, assess what types of information were gathered or observe how the information obtained was assimilated into clinical practice.

Table 5-7 Use of Computers

<table>
<thead>
<tr>
<th>Task</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of Patients for Follow-up</td>
<td>251</td>
<td>91.9</td>
</tr>
<tr>
<td>Searches for Information</td>
<td>241</td>
<td>88.3</td>
</tr>
<tr>
<td>Updating Patient Records</td>
<td>247</td>
<td>87.0</td>
</tr>
<tr>
<td>Letter Writing / Administrative Duties</td>
<td>212</td>
<td>77.7</td>
</tr>
<tr>
<td>Organisation of Patient Appointments</td>
<td>208</td>
<td>76.2</td>
</tr>
<tr>
<td>Producing Statistics and Reports</td>
<td>148</td>
<td>52.4</td>
</tr>
<tr>
<td>Other</td>
<td>43</td>
<td>15.9</td>
</tr>
</tbody>
</table>
5.7 **Scope of Clinical Practice**

Little was known about the role of the Australian practice nurse at the outset of this investigation\(^4, 30\). Specifically, there was limited knowledge of the capacity of practice nurses for the management of chronic diseases, such as HF. Therefore, the aim of this section of the APACHE survey was to describe the current role of nurses in Australian general practice, identify the tasks that they currently undertake and explore their perceptions of the potential for role expansion to address the burden of chronic disease. Particular attention was paid to key evidence-based elements of chronic disease management such as patient identification, early screening for risk factors and disease specific management clinics. By the time this investigation was completed a more detailed picture was able to be constructed from the data obtained from a number of research reports that had been concurrently published\(^3, 33, 34\).

Some authors have reported that individual practice nurses have evolved their role to meet the unique needs of individual practices\(^35-39\). However, it can also be argued that Australian general practices have a similar core business and philosophical approach and are not as dissimilar as one might imagine. Britt et al.\(^40\) identified that general practice activity was “remarkably consistent”(p. xxi) across Australia. Whilst minor differences were apparent in individual States / Territories in contrast to National figures, the magnitude of such differences failed to reach statistical significance\(^40\). It can be hypothesised, therefore, that similarities in the nursing role might exist to meet these comparable service demands.

### 5.7.1 Home Visits

One hundred and one (35.6%) participants reported regularly visiting patients in their homes. Previous Australian investigations have reported that between 22%\(^4\) - 24%\(^41\) of their cohorts undertook home visits as part of their role. A statistically significant difference was not found between the numbers of rural or urban nurses who provided home visits \(p \leq 1\). Of those participants who visited patients at home, 94 (92.2%) provided either health assessments or screening during these visits, with other services being provided with significantly lower frequency (Table 5-8). The recent Commonwealth funding initiatives to provide health assessments to those aged over 75 years\(^42\) can be postulated as a factor contributing to the increase in the proportion of practice nurses undertaking home visits seen in this investigation.
It was hypothesised that there was a potential for some variation in the services provided during home visits between practice nurses in rural and metropolitan areas. However, only chronic disease follow-up \((p\leq0.001)\) and social / psychological services \((p\leq0.025)\) demonstrated statistically significant variation between groups. In both cases, rural practice nurses provided these services more frequently than their urban colleagues. This is likely due to issues such as limited access to dedicated chronic disease management and counselling services, social isolation and reliance on the general practice for holistic health care.

\textbf{Table 5-8 Services Provided During Home Visits}

<table>
<thead>
<tr>
<th>Service Provided</th>
<th>All Practice Nurses</th>
<th>Rural Practice Nurses</th>
<th>Urban Practice Nurses</th>
<th>(p) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Assessment / Screening</td>
<td>94</td>
<td>45</td>
<td>49</td>
<td>92.2</td>
</tr>
<tr>
<td>Nursing Procedures (e.g. dressing)</td>
<td>25</td>
<td>12</td>
<td>13</td>
<td>24.5</td>
</tr>
<tr>
<td>Chronic Disease Follow-up</td>
<td>12</td>
<td>10</td>
<td>2</td>
<td>11.8</td>
</tr>
<tr>
<td>Immunisation / Vaccination</td>
<td>12</td>
<td>10</td>
<td>7</td>
<td>11.8</td>
</tr>
<tr>
<td>Social / Psychological</td>
<td>11</td>
<td>9</td>
<td>2</td>
<td>10.8</td>
</tr>
<tr>
<td>Clinical Investigations</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>5.9</td>
</tr>
<tr>
<td>Other Services</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>4.9</td>
</tr>
</tbody>
</table>

\(p\) Statistically significant difference between rural and urban practice nurses at 5% level

\[5.7.2 \text{ Identification of Disease Specific Groups}\]

Previous investigations have been undertaken to examine the Australian practice nurse role yet, to date, none have focused specifically on the role in relation to chronic disease management. In order to explore this issue it was necessary to also demonstrate the capacity of general practice to support models of care involving the practice nurse in a disease management context. One of the important factors identified from the literature and discussion with clinical experts was to ascertain if practices were able to identify disease specific groups to facilitate recall or targeted assessment programs. Without the ability to identify specific patient groups, the task of planning strategically targeted disease programs is inherently more complex.

Two hundred and one (70.8\%) participants reported that their practice flagged disease specific groups. A major limitation of this finding is that this study did not evaluate the quality of these systems. Of those practices that flagged disease specific groups, Figure 5-6 describes the groups that were reportedly identifiable. It is
significant to note that the two most commonly flagged groups, diabetes and asthma, are also the two chronic diseases currently the subject of Commonwealth funding for general practice activities such as care planning and case review. This finding implies that financial incentives and funding strategies may have an impact on general practice priorities for chronic disease management\(^{(3)}\). It also highlights an area for further debate regarding the management of other chronic diseases and national priority areas within the general practice setting.

Figure 5-6 Flagging of Disease Specific Groups

One hundred and seventy-two (85.1\%) participants from practices which flagged disease groups used computerised methods of data retrieval. It is encouraging that so many practices have embraced information technology within their daily practice. This has significant implications for the capacity of practices to identify patients with specific chronic conditions to implement reminder, recall and follow-up assessment programs. However, the quality of the coded data, the types of software being utilised and the standardization of definitions for coded conditions was not explored in this investigation. Each of these factors has the potential to impair the quality of the data retrieved and its utility in both clinical practice and for reporting purposes. Further investigation is required to examine these issues and develop generic data definitions and standards for data management in general practice.

5.7.3 Patient Screening Programs

In addition to being able to identify patients with specific diagnosis it was considered important to explore the current performance of screening programs for early symptoms or lifestyle risk factors. It is well recognised, in a range of chronic illnesses, that early identification of early symptoms or risk factors can facilitate effective treatment to retard the onset of illness or reduce the progression of disease. There is, however, limited incentive to encourage practices to proactively conduct
screening activities within the contemporary business model of Australian general practice.

Two hundred and five (72.2%) participants reported that regular patient screening programs were conducted in their practices. For this investigation, participants used their own judgement to define what constituted a regular screening program. Although this potential variability in definition can impair the accuracy of the data, the complexity of providing definitions was considered prohibitive. Once again, those programs that were the subject of Commonwealth funding incentives, namely diabetes and asthma, ranked highly amongst participants. Additionally, it was recognised that a range of disease specific resources, such as the Asthma 3+ Visit Plan\(^{(43)}\), which were provided to the practices provided structure to the program. It can be inferred, therefore, that financial incentives and the availability of disease specific resources can increase the uptake of preventative activities within Australian general practice. The type of screening activities reportedly undertaken by participants are summarised in Table 5-9.

Table 5-9 Patient Screening Activities

<table>
<thead>
<tr>
<th>Screening Activity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>178</td>
<td>85.6</td>
</tr>
<tr>
<td>Cervical Smears</td>
<td>178</td>
<td>86.0</td>
</tr>
<tr>
<td>Asthma</td>
<td>134</td>
<td>64.4</td>
</tr>
<tr>
<td>High Cholesterol</td>
<td>125</td>
<td>60.1</td>
</tr>
<tr>
<td>Hypertension</td>
<td>109</td>
<td>52.4</td>
</tr>
<tr>
<td>Breast Abnormalities</td>
<td>83</td>
<td>39.9</td>
</tr>
<tr>
<td>Prostate Abnormalities</td>
<td>81</td>
<td>39.1</td>
</tr>
<tr>
<td>Obesity</td>
<td>54</td>
<td>26.0</td>
</tr>
<tr>
<td>Sensory Abnormalities</td>
<td>49</td>
<td>23.7</td>
</tr>
<tr>
<td>Chronic Heart Failure</td>
<td>40</td>
<td>19.3</td>
</tr>
<tr>
<td>Dementia</td>
<td>38</td>
<td>18.4</td>
</tr>
<tr>
<td>Other</td>
<td>22</td>
<td>10.7</td>
</tr>
</tbody>
</table>

5.7.4 Health Promotion Clinics

In the next stage of the exploration of current chronic disease management strategies, participants were asked about the conduct of health promotion clinics. Participants were asked about who was responsible for conducting such clinics, the appropriateness of practice nurses undertaking these clinics and whether they felt that further training was required for them to function effectively in this role. Table 5-10
describes the responses provided. It is significant to note that the vast majority of practices did not undertake regular clinics for any disease specific group. Current screening activities appeared to be ad hoc. Data from the telephone interviews suggested that this was likely related to the current high workload of both general practitioners and practice nurses. Rather than reporting sufficient time to consider screening and proactive follow-up, participants described a pattern of episodic, reactionary care. The conduct of health assessments for those over 75 years by 152 (55%) participants again reflects contemporary financial incentives provided by the Commonwealth government. Such findings demonstrate the significant impact of national funding models on the work of the practice nurse.

Table 5-10 Health Promotion Clinics

<table>
<thead>
<tr>
<th>Activity/Role Expansion</th>
<th>Undertaken with GP Supervision</th>
<th>Practice Nurse Independent</th>
<th>Activity not Undertaken by Practice</th>
<th>Appropriate for Practice Nurse</th>
<th>Education / Training Required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>General Health Promotion Clinics</td>
<td>25</td>
<td>9.0</td>
<td>11</td>
<td>4.0</td>
<td>241</td>
</tr>
<tr>
<td>Family Planning / Contraception Clinics</td>
<td>10</td>
<td>3.6</td>
<td>2</td>
<td>0.7</td>
<td>265</td>
</tr>
<tr>
<td>Antenatal / Postnatal Clinics</td>
<td>29</td>
<td>10.4</td>
<td>5</td>
<td>1.8</td>
<td>243</td>
</tr>
<tr>
<td>Child Health Clinics</td>
<td>18</td>
<td>6.5</td>
<td>4</td>
<td>1.4</td>
<td>255</td>
</tr>
<tr>
<td>Chronic Illness Clinics</td>
<td>37</td>
<td>13.3</td>
<td>6</td>
<td>2.2</td>
<td>234</td>
</tr>
<tr>
<td>Menopause Clinics</td>
<td>11</td>
<td>3.9</td>
<td>3</td>
<td>1.1</td>
<td>263</td>
</tr>
<tr>
<td>Elderly Health Assessments</td>
<td>112</td>
<td>40.4</td>
<td>40</td>
<td>14.4</td>
<td>125</td>
</tr>
<tr>
<td>Diet Control</td>
<td>22</td>
<td>8.0</td>
<td>7</td>
<td>2.5</td>
<td>248</td>
</tr>
<tr>
<td>Smoking Cessation Program</td>
<td>14</td>
<td>5.0</td>
<td>10</td>
<td>3.6</td>
<td>253</td>
</tr>
<tr>
<td>Vascular Risk Factor Management</td>
<td>23</td>
<td>7.2</td>
<td>8</td>
<td>2.9</td>
<td>249</td>
</tr>
</tbody>
</table>

The significant numbers of participants who currently do not undertake a disease specific management clinic makes it difficult to draw conclusions from the data about the need for further education / training. What is evident, however, is that significant education / training would be required to facilitate sustainable and effective role expansion in these areas. Nevertheless, it is apparent that despite a large number of practice nurses perceiving that this role was appropriate for them, few were actually undertaking such a clinical role. Although the rationale behind this was not directly explored in the survey, inferences can be drawn from the discussion regarding barriers to role expansion presented below.
5.7.5 Chronic Disease Management Activities

In addition to exploring the conduct of disease specific clinics, it was thought pertinent to explore the specific contribution of the practice nurse to undertake aspects of chronic disease management. Such use of clinical skills may have been undertaken in either the delegation or substitution models\(^{44, 45}\) or as multidisciplinary collaborative practice. Table 5-11 presents the survey data regarding the conduct of these clinical skills, whether or not the participants regarded them as appropriate and the perceived need for further education and training.

Table 5-11 Chronic Disease Management Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Undertaken with GP Supervision</th>
<th>Practice Nurse Independent</th>
<th>Activity not Undertaken</th>
<th>Appropriate for Practice Nurse</th>
<th>Education / Training Required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n)</td>
<td>(%)</td>
<td>(n)</td>
<td>(%)</td>
<td>(n)</td>
</tr>
<tr>
<td>Blood Pressure Measurement</td>
<td>157</td>
<td>56.3</td>
<td>99</td>
<td>35.5</td>
<td>23</td>
</tr>
<tr>
<td>Blood Testing</td>
<td>139</td>
<td>49.8</td>
<td>71</td>
<td>25.4</td>
<td>69</td>
</tr>
<tr>
<td>ECG Testing</td>
<td>160</td>
<td>57.4</td>
<td>75</td>
<td>26.9</td>
<td>44</td>
</tr>
<tr>
<td>Physical Assessment</td>
<td>77</td>
<td>34.8</td>
<td>30</td>
<td>10.8</td>
<td>152</td>
</tr>
<tr>
<td>Lifestyle Counselling / Advice</td>
<td>81</td>
<td>39.0</td>
<td>35</td>
<td>12.5</td>
<td>163</td>
</tr>
<tr>
<td>Disease Specific Education</td>
<td>90</td>
<td>32.3</td>
<td>30</td>
<td>10.8</td>
<td>159</td>
</tr>
<tr>
<td>Assessment of Social Support</td>
<td>85</td>
<td>30.4</td>
<td>40</td>
<td>14.3</td>
<td>154</td>
</tr>
<tr>
<td>Medication Assessment</td>
<td>61</td>
<td>21.8</td>
<td>13</td>
<td>4.7</td>
<td>205</td>
</tr>
<tr>
<td>Case Management / Coordination</td>
<td>65</td>
<td>23.3</td>
<td>14</td>
<td>5.0</td>
<td>200</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>2.54</td>
<td>0</td>
<td>0.0</td>
<td>271</td>
</tr>
</tbody>
</table>

\% of participants responding to each question

A limitation of these data are that is does not differentiate between clinical skills that are undertaken by other providers within the practice (e.g. phlebotomist) and those that are not undertaken within the specific general practice. What is clear, however, is the mismatch between the tasks that participants perceive as being appropriate and those that they currently undertake. This mismatch is greatest in activities such as physical assessment, lifestyle counselling, disease specific education, assessment of social support, medication assessment and case management / coordination. It is interesting to note that, for the majority of participants, additional education or training is not required in these tasks to develop confidence in their application. Therefore, the failure of participants to engage in these activities is related to factors other than education / training.
5.8  The Clinical Role of the Practice Nurse

In order to determine the current range of clinical activities undertaken by Australian practice nurses and to scope the potential for additional role development, participants were asked: (1) to identify which tasks they felt were appropriate for practice nurses, (2) whether they currently undertook these tasks, and (3) whether they felt that they required additional education / training to confidently undertake them. The list of activities in this question was drawn from nursing tasks that had been previously identified by key stakeholders, from the literature (4, 27), and through advice from pilot study participants. Whilst these responses may have had additional significance if they were compared to the general practitioners’ perceptions, the logistical difficulties in obtaining responses from a national cohort of practice nurses and their employing general practitioners precluded this type of analysis.

Table 5-12 provides a summary of the participant’s responses. In this question participants were asked to indicate an affirmative response by checking the box next to the item. It was unclear whether the failure to check the box was either a negative response or simply a failure to answer the question. Where the participant left the entire matrix or an entire column of the matrix blank, the data were considered missing. Therefore, the same number of participants did not necessarily respond to each sub question.

These data were investigated in two ways. Firstly, factor analysis was undertaken to group related items and explore relationships between the responses and other variables within the dataset (46, 47). Secondly, the participants’ perception of the appropriateness of clinical tasks, tasks undertaken by participants in clinical practice and the reported need for further education / training were compared and contrasted.

5.8.1 Factor Analysis

To reduce the large number of variables, exploratory factor analysis was used to summarise the data by grouping together interrelated items (46, 47). Subsequent analysis was conducted on the reduced data to simplify interpretation and communication of findings (46). Given the structure of the survey, which asked participants three separate questions about the clinical tasks, it was decided to undertake the factor analysis on each question separately and compare the results.
Factor solutions with various numbers of factors were investigated. The three factor solution proved to be the most meaningful for each question. The factor analysis conducted on each question revealed comparable findings (Appendix H, Table C). Such correlation demonstrates the precision of the data reduction. The three factor solution had a minimum Initial Eigenvalue of 1.269 and accounted for 36-49% of the total variance between the items. Additionally, using the scree test, the point at which the curve levelled off correlated with three factors (Appendix H, Figure H-1). Consideration of the items within each factor indicated they could be conveniently summarised as: (1) core nursing tasks, (2) advanced practice tasks, and (3) expanded nursing tasks.

Factor one contains items that involve core nursing functions. These tasks are comparable to those undertaken by nurses in the acute care setting, such as wound dressings, preparing equipment and assisting with medical procedures, medication administration and basic diagnostic assessment. As can be seen from Table 5-12, the majority of practice nurses reported undertaking these tasks (mean 84%, range 61-93%). Most participants felt that they were appropriate tasks for a practice nurse (mean 92%, range 84%-95%) and few participants required further education / training to confidently undertake them (mean 9%, range 3%-16%).

Factor two consists of items that are often considered to be advanced practice tasks, more likely to be undertaken by the more clinically experienced nurse. These items consist of comprehensive health assessments, advanced physical examination, medication titration and diagnostic testing. More participants reported that they required further education / training in these tasks to be confident (mean 43%, range 24%-61%), as compared to the basic nursing tasks (mean 9%, range 3%-16%). Despite this need for education / training, the majority of participants felt that most of these items were appropriate tasks for the practice nurse (mean 52%, range 21%-65%). The items that were exceptions to this were titration of medications (21%) and ordering of diagnostic tests (36%). A rationale for these exceptions might be that both of these items can be conceptualised as being at the nurse practitioner end of the spectrum of clinical skills expertise rather than within the scope of the general practice nurse.
Table 5-12 Clinical Skills

<table>
<thead>
<tr>
<th>Task Currently Undertaken</th>
<th>Appropriate Task for Practice Nurse</th>
<th>Require Education / Training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>%</td>
</tr>
<tr>
<td><strong>FACTOR ONE – Core Nursing Tasks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply / Change Wound dressings</td>
<td>259</td>
<td>93</td>
</tr>
<tr>
<td>Preparing Equipment for GP</td>
<td>253</td>
<td>91</td>
</tr>
<tr>
<td>Assisting GP with Minor Surgery</td>
<td>244</td>
<td>88</td>
</tr>
<tr>
<td>Phone Assessment / Triage</td>
<td>245</td>
<td>88</td>
</tr>
<tr>
<td>Taking ECGs</td>
<td>241</td>
<td>86</td>
</tr>
<tr>
<td>Immunisation / Vaccination</td>
<td>241</td>
<td>86</td>
</tr>
<tr>
<td>Administer Medications</td>
<td>239</td>
<td>86</td>
</tr>
<tr>
<td>Using a Respiratory Peak Flow Meter</td>
<td>218</td>
<td>78</td>
</tr>
<tr>
<td>Venepuncture</td>
<td>171</td>
<td>61</td>
</tr>
<tr>
<td><strong>Average agreement %</strong></td>
<td></td>
<td>84</td>
</tr>
<tr>
<td><strong>FACTOR TWO – Advanced Practice Tasks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up of Diagnostic Test Results</td>
<td>132</td>
<td>47</td>
</tr>
<tr>
<td>Auroscopic / Ophthalmoscopic Examination</td>
<td>130</td>
<td>47</td>
</tr>
<tr>
<td>Assessment of Care against Guidelines</td>
<td>90</td>
<td>32</td>
</tr>
<tr>
<td>Antenatal / Postnatal Checks</td>
<td>70</td>
<td>25</td>
</tr>
<tr>
<td>Assessment of Baby / Infant Development</td>
<td>61</td>
<td>22</td>
</tr>
<tr>
<td>Stethoscopic Exam of Heart &amp; Chest</td>
<td>50</td>
<td>18</td>
</tr>
<tr>
<td>Cervical smears or Breast Examination</td>
<td>44</td>
<td>16</td>
</tr>
<tr>
<td>Ordering Diagnostic Testing</td>
<td>25</td>
<td>9</td>
</tr>
<tr>
<td>Titration of Medications (e.g. diuretics)</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td><strong>Average agreement %</strong></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td><strong>FACTOR THREE – Expanded Nursing Tasks</strong></td>
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<td>Primary Care Health Assessments</td>
<td>167</td>
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<td>Education about Illness Prevention</td>
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<tr>
<td>Undertake Quality Assurance Audits</td>
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<td>Education re: Vascular Risk Factors</td>
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<td>Organising EPC Case Conferences</td>
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<tr>
<td><strong>Average agreement %</strong></td>
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% of participants responding to each question

The items comprising factor three include health promotion, patient education, research and quality assurance projects that are often associated with the advanced practitioner. Whilst the first two factors encompass items relating to direct clinical care, this factor comprises items that extend beyond the individual patient interaction and focus on systems and process issues\(^3\). These items clearly require a different set of skills and educational preparation to confidently undertake. Of note, many of these aligned with elements of the clinical nurse consultant role within the acute care sector\(^49\). The majority of participants identified that these tasks are appropriate for
the practice nurse (mean 63%, range 45%-87%). On average, slightly more participants reported undertaking these expanded nursing tasks (mean 63%, range 45%-87%) as compared to the advanced nursing tasks (mean 25%, range 5%-47%). This finding can be related to the funding incentives driving participation in the primary health care assessments and the highly specialised clinical skills required to undertake titration of medications and ordering of diagnostic tests. It also potentially reflects the dichotomy between the practice nurse and nurse practitioner roles.

Factor analysis has provided a logical categorisation of the clinical skills items to assist in analysis. It was hypothesised that the identified factors would be affected by variables such as the highest educational qualification or experience level of the participants, or the rurality or size of the practice in which they worked. Further analysis of the data failed to demonstrate statistically significant relationships between these variables and any of the identified factors (Appendix H, Table D). This suggests that the practice nurse role is affected not by intrinsic factors such as personal demographic and professional characteristics or those of their workplace, but rather by extrinsic factors such as the health system, funding models and the political context in which health care is delivered. This finding has considerable implications for the development of models of care in the general practice setting. It identifies that any sustainable model of care needs to move beyond the individual general practice and take a broad approach encompassing policy, funding and wider health system issues. These quantitative findings resonate well with the qualitative data explored later in this Chapter.

5.8.2 Comparative Analysis

Although the versatility and range of skills offered by the practice nurse is an important advantage of this role, it is imperative that we have an understanding of the tasks that practice nurses perceive to be appropriate. To be successful, strategic role development must take into consideration the perceptions, vision and professional development needs of practice nurses in the clinical setting. From the data presented in Table 5-12, it is evident that there is an association between those clinical skills that are undertaken by a majority of participants and activities that participants perceive to be appropriate. This may occur for various reasons. Firstly, it may be that the practice nurse only undertakes activities in their clinical practice based on what
they perceive as being appropriate for their position and skill level. Conversely, the practice nurse may have become socialised into particular work patterns and general practitioner preferences that have been reflected in their responses.

This association is unidirectional. There is a considerable dissonance between tasks that participants report as being appropriate and those that they undertake in current practice. For example; only an average of 26% (range 16%-37%) of participants reported currently undertaking cervical smears or breast examination, stethoscopic examination of heart and chest, counselling interventions, antenatal / postnatal checks, assessment of care against guidelines, assessment of baby / infant development and quality assurance audits. In contrast, the majority of participants (mean 58%, range 54-62%) identified that these were appropriate tasks for the practice nurse. This variance was not explained by the need for further education / training alone. From the available data, it is not possible to identify other contributing factors. Considering the advanced practice nature of these activities, it can be hypothesised that the barriers to role expansion as described later in this Chapter may influence nurses’ work practices. The significant number of participants reporting that they would not require further education and training and yet do not currently undertake the tasks within their clinical practice demonstrates the potential capacity for these nurses to expand their current roles if other barriers are addressed.

A positive finding was the inverse relationship between tasks that the participating practice nurses identified as requiring further education and those currently undertaken by the participants (Figure 5-7). That is, those tasks which were reported by more participants as requiring further education / training were reported as being undertaken less frequently in current clinical practice.

![Figure 5-7](image-url) Tasks requiring Further Education versus Tasks Currently Undertaken

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Of particular interest in evaluating the capacity of the practice nurse for chronic disease management was the estimate of the need for further education in advanced and expanded tasks such as the conduct of research projects and quality assurance audits, titration of medications, education about illness prevention and assessment of care against guidelines. Despite the relatively limited participation in these activities, a minority of participants expressed a need for additional education / training to enable them to undertake the activity with confidence (Table 5-12). It is unclear from the collected data whether this was due to the idea that participants felt that these activities were not appropriate for the practice nurse, or whether they felt confident but did not currently undertake these tasks for some reason. Despite this limitation, it is likely that further specialised education / training would be required to better equip practice nurses with the skills to undertake chronic disease management initiatives, such as HF management, in their daily clinical practice.

5.9 Barriers and Facilitators to Practice Nurse Role Expansion

A specific objective of the APACHE survey was to investigate practice nurses’ perceptions of important barriers and facilitators to the future development of the Australian practice nurse role. Figures 5-8 and 5-9 demonstrate the relative importance of barriers and facilitators to extending the practice nurse role as perceived by the APACHE participants.

5.9.1 Barriers to Practice Nurse Role Expansion

The most commonly cited barriers to role expansion were legal implications (n=144, 51.6%), lack of space / equipment (n=86, 30.8%), a belief by participants that their current role is appropriate (n=83, 29.7%) and general practitioner attitudes (n=80, 28.7%). Barriers identified by participants in the ‘other’ category included a lack of time to undertake additional tasks (n=46, 16.2%), inadequate remuneration to encourage role expansion (n=4, 1.4%) and deficient funding models that impede the provision of additional services (n=15, 5.3%)(Figure 5-8). The following discussion of the barriers to practice nurse role expansion incorporates data from both the postal survey and telephone interviews. Where direct quotes from interview participants have been incorporated in the text they have been italicised and located within quotation marks to facilitate identification by the reader.
In their analysis of general practice nursing, Watts et al.\(^3\) identified similar challenges for general practice. The primary concerns identified were teamwork issues, organisational support issues, professional recognition, health systems issues, workforce issues, legislation and regulation, medicolegal, funding and cultural issues\(^3\). What the APACHE data can add is an examination of these issues from the perspective of developing a chronic disease management role for the practice nurse.

(a) **Legal Implications**

One hundred and forty-four (51.6%) participants identified legal issues as a barrier to expanding their role. The nature of this concern appeared to be twofold. Firstly, there was confusion about which tasks practice nurses could undertake under various levels of supervision. A significant number of participants identified that general practitioners were reluctant to allow the practice nurse to undertake many tasks without direct clinical supervision for fear of litigation. Further exploration of this concept in the telephone interviews elucidated that this issue was compounded by some general practitioners’ poor understanding of the nurses’ clinical skills and scope of practice. Several participants identified that this understanding was largely dependant upon the degree of trust developed within the professional relationship between the general practitioner and practice nurse. This issue was inextricably linked to the employee-employer relationship. Additionally, some interview participants indicated that the limitations placed on their practice by the potential legal implications, such as referring the patient to the general practitioner for explanation of abnormal test results or procedures that the general practitioner was unwilling to delegate, made them appear less competent or uninterested to consumers.
Secondly, participants reported that the restrictions inherent in the nurses’ scope of professional practice prevented them from expanding their role. These restrictions included factors such as Registered Nurses not being able to prescribe medications or order diagnostic tests and Enrolled Nurses not being able to practice without supervision from a Registered Nurse. For those participants who were embracing some level of autonomous practice, the legal requirement of having the general practitioner write prescriptions for what were considered routine medications and simple diagnostic tests negated the time savings that autonomous practice provided. However, care must be taken here to differentiate between the expansion of the practice nurse role within a model of collaborative care and the more sophisticated protocol driven, autonomous role of the nurse practitioner.

Perhaps the most significant facet of the legal implications of practice nursing is the general lack of understanding of the scope and specific nature of the legal issues being faced. In an increasingly litigious society, practice nurses and general practitioners are entitled to be concerned about their legal responsibilities. The paucity of clear job descriptions, lack of nursing competencies (at the time of the investigation) and various requirements of State / Territory regulatory bodies leave both nurses and general practitioners vulnerable. As one of the interview participants identified, until the legal liability of the practice nurse is tested in the legal system there is limited precedent to guide general practice. Assessment of risk for the practice nurse is required urgently at both National and local levels. The development of generic job descriptions and nursing competencies specific to practice nursing are essential to provide clearly defined evidence of best practice.

(b) Lack of Space / Equipment

Lack of space and equipment appeared to be related to the idea that many practices had been established without provision for nursing services. This was particularly reported in established practices located in older premises such as converted houses. The addition of nursing services in these locations required negotiation of space allocation and equipment storage to allow access by both general practitioners and nurses.

Despite 266 (93.7%) participants reporting having a dedicated treatment area, lack of space was reported by many participants as being a major issue in terms of their ability to consult privately with patients. This underscores the dependent nature of
nursing in general practice. It is inferred from the data that treatment areas were busy and precluded use by the practice nurse. Without an area in which they were able to sit down and assess patients, there was little opportunity for activities such as chronic disease management.

**c) A Belief by Practice Nurses that the Current Role is Appropriate**

83 (29.7%) participants reported that they felt that their current role was appropriate. Interview data explicated this finding in a number of ways. Firstly, a considerable group of participants reported that they were so busy in their current role that they felt unable to take on any additional workload. They expressed the opinion that an expanded role for the practice nurse would not be possible without increases in either practice nurse numbers or working hours. Secondly, some participants perceived that they were not “mini-doctors” and that their role as a nurse extended only to carrying out the doctors’ direct instructions regarding patient management. This perception potentially relates back to the fact that practice nurses are predominately hospital trained. Such an educational background likely lacks the critical thinking and advanced practice skills that characterise contemporary tertiary nursing education.

The final aspect identified related to individual practice nurse remuneration and funding of service delivery. Currently, practice nurses generally receive lower remuneration than their acute care colleagues\(^{(13)}\), as they are not covered under an industrial Award and wages are negotiated between the practice nurse and their employer. Interview participants identified limited incentive, other than personal gratification or job satisfaction, to undertaking the post basic education / training required to fulfil an expanded role. Additionally, it was identified that this education and training would most often need to be paid for by the practice nurse. Concern was raised in relation to the fact that an increased nursing role in chronic disease management would not necessarily increase practice income or even cover the cost of employing the nurse. Without generating any additional revenue for the practice, it was unlikely that practice nurse remuneration would increase alongside the responsibilities and increased workload of an expanded role.

**d) General Practitioner Attitudes**

General practitioner attitudes and the nature of collaborative practice was a common theme in the participants’ responses. Eighty (28.7%) participants reported feeling
that the attitude of the general practitioner with whom they worked prevented expansion of their role into chronic disease management. Those general practitioners who employ practice nurses invariably perceive some potential for the nursing role to enhance their practice. This contribution might be in terms of improving standards of care, creating efficiencies or by increasing the cost-effectiveness of care provision. However, many participants identified feelings of “frustration” at what they described as “general practitioners under-utilising practice nurses skills and regarding practice nurses as subservient”. They identified in many cases what the participants perceived as a “reluctance by the general practitioner” to “let go” of a portion of patient care to the practice nurse. General practitioners’ reported perceptions of practice nurses were, in many cases not reflective of professional collegiality. Participants described some general practitioners’ perceiving practice nurses as “handmaidens”, “glorified toilet roll changers”, where “your skills end at removing the wrapper from a bandaid”. It was described by participants as being a challenge for many practice nurses to gain the confidence of general practitioners to achieve recognition of the potential applications of their skills and competencies to best serve the practice. However, the underlying issue appeared to be one of limited collaboration between general practitioner and nurse, stemming from unclear professional role boundaries and difficulties in communication about work practices.

There was widespread variation in the importance of general practitioner attitudes between practices and limited consistency in the role expectations of general practitioners. Even within practices, there was little consistency between individual general practitioners and their perceptions of the practice nurse role. Interview data identified that whilst younger general practitioners were more likely to be receptive to the practice nurse role, older, more experienced general practitioners were socialised into the historical model of independent practice and more resistant to changes towards more collaborative practice models. One interview participant identified that, “I get the impression that they [general practitioners] feel a bit threatened…. That they’re going to lose control of the practice”. This finding has considerable implications and indicates a need for significant cultural change to be incorporated within the planning and development phases of proposed innovative models of care involving a collaborative, multidisciplinary approach.
In addition to the general practitioners’ overall attitudes to the practice nurse role, there were issues identified relating to the general practitioners attitude to chronic disease management programs. “Doctors don't want to be involved in incentive programs – [they are] too time consuming and complicated, need too much training to understand the specifics, [and create] too much paperwork”. New or innovative models of care were seen to disturb the traditional care models, with many general practitioners described as being reluctant to change established work practices. Compounding this issue was the identification that many general practitioners did not recognize the value of the practice nurse role within chronic disease management programs, in relation to tasks such as patient education, risk factor screening, symptom monitoring and health assessments. Many nurses spoke of being excluded from discussions regarding chronically ill patients, with most communication occurring between the specialist / acute facility and the general practitioner. Participants described chronic illness as being “managed by doctor and hospital unless the patient incidentally discusses the problem with the practice nurse”.

Interestingly, several participants acknowledged the impact on the nurse-doctor relationship of practice nurse personal and professional characteristics, their ability to demonstrate their clinical skills and willingness to educate themselves in addition to their clinical work. One nurse who was interviewed commented, “a lot of general practitioners don’t want to talk [about the nurses’ role]. But if you don’t talk and communicate on a professional level, they’re not going to know anything about you and if you don’t talk, and you don’t communicate there is no learning on either side”.

Whilst these findings cannot be generalised to all practices, it does identify the potential importance of undergraduate preparation and education in building the capacity for collaborative multidisciplinary practice in primary care. Currently, some areas of rural Australia have reported programs to conduct interprofessional education and trials are underway in the UK to explore the effect of multidisciplinary undergraduate education on subsequent clinical practice. It will, however, be some time until the effects of such programs upon the implementation of collaborative, multidisciplinary practice can be evaluated.
5.9.2 Facilitators of Practice Nurse Role Expansion

The most commonly cited facilitators for role expansion were collaboration with the general practitioner (n=247, 87.6%), access to education and training (n=185, 65.6%), the opportunity to deliver primary health care (n=172, 61.0%), a high level of job satisfaction (n=158, 56.0%) and positive consumer feedback (n=154, 54.6%)(Figure 5-9). The following discussion of the facilitators to practice nurse role expansion incorporates data from both the postal survey and telephone interviews.

Figure 5-9 Facilitators to Extending the Practice Nurse Role

(a) Collaboration with the General Practitioner

Despite the attitudes of general practitioners being identified as a barrier to role expansion, the converse was also true, with collaboration seen by participants as a facilitator of the expanded role. Many participants described the process of achieving collaboration as being fraught with difficulty whilst they established a relationship of mutual professional trust and respect with their general practitioner colleagues. However, once a positive professional relationship the general practitioner was established, the general practitioner was often perceived as being a positive motivator and ally in developing the practice nurse role. One of the interview participants identified that “once confidence is built up [in the skills of the practice nurse] the general practitioner’s attitude changes”. Not all participants were able to achieve such positive outcomes or such positive professional relationships with all the general practitioners within their practice. In these cases, the participants reported that they worked more closely and spent more time interacting with those general practitioners by whom they felt valued and supported.

One interview participant summarised the situation, stating “we [practice nurses and general practitioners] don’t have to be in competition, we can complement each other
and that is the way our practice works. I’m very lucky that I have general practitioners who have the foresightedness to see that”. This notion of collaboration rather than pure substitution for the general practitioner was described by another participant who articulated that she wanted “to be a maxi-nurse not a mini-doctor”. Whilst the general practitioners were identified as being excellent at providing acute, episodic care, the practice nurse was identified by participants as being better able to teach and explain health and disease specific information to the client. This added a dimension of client management that was often previously not available.

(b) Access to Education and Training
The isolated nature of general practice nursing has long been recognised as a major barrier to adequate education and training\(^{(3)}\). However, 185 (65.6%) participants identified that the availability of education and training facilitated them in extending their role. This finding may appear somewhat ambiguous, given the difficulties identified in accessing ongoing education / training identified both by participants in this investigation and in other studies\(^{(3)}\). What was meant by this finding was that participants perceived that through further professional development, education and training they would be able to undertake a more proactive role in collaborative chronic disease management.

(c) The Opportunity to Deliver Primary Health Care
Through the telephone interviews, it became evident that primary health care had different meanings for individual participants. In general, participants identified that primary health care was the “frontline” management of patients who presented to general practice for both acute health issues and chronic illness management. The participants valued highly their specific contribution to the health and well being of these individuals. This theme emerged particularly from those participants working in smaller or rural communities where they had established close relationships with the practice population.

(d) A High Level of Job Satisfaction
Despite the identification of problematic workforce issues such as remuneration, interdisciplinary relationships and teamwork, many positive aspects of the practice nurse role were identified. These included flexible working hours, part-time
employment that considered individual family commitments, lack of shift work and
the development of close relationships with consumers over prolonged periods. One
interview participant, who had been a practice nurse for over thirty years and was
nearing retirement, captured the essence of the issue, stating that “I really enjoy the
job that I am doing and hate to think that one day I’m not going to do this
anymore!!”.

(e) Positive Consumer Feedback

Several Australian investigations have identified positive consumer perceptions of
the practice nurse role\(^{52-57}\). Data from the APACHE study identified that this
generally positive feedback was perceived by participants as a facilitator of their role.
Interview participants acknowledged that the personal gratification gained from
positive consumer feedback was a powerful motivator to provide high quality
nursing care. One interview participant remarked, “being appreciated…makes you
try harder and work more”. Participants also reported that consumers often
responded positively to the additional time spent with them by the practice nurse to
provide clinical care and health education. Additionally, it was noted that consumers
felt that, given the status of the general practitioner, the practice nurse was often
more approachable and accessible. The idea that the consumers were seeking an
expansion of general practice services or additional services from the practice nurse
was, to some extent, driving the development of the practice nurse role.

5.10 Perceptions of the Future

5.10.1 Level of Optimism

Participants were asked to rate on a five point Likert scale their level of optimism
concerning the development of the practice nurse role in Australia. As can be seen
from Figure 5-10, 247 (87%) participants responded with some optimism towards the
development of their role.

This is a significant finding when considered in terms of the demographics of the
sample. Patterson and McMurray\(^{58}\) reported that the readiness of practice nurses to
accept the move to autonomous nursing functions was strongly associated with
distinct generations of the nursing workforce and their established values and beliefs.
However, the participant cohort in this study represented a broad cross-section of the
Australian practice nurse workforce. If anything, there was a predominance towards the older, ‘hospital trained’ nurse. Yet despite these personal and professional demographics, a high level of optimism about future role development was reported. This finding, therefore, represents a positive attitude on the part of Australian practice nurses towards developing their specialty. Such an attitude and motivation are essential in providing capacity to develop and evaluate new models of care.

![Bar chart showing level of optimism for practice nurse role development](image)

**Figure 5-10** Level of Optimism for Practice Nurse Role Development

### 5.10.2 Most Important Issues Facing Practice Nurses

In an open-ended question, participants were asked what they considered the most pressing issues facing practice nurses in terms of being able to contribute to chronic illness management in general practice. From the analysis of the data, five themes emerged in terms of the issues identified. These were: (a) attitudes of general practitioners to the practice nurse role; (b) issues of time versus workload; (c) continuing education / training; (d) funding issues surrounding the practice nurse role; (e) the scope of available education / training.

**Attitudes of General Practitioners to Practice Nurse Role**

The issue surrounding general practitioners’ attitudes to the practice nurse role has been discussed previously. The following discourse relates this finding to the contemporary literature.

In their investigation of general practitioners’ concerns, Watts et al.\(^3\) identified that general practitioners regularly expressed concerns about medicolegal and indemnity issues, even more so than the practice nurse participants in their study. Confusion was identified concerning whether or not the practice nurse was covered under the general practitioners indemnity insurance or whether they were covered by their...
employment conditions\(^3\). Regardless, it was generally perceived that the general practitioner was ultimately legally responsible for the nurses’ actions. This perception led to an anxiety on the part of the general practitioners to delegate tasks and expand the role of the practice nurse appropriately within their clinical scope of practice\(^3\). Such perceptions on the part of the general practitioner may go some way to explaining the negative attitudes reported by the participants in this investigation.

Standhope\(^{10}\) describes a collaborative relationship as being one where mutual trust exists, where each practitioner has a basic understanding and acceptance of the other’s discipline and demonstrates mutual respect\(^{58, 59}\). Neither practitioner is seen as a substitute for the other, but rather a climate of willingness to negotiate exists\(^{10}\). Such a relationship is developmental and requires mutual exchange and dynamic interaction to incorporate a range of ideas\(^{58, 60}\). Multidisciplinary collaboration is most likely to be successful when all parties share a common goal of working together to achieve improvements in patient outcomes\(^{59, 60}\). Participants in this study have described various stages of this process. Standhope\(^{10}\) herself recognises that true collaborative practice is rare and, when communication does exists, it is rarely initiated by the doctor. Such a viewpoint was shared by many study participants. These participants commented that they had worked hard to develop a relationship with their general practitioner colleagues and were often required to take the proactive steps in communication. Williams\(^{61}\) describes this as an issue of power and control, where the powerful general practitioner is reluctant to surrender control to the less powerful nursing profession. Personal (e.g. confidence, understanding and acceptance) and environmental factors (e.g. organisational structures) are also noted to play a significant role\(^{58}\).

A shift to a totally collaborative teamwork model in Australian general practice would require not only an expansion of skills and education, but also a radical change in professional cultural attitudes, beliefs and values by both nurses and general practitioners\(^3, 62\). Some studies have demonstrated promising results in achieving multidisciplinary cooperation between general practitioners and nursing / allied health staff in achieving care planning and case conferencing\(^{59, 60}\). However, Patterson and McMurray\(^{58}\) identify collaborative practice in Australia as being the exception rather than the rule.
(b) *Issues of Time versus Workload*

Another commonly identified issue is “*time constraints and workload*” which many participants described as prohibiting role expansion. Participants described their current workload as being too hectic to permit the inclusion of additional nursing tasks. To increase workload numerous participants identified a need to extend current staff hours or employ additional nurses. Whilst some nurses were happy with their current hours of work, others found it difficult to convincingly demonstrate the financial advantages of extended nursing employment. This was inextricably linked with the current difficulties in funding practice nurse positions, particularly relating to chronic illness service items and the cost of continuing education/training.

Some participants identified that what was required was the time to set up specific chronic disease clinics. As many practices seemed to not be currently undertaking such clinics, many participants identified that the initial set-up of such work practices would take some time to design and implement effectively. One participant described an attempt at her practice where a pharmaceutical nurse came to provide academic detailing to run an asthma clinic. “*I was supposed to be learning, but was constantly called to treatment room*”. Such a scenario was typical of several experiences articulated by participants. It is evident, therefore, that in the early phases of practice change, commitment is required from all practice staff to facilitate sufficient time for administration and education to establish effective work practices.

The part-time nature of many practice nurses employment was also identified as a difficulty in facilitating the time to regularly conduct follow-up on patients with chronic disease. For example, the nurse might only be at work a few days each week during office hours and these limited consultation times might not suit the patient to attend the practice.

Various models of organising practice nurse workload have been explored within the setting of general practice. The results of these initiatives have been reported at the annual RCNA practice nurse conferences, however, few well-designed trials have been published in the peer reviewed literature\(^{(11, 63)}\). Therefore, this is an area clearly requiring further research to demonstrate the most effective models of workload management.
(c) **Continuing Education / Training**

Costs of education / training not only refer to the financial commitment required to undertake post basic courses but also to the expenditure in terms of the participants’ time and the amount of travel involved, particularly for those in rural or remote areas, to attend courses. This was identified as an issue for both nurses who were moving into general practice from the acute care sector and those employed within general practice. Although some preregistration tertiary nursing programs are starting to introduce clinical practice into general practice, many nurses have not had exposure to this specialty area. For nurses wanting to move into practice nursing there were few opportunities identified for formal orientation and training, other than on-the-job experience. The difficulty with this was that in many practices there was a paucity of skilled practice nurses to act as professional mentors.

A major issue for those participants who were experienced practice nurses was “funding for training,… until last week there was no Medicare funding and general practitioners are reluctant to pay for both training and for days not worked”. Such a statement clearly identifies the two distinct issues of cost of courses and the availability of study leave provisions to allow practice nurses time to attend education sessions. In terms of financial issues relating to education, participants identified that there is a “reluctance of general practitioners to outlay money for training and new skills”. Many participants indicated that they currently paid for courses themselves and attended in their own time. Despite this, the survey questions relating to the provision of study leave identified that a significant number of participants were receiving paid study leave equivalent to their acute care colleagues. Perhaps, the significant part of this issue is that whilst additional nursing staff will replace acute care nurses during periods of study leave, practice nurses are rarely replaced and thus have a greater workload on their return to ‘catch-up’.

Some participants considered that it may be the government or health system, through the Divisions of General Practice rather than individual general practitioners who is responsible for enhancing commitments to practice nurse education funds. Few nurses articulated that continuing professional development was part of being a professional and, therefore, to some extent their own individual responsibility to maintain. Similarly, Patterson\(^4\) identified a tension between practice nurses and
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general practitioners in terms of who was responsible for continuing professional development.

Time was an issue not only in terms of the availability of study leave, but also relating to travel required attending courses. Many rural and remote practice nurses identified that many courses were conducted in major cities or large regional centres. In addition to the time off work required to facilitate attendance, the distances involved required time away from their family and interfered with personal and family commitments. The professional isolation of nurses working in general practice was also identified as a factor potentially impeding regular educational opportunities. Many interview participants identified that education undertaken at a Divisional level was well suited to their individual needs and, largely, accessible in terms of time commitments and costs. Interestingly, few participants spoke of any involvement in distance education or innovative methods of education such as video conferencing of education sessions or internet based learning. It is unclear whether these methods of delivery offer a potential solution to the identified problems of cost and travel expenses. Further research into novel methods of delivering education to meet the distinctive needs of the practice nurse workforce is clearly warranted.

Another facet of this issue was the availability of appropriate courses. Practice nurses who were interviewed identified that there are a range of short courses run by various nursing and specialist organisations. However, this model of stand alone courses leads to a certain fragmentation of education. This was described as giving the practice nurse the feeling of being a “jack of all trades and master of none”. Conversely, the thought of enrolling in a formal tertiary course was viewed with trepidation by some who did not want to commit to a long course or who were nervous of their ability to complete tertiary studies. Despite this trepidation, there was some interest demonstrated by study participants to undertake tertiary courses in a supportive learning environment. Some participants talked of how undertaking tertiary study could enhance their relationship with the general practitioner by equipping them with enhanced knowledge, increased vocabulary and ability to articulate ideas, in addition to a greater understanding of chronic disease management interventions. However, this finding may be skewed by the fact that participating nurses are likely more motivated than their peers who did not respond to the invitation to participate in this investigation.
These findings are supported by those reported by Watts et al.\textsuperscript{(3)}, which identified variations in the accessibility of practice nurse education in relation to cost and delivery mode. Practice nurses in the UK also report similar issues, relating to control over access to education by general practitioners, the need for practice nurses to pay for their own courses and difficulties in obtaining leave for study\textsuperscript{(16)}.

\textbf{(d) Funding Issues}

The funding of Australian practice nurses and general practice has been recognised as an integral issue to the development of the practice nurse role\textsuperscript{(13)}. Issues identified by participants relating to the funding of practice nurses were three-fold. Firstly, although the new Medicare item numbers were identified as being a positive step towards recognizing the valuable contribution of the practice nurse, the overall funding of general practice was seen as inherently problematic. Secondly, participants were often required to demonstrate the financial benefits of their work to the practice income in order to justify time spent on the activity. Finally, the issue of wage parity with acute care nurses was identified as being a barrier to recruitment and retention of experienced nurses in general practice.

The difficulties inherent in the current Medicare structure were clearly articulated. "If I see patients on my own they can only be billed for certain services. The general practitioner sees this as loss of income so he sees the patient himself". Whilst practice nurses are more than capable of substituting for the general practitioner in a range of tasks, including vital signs measurement, venepuncture and patient education, such substitution currently fails to attract a Medicare rebate. There is, therefore, limited incentive for the general practitioner to delegate such tasks to the practice nurse as this would effectively reduce his income whilst increasing practice costs by utilizing the nurses’ time. The option of increasing charges to the patient for the nurses’ time was largely rejected as it was clear that a large group of patients requiring such consultations are elderly or from poor socioeconomic backgrounds and would not be able to afford such additional payments. Investigations of consumer perceptions have also identified that consumers are not willing to pay additional fees for nursing services\textsuperscript{(53)}.

Most general practitioners aim to provide high quality care to their patients. However, at the same time, they are operating a business with the aim of providing a
source of personal income. To ensure the viability of the business, tasks that bring income for the practice are likely to be prioritised over tasks that do not attract income. Therefore, this complex dilemma is driven by government funding available for the provision of nursing services in general practice. The development of business cases, as has occurred subsequent to the conduct of this investigation, may assist in identifying ways in which the nursing role can be used to optimise financial benefit for the practice\textsuperscript{(64)}.

The final funding consideration was remuneration of the practice nurse. One practice nurse clearly articulated that "there needs to be wage parity for practice nurses in order to attract more skilled clinicians". Although not a factor specifically investigated in this study, many participants identified the remuneration of practice nurses as being an important issue. They identified that currently there is a "lack of financial incentive for nurses", particularly to take on additional responsibilities such as chronic disease management. It was clearly recognised that they sought wages that were tied to levels of responsibility within the workplace. The failure to pay a wage that they felt acknowledged the clinical skills and competencies utilised in their practice was disheartening and counterproductive.

In addition to the financial remuneration, some nurses identified a lack of sick leave and holiday pay due to being employed as ‘permanent’ casual workers as being significant disincentives to undertake a more proactive role in the workplace. Perhaps the major issue here is the lack of a regulated industrial Award structure for Australian nurses employed in general practice settings.

(e) The Scope of Available Education / Training

“Although practice nurses are good generalists, chronic disease management would require in-depth specialist knowledge”\textsuperscript{.} Many participants identified that there is a paucity of “up-to-date education on particular chronic illnesses” and “practical education to support patient self-management”. One participant identified that general practitioners have ready access to the latest information on chronic disease management from sources such as pharmaceutical companies, whereas practice nurses often do not have such established industry links to facilitate information distribution. During the telephone interviews several participants spoke of the widespread availability of what they termed as ‘basic’ or ‘core’ practice nurse
education topics, such as wound care and immunisation. They identified, however, that more advanced practice courses were offered less frequently and were often more difficult to access. Survey participants highlighted the difficulties in developing appropriate courses for chronic disease management due to the confounding nature of general practitioner attitudes and expectations and the variable entry level competencies and skills of practice nurses.

A small number of participants identified additional issues relating to continuing education regarding chronic illness management such as the availability of resources including guidelines and protocols in the clinical area, skills in information technology such as computer literacy and recall systems and evidence-based methods of establishing and managing chronic disease clinics.

In their evaluation of practice nursing education, Watts et al.\(^{(3)}\), identified the problematic nature of the current ad hoc continuing professional education for practice nurses and the lack of a recognised educational pathway and career progression. They identified the necessity for the development of national practice nursing competencies and accredited education programs to provide a level of consistency to address this issue. In particular, accredited training programs that comprise of modular education packages that are locally accessible appear to be favoured by many nurses. This finding reflected the comments of the APACHE study participants who reported that Divisional level education was often the most accessible and relevant to their clinical practice.

### 5.11 Methodological Limitations of the APACHE Study

The major limitation of the APACHE study was the snowball sampling method used to recruit survey participants. Although necessary due to the difficulties in accessing the practice nurse population, this method did not allow the response rate to be calculated. The isolation of practice nurses may also mean that those nurses who were captured by the survey were those with the strongest links to Divisions of General Practice or professional organisations. This may contribute, therefore, to a response bias. However, the use of multiple methods to contact potential participants represented the optimal recruitment strategy given the population under investigation.
A further limitation was that data were collected from only the perspective of the practice nurse rather than the general practitioner or consumer. The main priority for this study was to capture a national perspective of practice nursing to inform subsequent phases of the Project. This was chosen as the main priority since several small investigations had been previously undertaken\(^{(4-6, 65-72)}\), as had investigations specifically focussed on consumer perceptions\(^{(52-57)}\). Given this priority, it was not possible, within the limited resources available, to capture multiple perspectives.

### 5.12 Conclusion

This Chapter has presented the findings of the postal survey and telephone interviews that comprised the APACHE study. It has provided a descriptive, exploratory perspective of the current role of the practice nurse and the barriers and facilitators to expansion of this role into chronic disease management. This investigation has identified that participants are willing, with appropriate support and resources, to expand their current roles to encompass management of chronic disease. However, well-designed clinical trials are necessary to establish the efficacy of such interventions on clinical outcomes. To do this, key barriers must be addressed to facilitate effective development of the practice nurse role in the Australian health care system.

### 5.13 Reference List


CHAPTER FIVE

APACHE STUDY RESULTS


CHAPTER FIVE

APACHE STUDY RESULTS


Chapter 6.

Developing a Strategic Direction: A Consensus Development Conference
6.1 **Introduction**

This Chapter describes the method of consensus development that was used to identify recommendations for action to promote the nursing role within Australian general practice with a focus on chronic care. The Chapter provides a description of, and a rationale for, the method of consensus generation used and describes the systematic process used for this arm of the ‘Carving a Niche for Australian Practice Nurses’ Project. Considerations related to the rigour of the approach are discussed and the methods used to synthesise data are described. Finally, based on the information derived through the consensus process, recommendations for action and key components of a sustainable model of care for the practice nurse in HF management are proposed.

6.2 **Aims**

This final investigation of the ‘Carving a Niche for Australian Practice Nurses’ Project sought to integrate existing knowledge from expert opinion and the published literature together with the results of the APACHE and WESTCASE investigations described in Chapter 2 and Chapter 5. The purpose of this investigation was to facilitate dialogue between clinicians, key stakeholders and policy makers in order to develop a consensus statement to inform the strategic development of the practice nurse role. Specifically, this consensus development conference aimed to:

(a) explore the experiences of clinical and academic experts in the current general practice management of HF;

(b) clarify and scope the potential role of the practice nurse in HF management through the identification of potential elements for novel models of care;

(c) identify priority issues in addressing the barriers to the practice nurse role in HF management.

6.3 **Consensus Methods**

Consensus methods have been used in health research for the past thirty-years, although it has only been since the 1950s that formal consensus methods have been regularly employed in research and development\(^1\, 2\). Formal consensus methods
imply that the steps of the consensus process are made explicit and that there is the potential to replicate the investigation\textsuperscript{(1)}. Several methods can be used to achieve formal consensus. These include the nominal group technique, Delphi technique, RAND appropriateness method, and the consensus development conference\textsuperscript{(1, 3)}. The choice of method is generally determined by the research question and the desired mode of participant interaction. For example, nominal group techniques are used to initially generate and then prioritise ideas\textsuperscript{(3)}. The Delphi technique involves two or more postal rounds of questionnaires to prioritise predetermined categories\textsuperscript{(4)}, consensus development conferences involve face-to-face discussion and debate between stakeholders\textsuperscript{(4)} while the RAND appropriateness method uses expert panellists to rate predetermined statements derived from the available evidence\textsuperscript{(3)}.

Consensus methods are “a process for making policy decisions, not a scientific method for creating new knowledge”\textsuperscript{(p. 237)}\textsuperscript{(1)}. In general, consensus methods aim to enhance decision making, develop review criteria, synthesise professional norms / expert opinion, or provide some means of measurement where there is incomplete evidence, uncertainty or controversy\textsuperscript{(3)}. Despite the broad scope of these aims, the majority of the contemporary literature describing the implementation of consensus methods refers either to clinical guideline development\textsuperscript{(1, 2, 5)} or identification of research priorities within speciality groups\textsuperscript{(6-8)}. However, to meet the aims of this investigation, consensus methods were deemed most appropriate.

To date the published literature provides limited discussion regarding the underpinnings of the consensus development conference method, the advantages and limitations of such a design and issues related to validity and reliability\textsuperscript{(1, 2)}. However, given the aims of the study, the consensus development conference was identified as being the most appropriate consensus method as it facilitated debate regarding the state of the science and synthesis of ideas from a range of stakeholders. A key advantage of this method is that it fosters dialogue, debate and discussion between participants. Although postal techniques, such as those commonly used in the Delphi technique, have been reported to be cheaper and quicker\textsuperscript{(3)}, initial face-to-face discussion was deemed necessary for this investigation due to the need for interactive debate between participants on a range of important issues.
6.4 Research Design

A consensus development conference uses a panel of experts in a formal method of consensus development\(^9\). Conference participants come together in an open meeting to hear evidence from various stakeholder groups or experts in the field\(^1\). Following the hearing of the evidence, participants consider the key questions and seek to reach consensus and produce a consensus statement\(^1\), \(^4\). Formal methods of consensus development facilitate a means of group decision making, whereby all participants are equally influential on the outcome\(^6\).

In their review of the literature, Black et al.\(^1\) identify five key elements of consensus methods that may affect the research output. These elements are:

- the approach to the given task: cues, focus, comprehensiveness of scenarios
- participant selection: choice of participants, homogeneity of group, group size
- presentation of scientific data: format, analysis undertaken by presenter
- structure of the interaction: physical environment, number of rounds, equitable participation
- method of synthesising data: definition of consensus, methods of dealing with outliers, methods of aggregation\(^1\).

Each of these elements will be discussed and related specifically to this investigation.

6.4.1 The Approach to the Task

The way in which the task is structured and presented to participants may influence the output\(^1\). Given the aim of identifying strategic policy directions, it was recognised that it was important to allow some scope for removing contextual issues, such as the reality of limited resources and funding constraints, to ensure that optimal future directions were explored. Whilst the use of such a contrived scenario may not be valuable in consensus methods that involve guideline development or choices of treatment course, it was deemed useful given the purpose of this investigation.
6.4.2 Participant Selection

The validity, credibility, reliability and acceptability of consensus findings is partially dependant upon the composition of the group\(^{(3)}\). Any consensus output must be considered in relation to the cohort of participants involved in the consensus development process\(^{(1)}\). Whilst variations in group membership can yield different ratings for the same issues\(^{(3, 10)}\), there are no clear guidelines to assist in the optimal composition of consensus groups\(^{(10)}\). Campbell and Cantrill\(^{(3)}\) advocate that conference participants should reflect the stakeholder group which it is intended to represent. Experts need to include both those who are responsible for developing the guidelines, such as researchers and policymakers, and those clinicians who will apply them in practice\(^{(10)}\). Participants should be both experts in the field and have significant credibility with the target audience\(^{(1, 2)}\). For this investigation, participants were purposively selected on the basis of their representativeness of relevant professions and key stakeholder groups, their power to implement the findings and/or because they were recognised experts in the fields of general practice, HF management or primary health care. Additionally, all participants had demonstrated enthusiasm and interest in the topic area within their professional roles. Care was taken to include participants outside the primary researcher and supervisors’ immediate circle of colleagues to capture a diversity of experience and opinion. Due to the multifaceted nature of the issues and the broad scope of the problems under investigation, it was considered essential in this investigation to include a range of clinical disciplines, researchers and policy makers. It was considered that the heterogeneity of the participants in this type of consensus group would lead to improved decision making over a more homogenous group\(^{(1)}\). Black et al.\(^{(1)}\) suggest that whilst a homogeneous group is useful when exploring common ground and when maximising agreement is required, a heterogeneous group is more useful when investigating areas of uncertainty. A list of conference participants and their affiliations is provided in Appendix J.

Although there is limited evidence to demonstrate the effect of individual participants’ values, preferences and beliefs on the group decision making process\(^{(1)}\), it is clear that some personal characteristics have the potential to influence group decision making. For example, participants with higher status, those who are more vocal or articulate in expressing their point of view and those who demonstrate
strong opinions are most likely to influence the group process\(^{(11)}\). In an attempt to control for the effect of these personal characteristics on the group process and to involve all participants in the debate, an experienced facilitator moderated the face-to-face dialogue. During the face-to-face discussion the facilitator assisted in the clarification of opinions, exploration of issues and decision making within the group.

The optimal sample size for consensus methods is unclear from the published literature. Whilst the reliability of decision making may increase with the number of participants, large groups may present difficulties in terms of facilitating the interaction\(^{(1)}\). In many cases, it is reported that sample size is constrained largely by the available resources\(^{(2)}\). However, reliability has been reported to rapidly decline in groups smaller than six participants\(^{(1)}\) and several authors identify that, for face-to-face meetings, the sample size should not exceed twelve participants\(^{(1, 3)}\). In addition to the principles of group composition, the number of stakeholder groups requiring representation influenced the sample size in this investigation.

### 6.4.3 Presentation of Scientific Data

The presentation of scientific data to the expert panel is important in consensus development methods to reduce the reliance on purely personal experiences. This reinforces the systematic and evidence-based derivation of consensus\(^{(1)}\). In this investigation, the broad scope of the problem and the diverse backgrounds of participants made it essential to present current research to ensure that all participants had an overarching background understanding of the problem under investigation. For example, although some participants were experts in HF or chronic disease management they had limited experience in general practice. Conversely, some participants who were experienced in general practice had limited experience in broader chronic disease or HF management initiatives.

Black et al.\(^{(1)}\) suggest that providing a common foundation for all participants will likely promote cohesion within the group. In this consensus process, presentations focussed on contemporary HF management, the development of the practice nurse role and the findings of the earlier phases of the ‘Carving a Niche for Australian Practice Nurses’ Project (Chapter 2 and Chapter 5). Key experts in the respective fields were selected to make these presentations to facilitate dialogue and debate.
within the group. Presenters were asked to concisely synthesise the evidence and extract pertinent information during their presentations\(^{1}\). Additionally, prior to the conference, participants were provided with pre-reading from the contemporary local literature\(^{12-14}\) to further expand their appreciation of the current state of the science and prompt them to identify and reflect on what they perceived to be the key issues.

### 6.4.4 Structure of the Interaction

The structure and process of the consensus method to be used in this investigation was determined before data collection was commenced. When invited to participate, potential participants were provided with a detailed description of the intended consensus process and the format of proposed interactions. The nature of this consensus development conference was constrained by the geographical diversity and hectic work schedules of participants, and the limited fiscal resources of the Project. Therefore, whilst participants came together for an initial face-to-face discussion and presentation of evidence, subsequent document review was undertaken via electronic mail.

Black et al.\(^{1}\) maintain that between two and three rating rounds is optimal for producing reliable consensus. In excess of three rounds is likely to have limited effect on the level of consensus and may lead to diminished response rates\(^{1}\). With this knowledge, the researcher decided that the consensus document would be circulated to participants on two occasions following the conference. The first occasion was an initial draft document, with the second being after initial changes were made and prior to the document being submitted for publication. For each round, participants were given a three-week period during which to provide feedback. A reminder was sent to all participants at intervals of two and three weeks to optimise response rates.

### 6.4.5 Synthesis of Data

Unlike the explicit statistical techniques used in other consensus methods for aggregating participants’ judgments, the consensus development conference uses implicit methods of data collection such as majority voting\(^{4}\) and the derivation of conclusions through a reflexive and iterative process. The rationale for this variation is predominately due to the differences in research questions between the various
methods. A problem inherent in any consensus method is the assumption that consensus on the particular topic can be reached\(^3\). Since the purpose of this investigation was largely to synthesise accumulated expert opinion with the available research evidence and guide policy development, it was difficult to define what constituted consensus\(^3\). Before commencing the consensus process it was decided by the researcher that consensus would be defined as agreement in the veracity of the statement by a majority of participants. If there was significant dissent by any participant, the issue would be raised with all participants to seek resolution.

During the conference, field notes were taken by members of the research team. These notes captured the range of opinions expressed at the conference and took note of group decisions and agreement on specific issues. These field notes served to prompt the researcher during the drafting of the consensus statement. Review of the draft document by participants ensured that the final document reflected the majority opinion of the group. Where clarification on a particular issue was required, participants were asked to provide input about the potential changes required.

### 6.5 Validity, Reliability and Rigour

As a consequence of the inability to identify the validity of a particular judgment at the time that it is made, consensus methods can only be evaluated in a fairly limited manner\(^1\). There has been minimal analysis reported in the literature of the criteria for assessing validity, reliability and rigour in consensus methods\(^3\). However, Hasson et al.\(^{15}\) suggest that the four key criteria of credibility, applicability, auditability and confirmability, which are commonly associated with qualitative research, should be applied to consensus methods. These criteria have been adopted in evaluating this investigation and are discussed below.

#### 6.5.1 Credibility

Credibility is parallel to the concept of internal validity\(^{16}\) and refers to the researchers’ confidence in the truthfulness of the data\(^{17}\). Lincoln and Guba\(^{18}\) identify several techniques to enhance credibility that have relevance in consensus methods. The first of these are prolonged engagement and persistent observation\(^{17,18}\). Over the course of the ‘Carving a Niche for Australian Practice Nurses’ Project, the researcher became immersed in the literature, culture, policy development and
clinical setting of Australian general practice nursing. Additionally, a study tour and conference attendance during the candidature facilitated investigation of contemporary practice in the UK. Such immersion in the field is likely to increase the potential for credible data and interpretations and appreciation of a range of opinions\(^\text{(17)}\).

Credibility was also enhanced through the use of mixed methods throughout the ‘Carving a Niche for Australian Practice Nurses’ Project. In this investigation, conference participants were presented with a combination of both qualitative and quantitative data to inform their debate. The use of a combination of methods has the potential to offer a richness of detail and a more comprehensive appreciation of the phenomenon in addition to strengthening study reliability, especially when there are multiple perspectives to consider\(^\text{(19, 20)}\).

Other methods of establishing credibility involve external verifications of the data. Peer debriefing entails presenting data analysis, results and conclusions to peers, colleagues and supervisors to ensure that the necessary level of rigour has been maintained throughout the process\(^\text{(21)}\). Peer debriefing was undertaken at regular intervals during this investigation and formal presentation of the consensus statement was made to peers on two occasions prior to formal publication\(^\text{(22, 23)}\). Thus peer feedback was an integral component of the research process. The completed consensus statement has also been submitted for publication in a peer reviewed journal.

Member checking involves the informants examining the research findings to ensure that their experiences have not been misrepresented or misinterpreted by the researcher\(^\text{(24)}\). This was achieved as the participants commented upon the draft and agreed on the final iteration of the consensus document.

### 6.5.2 Applicability

Applicability refers to the potential transferability of the study findings from the sample to the general population\(^\text{(24)}\). Care was taken in this investigation to ensure representation of a wide range of the diverse stakeholder groups. In addition to including policy makers, academics and researchers, multidisciplinary clinicians were involved in the consensus development process. The rationale for this diverse
representation was to ensure that the consensus statement reflected the collective wisdom and professional experience of participants\(^{(1)}\) and would, therefore, be transferable to the wider general practice community.

### 6.5.3 Auditability (Dependability)

Auditability reflects the concept that the world is constantly changing and so peoples’ realities are in a constant state of flux\(^{(25)}\). The dependability of data relates to its stability over time and conditions\(^{(24)}\). This Chapter provides an audit trail to allow the reader to evaluate the researchers’ decision making regarding the research methods, the processes of data collection and analysis, and subsequent conclusions.

### 6.5.4 Confirmability

The notion of confirmability infers that data can be linked to its sources so that the reader is able to observe that the conclusions and interpretations arose directly from the data\(^{(21)}\). It is “the extent to which conclusions are real as opposed to being figments of the imagination”\(^{(16)}\)(p. 588). Confirmability has been demonstrated by continued reflection by the researcher on the field notes from the consensus conference during the processes of writing and re-writing the consensus statement and recommendations. Additionally, the audit trail provided within this Chapter allows the reader to evaluate the impact of the researchers’ personal biases, assumptions and values which may impact upon their interpretation of the data\(^{(24)}\).

### 6.6 Results

#### 6.6.1 Conference Process

The consensus development conference was held on 26\(^{th}\) October 2004 at the UWS Parramatta Campus. Prior to the debate, the following presentations were made: State and National Initiatives in HF Management\(^{(26)}\) - Associate Professor Patricia Davidson; APACHE Survey Data\(^{(27, 28)}\) & Preliminary WESTCASE Audit Data\(^{(29)}\) - Ms Elizabeth Halcomb; Reflections on the Evolution of the Practice Nurse\(^{(12)}\) - Dr Elizabeth Patterson. The subsequent discussion was facilitated by Associate Professor Patricia Davidson to allow the researcher to more closely observe participant interactions and the content of the debate.
Inevitably, not all individuals invited to take part in a consensus process will agree to be involved or complete the process\(^3\). Sixteen individuals were invited to participate in the conference. Three individuals were unable to attend due to previous commitments. In recognition of the importance of the contribution of these individuals to the consensus process, each was provided with the pre-reading materials and copies of the presentation slides. They were also given the opportunity to provide comment on the draft and final consensus documents.

### 6.6.2 Consensus Statement

The following discourse summarises the consensus conference and identifies key recommendations and strategic directions for future practice nurse role development.

#### (a) The Practice Nurse Role in Chronic Disease Management

The practice nurse offers significant potential for improving the management of chronic conditions, such as HF, in general practice. However, it was recognised that establishing a generic chronic disease management role for practice nurses may be more effective and achievable in the short term rather than focussing on the specialist management of discrete conditions. This was also perceived to better align with the primary care philosophy of general practice, as well as the low prevalence of HF in individual general practices which would prohibit a disease specific focus. For example, rather than specifically focussing on HF management, an alternative approach would be to encompass the primary prevention and management of the more broadly defined chronic CVD, including disease processes such as hypertension, early asymptomatic CVD, myocardial infarction and atherosclerosis, as well as HF.

Chronic disease management, in the broader sense, has many common elements in terms of the role that the generalist practice nurse can perform. Examples of these tasks include initiating and maintaining regular patient contact, providing education and psychosocial support, and organising referrals to specialist medical or allied health services. Such tasks clearly follow the collaborative models advocated by Sibbald\(^{30}\) and Hastings\(^{31}\) that describe the use of delegation, substitution and enhancement between clinicians in general practice (Figure 3-3, p. 121).
Evidence-based clinical guidelines can assist practice nurses in providing care to patients with chronic disease processes with specialist support. Expert support could potentially be provided by a combination of specialist practice nurses and local acute care specialist nurses. There was recognition that formal lines of communication and regular liaison between acute care nurse specialists, community nursing services and general practice-based services might assist in promoting collaborative practice, continuity of care between settings and providing sustainable models of care delivery.

Wagner\cite{32-35} has identified that “successful chronic disease interventions usually involve a coordinated multidisciplinary care team”\cite{32}. What is important, however, is that roles are clearly identified and explicitly delegated and that team members are specifically educated for their roles\cite{32}. Current funding models and consumer habits of accessing care apply pressure to general practitioners to provide opportunistic and crisis oriented patient care. These constraints render limited time for consideration of the utility of alternative models or systems of care. As many successful, innovative models of chronic care have been driven by nurses, practice nurses likely have an important initial role in developing systems and processes that seek to improve clinical practice and streamline care delivery\cite{36-38}. The practice nurse is ideally situated for this role as they often have an ability to identify the systems and processes behind the delivery of care and identify the potential for streamlining the delivery of general practice services. Collaborative practice and delegation of tasks to appropriate members of the general practice team, potentially offers significant benefits in productivity and quality of care delivered\cite{39}.

General practitioners have a desire to provide high quality clinical care to their patients. Significant barriers such as high workload and limited resources can impair their capacity to undertake prevention and screening activities. The availability of incentives, rewards, systems and processes for providing services in relation to diabetes and asthma care likely contribute to the greater application of evidence-based management in these groups\cite{27, 40}. The availability of these incentives for other national health priority areas, such as CVD, may improve service delivery and implementation of evidence-based practice as part of usual care.
In some areas of practice, it has been recognised that the practice nurse may be better suited or more systematic in the delivery of primary care than a general practitioner working in isolation\(^{(41)}\). Participants identified that some practice nurses are currently being utilised to provide recall and reminder services for regular health issues such as immunisation, asthma assessments and cholesterol management. It was identified that such systematic follow-up is problematic due to resource constraints in a purely medical model of general practice. Whilst general practitioners are used to sharing services such as drug and alcohol, antenatal, diabetes and mental health services with nurse-led or at least multidisciplinary clinical teams, it is likely that a cultural change will be required to establish such teams in relation to the diverse range of chronic diseases requiring management\(^{(42)}\). Conference participants expressed the belief that the time is right to explore potential changes in the configuration of primary care delivery in Australia, in order to promote interdisciplinary collaborative care and optimise the implementation of best practice principles. It was considered that during this crucial phase in practice nurse role development, there would be a need to expand the range of nursing services, providing an opportunity to increase the quality of care for the consumer and reduce the workload of the general practitioner. Finally, conference participants identified a need to strengthen the vision of developing general practice to set strategic goals regarding service delivery, whilst increasing the collaboration and team building rather than on individual roles and professional differences.

(b) State of the Science: The Australian Practice Nurse Role

From the review of the existing knowledge and literature of the Australian practice nurse role, participants recognised that there is sufficient knowledge of practice nurse demographics, current role, barriers and facilitators to role development\(^{(12, 13, 27, 40, 43-50)}\). Additionally, investigations of consumer perspectives have identified the practice nurse as being acceptable within general practice\(^{(14, 51-54)}\). There is a need now to move forward and evaluate specific models of care, particularly focussing on outcomes measures such as cost-effectiveness, feasibility, acceptability to consumers and clinicians, and clinical outcomes. However, it is also important to incorporate outcome measures sensitive to nursing and multidisciplinary care as distinct from general practitioner interventions. To date, much of the evidence regarding clinical outcomes has been generalised directly from acute care to the primary health care
setting. It is essential that high quality data be sought to measure the effectiveness of practice nurses as part of a collaborative general practice team\(^{(39)}\). In particular, intervention studies are required to evaluate the efficacy of collaborative, multidisciplinary models of care. Such research will provide evidence to support policy development and promote change management in the primary care sector.

At the same time as the strategic and political importance of this type of research was clearly identified, it was also recognized that there were inherent challenges to conducting general practice research in Australia. These challenges include resource constraints, access to general practice and methodological issues related to sampling and complexity of study design. Participants identified a need for a standardised minimum dataset to facilitate comparison between general practices. Although Australian general practice data does exist\(^{(55-59)}\), these data currently are derived through statistical modelling from information obtained via a limited sample of general practitioners\(^{(57)}\). Despite the benefits of such data in providing evidence for policy development, resource allocation and further investigation of general practice, more comprehensive data are required to demonstrate the relative effectiveness of different models of care on a range of outcome measures, such as medication compliance and risk factor modification.

**(c) Funding Models and Incentives**

Participants highlighted the difficulties inherent in current funding models and their effect on the role of the practice nurse. It was identified that there would be no simple solution to the funding dilemma due to the complexity and multifaceted nature of this issue, in addition to the range of stakeholders involved at all levels. Therefore, it was acknowledged that working within the current funding model could offer the greatest gains for clinicians, in the short to medium term. To this end, it was acknowledged that models of care which allow practices to claim currently available rebates for service provision need to be established. This would require practices to be savvy regarding optimal business practices and ways to adapt service delivery to meet funding eligibility criteria. In the longer term, efforts need to be made to develop an enhanced interface between State / Territory and Commonwealth funding and policy initiatives, particularly in relation to chronic and complex conditions across the health sector.
Conference participants recognised the debate regarding the availability of practice nurse item numbers for wound care and immunisation services. Participants were not certain that widespread implementation of specific item numbers for practice nurse services was necessarily the optimal long-term solution to the funding dilemma. It was concluded that detailed discussions and planning between policy makers, politicians, consumers and multidisciplinary clinicians would be required to optimise any changes to the current funding structure. Additionally, research evidence would be required to demonstrate the benefits and support widespread implementation of practice nurse interventions in areas such as chronic disease management.

(d) The Ideal World

To explore health system and policy issues, participants were asked to consider how they would see a practice nurse operating in the chronic disease management role in the ‘ideal world’. From this discourse it was identified that in the ideal world of Australian general practice there would be:

- Allocation of practice nurses by practice size or patient population to ensure equity of service access.
- Aboriginal health care workers made available to practices with high Aboriginal populations. Care would need to be taken to include Aboriginal health workers and Aboriginal practice nurses in the planning of collaborative models within primary care in all areas.
- Specialist, tertiary qualified nurses at the Divisional level or within the acute care system to act as consultants for generalist practice nurses within individual local practices. These specialist practice nurses would function in a similar role to the acute care clinical nurse consultant, providing specialist management advice, assessment and systems development to the generalist practice nurses working in local general practices.
- An established career pathway for practice nurses to encourage recruitment of nurses seeking professional development and career progression. This would require a significant cultural change for the nursing profession, where general practice nursing is no longer perceived as being a ‘soft’, ‘early retirement’ option but rather a challenging clinical specialty. Such a change in professional
structure is similar to the culture shift that took place for general practitioners with the advent of the general practitioner training program and the changes to provider number legislation in 2004\(^{(60)}\).

- Placement of newly qualified nurses in academic training practices, in a mentorship-type system like the existing New Graduate Programs in acute hospitals or General Practitioner training schemes. This might include rotations to other community and acute nursing services to develop a broad range of nursing skills and experience. Careful planning and clear lines of supervision and mentorship by experienced practice nurses would be required to avoid loss of professional identity and to facilitate professional development opportunities.

- Identification of priority areas for general practice to develop a primary care focus, for example, influenza immunisation in HF.

- Specific, dedicated workspace allocated for the practice nurse to provide direct clinical care in privacy.

- Collaborative, interprofessional education for practice nurses and general practitioners to assist in developing collaborative practice and enhancing appreciation of others’ professional roles. Such interprofessional education would involve the practice nurses and general practitioners learning with, from and about one another\(^{(61)}\).

- Truly collaborative practice models where substitution, delegation and enhancement principles ensure that tasks are allocated appropriately between clinicians to maximise human resources effectiveness within the practice.

(e) *Desirable Attributes for the Practice Nurse*

In addition to consideration of system-based issues, it was considered necessary to identify the key skills and attributes for nurses to work in general practice. To promote collaborative practice with their general practitioner colleagues, the following characteristics were identified as being important for the practice nurse:

- Ability to work within a framework of individual general practitioner and practice priorities. Individual doctors within a practice often have variable
styles of clinical practice that can cause role confusion if communication is not optimal between doctor and nurse.

- Interpersonal skills combined with understanding and time to listen to both general practitioners and consumers regarding issues and concerns and the ability to reconcile these competing needs.

- Computer skills to facilitate effective record keeping, optimal data management, searching for available resources and maximising time management.

- Knowledge of system issues relating to Australian general practice and the funding arrangements used to support service delivery.

- Specific chronic disease management education and training, as many practice nurses are not currently well prepared due to the hospital-based nature of their pre-registration training.

- Increased education relating to the pathophysiology and pharmacology in chronic disease to provide an evidence-base for interventions and application of evidence-based best practice.

- Awareness of quality activities to facilitate monitoring of endpoints such as follow-up, occasions of service and clinical outcomes.

- Education and training in behavioural change principles, psychosocial issues, counselling techniques and health education delivery to maximise patient self-management strategies.

(f) Potential Models of Chronic Disease Management

In spite of the conceptual allure of a generic model of care, it was recognised that the diverse needs of the local community, variations in resource access due to geographical variations and distinctive styles of clinical practice infer that most likely no single model of care would be optimal in all general practice settings for the management of chronic disease. Whilst many chronic care models have generic elements, it is critical to consider implementation issues in order to meet local needs, skills of individual clinicians and local practice demands. Potential models of care that were identified included;
Specialist Case Management – whereby specialist practice nurses are allocated a caseload of disease specific patients for whom they provide regular follow-up and nursing management, as specified in a multidisciplinary care plan. This care plan would be developed by the practice team in consultation with relevant allied health services and clinical specialists. Patients might visit the practice nurse regularly or be contacted for follow-up via telephone. Referrals would be made to the general practitioner for regular reviews of management and when clinical deterioration is noted. The specialist practice nurses could be located either within the individual general practice or within the Division of General Practice and provide outreach services to practices. This model potentially increases the range of services available within the general practice. This specialist case management model has similar elements to models of primary midwifery care\(^{62, 63}\).

Generalist Approach – the practice nurse substitutes for the general practitioner in some instances and is delegated specific clinical tasks by the general practitioner. This approach would see the practice nurse intervening both before and immediately following consultation with the general practitioner. Before the medical consultation, the practice nurse would assess the patient, clarify the presenting problem and undertake required observations (e.g. weight, blood pressure, urinalysis). Following the medical consultation, the practice nurse would undertake tasks as delegated by the general practitioner (e.g. organisation of referral to allied health services, collection of pathology specimens, health education, behavioural counselling, wound dressings).

Generalist Case Management supported by External Experts - whereby the practice nurse works directly with, for example, HF patients with expert support from specialist acute care cardiac nurses\(^{64}\). Evaluation of this model has, to date, demonstrated only modest improvements in adherence to pharmacological regimes, although more significant reductions in hospital admissions have been reported\(^{64}\). One issue that has impeded implementation of this model is that consumers are required to pay for general practice services, whilst those provided through a hospital are covered by Medicare and/or private health insurance. Therefore, to increase the utilisation of general practice services, there is a need to reduce the up-front cost to the consumer. The positive evaluation of the outcomes from practice nurse-led
intervention overseas is, however, encouraging and demonstrates the potential benefits in the Australian setting\(^{(65-67)}\).

This exploration of potential models is by no means exhaustive. Considering that no one model will be applicable in all settings, a combination of models will likely facilitate optimal service provision. There is a need to reconcile specialist and generalist models of delivering chronic disease management. This is particularly important in terms of the ability of health professionals to intervene earlier in the illness trajectory than has previously been achieved\(^{(39)}\). It is clear, however, that systematic evaluation is required to evaluate the efficacy of the proposed models of care in terms of resource consumption, consumer and clinician satisfaction and health related outcomes.

### 6.7 Recommendations

Table 6-1 lists the issues that consensus conference participants identified as requiring urgent attention to facilitate the development of the practice nurse role in chronic disease management.

**Table 6-1 Consensus Conference Recommendations**

- Development and evaluation of specific models of multidisciplinary care in Australian general practice, with a focus on investigation of clinical outcomes and acceptability to health professionals and consumers. Critical outcome data will provide evidence of the models effect on key outcomes such as patient clinical variables, resource consumption (e.g. hospital admissions) and cost-effectiveness. This evidence would provide a case for government funding to ensure the sustainability of interventions.

- Development of business cases to illustrate how the current delivery of chronic disease management can be adapted to meet funding eligibility requirements. (The ADGP has developed business cases during the conduct of this study).

- Development of a minimum dataset in general practice to facilitate outcomes evaluation and longitudinal investigation of patient outcomes and acceptability of service delivery.

- The development of standardised data systems and software to support patient monitoring, reporting, recall and decision support within the practice.
Table 6-1 Consensus Conference Recommendations continued.

- Provision of accessible short courses in areas of advanced practice to extend practice nurses current theoretical knowledge and clinical skill base.

- Development of accessible, formally accredited, tertiary level education specifically for practice nurses to enhance their theoretical knowledge and skill base. The mode of delivery of such courses must to consider issues of geographical isolation, study leave and the educational background of the target audience. Therefore, the use of online and distance education modules should be strongly considered, as should articulation with other postgraduate courses.

- Consideration of means to standardise remuneration rates, leave entitlements (e.g. sick, study, conference and holiday leave) and working conditions for practice nurses. In particular, there needs to be consideration of the needs of practice nurses to undertake professional development on a continuing basis to ensure currency of clinical knowledge and skills.

- Development of evidence-based practice protocols to guide systematic care in a collaborative, team-based approach, tailored specifically to Australian general practice. These protocols would help to scope the roles of individual members of the general practice team.

- Clarification of the scope of the clinical practice of practice nurses through the development of competency statements and education of general practitioners regarding the professional education and clinical skills of the Registered and Enrolled nurse. (A group from the University of South Australia have developed such national competency statements during the conduct of this investigation).

- Generic job descriptions for practice nurses to act as a framework for educating other health professionals about the practice nurse role.

- Funding of practice nurse services to be consistent between geographical areas, having clearly defined criteria and user-friendly application and embracing a broader role for the practice nurse, particularly in the area of chronic disease management.

- Identification of practice nurses by State / Territory Nurses and Midwives Registration Boards and within all Divisions of General Practice to facilitate professional integration, research, identification of practitioners and regulation of unskilled workers.
6.8 Discussion

In spite of the limitations of the consensus development conference method, this consensus statement has proved a useful step in the development of a strategic direction for the practice nurse role in Australia. Importantly the consensus statement will be disseminated in appropriate professional journals, targeting nurses, general practitioners and policy makers, and the results promulgated to clinicians, politicians, policy makers and the general public through both professional forums and the general media\(^{(22, 23, 68)}\). Fink\(^{(2)}\) asserts that the impact of a consensus statement can be significantly improved by widespread dissemination. The potential to widely promulgate this statement has been maximised by strategically including key policy makers and representatives of key stakeholder bodies in the development process\(^{(2)}\). Additionally, this consensus development conference was undertaken as the culmination of a larger project and has assisted in synthesising otherwise somewhat disparate evidence into a format useable by clinicians, politicians and policy makers. As such it is a powerful tool for prompting change in the complex, multifaceted environment of general practice HF management.

6.9 Conclusion

This Chapter has provided a concise description of the theoretical and conceptual process behind the consensus development conference. Detailed descriptions of the implementation of the method provide a transparent audit trail through which inform consideration of the resulting consensus statement and recommendations. Participants identified that investigating the role of practice nurses was a viable alternative to current models of service delivery and that the time was ripe to explore such alternative models of care. The consensus statement and recommendations provide a clear depiction of the current state of the science and a call to action to implement strategic recommendations to further the development of the practice nurse role in general practice based chronic disease management.

6.10 Reference List


Chapter 7.

Conclusion: An Empirically Derived Model of Care for Chronic Disease Management in Australian General Practice
7.1 Introduction

The overarching aim of the ‘Carving a Niche for Australian Practice Nurses’ Project was, to systematically and empirically derive a collaborative, multidisciplinary model of care to inform clinicians, policy makers and health planners identify strategic future directions upon which to base general practice management of HF. This has been informed by a comprehensive literature review and a series of discrete yet interrelated investigations that have pieced together elements critical to model of care development\(^{1,2}\).

The WESTCASE study documented the epidemiology of chronic HF and management issues in general practice specifically within Greater Western Sydney, and more broadly NSW. Data collected from this study, in addition to auditing usual care in general practice, provided both a baseline dataset and a benchmark against which the effectiveness of subsequent practice nurse interventions can be measured. Aspects of general practice HF management that could potentially be enhanced through collaborative care models incorporating the general practitioner and the practice nurse were also identified.

The APACHE study explored the current role, scope of clinical practice and demographics of the Australian practice nurse. In particular, the investigation sought to define the current scope of practice nurses in chronic disease management and demonstrate the capacity for practice nurses to undertake a more proactive role in chronic disease management initiatives. Barriers and facilitators to the development of the practice nurse role were also identified and explored.

Informed by the WESTCASE and APACHE investigations, a consensus development conference capitalised on the collective wisdom of key stakeholders, clinicians and policy makers\(^{3}\) to develop a consensus statement. This statement identified priority recommendations and strategic directions to facilitate development of the practice nurse role in chronic disease management.

From the evidence gathered in these investigations, this Chapter proposes a model of care for CVD management in general practice. It is expected that this model could also be used to describe the generic management of a range of chronic disease processes. Aspects of the model are explored in relation to both the overall Project
findings and the contemporary published literature. The Chapter also describes the conceptual framework for this model. This empirically derived model provides a useful framework for policy makers, health planners, researchers and clinicians to inform the strategic development of chronic disease management in Australian general practice.

### 7.2 Key Findings

(a) **What are the baseline contemporary patterns of HF related hospitalisation, mortality, and morbidity within Western Sydney?**

The WESTCASE study demonstrated that there is a significant burden of illness from HF within Western Sydney. This burden will intensify in the future, given the ageing population, improved survival from acute cardiac conditions and increased incidence of lifestyle risk factors. Between 1997 and 2000, HF contributed to nearly 17% of all deaths in those aged over 65 years in WSAHS and is responsible for the second largest number of hospital bed-days in this age group, behind rehabilitation. Given that hospital admission is one of the most substantial direct costs related to HF management, reductions in length of stay could significantly diminish health expenditure. Such reductions, however, are reliant upon the establishment of evidence-based, sustainable systems of primary care delivery to provide community-based HF management.

(b) **What is the contemporary experience of clinicians, consumers and their families in relation to HF management in general practice?**

Exploration of the contemporary experience of usual general practice HF management by clinicians, consumers and their families through the WESTCASE study highlighted a range of issues that need to be addressed at local, State / Territory and National levels. Broadly, these issues can be categorised into general practice and health systems issues and patient / family issues. The general practice and health systems issues include variations in data management systems, the absence of a systematic disease management approach, discordant intersectorial communication, an absence of incentives for chronic disease management and barriers to implementation of evidence-based practice. The consumer / family issues include a lack of emphasis on self-management activities, absence of action plans, unclear lines of responsibility between health care providers, lack of clear information on
discharge from hospital and poor recognition of the impact of HF on activities of daily living. Despite the significance of these issues, patients identify a level of respect and affinity with the general practitioner and a desire to work with them in the management of their chronic disease.

(c) **What aspects of current general practice management of HF can potentially be addressed by models of care incorporating the practice nurse in care delivery?**

The literature provides significant evidence for the efficacy of nurse-led HF interventions (Appendix D). Areas in which the nurse has been shown to be particularly valuable include motivational interviewing, lifestyle modification, behavioural change, and coordination of multidisciplinary services\(^{(5-7)}\). The evidence for many of these interventions comes from specialist HF nurses in outpatient type clinics. However, many of the underlying skills are generic nursing competencies that can be extended, with appropriate education, support and training, to provide high quality, evidence-based chronic disease management within general practice.

(d) **What is the current role and scope of practice of the practice nurse in the Australian health care system?**

The APACHE study provided a detailed exploration of the current state of the science regarding the Australian practice nurse role. Currently, the practice nurse role reflects the episodic nature of general practice and is largely constrained to specific tasks delegated by the general practitioner and those that attract financial remuneration. Factor analysis failed to identify significant relationships between the clinical tasks that practice nurses currently undertake or those that they feel are appropriate to their role, and nurses’ age, highest educational qualifications, locality or size of general practice. The absence of statistically significant relationships between these factors infers that the practice nurse role is affected not by their personal characteristics or those of the workplace, but rather by the health system and political context in which health care is delivered. Despite this finding, practice nurses were largely optimistic about the future of practice nursing in Australia. This demonstrates that practice nurses are willing to embrace an enhanced role in chronic disease management. The development of the practice nurse role in clinical areas with funding and infrastructure, such as asthma and diabetes, evidences the potential capacity for the chronic disease management role in general practice.
(e) **What are the barriers and facilitators to the expansion of the practice nurse role to incorporate HF management?**

Common barriers to role expansion identified by APACHE survey participants were legal implications, lack of space and equipment, a belief by participants that the current role is appropriate and general practitioner attitudes. Many of these barriers can be addressed through improvements in teamwork, enhanced collaboration between practitioners and clarification of issues in the context of Australian general practice.

The most commonly cited facilitators for role expansion were collaboration with the general practitioner, access to education and training, the opportunity to deliver primary health care, a high level of job satisfaction and positive consumer feedback. Implicitly, the availability of funding and systems infrastructure for the management of disease specific groups such as asthma and diabetes was a clear facilitator of the development of the practice nurse role in these clinical areas.

(f) **What are the key components of a sustainable model of care for the practice nurse in HF management in primary care?**

The practice nurse role and the delivery of care in Australian general practice are affected by a multitude of factors on a number of levels. A sustainable model of care will need to address the factors at each level to create a positive policy environment, optimise health care organisation and improve patient interactions with clinicians. Whilst the ‘Carving a Niche for Australian Practice Nurses’ Project initially set out to develop a model of care specifically for HF, the data revealed that the prevalence of HF in individual practices and a range of broader systems and process issues, might require a generic approach initially in order to be more appropriate and ensure sustainability of the model in the current health care context. This broader focus would also more closely align with a primary health care philosophy\(^{(8)}\).

A major obstacle in the development of any model of care for Australian general practice is the small business model under which practices currently operate. This business model means that there is a paucity of generic systems and a diversity of work practices between clinicians. In spite of the recent moves to develop a National chronic disease strategy, conflict remains regarding the interface between State /
Territory and National services. The findings of the APACHE investigation and the consensus development conference clearly highlight that any proposed model of care must be flexible rather than prescriptive to accommodate these significant local variations in clinical practice.

Growing socioeconomic disadvantage and cultural diversity within Australian society were highlighted through the WESTCASE investigation. This has the potential to increase the number of marginalised groups within our community. The practice nurse has been identified as being in a unique position to target such marginalised groups through sustained engagement within the familiar and accessible environment of general practice\(^{(1, 2)}\). Increasing the acceptability of service provision to such groups can enhance sustainability by ensuring service utilisation.

### 7.3 Models of Care

The terms model of care, nursing model, philosophy, paradigm, framework and theory are often used interchangeably in the literature, despite referring to diverse, yet parallel concepts\(^{(9)}\). In a recent review of the literature, the Queensland Government\(^{(10)}\) reported that they found no consistent definition of a model of care. They concluded that this is a multidimensional concept that defines the way in which health care services are delivered\(^{(10)}\). Davidson and Elliott\(^{(11)}\) describe a model of care as a conceptual tool that is “a standard or example for imitation or comparison, combining concepts, belief and intent that are related in some way”\(\text{(p. 121)}\). They consider it critical that models of care should “be evidence-based and / or grounded in theoretical propositions; be based upon assessment of patient and health provider needs; incorporate evaluation of health related and intervention outcomes; be inclusive of consultation with key stakeholders; be considerate of the safety and wellbeing of nurses; involve a multidisciplinary approach where applicable; consider the optimal and equitable utilization of health care resources; optimise equity of access for all members of society; and include interventions that are culturally sensitive and appropriate”\(\text{(p. 123)}\)\(^{(11)}\).

In order to decrease ambiguity, it is useful to distinguish between a ‘nursing model’ and a ‘model of care’\(^{(12)}\). Whilst a ‘nursing model’ pertains solely to the practice domain of nursing, a ‘model of care’ describes the delivery of health care within the broader context of the health system. In relation to this understanding of a model of
care, the ‘framework’ shapes and guides the implementation and evaluation phases of model development. Using a building analogy, the ‘framework’ is the brace and girders that support the model\(^{(12)}\).

With these concepts in mind, a model of care is an overarching design for the provision of a particular type of health care service that is shaped by a theoretical basis, evidence-based clinical practice and defined standards. It consists of defined core elements and principles and has a framework that provides the structure for the implementation and subsequent evaluation of health care. Having a clearly defined and articulated model of care will help to ensure that all health professionals are working towards common goals and, most importantly, are able to evaluate their performance on a mutually agreed basis\(^{(12)}\).

### 7.4 Characteristics of the Proposed Model

Several key factors essential to model development have been identified from the findings of the investigations that comprised the ‘Carving a Niche for Australian Practice Nurses’ Project. These factors have informed the empirical development of the model and are explicated here. As discussed above, whilst initially the Project set out to develop a model of care specifically for HF, the relatively low prevalence of HF in individual general practices and a range of systems and process issues has demonstrated that a broader approach may be more appropriate in the first instance. Therefore, it is proposed that a more effective model may broadly address chronic CVD, including disease processes such as hypertension, early asymptomatic CVD, myocardial infarction, atherosclerosis, as well as HF.

The findings of the APACHE investigation and the consensus development conference clearly highlighted that any proposed model of care must be flexible rather than prescriptive. This flexibility is necessary due to the lack of generic systems and processes within practices, diversity in consumer needs, the preferences of individual practitioners, diverse work practices, lack of a standardised disease management process and the principal focus on episodic care.

The increasing incidence of lifestyle risk factors such as obesity, diabetes and physical inactivity increases the incidence of CVD. Interventions such as lifestyle and risk factor modification aimed at those at the ‘well’ end of the illness trajectory
can potentially improve health outcomes by significantly slowing the development of symptomatic disease. The final characteristic of the model identified through the research was the significant impact of the barriers to role development upon the functioning of the practice nurse. In particular, issues of legal liability, professional recognition and regulation, education and training, time and funding models were noted to constrain practice nurse role development. Whilst the significance of these factors was identified, it was considered that a broad perspective needed to be adopted in order to drive policy development and system improvements. The specific strategies through which to subsequently achieve this best practice were noted to be beyond the scope of this Project and in the hands of senior policy makers and health planners at State / Territory and National levels.

7.5 Conceptual Framework

The chronic care models proposed by Wagner\textsuperscript{(13)} (Figure 7-1) and the WHO\textsuperscript{(14)} (Figure 7-2) were recognised as being essential in conceptually informing the development of the proposed model. Whilst both of these models succinctly describe the general issues involved in chronic disease management and establish their relationships, a more specific model is required to articulate a model of care for CVD management in Australian general practice. This is significant considering the unique issues facing Australian general practice that have been previously identified. The content of these models and their underpinnings, however, were used to inform the development of the model proposed here.

![Figure 7-1 Wagner’s Chronic Care Model\textsuperscript{(13)}](image-url)
Figure 7-2 The WHO Chronic Care Model\textsuperscript{(14)}

### 7.6 Contemporary Issues in Health Service Delivery

The findings of the investigations that comprised the ‘Carving a Niche for Australian Practice Nurses’ Project and the published literature provide ample evidence to facilitate the identification of contemporary issues within the Australian health system in relation to chronic disease management in general practice. The WHO\textsuperscript{(14)} strategy of categorising these complex problems according to various levels or strata of the health system has been utilised to make sense of the data generated from this Project. Whilst this framework provides a reasonable means of analysing the large volume of data, it must be remembered that the relationship between each level remains complex and represents dynamic interaction\textsuperscript{(14)}. The actions and events that occur at each level clearly have the potential to influence the actions and events at subsequent levels. These relationships and the issues existing within each level are summarised in Figure 7-3.
7.6.1 Macro Level

The macro level refers to the policy environment in which health care is delivered\textsuperscript{(14)}. It is at this level that the “overall values, principles, and strategies for health care develop, and where decisions concerning resource allocation occur”\textsuperscript{(p. 35)}\textsuperscript{(14)}. In the case of chronic disease management in general practice, this level is complicated by the large number of stakeholders from a diverse and eclectic range of organisations. These stakeholders include professional organisations (e.g. APNA, RCNA, ADGP, RACGP and Australian Medical Association), regulatory and accreditation authorities (e.g. State / Territory Nurses and Midwives Registration Boards), as well as education providers including university schools of nursing and general practice, colleges of technical and further education and postbasic education providers. The complex issues that have been identified relating to continuing education for both general practitioners and practice nurses, and the lack of multidisciplinary education highlights the deficiency of clear systems for the dissemination of new research findings\textsuperscript{(14)}. The resulting slow uptake of new knowledge can significantly influence the quality of service delivery and patient outcomes in this sector.
The WHO identifies that legislation can be a powerful tool in defining the entitlements of citizens to health care and managing the role of the private sector in health service delivery. As in many parts of the world, the State / Territory and National legislation within Australia is not used to its full potential to enhance health service quality. The complexity of legislative variations between the States / Territories, the variable requirements of the Nurses and Midwives Registration Boards, the unclear definition of professional liability and malpractice and the absence of an Industrial award to explicate standard remuneration rates, leave entitlements and working conditions all combine to constrain the delivery of care in general practice.

Health systems such as that in Australia, through their current policies and plans, tend to reward the delivery of outdated models of care. In Australia, there is no endorsed National primary health care or chronic disease policy. This issue has been recently addressed, with a draft document disseminated for expert review during the concluding phases of this Project. Both primary and secondary health services remain medically dominated, despite the fact that integrated, population-based, multidisciplinary disease management has been demonstrated to be best practice. Although the identification that effective chronic disease management requires planned, regular interactions between patients and their care providers, current funding models reward general practitioners for providing high volume, short duration consultations and penalise the implementation of multidisciplinary, coordinated preventative care. The funding of multidisciplinary disease management has only been provided through specific programs, such as the EPC items. The uptake of such programs has been variable, largely because of the complexity of program administration and the limited financial rewards. Whilst some States / Territories have recently undertaken a range of chronic disease management initiatives, the conflict between a State / Territory funded acute care sector and Nationally funded community-based services is inherently problematic. This dissonance means that both levels of government need to work collaboratively to achieve optimal outcomes. The funding situation is further complicated by the small business model of Australian general practice. This model of general practice has implications for quality assurance, accreditation and monitoring and creates a risk of the delivery of substandard care based on individual
preferences rather than evidence-based practice principles\(^{(14)}\). These factors all potentially contribute to fragmentation of the health system, less effective utilisation of limited resources and difficulties in providing consistent, coordinated care\(^{(14)}\).

Perhaps the most important implication of these macro level issues is the paucity of intersectorial collaboration between a range of stakeholders including, government and non-government organisations, professional disciplines, and acute and community-based health services. Without effective coordination and intersectorial collaboration, the quality of service delivery within the system weakens with frequent duplication of care and inefficient resource distribution\(^{(14)}\). Whilst some trials of interventions to improve the collaboration between Australian general practice and acute care have demonstrated successful outcomes\(^{(21-25)}\), these trials have not been sustainable due to the short term nature of the project funding and the difficulties inherent in developing sustainable intersectorial collaboration without first effecting significant systems change\(^{(1)}\).

The macro level issues are depicted within the proposed model as the outer layer (Figure 7-4). This symbolises the overarching and widespread influence that actions at this level have on the delivery of care at all other levels. Whilst the relationships between all levels operate as dynamic feedback loops\(^{(14)}\), action at the macro level fundamentally underpins health service delivery and provides a framework for resource allocation and strategic direction.

### 7.6.2 Meso Level

The meso level refers to the health care organisation, which coordinates and evaluates health service delivery\(^{(14)}\). It is this level that has the responsibility for providing continuing education to ensure the expertise of clinicians and the provision of tools for clinicians to facilitate chronic disease management and integration with community service providers\(^{(14)}\). In terms of Australian general practice, this refers to organisations such as the Divisions of General Practice, RACGP and Area Health Services. The data collected in this Project combines with the published literature to highlight that these organisations are, for a variety of reasons, primarily organised to address acute health problems, rather than chronic disease. Currently, interactions between clinicians and patients are often initiated with the presentation of complications or symptoms (e.g. reduced exercise tolerance, respiratory insufficiency...
or chest pain), rather than a proactive and organised approach to health promotion
and disease prevention through patient recall and reminder systems\(^{(14)}\). It is only in
recent years that Divisions of General Practice have begun to be financially
supported to provide chronic disease management initiatives\(^{(21)}\). Whilst these
programs are a positive initiative, the sustainability of the interventions beyond the
trial periods for which they are often funded is unclear\(^{(23, 24)}\).

Despite the significant community-based resources available to support chronic
disease management, there is often a failure to effectively coordinate these resources
to optimise patient benefit. Whilst supports such as patient advocates and consumer
groups can be invaluable to those with chronic illness, particularly those from
marginalised groups, there is a need to promote awareness of and simplify access to
such resources. Limitations in formal relationships between community resources
and health care systems serve to increase the risk of service duplication,
fragmentation and suboptimal resource utilisation.

The WHO\(^{(14)}\) asserts that many health care workers currently lack the tools and
expertise for chronic disease management as they are predominately educated within
an acute care model. This is particularly true for practice nurses who receive little or
no formally accredited training specifically tailored to the general practice
environment or the role of the general practice nurse\(^{(26)}\). Historically, general
practitioners have worked in isolation and receive limited training in how to best
provide chronic disease management within a multidisciplinary team approach\(^{(27, 28)}\).

The employee-employer relationship between general practitioners and practice
nurses also increases the complexity of collaborative practice in this setting\(^{(29, 30)}\).
Additionally, neither health professional may have specific preparation in the
initiation of behaviour modification or teaching self-management strategies to their
patients. This current paucity of skills and clinical expertise impairs the ability of
general practice to effectively provide multidisciplinary chronic disease
management.

Inadequate skills, confidence and expertise on the part of the clinician are only one
factor that contributes to the generalised failure to capitalise on opportunities to
address disease prevention and health promotion\(^{(14)}\). In order to encourage consumers
to take an active approach to management of their health issues, clinicians need to
capitalise on available opportunities for health promotion. Examples can include; offering regular screening programs for biochemical and lifestyle risk factors (e.g. high cholesterol, hypertension, physical inactivity) as part of patient consultations and promotion of healthy choices (e.g. smoking cessation, dietary considerations) in waiting rooms. The WHO\textsuperscript{(14)} advocates that the ideal world would see health promotion and disease prevention incorporated into all interactions between consumer and clinician. Barriers to this ideal scenario emanate from both the macro policy framework and the micro consumer and clinician characteristics.

It is now generally recognised that successful chronic disease management models incorporate evidence-based principles. Evidence-based chronic disease management is recognised as being both cost-effective and efficient in producing optimal patient outcomes\textsuperscript{(13, 14, 31)}. Specifically, in terms of CVD, there are a range of clearly defined evidence-based guidelines largely based on high level evidence from randomised controlled trials to define best practice\textsuperscript{(32-37)}. Despite this knowledge, there is current data to suggest that in Australian general practice the application of this evidence is suboptimal\textsuperscript{(38-40)}. Much of the information regarding the management of CVD comes from secondary care, where the difficulties experienced in general practice are not well appreciated. Fuat et al.\textsuperscript{(39)} identified three major barriers to the implementation of clinical guidelines for the diagnosis and effective management of HF in general practice, namely;

- uncertainty about clinical practice whereby clinicians lack confidence regarding diagnosis, expressed concern about the necessity and usefulness of some diagnostic tests and worried about medication use in the frail elderly with co-morbidities and polypharmacy;

- lack of awareness regarding research evidence in a complex and rapidly changing therapeutic field. Clinicians expressed feelings of information overload and doubts about the applicability of research findings from acute care research in the primary care setting;

- influences of individual practitioner preferences and local organisational factors. Negative clinical experiences, medical training and outside agencies all influenced clinician behaviour. Local factors included the availability of
diagnostics, interactions between general practitioners and specialists and availability of specialist resources.

The complex nature of these factors highlights that single strategies such as the provision of evidence-based guidelines alone are unlikely to be effective in promoting their implementation. Therefore, effective models of care need to incorporate strategies to promote guideline dissemination and implementation. “Without evidence to guide care, effective interventions are at risk of exclusion, and patients continue to be exposed to interventions known to be ineffective” (p. 33)\(^{(14)}\).

The WESTCASE study findings highlighted the inadequacy of contemporary information systems in monitoring disease trends, identifying patients with chronic conditions, prompting the implementation of disease prevention and health promotion and monitoring patient behaviours such as medication adherence and lifestyle modifications. These findings are evidence of a reactive rather than proactive approach to health care delivery\(^{(14)}\).

The meso level is depicted within the model by the middle oval (Figure 7-4). This symbolises the crucial role of the meso level as an important route for disseminating information regarding policy to clinicians and consumers and as a vital conduit of feedback from the micro level to macro level organisations. Although a direct relationship is present between the macro (policy) and micro (patient) levels, actions within the meso level are essential in the organisation of health service delivery. The feedback loop depicted at the top of the oval represents the dynamic interaction between providers of health services that contributes to the delivery of care. The use of dotted lines as the edge of the oval recognises the dynamic nature of the interaction between the two levels.

### 7.6.3 Micro Level

The micro level of health care encompasses patient interaction issues. The WHO\(^{(14)}\) asserts that too many health care systems fail to acknowledge the importance of the consumers’ interactions with health care providers and the effect of individual behaviours on health and wellbeing. High level evidence exists for effective strategies at the micro level in terms of effecting behaviour change and lifestyle modification, improving medication adherence or increasing the quality of patient and provider interactions\(^{(41, 42)}\). This dissonance between the available evidence and
clinical practice exists for a variety of reasons\(^{(14, 39)}\). To date, much of this published evidence has been derived from the acute care sector\(^{(2)}\). Therefore, further strategically designed research is necessary to evaluate the translation of such interventions into the general practice setting. Before this can be achieved, mechanisms need to be considered to reduce the significant barriers to conducting research in Australian general practice\(^{(43-45)}\).

In chronic disease processes such as CVD, episodic acute care intervention is likely not sufficient to effect significant improvements in disease progression. The WHO\(^{(14)}\) asserts that the chronically ill person cannot be viewed as or perceive themselves to be passive recipients of health care. They need to take on an active role in their care, including:

- lifestyle and behavioural changes such as increased physical activity, optimised dietary intake, reduction in body weight and smoking cessation;
- development of new skills such as adherence to medication regimes, regular self-monitoring (e.g. daily weights, blood pressure checks) and implementation of self-management plans;
- learning to work together with the range of health care providers to design mutually acceptable management plans\(^{(14)}\).

Substantial published literature exists to provide evidence that successful participation by affected individuals in these aspects of behavioural change can significantly improve clinical outcomes\(^{(14, 41, 42)}\). Despite the recognition of the importance of this area, all too often clinicians report feeling inadequately prepared, or too time pressured to provide sufficient educational and psychosocial support for sustained behavioural change\(^{(14)}\). Additionally, macro level issues can provide either incentives for, or barriers to, the development of self-management interventions. This has lead to a situation whereby “self-management, medication adherence, functional abilities, knowledge, or personal responsibilities are rarely discussed in the clinical context”\(^{(p. 32)}\)\(^{(14)}\).

The importance of these factors to health outcomes has been recognised by their inclusion within the circle depicting the role of the patient and their significant others on the left hand side of the model centre (Figure 7-4).
The WHO\textsuperscript{(14)} asserts that many health care systems provide a less than adequate environment to encourage quality relationships between clinicians and their patients. The most efficient and effective chronic disease management can be achieved by including the patient as a partner in the management of their disease\textsuperscript{(46)}. One of the underlying concepts driving this Project was that the general practice setting has the potential to provide prolonged engagement and continuity of care between clinicians and their patients, optimal accessibility to patients, and the opportunity for self-management at a time acceptable to the patient, rather than only be available during acute episodes of disease exacerbation. As such, the role of general practice in establishing partnerships with the chronically ill and empowering patients to develop informed and sustainable self-management strategies is potentially invaluable. With the capacity to undertake such patient-centred interventions demonstrated, through the enhanced utilisation of practice nurses to provide chronic disease management, there is a clear case for the evaluation of such interventions in the general practice setting to test their efficacy, acceptability to clinicians and consumers and evaluate the effects on clinical outcomes.

The micro level is represented by the inner section of the model. The circle on the left depicts the role of the patient and their significant others, while the oval on the right represents the multidisciplinary general practice team. The activities within the left hand circle represent the active steps that can be taken by the patient and their family / significant others to optimise their health outcomes. The arrow between the two figures depicts the dynamic interactions between the patient and their family / significant others and the general practice team. The use of a multidirectional arrow symbolises the two-way flow of interaction between these two groups. The use of a Venn diagram to depict the general practice team denotes the collaborative nature of the relationship between multidisciplinary professionals. In this relationship, whilst there are common skills and roles to all clinicians, each professional also brings unique professional skills to the role. The use of dotted lines for both figures recognises the impact of actions occurring at the meso level on the clinician / patient interactions. The direct relationship between the macro (policy) and micro (patient) levels is recognised by the joining of the inner figures to the edges of the middle oval and outer space.
7.7 **Recommendations for Model Implementation**

7.7.1 **Development of Clear Strategic Goals**

The current environment of general practice is noted to be characterised by a high workload, which has precipitated a cycle of episodic, crisis-orientated health care delivery. Whilst short-term funding has been provided for various locally based chronic disease programs, there is still no coherent national strategy to direct efforts and provide a common focus. The development of a national chronic disease strategy is essential to promoting intersectorial and intergovernmental collaboration, communication and relationships. Due to the significant influences of issues at the macro and meso level, this progress is vital to the successful implementation of any chronic disease management model within general practice.

7.7.2 **Recognition of General Practice as a Small Business**

General practice is a unique environment where private small business and the publicly funded health care system intersect. This raises a number of complex issues, as general practice is impacted by factors from the macro and meso levels, as previously discussed. Without support from higher levels, general practice has limited capacity to make substantial sustainable gains in these areas. Whilst acute care and community-based government funded services (e.g. community nursing, allied health services) need largely to run as a cost neutral service or have some scope to exceed budget allocations, general practices have to raise sufficient funds to pay staff wages, business costs (e.g. building, administrative) and provide consumables (e.g. wound dressings, vaccines) on a regular basis. The environment in which general practice is located must be considered by organisations at the macro level in order for sustainable policy to be developed.

7.7.3 **Clarification of Roles and Scope of Clinical Practice**

Although nursing in Australian general practice has been the subject of research as early as the late 1970s\(^{(47)}\), it is only since the introduction of government funding for these nursing positions that there has been widespread interest in the specialty. Professional nursing organisations are only just beginning to explore issues such as the practice nurse role, the development of generic competency statements, remuneration and industrial issues. Despite the increasing number of nurses in general practice, truly collaborative practice between general practitioners and
practice nurses is far from usual practice\(^{(48, 49)}\). To effectively implement a chronic disease management model in Australian general practice, these workforce and teamwork issues need to be addressed by both medical and nursing groups.

### 7.7.4 Interpersonal and Multidisciplinary Education

Despite the spread of interdisciplinary practice in health care delivery, undergraduate medical and nursing education places limited emphasis on factors such as collaborative practice, multidisciplinary teamwork, interpersonal communication and the roles of other members of the healthcare team\(^{(28)}\). Although this is a trend in contemporary curriculum development it creates an important separation between theory and practice and serves to reinforce the stereotypes, prejudices and competitive models between the professions\(^{(28)}\). In order to effectively implement chronic disease management models, general practitioners and practice nurses need to understand each others’ roles and scope of clinical practice, the potential for delegation and substitution of task allocations and enhancement of available services\(^{(50)}\). Truly collaborative practice is likely only to be achieved through concerted efforts at providing interprofessional education, whereby the two professions learn with, from and about one another\(^{(28)}\).

### 7.8 Recommendations for Further Research and Nursing Practice

#### 7.8.1 Identification of Research Priorities for Practice Nurses

To date, the research conducted in Australia regarding practice nurses has been largely ad hoc, investigator driven and followed available project funding rather than strategic directions for role, clinical practice and policy development. Many investigations have been sponsored and conducted by professional organisations and tertiary institutions with limited input from nurses working in general practice during the planning and development phases. In particular, there is a paucity of investigator driven research. Even in the UK and NZ, practice nurses have not identified priorities for research relating to their specialty. This exemplifies the significant gap between research and clinical practice in this area. Future research should consider not only the objectives of policy makers and academics, but also the perspectives of clinicians who will implement the evidence in clinical practice.
7.8.2 Evaluation of Models of Care in Clinical Practice

As identified in the consensus statement described in Chapter 6, there is a saturation of descriptive evidence related to practice nurse demographics, current role, barriers and facilitators to role development\(^{26, 51-59}\). Encouragingly, consumers have identified that the practice nurse is acceptable to provide a range of care within general practice\(^{60-64}\). However, there is a need to promote the broad scope of the practice nurse role to consumers who have not yet received such services\(^{60}\). Future research needs to undertake trials of a range of models of care, focussing on outcome measures such as cost-effectiveness, feasibility, acceptability to consumers and clinicians and clinical outcomes. To date, much of the evidence upon which practice has been based has been extrapolated directly from acute care to the primary health care setting. It is essential that high quality data be sought to measure the effectiveness of practice nurses as part of a collaborative general practice team\(^{2}\). In particular, intervention studies are required to demonstrate the efficacy of collaborative, multidisciplinary models of care.

This stage of the evolution of Australian general practice research is clearly problematic. Of particular concern are the wide variations in systems and processes within general practices, the lack of standardised data systems, issues of general practitioner and patient recruitment and the reliance of researchers upon clinicians to commit to ongoing involvement in research projects. The complexity of these issues means that there is no simple solution, but rather a need for both researchers and clinicians to forge collaborative relationships to facilitate mutual sharing of knowledge and attainment of common goals.

7.8.3 Raising the Profile of Practice Nursing as a Specialty Area

Increasing the visibility of the specialty of practice nursing in both the undergraduate and postbasic curricula is essential to recruit motivated, skilled and experienced clinicians who are willing and able to develop the specialty area. Enhancing the ability to identify current practice nurses, through the inclusion of the specialty on nursing rolls, and developing formal networks with complementary nursing specialty areas, such as community nurses and chronic care nurses in the acute or residential setting, are also important strategies to raise the practice nurse profile. Additionally, it is important to increase the involvement of clinical practice nurses in the
development, conduct and publication of research projects in order to document clinical practice trends and report the effectiveness of specific interventions and models of care. Without a profile as a key stakeholder group, practice nurses are often not included in policy and decision making forums. Whilst it is essential that practice nurses work together with professional bodies, such as ADGP, the Rural Doctors’ Association and the Australian Medical Association, it is essential that nurses themselves assume control over the development of the practice nurse role.

7.9 Limitations of the Project

The ‘Carving a Niche for Australian Practice Nurses’ Project has clearly provided a new level of understanding in relation to the role of the practice nurse in HF management and built upon the seminal work of Patterson\(^{(59)}\). Each component of this Thesis has identified discrete limitations in terms of study design, data analysis and findings. However, it is also pertinent to acknowledge the overall limitations of the Project.

The Project design, incorporating a series of interrelated investigations using a complementary range of mixed methods, has facilitated the development of knowledge by building upon the findings of each individual data set. This sequential building of knowledge through staged projects has provided a rich context through which the model of care has evolved. Despite this, limitations such as the unclear response rate from the APACHE survey and the use of a single Area Health Service / Division of General Practice for the WESTCASE audit potentially inhibit widespread generalisations of the data. However, the similarities between the data collected in these investigations and the published literature promote the credibility of the findings\(^{(26, 59)}\). Further, the consensus process described in Chapter 6 verified observations and assisted in the interpretation of data.

The ‘Carving a Niche for Australian Practice Nurses’ Project specifically sought to explore the feasibility, acceptability and appropriateness of the practice nurse and general practice intervention to improve HF management. There was a preconceived bias by the research team that such a role was feasible and practical given the advancements in the political, policy and professional environments. Whilst care was taken by the researcher to immerse herself in the collected data and voices of participants, the research was motivated to demonstrate practice capacity.
Presentations of raw and analysed data to research supervisors, mentors and peers allowed the researcher to verify the analysis and interpretation and create a clear audit trail to ensure that the reported finding arose directly from the data.

Since the commencement of this Project, significant advances have occurred in the development of practice nursing in Australia. These include:

- numerous key publications relating to the practice nurse role and the management of chronic disease\(^{(16, 25, 26, 56, 62, 63, 65-71)}\);
- changes to the systems of Medicare funding for general practice, including the introduction of item numbers for specific items of service delivered by practice nurses\(^{(72-74)}\);
- Commonwealth funding for recruitment of additional practice nurses\(^{(74)}\).

These and other more subtle changes, such as the implementation of chronic disease collaboratives within some NSW general practices\(^{(16)}\), and the enhancement of knowledge regarding chronic disease management within the community and amongst clinicians, are likely to impact upon the degree to which the study findings reflect current clinical practice. These trends are encouraging and provide additional proof of concept for the expansion of the Australian practice nurse role in chronic disease management.

### 7.10 Conclusion

The ‘Carving a Niche for Australian Practice Nurses’ Project has utilised a mixed methods approach, through a range of interrelated investigations to demonstrate the need and capacity for the practice nurse to undertake an expanded role in chronic disease management within Australian general practice. The findings from these investigations have been synthesised into the proposed model of care for the management of HF in general practice. The strategic development of the model of care, described in Figure 7-4, through the empirical research that has comprised this Project has been vital in ensuring that the model is evidence-based and represents best practice principles. It is intended that this model will provide a framework for policy makers and health planners to inform the development of primary care and provide a conceptual framework for future intervention studies in Australian general practice.
7.11 Reference List


Appendix A.

WESTCASE STUDY: HREC APPROVAL
21 October 2003

Dear Elizabeth

Re: Research Project: Australian Practice Nursing and Chronic Heart Failure (“APACHE”) Study Registration Number HEC 03/166

The Committee has reviewed your responses to the issues raised and has agreed to grant your project an approval.

You are advised that the Committee should be notified of any further change/s to the research methodology should there be any in the future. You will be required to provide a report on the ethical aspects of your project at the completion of this project as well as interim reports upon request. The form is attached and also located on the Research Services Web Page.

The Protocol No. HEC 03/166 should be quoted in all future correspondence about this project. Your approval will expire 30 December 2004. Please contact the Human Ethics Officer, Kay Buckley on tel: 45 70 1136 if you require any further information.

The Committee wishes you well with your research.

Yours sincerely

[Signature]

Professor Elizabeth Deane
Chairperson
UWS Human Research Ethics Committee
Cc Professor John Daly
Appendix B.

WESTCASE STUDY: INFORMATION SHEETS
& CONSENT FORMS
Western Sydney Cardiac Awareness Survey and Evaluation
(‘WESTCASE’)

Dear General Practitioner,

Please accept this invitation to participate in a research project currently being conducted jointly by the University of Western Sydney and the Western Sydney Division of General Practice. This Information Statement outlines why you have been selected as a potential participant, the nature of the research and what is required of those who participate.

What is the purpose of the research?
The purpose of this study is to identify the prevalence of heart failure (HF) and co-morbid conditions and investigate usual care in the local general practice population. This research is significant, as it will provide information to inform the development of management models for patients presenting with HF that will potentially improve their health and quality of life. Additionally, this study will provide vital information for local service planning and, potentially, evidence for funding enhancement.

What am I being asked to do?
If you agree to participate in this project you will be asked to facilitate the research team to recruit patients aged over 65 years who attend your Practice and are currently diagnosed with heart failure. Participation in this study is purely voluntary. Any decision regarding participation will have no effect upon your current or future treatment by the University of Western Sydney or any other organization involved in the research. Your participation in the study will be kept confidential and no responses will be able to be linked to any individual GP.

What happens once I identify participants from my Practice?
Once consent is obtained from both yourself and the patient, a member of the research team will collect the study data from the patients’ medical records using the attached data proforma. Additionally, the patient will be asked to complete the Minnesota Living with Heart Failure’ Questionnaire. A member of the research team will make themselves available to assist if the if the patient cannot do this independently.

What happens to the information collected during the study?
The researcher commits to participants to have the research report widely published and the results available for use in clinical practice. Participants have the right to view the results once the final report is completed. This can be achieved by making a request to the Researcher or by contacting the University of Western Sydney, School of Nursing, Family and Community Health.

Who can I contact if I need assistance?
If you have any questions / concerns about participating in the study please don’t hesitate to contact either myself (Ph: 02 403317665) or the University of Western Sydney (Associate Professor Patricia Davidson Ph: 02 88382031) for further information, clarification or support.

Ms Elizabeth Halcomb RN BN (Hons) Grad Cert Int Care PhD Candidate
School of Nursing, Family and Community Health, University of Western Sydney.

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officer (tel: 02 4570 1138). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
APPENDIX B.

Western Sydney Cardiac Awareness Survey and Evaluation (‘WESTCASE’)

Consent Form

1. I, [name] of [address], aged _____ agree to participate in the research as described in the Information Sheet.

2. I acknowledge that I have read and understood the Information Sheet that explains why I have been selected, the nature of the research and possible risks of participating. This information has been explained to me to my satisfaction.

3. I understand that this research involves a member of the research team accessing medical records from consenting patients aged over 65 years attending my Practice and collecting data from these documents. Data collected will be only that required to complete the data collection proforma that I have sighted.

4. I understand that the researchers will not use this information for any purpose not directly connected with this project and that no information identifying individual patients or general practitioners will be made available.

5. Before signing this consent form, I have been given the opportunity to ask any questions relating to my participation in the study. I have received satisfactory answers to any questions that I may have asked. I understand that if I have any further questions related to the research I can contact the Primary Researcher, Ms Elizabeth Halcomb on telephone 0403317668 who will be happy to answer them.

6. I understand that my decision whether or not to participate in, or subsequently withdraw from this research project will not affect my current or future association with the Division of General Practice, the University of Western Sydney or any other organization associated with the research. I also understand that my participation in the research is completely voluntary and that I may discontinue participation at any time without prejudice.

7. I agree that the data gathered from the results of the study may be published, provided that I cannot be identified as a participant.

8. I acknowledge receipt of a copy of the GP Information Sheet and this Consent Form.

Complaints may be directed to the Human Research Ethics Officer, University of Western Sydney, Locked Bag 1797, Parrish South DC NSW 1797 (Telephone 02 4570 1136, E-mail: k.buckley@uws.edu.au).

Participant Name: ________________________________ Signature: ________________________________
Witness Name: ________________________________ Date: ________________________________

Date: ________________________________

Contact Person for Further Information:
Ms Elizabeth Halcomb RN BN (Hon) Grad Cert. Int. Care
PhD Candidate, School of Nursing, Family & Community Health, University of Western Sydney.
Ph: (02) 0403317668 E-mail: e.halcomb@uws.edu.au

A. Professor Patricia Davidson RN PhD ITC BA MEd MRCNA
Principal Supervisor, School of Nursing, Family & Community Health, University of Western Sydney.
Ph: (02) 8838 2051 E-mail: p.davidson@uws.edu.au

GP Consent Form UWS Study Registration No.: HREC 04/017 Page 1 of 1
Western Sydney Cardiac Awareness Survey and Evaluation
(‘WESTCASE’)

Dear Sir / Madam,
Your Doctor has asked if you would consider taking part in a general practice research study being conducted jointly by the University of Western Sydney and the Western Sydney Division of General Practice. This Information Statement outlines why you have been selected as a potential participant, the nature of the research and what is required of those who participate.

❖ What is the purpose of the study?
The aim of this study is to explore current trends in the management of patients with heart failure in general practice, explore their quality of life and identify their health care needs. A group of Doctors, including your General Practitioner, and nurse researchers within Western Sydney are currently conducting this study. Approximately 50 people are expected to participate in the research.

This research is important as it will provide information to improve the way that GPs care for those with heart failure that will potentially improve their health and quality of life. Information gained through this study will also provide vital information for local health service planning and, potentially, evidence for funding of services.

❖ Why have I been asked to participate?
Your doctor has identified that you are one of a group of patients that he / she provides care for who are aged over 65 years and might have a heart condition known as ‘heart failure’.

❖ What is heart failure?
Put simply, heart failure is a condition where the heart muscle cannot pump strongly enough to supply all the blood needed throughout the body. Common symptoms of heart failure are tiredness, shortness of breath and sometimes swelling in the ankles. The term ‘heart failure’ does not mean that your heart has stopped working. Rather it means that your heart is not working as well to support all of your body’s needs. There are varying degrees of severity of this condition alone and the severity of your heart failure can also be impacted upon by other medical problems that you might experience.

❖ What am I being asked to do?
If you agree to participate in this project, you will be asked to consent to two things, namely;

1. Complete a short questionnaire about your quality of life called the ‘Minnesota Living with Heart Failure Questionnaire’. This has 21 questions that ask about how your heart problem affects your life. This questionnaire usually takes 10-15 minutes to complete. If you need assistance, a member of the research team can help you to fill in the questionnaire.

2. Allow a member of the research team to read the medical record kept about you by your GP and collect some information about you and your health care. The researcher will only collect information about your health, any diagnostic tests that you might have had done, reasons for you coming to the GP, symptoms that you have reported and any medications that you take. Your medical record will not be photocopied or removed from your Doctors surgery at any time.
Participation in this study is purely voluntary. Any decision regarding participation will have no effect upon your current or future treatment by your GP, the University of Western Sydney or any other organization involved in the research. Your participation in the study will be kept confidential and no responses will be able to be linked to any individual participant.

- **What happens to the information collected during the study?**
All information collected from your medical record and questionnaire form is kept separate to your consent form, so you cannot be identified. The research team will be the only people who have access to the collected data. All of the information collected from different patients will be pooled together to identify numbers and trends. This data will be analysed and reports published in the medical/nursing literature.

The researcher commits to participants to have the research report widely published and the results available for use in clinical practice. No individual will be able to be identified from any reports or publications. Participants have the right to view the results once the final report is completed. This can be achieved by making a request to the Researcher or by contacting the University of Western Sydney, School of Nursing, Family and Community Health.

- **What benefit will I gain from participating in the study?**
Although this study will increase medical/nursing knowledge about the way that patients with heart failure are managed in general practice, it is possible that this may not be of direct benefit to you. However, it is anticipated that participants may experience an increased standard of care within general practice and that health services may be made more accessible and orientated to identified needs.

- **Who can I contact if I need assistance?**
If you have any questions/ concerns about participating in the study please don’t hesitate to contact either myself (Ph: 02 9840 3631) or the University of Western Sydney (Associate Professor Patricia Davidson Ph: 02 8838 2051) for further information, clarification or support.

Ms Elizabeth Halcomb RN BN (Hons) Grad Cert Int Care
PhD Candidate
School of Nursing, Family and Community Health, University of Western Sydney.

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officer (tel: 02 4570 1136). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
APPENDIX B.

Western Sydney Cardiac Awareness Survey and Evaluation (‘WESTCASE’)

Consent Form

1. I, [name], aged _______ years, of _______ [address], agree to participate in the research as described in the Information Sheet.

2. I acknowledge that I have read and understood the Information Sheet that explains why I have been selected, the nature of the research and possible risks of participating. I am satisfied that this information has been explained to me in a way I understand.

3. I understand that this research involves a member of the research team accessing my personal medical record and collecting data from this document.

4. I understand that the researchers will not use this information for any purpose not directly connected with this project.

5. Before signing this consent form, I have been given the opportunity to ask any questions relating to my participation in the study. I have received satisfactory answers to any questions that I may have asked. I understand that if I have any further questions related to the research I can contact the Primary Researcher, Ms Elizabeth Halcomb on telephone (02) 98403631 who will be happy to answer them.

6. I understand that my decision whether or not to participate in, or subsequently withdraw from this research project will not affect my current or future association with my General Practitioner, the University of Western Sydney or any other organization associated with the research. I also understand that my participation in the research is completely voluntary and that I may discontinue participation at any time without prejudice.

7. I agree that the data gathered from the results of the study may be published, provided that I cannot be identified as a participant.

8. I acknowledge receipt of a copy of this Consent Form and the Participant Information Sheet.

Complaints may be directed to the Human Research Ethics Officer, University of Western Sydney, Locked Bag 1797, Penrith South DC NSW 1797 (Telephone 02 4570 1136, E-mail: k.buckley@uws.edu.au).

Participant Name: ____________________________ Witness Name: ____________________________

Signature: ____________________________ Signature: ____________________________

Date: ____________________________ Date: ____________________________

Contact Persons for Further Information:

Ms Elizabeth Halcomb RN BN (Hons) Grad Cert. Int. Care
PhD Candidate, School of Nursing, Family & Community Health, University of Western Sydney.
Ph: (02) 9840 3631 E-mail: e.halcomb@uws.edu.au

A/Professor Patricia Davidson RN PhD ITC BA MEd MRCNA
Supervisor, School of Nursing, Family & Community Health, University of Western Sydney.
Ph: (02) 8838 2051 E-mail: p.davidson@uws.edu.au

Patient Consent Form UWS Study Registration No.: HREC 04/017
Appendix C.

WESTCASE STUDY: DATA COLLECTION INSTRUMENTS
September 9, 2004

Elizabeth Halcomb
University of Western Sydney
Sch Nursing, Family & Community Health
Bldg ER, Parramatta Campus
PO Box 1797, Penrith South
New South Wales, DC 1797
AUSTRALIA

Re: Copyright License Agreement
Minneapolis Living With Heart Failure
U/M Docket 94019: License #L1090-0213

Dear Ms. Holcomb:

We appreciate your decision to use the Minneapolis Living With Heart Failure
Questionnaire. Enclosed is your fully signed copy of the copyright license agreement.

Please call me if there are any questions. I can be reached at 612-624-9568, by fax at
612-624-6554, or via email at hildebr017@tc.umn.edu.

Best regards,

James W. Hildebrand
Software Licensing Associate

JWH/nm

Enclosure

Cc: Cheryl Yano (w/encl.)
## Western Sydney Cardiac Awareness Survey & Evaluation

### The Minnesota Living with Heart Failure® Questionnaire (MLWHFQ)

These questions concern how your heart failure (heart condition) has prevented you from living as you wanted during the last month. The items listed below describe different ways some people are affected. If you are sure an item does not apply to you or is not related to your heart failure then place a cross through 0 (No) and go on to the next item. If an item does apply to you, then place a cross on the number rating how much it prevented you from living as you wanted.

Did your heart failure prevent you from living as you wanted during the last month by:

<table>
<thead>
<tr>
<th></th>
<th>Very Little</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. causing swelling to your ankles, legs, etc?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>2. making you sit or lie down to rest during the day?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>3. making your walking about or climbing stairs difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>4. making your working around the house or yard difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>5. making your going places away from home difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>6. making your sleeping well at night difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>7. making your relating to or doing things with your friends or family difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>8. making your working to earn a living difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>9. making your recreational pastimes, sports or hobbies difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>10. making your sexual activities difficult?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>11. making you eat less of the foods you like?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>12. making you short of breath?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>13. making you tired, fatigued, or low on energy?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>14. making you stay in a hospital?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>15. costing you money for medical care?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>16. giving you side effects from medications?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>17. making you feel like you’re a burden to family and friends?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>18. making you feel a loss of self-control in your life?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>19. making you worry?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>20. making it difficult for you to concentrate or remember things?</td>
<td>0 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>21. making you feel depressed?</td>
<td>0 1 2 3 4 5</td>
<td></td>
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</table>

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Western Sydney
Cardiac Awareness Survey & Evaluation


**DATA COLLECTION FORM**

<table>
<thead>
<tr>
<th>GP Number</th>
<th>Patient Number</th>
</tr>
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Patient Consent Form Sighted

If a signed consent form is not sighted by the data collector patient files will not be reviewed.

<table>
<thead>
<tr>
<th>Data Collection Date</th>
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<th>Data Collectors Initials</th>
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<table>
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<tr>
<th>QoL Tool Completed</th>
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<tr>
<td>Yes</td>
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<tr>
<td>No</td>
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**CURRENT MEDICATIONS**

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<th>DRUG NAME</th>
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<th>FREQUENCY</th>
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<td>PNUEMOVAX</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>INFLUENZA VACCINE</td>
<td>YES / NO</td>
<td></td>
</tr>
</tbody>
</table>

WESTCASE Study – Data Collection Form
Page 1 of 4
UWS HREC Approval No.: HREC 04/017

301
<table>
<thead>
<tr>
<th><strong>Patient Demographics</strong></th>
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<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>1 Male 2 Female</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td>1 Married / DeFacto 2 Widowed 3 Single</td>
</tr>
<tr>
<td><strong>Living Arrangements</strong></td>
<td>Independent in own home / Spouse as carer / Living with other family / Hostel Facility / Nursing Home / Other:</td>
</tr>
<tr>
<td><strong>Date of Birth</strong></td>
<td>Day / Month / Year</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>Years Inclusion Criteria: Age ≥65 years (i.e. DOB 1939 or before)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>GP Utilisation</strong></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>No. of visits to GP in past year</td>
<td></td>
</tr>
<tr>
<td>Most Common Reasons for Presentation to GP in past year</td>
<td>1.</td>
</tr>
<tr>
<td>No. GPs seen in past year at this Practice</td>
<td>1 Complete (&lt;6/12 old) 2 Incomplete 3 Absent</td>
</tr>
<tr>
<td>Patient summary sheet in medical record</td>
<td>1 Yes 2 No</td>
</tr>
<tr>
<td>Use of EPC item(s) in past year</td>
<td>1 Yes 2 No</td>
</tr>
</tbody>
</table>

Please specify item numbers:  

<table>
<thead>
<tr>
<th><strong>Medical History</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>Yes No</td>
</tr>
<tr>
<td>Asthma / CAL / Emphysema</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cancer / Malignant Disease</td>
<td>Yes No</td>
</tr>
<tr>
<td>Depression</td>
<td>Yes No</td>
</tr>
<tr>
<td>Arthritis</td>
<td>Yes No</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>Yes No</td>
</tr>
<tr>
<td>Previous Myocardial Infarction</td>
<td>Yes No</td>
</tr>
<tr>
<td>Angina</td>
<td>Yes No</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Yes No</td>
</tr>
<tr>
<td>Valvular Disease</td>
<td>Yes No</td>
</tr>
<tr>
<td>Rheumatic Fever</td>
<td>Yes No</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>Yes No</td>
</tr>
<tr>
<td>Other rhythm disturbance</td>
<td>Yes No</td>
</tr>
<tr>
<td>Pacemaker</td>
<td>Yes No</td>
</tr>
<tr>
<td>Automated Defibrillator</td>
<td>Yes No</td>
</tr>
<tr>
<td>Cardiomyopathy</td>
<td>Yes No</td>
</tr>
<tr>
<td>CVA / TIA</td>
<td>Yes No</td>
</tr>
</tbody>
</table>

Please specify: ____________________________

Regular Dialysis: Y / N

Please specify: ____________________________

Please specify: ____________________________
APPENDIX C.

Other acute illness(s)  Yes ☐  No ☐  Please specify: __________________________
Other chronic illness(s) Yes ☐  No ☐  Please specify: __________________________

Number of hospitalisations in past year _______________________

No. of Admissions & Principal Diagnosis:
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Number of hospitalisations for heart failure in the past year _______
Specialists seen in past year Yes ☐  No ☐  Specialty: _______________________

DOES THE PATIENT HAVE A DIAGNOSIS OF HF DOCUMENTED??

No ☐  Yes ☐  Year of Diagnosis: _______________________

HAVE ANY OF THE FOLLOWING INVESTIGATIONS BEEN DONE IN THE PAST?

<table>
<thead>
<tr>
<th>Test</th>
<th>Yes</th>
<th>No</th>
<th>Most recent test</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECG</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Chest X-Ray</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Echocardiogram</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Angiogram</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Biochemistry (within past 12 months)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Haematology (within past 12 months)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HEART FAILURE MANAGEMENT

Has this patient seen a cardiologist for the management of heart failure in the past year?
Yes ☐  No ☐

Has this patient been referred to cardiac rehab. / heart failure program since diagnosis?
Yes ☐  No ☐

If yes, please specify: _________________________________________________

Has this patient been referred to allied health service since diagnosis?
Yes ☐  No ☐

If yes, please specify: _________________________________________________
<table>
<thead>
<tr>
<th>Has this patient got a documented management plan for their heart failure?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Have the following assessment items been recorded / monitored on <strong>GP visits</strong>?</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Physical Examination</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>b) Body weight (obesity + diet)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>c) Physical activity (exercise tolerance)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>d) Fluid retention (weight + oedema)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>e) Fluid restriction</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>f) Cholesterol level</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>g) Smoking status</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>h) Alcohol consumption</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>i) Blood pressure</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>j) Social isolation / depression / support</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**THIS IS THE END OF THE STUDY FOR THIS PATIENT**
Appendix D.

Summary Table: Evidence for Nurse-Led HF Management
<table>
<thead>
<tr>
<th>Reference</th>
<th>Sample</th>
<th>Country</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
</table>
| Doughty et al. (2002)<sup>(1)</sup> | 197 patients admitted to hospital.  
Mean age 73 years | NZ       | Multidisciplinary management with predetermined contact sequence with clinic nurse and telephone follow-up over six months | No difference in mortality  
Improved quality of life in physical dimension  
Decreased multiple admissions  
Decreased bed days |
| Kasper et al. (2002)<sup>(2)</sup> | 200 HF patients admitted to hospital.  
Mean age 64 years | United States | Nurse-led patient education, regular follow-up via telephone over 12 months. No modification to treatment by nurse. | Decrease in mortality  
Decrease in all cause admissions  
Decrease on length of stay  
Improved quality of life scores |
| Krumholz et al. (2002)<sup>(3)</sup> | 88 patients aged over 50 years discharged from hospital with HF.  
Mean age 74 years | United States | Inpatient / Outpatient education, telephone and clinic follow-up for 90 days | Decrease in readmissions |
| McDonald et al. (2002)<sup>(4)</sup> | 98 HF patients admitted to hospital.  
Mean age 71 years | Ireland | Nurse-led patient education, regular follow-up via telephone and clinic visits over six months | Decrease in readmissions |
| Pugh et al. (2001)<sup>(5)</sup> | 58 patients aged over 65 years discharged from hospital with HF.  
Mean age 77 years | United States | Multidisciplinary management with predetermined contact sequence with clinic nurse and telephone follow-up over six months | Decrease in readmissions |
| Jerant et al. (2001)<sup>(6)</sup> | 37 patients aged over 40 years discharged from hospital with HF.  
Mean age 70 years | United States | Nurse contact via telephone and video-based home telecare, protocol driven review of symptoms, medication compliance and dosing. Communication with physician if deterioration noted. Follow-up for two months | Decrease in ED presentations  
Decrease in readmission charges |
| Moser (2001)<sup>(7)</sup> | 136 clients.  
Mean age 70 years | United States | Community case management  
Access to nurse when needed  
3 month follow-up | Decrease in readmissions |
<table>
<thead>
<tr>
<th>Reference</th>
<th>Sample</th>
<th>Country</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>De Lusignan et al. (2001)&lt;sup&gt;(6)&lt;/sup&gt;</td>
<td>20 adult patients with HF diagnosed by a cardiologist identified from a general practice register.</td>
<td>UK</td>
<td>Telemonitoring of vital signs and clinical status. Video consult with study nurse over 12 months.</td>
<td>Improvements in compliance with medication and self-monitoring is Decrease in HF readmissions Decrease in all cause admissions Decrease on length of stay</td>
</tr>
<tr>
<td>Blue (2001)&lt;sup&gt;(9)&lt;/sup&gt;</td>
<td>165 clients admitted to hospital with HF and ventricular systolic dysfunction. Mean age 75 years</td>
<td>Scotland</td>
<td>Specialist nurses with contact pre-discharge to 12 months</td>
<td>Decrease in lengths of stay</td>
</tr>
<tr>
<td>Sommers et al. (2000)&lt;sup&gt;(10)&lt;/sup&gt;</td>
<td>734 clients aged 65 years or older with chronic illness. Mean age 77-78 years</td>
<td>United States</td>
<td>Nurse and social worker conducted home visits</td>
<td>Reduced hospital admissions in second year of trial Improved health status Reduced general practitioner visits</td>
</tr>
<tr>
<td>Philbin (2000)&lt;sup&gt;(11)&lt;/sup&gt;</td>
<td>10 hospitals were assigned to either intervention or control groups, including 2906 clients. Mean age 74-77 years</td>
<td>United States</td>
<td>Multifaceted quality improvement intervention</td>
<td>Decrease in lengths of stay Small and insignificant effects on readmission and quality of life</td>
</tr>
<tr>
<td>Naylor (1999)&lt;sup&gt;(12)&lt;/sup&gt;</td>
<td>363 elderly clients aged ≥65 years discharged from hospital (108 with HF). Mean age 76 years</td>
<td>United States</td>
<td>Nurse-led intervention for four weeks Coordination of home care with two home visits Weekly telephone contact for one month</td>
<td>Longer event-free survival Fewer intervention clients readmitted</td>
</tr>
<tr>
<td>Jaarsma (1999)&lt;sup&gt;(13)&lt;/sup&gt;</td>
<td>179 clients following hospitalisation with HF. Mean age 73 years</td>
<td>Netherlands</td>
<td>Nurse led client education Home visit after discharge Telephone follow-up for seven days following discharge</td>
<td>Trend towards statistical significance Increase in self-care behaviours</td>
</tr>
<tr>
<td>Stewart (1999)&lt;sup&gt;(14)&lt;/sup&gt;</td>
<td>200 CHF clients discharged from hospital. Mean age 76 years</td>
<td>Australia</td>
<td>Nurse led client education Medication adjustments as per protocol Telephone contact at three and six months</td>
<td>More intervention clients remained event free at six months</td>
</tr>
</tbody>
</table>
### Table:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Sample</th>
<th>Country</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
</table>
| Ekman (1998)\(^{(15)}\) | 158 clients with moderate to severe HF discharged from hospital. Mean age 80 years | Sweden      | Focus on self-management  
Nurse-run clinic  
Telephone follow-up for six months                                                   | No difference in hospitalisation rates between intervention and control. |
| Jolly et al. (1998)\(^{(16, 17)}\) | 422 adults with AMI & 175 clients with a new diagnosis of angina from 67 UK general practices. Mean age 63-64 years | England     | Improved communication between acute care and general practice  
Individualised structured follow-up  
Specialist nurses co-ordinated and supported use of existing services | Co-ordination of care promoted follow-up and uptake of rehabilitation but did not improve health outcome. |
| Weinberger (1996)\(^{(18)}\) | 1,396 veterans hospitalised with diabetes, chronic pulmonary disease or HF (504 with HF). Mean age 63 years | United States | Focus on primary care follow-up within seven days  
Veteran population  
Telephone follow-up for six months                                                                                     | Higher rates of hospitalisation and bed days among study group |
| Rich (1995)\(^{(19)}\) | 282 clients aged ≥70 years hospitalised with HF at high risk of readmission. Mean age 79 years | United States | Dietary and social service intervention  
Geriatric cardiologist review of medications  
Home follow-up for three months                                                                                     | Decrease in hospitalisations  
Decrease in costs |
| Naylor (1994)\(^{(20)}\) | 276 clients older than 70 years (142 with HF or coronary artery disease). Mean age 76 years | United States | Discharge planning protocol  
Gerontological nursing coordination of care  
Follow-up for two weeks                                                                                             | Decrease in hospitalisations |
| Rich (1993)\(^{(21)}\) | 98 hospitalised clients with HF with moderate to high risk of readmission. Mean age 79 years | United States | Dietary and social service intervention  
Geriatric cardiologist review of medications  
Home follow-up                                                                                                     | Decrease in hospitalisations  
Decrease in costs |
Reference List
Appendix E.

APACHE STUDY: HREC APPROVAL
21 October 2003

Dear Elizabeth

Re: Research Project: Australian Practice Nursing and Chronic Heart Failure ("APACHE") Study Registration Number HEC 03/166

The Committee has reviewed your responses to the issues raised and has agreed to grant your project an approval.

You are advised that the Committee should be notified of any further change/s to the research methodology should there be any in the future. You will be required to provide a report on the ethical aspects of your project at the completion of this project as well as interim reports upon request. The form is attached and also located on the Research Services Web Page.

The Protocol No. HEC 03/166 should be quoted in all future correspondence about this project. Your approval will expire 30 December 2004. Please contact the Human Ethics Officer, Kay Buckley on tel: 45 70 1136 if you require any further information.

The Committee wishes you well with your research.

Yours sincerely

[Signature]
Professor Elizabeth Deane
Chairperson
UWS Human Research Ethics Committee
Cc Professor John Daly
Appendix F.

APACHE STUDY:

SURVEY INFORMATION SHEET
AppenDIX F.

Australian Practice Nursing And Chronic Heart Failure ("APACHE") Study

Dear Practice Nurse,

Please accept this invitation to participate in a research project currently being conducted by the University of Western Sydney as a nursing PhD project. This Information Statement outlines why you have been selected as a potential participant, the nature of the research and what is required of those who participate.

❖ What is the purpose of the research?
The purpose of this questionnaire is to identify the current role of the practice nurse in the management of chronic diseases such as chronic heart failure. This research is significant as it will provide information to inform the development of management models for patients with CHF that will potentially improve their health and quality of life. Additionally, these models will empower practice nurses to develop expanded practice roles and undertake strategic professional development activities.

❖ Why have I been asked to participate?
The researchers are seeking any nurses currently working in general practice settings to be involved in this study. The experiences of each nurse is considered valuable by the researchers and it is only through the participation of a wide cross-section of practice nurses that the results of the study will best reflect the realities of clinical practice within Australia.

❖ What am I being asked to do?
If you agree to participate in this project you will be asked to complete the attached questionnaire and return it to the research team. Completion and return of the questionnaire implies your consent for the data enclosed to be used in this study and subsequent reports, presentations etc. Participation in this study is purely voluntary. Any decision regarding participation will have no effect upon your current or future treatment by the University of Western Sydney or any other organization involved in the research. Your participation in the study will be kept confidential and no responses will be able to be linked to any individual participant.

❖ What happens to the information collected during the study?
The researcher commits to participants to have the research report widely published and the results available for use in clinical practice. Participants have the right to view the results once the final report is completed. This can be achieved by making a request to the Researcher or by contacting the University of Western Sydney, School of Nursing, Family and Community Health.

❖ Who can I contact if I need assistance?
If you have any questions / concerns about participating in the study please don’t hesitate to contact either myself (Ph: 02 98403631) or the University of Western Sydney (Associate Professor Patricia Davidson Ph: 02 98472132) for further information, clarification or support. If you feel you would like to talk to a counselor or to discuss issues particular to your situation, counseling services can usually be obtained through your local Area Health Service or Community Mental Health Team.

Ms Elizabeth Halcomb RN BN (Hons) Grad Cert Int Care PhD Candidate
School of Nursing, Family and Community Health, University of Western Sydney.

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officer (tel: 02 4570 1138). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Questionnaire Information Sheet  UWS Study Registration No.: HEC 03/166  Page 1 of 1
Australian Practice Nursing And Chronic Heart Failure ("APACHE") Study

OFFER OF FURTHER INVOLVEMENT

Dear Practice Nurse,

It is certainly an interesting time in Australian practice nursing. Many developments are taking place to clarify the role and improve the status of this valuable group of nurses. As practice nurses are a relatively small group within the Australian nursing workforce, your assistance is vital to the success of this project. Thank you very much for your completion of the attached questionnaire. Your input is much appreciated.

The second phase of this project will involve telephone conversations with practice nurses to gain further information about their role in and perceptions about, chronic disease management. Participation in this second stage of the study is purely voluntary. Any decision regarding participation will have no effect upon your current or future treatment by the University of Western Sydney or any other organization involved in the research. Each telephone conversation will take approximately 30-90 minutes and will be conducted at a mutually convenient time. All telephone charges related to these conversations will be met by the research team. If you agree, we would like to audio-record our conversation to allow us to capture all of the important information that you give us.

To allow us to contact you to provide more information about participating in these conversations, please indicate your consent by supplying your contact details below and returning this form to the research team.

If you have any questions about the project please feel free to contact Ms Elizabeth Halcomb on (02) 98403631, email ehalcomb@uws.edu.au, fax (02) 98403632 or by post:

Clinical Nursing Research Unit,
Locked Bag 7118,
Building 59, Area Nurse Education Centre,
Cumberland Hospital, Parramatta, NSW 2150.

Name

Street Number / Name

Town________________________ State________ Post Code__________

Telephone____________________ Mobile________________________

Fax_________________________ Email_________________________

What is generally the best day/time to telephone you?

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officer (tel. 02 4570 1138). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix G.

APACHE STUDY: SURVEY INSTRUMENT
# Australian Practice Nursing And Chronic Heart Failure (“APACHE”) Study

As described in attached Information Statement, this questionnaire asks you about your experience as a Practice Nurse (PN). We need your help to gain a better understanding of the work of Practice Nurses in Australia. Please answer each question by ticking the appropriate box / column. This survey will take approximately 10-20 minutes to complete.

When you have completed the questionnaire, please return it in the reply paid envelope by 97th February 2004 or fax it back to Ms Elizabeth Halesorn on (02) 98409632. Return of this document constitutes informed consent to utilise the enclosed data for the purposes of this research.

The first group of questions asks about your current employment in General Practice and, more specifically, about the General Practice in which you are employed.

1. Under what classification are you currently employed? (Please ✓ one only)
   - Registered Nurse (Division 1) ✓ 1
   - Enrolled Nurse (Division 2) ✓ 2
   - Clinical Nurse Specialist ✓ 3
   - Clinical Nurse Consultant ✓ 4
   - Nurse Manager ✓ 5
   - Non-nursing classification ✓ 6
   - Other (please specify): ____________ 7

2. How many hours per week are you employed as a Practice Nurse (PN)?
   - ____________ hours

3. Do you work as a nurse outside General Practice? (Please ✓)
   - Yes ✓ 1
   - No ✓ 2
   - If no please go to Q 4.
   - a) If Yes, what type of other nursing work do you do? (✓ all that apply)
      - Acute hospital Speciality area (e.g. ICU, Midwifery) ✓ 1
      - Acute hospital General ward (medical / surgical) ✓ 2
      - Residential facility (e.g. nursing home, hospice) ✓ 3
      - Community care ✓ 4
      - Workplace (e.g. factory) ✓ 5
      - Non-acute hospital (e.g. rehab, psych) ✓ 6
      - Other (please specify): ____________ 7

   - b) How many hours per week do you work in this other role?
      - ____________ hours

4. As a Practice Nurse, how many General Practices have you ever worked in? (Please ✓ one only)
   - 1 ✓
   - 2 ✓
   - 3 ✓
   - 4 ✓
   - >4 ✓

5. As a Practice Nurse, how many General Practices do you currently work in? (Please ✓ one only)
   - 1 ✓
   - 2 ✓
   - 3 ✓
   - 4 ✓
   - >4 ✓

--- APACHE Study Questionnaire ---
If you work in more than one General Practice, please tell us about the practice you work in most of the time. If you are employed at a Divisional level please describe your experiences in the practices in which you most frequently see patients.

6. As a Practice Nurse, who is your employer? (Please ✓ one only)
   - Individual General Practitioner
   - Group of General Practitioners
   - Area Health Service
   - Division of General Practice
   Other (please specify)

7. How does your employer fund your position? (Please ✓ all that apply)
   - Medicare reimbursement
   - Local funding scheme
   - By increasing patient load
   - Combination of funding sources
   - Don’t know
   - Service incentive payments (SIPs)
   Other (please specify)

8. Including yourself, how many Practice Nurses are employed by the practice in which you work?
   - Registered (Division 1) Nurses: Full-time
   - Enrolled (Division 2) Nurses: Full-time

9. How many GPs work in your practice?
   - Full-time
   - Part-time

10. Does your practice have team meetings? (Please ✓)
    - Yes
    - No
    - If no go to Q 11.
    a) If yes, do you attend the team meetings? (Please ✓)
       - Yes
       - No

11. In what postcode area is the practice in which you work?

12. Which term best describes the locality covered by your practice? (Please ✓ one only)
    - Inner city (Capital City)
    - Urban / Metro (Capital City)
    - Rural / Outer metro area
    - Regional Centre
    - Rural / Remote
    Other (please specify)

To help us understand the background of PNs in Australia, the next group of questions asks about you and your professional education and experience.

13. What is your current age?
    - Years

14. Are you: Female ✓ Male

15. In what year did you first qualify as a nurse?

--- APACHE Study Questionnaire ---
16. Before you became a PN you may have worked in different health care settings. Please indicate in the first column the last setting that you worked in prior to becoming a PN. In the second column tick all settings that you have previously worked in.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute hospital (Specialty areas – e.g. ICU, Midwifery, dialysis unit)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Acute hospital (General ward areas – e.g. medical / surgical)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Non-acute hospital (e.g. long stay, psychiatric hospitals)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Residential facility (e.g. nursing home, hospice)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Community</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Workplace / Occupational Health (e.g. factory)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

17. What is your highest educational qualification? In the space below specify the major or specialty area that related to this qualification. (Please ✓)

- Hospital nursing certificate
- Advanced certificate
- Associate diploma
- Bachelor's Degree
- Graduate Certificate
- Masters
- Doctorate
- Other

Specialty Area(s) / Course Title (e.g. Midwifery, Critical Care, Oncology, Community):

18. How long, in total excluding absences from the workforce for more than 6 months, have you worked as a qualified nurse?  
   ________ Years  ________ Months

19. How long, in total excluding absences from the workforce for more than 6 months, have you worked as a practice nurse?  
   ________ Years  ________ Months

20. How many study days (paid and unpaid) have you attended in the last 12 months?  
   ________ Paid days  ________ Unpaid days

The next group of questions asks about your role as a PN within the Practice in which you work and about some of the practical issues relating to chronic disease management.

21. Do you have your own treatment room / area? (Please ✓)  
   Yes □  No □

22. Do you have a job description that clearly identifies your role within the Practice? (Please ✓)  
   Yes □  No □  Have job description but it is unclear □

   a) Do you feel that you are adequately supervised in your clinical practice? (Please ✓)  
      Too little supervision □  Adequate supervision □  Too much supervision □

--- APACHE Study Questionnaire ---
23. Do you have a current policy / procedure manual for PN procedures? (Please ✓)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

24. Do you have access to clinical practice guidelines or practice standards within the workplace? (Please ✓)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

25. Do you use a computer in your workplace?  Yes | No

   If no please go to Q. 26
   a) If you use a computer do you use it for:
      (✓ all that apply)

<table>
<thead>
<tr>
<th>Updating patient records</th>
<th>Producing statistics / reports about the practice population</th>
<th>Identifying patients for follow-up</th>
<th>Organizing patient appointments</th>
<th>Billing, letter writing and other administrative duties</th>
<th>Searching for information</th>
<th>Other (please specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

26. How are patient clinical notes managed in the Practice? (✓ one only)

<table>
<thead>
<tr>
<th>All computerised</th>
<th>Mostly computerized</th>
<th>Completely written file system</th>
<th>Other (please specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

27. Do you have easy access to clinical notes written by GPs within the Practice? (Please ✓)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

28. How do you record your interventions / interactions with patients? (Please ✓ one only)

<table>
<thead>
<tr>
<th>Combined patient file with GP(s)</th>
<th>Separate notes from GP(s)</th>
<th>No separate nursing documentation</th>
<th>Other (please specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

29. Do you have a system of identification / flagging of patients with similar chronic disease processes / diagnoses within the practice? (Please ✓)

| Yes | No
|-----|----|
| 1   | 2  | If no please go to Q. 30.

   a) If yes, which diseases are specifically flagged? (✓ all that apply)

<table>
<thead>
<tr>
<th>Diabetes</th>
<th>Chronic Heart Failure</th>
<th>Asthma</th>
<th>Dementia</th>
<th>Hypertension</th>
<th>Mental health disorders</th>
<th>Others (please specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>7</td>
</tr>
</tbody>
</table>

--- APACHE Study Questionnaire ---
APPENDIX G.

b) If yes, how can flagged patients be identified within the practice? (Please ✓ one only)

<table>
<thead>
<tr>
<th>Option</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computerised retrieval of data ...........................................</td>
<td>1</td>
</tr>
<tr>
<td>Not possible in our computer system ......................................</td>
<td>2</td>
</tr>
<tr>
<td>Don’t know if possible via computer system ................................</td>
<td>3</td>
</tr>
<tr>
<td>Hand searching through all paper files ...................................</td>
<td>4</td>
</tr>
<tr>
<td>Personal knowledge of patients ...........................................</td>
<td>5</td>
</tr>
<tr>
<td>Other (please specify) ................................................................</td>
<td>6</td>
</tr>
</tbody>
</table>

30. Do you regularly visit patients in their homes? (Please ✓)

- Yes [ ] 1
- No [ ] 2

If no, go to

a) If yes, what services do you provide during these visits? (✓ all that apply)

<table>
<thead>
<tr>
<th>Service</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Assessment / Screening ..................................................</td>
<td>1</td>
</tr>
<tr>
<td>Nursing procedures (e.g. wound dressing) .....................................</td>
<td>2</td>
</tr>
<tr>
<td>Clinical investigations (e.g. ECG, venepuncture) ...........................</td>
<td>3</td>
</tr>
<tr>
<td>Immunisation / Vaccination ................................................................</td>
<td>4</td>
</tr>
<tr>
<td>Social / Psychological ....................................................................</td>
<td>5</td>
</tr>
<tr>
<td>Chronic disease follow-up ..................................................................</td>
<td>6</td>
</tr>
<tr>
<td>Other (please specify) ....................................................................</td>
<td>7</td>
</tr>
</tbody>
</table>

31. Do you have regular patient screening programs in place in your Practice? (Please ✓)

- Yes [ ] 1
- No [ ] 2

If no please go to Q 32.

a) If yes, which conditions / diseases / symptoms are screened for? (✓ all that apply)

<table>
<thead>
<tr>
<th>Condition / Disease / Symptom</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>1</td>
</tr>
<tr>
<td>Asthma</td>
<td>2</td>
</tr>
<tr>
<td>Hypertension</td>
<td>3</td>
</tr>
<tr>
<td>Breast Screening</td>
<td>4</td>
</tr>
<tr>
<td>Chronic Heart Failure</td>
<td>5</td>
</tr>
<tr>
<td>Cloacrum Smares</td>
<td>6</td>
</tr>
<tr>
<td>Dementia</td>
<td>7</td>
</tr>
<tr>
<td>Sensory Testing (e.g. hearing)</td>
<td>8</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>9</td>
</tr>
<tr>
<td>Obesity</td>
<td>10</td>
</tr>
<tr>
<td>Prostate Screening</td>
<td>11</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>12</td>
</tr>
</tbody>
</table>

32. Do you feel that local hospitals effectively communicate with you and your Practice regarding patients post-discharge needs? (Please ✓)

- Yes [ ] 1
- No [ ] 2

a) Please tell us why you feel this way.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

--- APACHE Study Questionnaire ---
33. In your role as a PN how do you interact with community nurses and community care providers to provide patient care?

a) Are you satisfied with this level of interaction? (Please ✓)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) Please tell us why you feel this way.

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>----------------------------------</td>
</tr>
</tbody>
</table>

34. How does a patient come into contact with you as a PN?
Rate from 1-8 the most common means by which you encounter patients in your daily work. Use 1 to indicate the most common and 8 the least common means of patient encounter. Leave blank any that do not apply.

| Patients routinely see a PN (e.g. for vital signs measurement) prior to seeing GP | 4 |
| Patients referred to PN after GP consult for intervention (e.g. wound care, education) | 2 |
| Patients referred by GP for follow-up at a later date with the PN for a specific problem | 3 |
| Receptionist decides which Patients see PN or GP | 4 |
| PN screens Patients from booking sheet | 7 |
| Patients self-refer to PN | 6 |
| PN runs disease-specific clinics | 7 |
| Other (please specify) | 3 |

35. What factors do you think prevent you from extending your role within the Practice in which you work? (Please ✓ as many reasons as you feel apply to you)

| No personal desire to extend role | 1 |
| Belief that current role is appropriate | 4 |
| Lack of confidence to undertake tasks | 5 |
| Lack of confidence to approach employers | 7 |
| GPs attitude to nurses’ role | 8 |
| Legal implications of extended roles | 11 |
| Patients’ perception of nurses role | 13 |
| Lack of opportunity | 2 |
| Lack of space / equipment | 4 |
| Lack of training | 8 |
| Inability to prescribe medications | 2 |
| Lack of proper job description | 12 |
| Underdeveloped clinical skills | 15 |

Other (please specify): ____________________________________________________________________________________________

--- APACHE Study Questionnaire ---
36. What factors assist you in extending your role within the Practice in which you work?
(Please ✓ as many reasons as you feel apply to you)

- Collaboration with GP
- Active contribution to management plans
- New and exciting nature of the role
- Opportunity to deliver primary care
- Potential to shape role to meet local needs
- Positive Consumer feedback

Access to Education & training
High level job satisfaction
Autonomy of practice
Less restrictive management
Improved hours of work
Better employment conditions

Other (please specify):

37. On the scale below please circle the statement that best describes your level of optimism concerning the development of the PN role in Australia.

- Extremely Optimistic
- Somewhat optimistic
- Unsure of future role
- Somewhat pessimistic
- Extremely pessimistic

38. As a PN what do you consider to be the most pressing issues facing practice nurses in terms of being able to contribute to chronic illness management in general practice?

1)

2)

3)
### Specific Nursing Tasks

This question asks about selected aspects of your work. These questions seek to understand which activities you currently perform & identify those that you feel that you may be able to perform in the future. **YOU SHOULD TICK MORE THAN ONE COLUMN PER TASK IF APPROPRIATE.**

<table>
<thead>
<tr>
<th>Task</th>
<th>Do you think this is an appropriate task for a Practice Nurse? (Please ✓ if yes)</th>
<th>Do you need further education to be confident in this task? (Please ✓ if yes)</th>
<th>Do you regularly perform this task in your role as a Practice Nurse? (Please ✓ if yes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assisting GP with minor surgery</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Preparing equipment for GP</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Silethoscopic examination of heart &amp; chest</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Auroscopic or Ophthalmoscopic examination</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Using a respiratory peak flow meter</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Venepuncture</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Taking ECGs</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Cervical smears or Breast examination</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Immunisation / Vaccination</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Apply / change wound dressings</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Phone assessment / triage</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Ante-natal / Post-natal checks</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Assessment of baby / infant development</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Administer oral / injectable medications</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Assessment of care against guidelines</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Titration of medications (e.g. diuretics)</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Ordering diagnostic testing</td>
<td>17</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Counseling interventions</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Follow-up of diagnostic test results</td>
<td>19</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Education about illness prevention</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Undertake quality assurance audits</td>
<td>21</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Conduct research projects</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Education re: vascular risk factors</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Enhanced primary care health assessments</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Organising EPC case conferences</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>26</td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>
40. **Health Promotion Clinics**

This question asks about health promotion of disease management clinics that you might be involved in within the General Practice. **YOU SHOULD TICK MORE THAN ONE COLUMN PER CLINIC TYPE IF APPROPRIATE.**

<table>
<thead>
<tr>
<th>Clinic Type</th>
<th>Yes</th>
<th>2</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health promotion clinics</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Family planning / Contraception clinics</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ante-natal and / or post-natal clinics</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Child Health Clinics</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Chronic illness clinics</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Menopause / Hormone replacement clinics</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Elderly health assessments</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Diet Control (Eating disorders or obesity)</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Smoking Cessation program</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Vascular risk factor management</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

41. **Chronic Disease Management Activities**

This question asks about activities undertaken within chronic disease management clinics that you might be involved in within the General Practice. **YOU SHOULD TICK MORE THAN ONE COLUMN PER ACTIVITY IF APPROPRIATE.**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>2</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure measurement</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Blood testing (e.g. cholesterol, BSL)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>ECG testing</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Physical Assessment</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Lifestyle counseling / advice</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Disease-specific education</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Assessment of social support</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Assessment of medication regimes</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Case-management / Co-ordination</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

--- APACHE Study Questionnaire ---
Thank you very much for completing this questionnaire. Your experience in this field and willingness to share your knowledge is very valuable to us.

Please return the questionnaire by post to the address below:

Ms Elizabeth Halcomb
Nursing Research Unit,
Locked Bag 7118,
Building 59, Area Nurse Education Centre,
Cumberland Hospital, Parramatta, NSW 2150

OR fax it to 02 9840 3629
OR scan it and e-mail to: e.halcomb@uws.edu.au
Appendix H.

APACHE STUDY: SURVEY RESULTS TABLES
**Table A. APACHE Survey Participant Recruitment**

<table>
<thead>
<tr>
<th>Specific reminder strategies</th>
<th>No. of Practice Nurses</th>
<th>No. of Responses</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Western Sydney Division of General Practice</strong></td>
<td>Reminder advertisement in Practice Newsletter and weekly fax to Practices (for three consecutive weeks post survey distribution). Letter and/or phone call to all Practices by Researcher.</td>
<td>60</td>
<td>18</td>
</tr>
<tr>
<td><strong>St George Division of General Practice</strong></td>
<td>Reminders delivered via Division directly to Practice nurses and via newsletters.</td>
<td>30</td>
<td>11</td>
</tr>
<tr>
<td><strong>Mid-North Coast Division of General Practice</strong></td>
<td>Surveys distributed at Practice nurse Workshop run by the Division. Reminders delivered via Division directly to Practice nurses and via newsletters.</td>
<td>30</td>
<td>9</td>
</tr>
<tr>
<td><strong>ACT Division of General Practice</strong></td>
<td>Reminders delivered via Division directly to Practice nurses and via newsletters.</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td><strong>Wide Bay Division of General Practice</strong></td>
<td>Reminders delivered via Division directly to Practice nurses and via newsletters.</td>
<td>60</td>
<td>12</td>
</tr>
<tr>
<td><strong>Australian Practice Nurse Association</strong></td>
<td>Advertisement in APNA newsletter (posted out 2 weeks post-survey delivery). Copy of survey and reminder posted on APNA website.</td>
<td>286</td>
<td>90</td>
</tr>
<tr>
<td><strong>National Practice Nurse Conference Delegates</strong></td>
<td>Post-conference contact via fax or e-mail at intervals of 1 week, 2 weeks and 4 weeks.</td>
<td>60</td>
<td>23</td>
</tr>
<tr>
<td><strong>Nursing Journals</strong></td>
<td>Advertisement published in a single issue of the Australian Nursing Federation journal in each State and Territory. Potential participants were advised to either contact the researcher or access the survey via the APNA website.</td>
<td>*</td>
<td>30</td>
</tr>
<tr>
<td><strong>APNA Website</strong></td>
<td>An advertisement and downloadable survey form (PDF format) was posted on the Website of the APNA. This section of the site is freely accessible to the public and members of the APNA.</td>
<td>*</td>
<td>22</td>
</tr>
<tr>
<td><strong>Email contact with Divisions of General Practice</strong></td>
<td>All Divisions of General Practice with e-mail listings on the Australian Division of General Practice website were emailed on two occasions, either directly to the main Division e-mail address or to a nominated chronic disease / practice nurse support. Divisions were encouraged to distribute the survey to practice nurses within the Division.</td>
<td>*</td>
<td>52</td>
</tr>
</tbody>
</table>

* It is not possible to accurately estimate the number of practice nurses who were invited to participate in the study via these methods of recruitment.
### Table B. Participating Divisions of General Practice

<table>
<thead>
<tr>
<th>Division of General Practice</th>
<th>Survey Participants</th>
<th>State / Territory</th>
<th>Rural / Urban</th>
<th>MAHS-eligible</th>
<th>No. of Practices</th>
<th>No. of Solo Practices</th>
<th>No. of GPs</th>
<th>No. FTE GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Sydney</td>
<td>1</td>
<td>NSW Urban</td>
<td>No</td>
<td>348,975</td>
<td>276</td>
<td>149</td>
<td>697</td>
<td>324</td>
</tr>
<tr>
<td>Eastern Sydney</td>
<td>1</td>
<td>NSW Urban</td>
<td>No</td>
<td>168,339</td>
<td>188</td>
<td>unk</td>
<td>433</td>
<td>199</td>
</tr>
<tr>
<td>South Eastern Sydney</td>
<td>2</td>
<td>NSW Urban</td>
<td>No</td>
<td>184,918</td>
<td>85</td>
<td>51</td>
<td>999</td>
<td>149</td>
</tr>
<tr>
<td>Bankstown</td>
<td>2</td>
<td>NSW Urban</td>
<td>No</td>
<td>166,127</td>
<td>102</td>
<td>54</td>
<td>166</td>
<td>155</td>
</tr>
<tr>
<td>Western Sydney</td>
<td>19</td>
<td>NSW Urban</td>
<td>No</td>
<td>591,500</td>
<td>300</td>
<td>unk</td>
<td>714</td>
<td>460</td>
</tr>
<tr>
<td>Northern Sydney</td>
<td>6</td>
<td>NSW Urban</td>
<td>No</td>
<td>209,440</td>
<td>92</td>
<td>19</td>
<td>308</td>
<td>176</td>
</tr>
<tr>
<td>St George District</td>
<td>9</td>
<td>NSW Urban</td>
<td>No</td>
<td>223,888</td>
<td>143</td>
<td>63</td>
<td>259</td>
<td>183</td>
</tr>
<tr>
<td>Hornsby Ku-Ring-Gai</td>
<td>4</td>
<td>NSW Urban</td>
<td>No</td>
<td>410,695</td>
<td>180</td>
<td>75</td>
<td>495</td>
<td>313</td>
</tr>
<tr>
<td>Manly Warringah</td>
<td>1</td>
<td>NSW Urban</td>
<td>No</td>
<td>226,248</td>
<td>77</td>
<td>24</td>
<td>214</td>
<td>162</td>
</tr>
<tr>
<td>Sutherland</td>
<td>2</td>
<td>NSW Urban</td>
<td>No</td>
<td>214,250</td>
<td>68</td>
<td>21</td>
<td>208</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>284</td>
<td></td>
<td></td>
<td>15,739,375</td>
<td>6,099</td>
<td>2,124</td>
<td>18,151</td>
<td>11,231</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**
This data has been derived from the postcode supplied by each participant which was matched to the postcodes covered by each Division supplied by the ADGP. Where a postcode area was serviced by more than one Division, the Division having the most coverage was attributed with the participant.

Additional data regarding Divisional characteristics was obtained from the Australian Divisions of General Practice.
Figure H-1 Scree Plots

Figure H-1a Scree Plot - Is this an appropriate task for a practice nurse?

Figure H-1b Scree Plot - Do you currently undertake this task?

Figure H-1c Scree Plot - Do you need education to be confident in this task?
### Table C. Rotated Factor Matrices

#### a) Rotated Factor Matrix Factor One: Basic Nursing Tasks

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Is this an appropriate task for a practice nurse?</th>
<th>Do you currently undertake this task?</th>
<th>Do you need education to be confident in this task?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound dressings</td>
<td>0.920</td>
<td>0.749</td>
<td>0.620</td>
<td></td>
</tr>
<tr>
<td>Assisting GP with minor surgery</td>
<td>0.858</td>
<td>0.719</td>
<td>0.460</td>
<td></td>
</tr>
<tr>
<td>Taking ECGs</td>
<td>0.811</td>
<td>0.626</td>
<td>0.669</td>
<td></td>
</tr>
<tr>
<td>Using a peak flow meter</td>
<td>0.772</td>
<td>0.554</td>
<td>0.482</td>
<td></td>
</tr>
<tr>
<td>Preparing equipment for GP</td>
<td>0.767</td>
<td>0.645</td>
<td>0.583</td>
<td></td>
</tr>
<tr>
<td>Immunisation / vaccination</td>
<td>0.765</td>
<td>0.700</td>
<td>0.417</td>
<td></td>
</tr>
<tr>
<td>Administration of medications</td>
<td>0.721</td>
<td>0.609</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>Venepuncture</td>
<td>0.542</td>
<td>0.308</td>
<td>0.418</td>
<td></td>
</tr>
<tr>
<td>Phone assessment / triage</td>
<td>0.749</td>
<td>0.476</td>
<td>0.236</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.797</td>
<td>4.732</td>
<td>1.880</td>
<td></td>
</tr>
<tr>
<td>Initial Eigenvalues</td>
<td>29.987</td>
<td>18.2</td>
<td>7.230</td>
<td></td>
</tr>
<tr>
<td>Rotation sum of squares</td>
<td>23.871</td>
<td>14.863</td>
<td>10.475</td>
<td></td>
</tr>
</tbody>
</table>

#### b) Rotated Factor Matrix Factor Two: Advanced Nursing Tasks

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Is this an appropriate task for a practice nurse?</th>
<th>Do you currently undertake this task?</th>
<th>Do you need education to be confident in this task?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stethoscopic exam of heart &amp; chest</td>
<td>0.619</td>
<td>0.710</td>
<td>0.778</td>
<td></td>
</tr>
<tr>
<td>Cervical smears or breast exam</td>
<td>0.462</td>
<td>0.707</td>
<td>0.760</td>
<td></td>
</tr>
<tr>
<td>Ordering diagnostic testing</td>
<td>0.656</td>
<td>0.208</td>
<td>0.607</td>
<td></td>
</tr>
<tr>
<td>Assessment of infant development</td>
<td>0.649</td>
<td>0.248</td>
<td>0.551</td>
<td></td>
</tr>
<tr>
<td>Auroscopic / Ophthalmoscopic exam</td>
<td>0.629</td>
<td>0.188</td>
<td>0.759</td>
<td></td>
</tr>
<tr>
<td>Antenatal / postnatal checks</td>
<td>0.624</td>
<td>0.612</td>
<td>0.582</td>
<td></td>
</tr>
<tr>
<td>Titration of medications</td>
<td>0.537</td>
<td>0.358</td>
<td>0.617</td>
<td></td>
</tr>
<tr>
<td>Assessment of care against guidelines</td>
<td>0.433</td>
<td>0.553</td>
<td>0.255</td>
<td></td>
</tr>
<tr>
<td>Follow-up of diagnostic test results</td>
<td>0.474</td>
<td>0.119</td>
<td>0.494</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.574</td>
<td>1.575</td>
<td>6.100</td>
<td></td>
</tr>
<tr>
<td>Initial Eigenvalues</td>
<td>13.745</td>
<td>6.059</td>
<td>23.461</td>
<td></td>
</tr>
<tr>
<td>Rotation sum of squares</td>
<td>13.763</td>
<td>10.162</td>
<td>17.160</td>
<td></td>
</tr>
</tbody>
</table>
c) Rotated Factor Matrix\

<table>
<thead>
<tr>
<th>Item</th>
<th>Is this an appropriate task for a practice nurse?</th>
<th>Do you currently undertake this task?</th>
<th>Do you need education to be confident in this task?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct research projects</td>
<td>0.740</td>
<td>0.539</td>
<td>0.678</td>
</tr>
<tr>
<td>Undertake quality assurance audits</td>
<td>0.703</td>
<td>0.445</td>
<td>0.587</td>
</tr>
<tr>
<td>Organising EPC case conferences</td>
<td>0.681</td>
<td>0.319</td>
<td>0.603</td>
</tr>
<tr>
<td>Education re: vascular risk factors</td>
<td>0.587</td>
<td>0.583</td>
<td>0.642</td>
</tr>
<tr>
<td>Counselling interventions</td>
<td>0.492</td>
<td>0.745</td>
<td>0.509</td>
</tr>
<tr>
<td>Primary health care assessments</td>
<td>0.389</td>
<td>0.313</td>
<td>0.527</td>
</tr>
<tr>
<td>Education about illness prevention</td>
<td>0.283</td>
<td>0.680</td>
<td>0.313</td>
</tr>
<tr>
<td>Total</td>
<td>1.269</td>
<td>3.065</td>
<td>2.539</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Initial Eigenvalues</th>
<th>Rotation sum of squares</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>total</td>
<td>% of variance</td>
</tr>
</tbody>
</table>

Factor 1: Core Nursing Tasks\
Factor 2: Advanced Practice Tasks\
Factor 3: Expanded Nursing Tasks

*Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in five iterations

Table D. Relationships between Participant Characteristics and Factors

<table>
<thead>
<tr>
<th></th>
<th>Factor 1 Core Nursing Tasks</th>
<th>Factor 2 Advanced Practice Tasks</th>
<th>Factor 3 Expanded Nursing Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Experience</td>
<td>$\chi^2 = 1.454$</td>
<td>$\chi^2 = 0.382$</td>
<td>$\chi^2 = 0.210$</td>
</tr>
<tr>
<td>$p = 0.228$</td>
<td>$p = 0.537$</td>
<td>$p = 0.647$</td>
<td></td>
</tr>
<tr>
<td>Practice Nurse Employer</td>
<td>$\chi^2 = 6.435$</td>
<td>$\chi^2 = 1.970$</td>
<td>$\chi^2 = 7.840$</td>
</tr>
<tr>
<td>$p = 0.376$</td>
<td>$p = 0.992$</td>
<td>$p = 0.250$</td>
<td></td>
</tr>
<tr>
<td>Highest Educational Qualification</td>
<td>$\chi^2 = 0.004$</td>
<td>$\chi^2 = 0.431$</td>
<td>$\chi^2 = 1.135$</td>
</tr>
<tr>
<td>$p = 0.948$</td>
<td>$p = 0.512$</td>
<td>$p = 0.287$</td>
<td></td>
</tr>
<tr>
<td>Size of Employing Practice</td>
<td>$\chi^2 = 0.370$</td>
<td>$\chi^2 = 0.744$</td>
<td>$\chi^2 = 1.206$</td>
</tr>
<tr>
<td>$p = 0.543$</td>
<td>$p = 0.388$</td>
<td>$p = 0.272$</td>
<td></td>
</tr>
<tr>
<td>RRMA Classification of Practice</td>
<td>$\chi^2 = 2.552$</td>
<td>$\chi^2 = 2.031$</td>
<td>$\chi^2 = 0.008$</td>
</tr>
<tr>
<td>$p = 0.110$</td>
<td>$p = 0.154$</td>
<td>$p = 0.931$</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 = $ Pearson Chi-Square. Equal variances not assumed.

Note: The data for this analysis was taken from the questions regarding the tasks currently undertaken by the participant in their practice in order to ascertain whether these tasks were related to their personal, professional or employment characteristic.
Appendix I.

APACHE Study: Interview Information Sheet & Consent Forms
Australian Practice Nursing And Chronic Heart Failure ("APACHE") Study

Dear Practice Nurse,

Thank you for completing the recent questionnaire about practice nurses and their role in chronic disease management. This Information Statement outlines the second stage of this project and what is required of those who participate.

What is the purpose of the research?
The purpose of this project is to clarify the role of the practice nurse in the management of chronic diseases such as chronic heart failure. This research is significant as it will provide information to inform the development of management models for CHF patients that will potentially improve their health and quality of life. Additionally, these models will empower practice nurses to develop expanded practice roles and undertake strategic professional development activities. The response to the initial questionnaires has been fantastic and provided significant information. The aim of the telephone interviews is to provide a more detailed account of practice nurse roles and allow the researcher to explore responses through conversations with key informants.

Why have I been asked to participate?
Your willingness to be contacted for further involvement in the study after completing the questionnaire has prompted the research team to contact you with this information sheet and consent form, inviting you to participate in the telephone conversations.

What am I being asked to do?
If you agree to participate, you will be asked to complete and return the attached consent form. When we receive this, you will be contacted by the research team to arrange a convenient time and place for a telephone interview. Each conversation will last approximately 30-90 minutes. During this time, the researcher will ask you to respond to a series of questions and talk about your experiences as a practice nurse. If you agree, we would like to audio-record each conversation to allow us to capture all of the important information that you give us. All costs of these telephone calls will be met by the research team.

Participation in the study is purely voluntary. Any decision regarding participation will have no effect upon your current or future treatment by the University of Western Sydney or any other organization involved in the research. Your participation in the study will be kept confidential. All participants will be known by a pseudonym in reports and publications stemming from this study and no responses will be able to be linked to any individual.

What happens to the information collected during the study?
The researchers commit to participants to have the research report widely published and the results available for use in clinical practice. Participants also have the right to view the results once the final report is completed. This can be achieved by making a request to the Researcher or by contacting the University of Western Sydney, School of Nursing, Family and Community Health.

If you have any questions about participating please don’t hesitate to contact either myself (Ph: 02 9846 3531) or the University of Western Sydney (M Professor Patricia Davidson Ph: 02 9845 7132) for further information.

Ms Elizabeth Halcomb RN BN (Hons) Grad Cert Int. Care PhD Candidate
School of Nursing, Family and Community Health, University of Western Sydney

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officer (tel: 02 4670 1136). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix I.

College of Social & Health Sciences
School of Nursing, Family & Community Health

University of Western Sydney

Australian Practice Nursing And Chronic Heart Failure ("APACHE") Study

Consent Form

1. I ___________________________, [age], [address], [name], agree to participate in the research as described in the Information Sheet.

2. I acknowledge that I have read and understood the Information Sheet that explains why I have been selected, the nature of the research and possible risks of participating. This information has been explained to me to my satisfaction.

3. I understand that this stage of the research involves having a telephone interview with a member of the research team. I agree to the researchers contacting me using the details that I have provided on the "offer of further involvement" for the purpose of participation in this research.

4. I understand that the researchers will not supply these contact details to any third party or use them for any purpose not directly connected with this project.

5. Before signing this consent form, I have been given the opportunity to ask any questions relating to my participation in the study. I have received satisfactory answers to any questions that I may have asked. I understand that if I have any further questions related to the research I can contact the Primary Researcher, Ms. Elizabeth Halcomb on telephone (02) 98408631 who will be happy to answer them.

6. I understand that my decision whether or not to participate in, or subsequently withdraw from this research project will not affect my current or future association with the University of Western Sydney or any other organization associated with the research. I also understand that my participation in the research is completely voluntary and that I may discontinue participation at any time without prejudice.

7. I agree that the data gathered from the results of the study may be published, provided that I cannot be identified as a participant.

8. I acknowledge receipt of a copy of this Consent Form and the Participant Information Sheet.

Complaints may be directed to the Human Research Ethics Officer, University of Western Sydney, Locked Bag 1797, Penrith South DC NSW 1797 (Telephone 02 4570 1136, E-mail: k.buckley@uws.edu.au).

Participant Name: ___________________________  Witness Name: ___________________________

Signature: ___________________________  Signature: ___________________________

Date: ___________________________  Date: ___________________________

Contact Persons for Further Information:

Ms. Elizabeth Halcomb RN BN (Hons) Grad Cert. Int. Care
PhD Candidate, School of Nursing, Family & Community Health, University of Western Sydney.
Ph: (02) 9840 8631  E-mail: e.halcomb@uws.edu.au

A/Professor Patricia Davidson RN PhD MTC BA MEd MRCNA
Principal Supervisor, School of Nursing, Family & Community Health, University of Western Sydney.
Ph: (02) 9845 7132  E-mail: p.davidson@uws.edu.au

Consent Form  UWS Study Registration No.: HEC 03/106  Page 1 of 1
Appendix J.

APACHE STUDY: INTERVIEW SCHEDULE
Thankyou for giving your permission to be involved in this telephone interview. Just a reminder that this conversation is being recorded onto audio-tape to allow me to transcribe the conversation for analysis. The tape and subsequent transcript will be identified by a code number only and not with your name or identifying details. Only people directly involved in data analysis will have access to the tapes and transcripts. In the final reports quotes from the conversations will be used but these will not be able to be linked to any individual participant.

If you want to stop at anytime please let me know. We can either finish the conversation there or come back to it later.

- Can you tell me how long have you been a practice nurse? What led you to become a practice nurse?
- Can you tell me about the specific models of care used within the Practice in which you work?
  - Do you run disease-specific clinics?
  - How do you get allocated a patient load?
- The notion of primary health care is widely discussed in the literature. Can you tell me how you interpret the term ‘primary health care’?
- How do you see your role in the management of chronic diseases such as ‘chronic heart failure’ in general practice?
  - Do you see your role as the facilitator of designated ‘disease-specific’ clinics?
  - Do you see your role as an independent ‘advanced’ practice practitioner?
- What do you see as the barriers to you fulfilling an expanded role?
  - A lot of nurses surveyed identified issues between the GP and the nurse in terms of the GPs attitude to the nurses role and their willingness to facilitate the development of the practice nurse role. In your experience, what has contributed to this?
  - Education has been identified as a barrier to role development. What would the most effective strategies for improving practice nurse education?
  - Legal implications have been also identified as being a concern. How do legal implications restrict your practice?
- What assists you in fulfilling an expanded role?
- How do you think others, such as other health professionals and the public, would perceive an increased role for the practice nurse in chronic disease monitoring and management?

Do you have anything you would like to add?

Thankyou very much for your participation. It has been great to receive such a warm response from so many practice nurses. Hopefully, these results will be helpful in providing an insight into the issues that you face in general practice.

Should you think of anything after you get off the phone or be concerned about anything we discussed today please don't hesitate to contact me and we can discuss it.
Appendix K.

Consensus Development Conference Participants
Dr Penny Abbott  General Practitioner, Dharruk Aboriginal Medical Service, Western Sydney.

Dr Glenn Close  Director/Epidemiologist, Centre for Epidemiology, Indicators, Research and Evaluation, Western Sydney Area Health Service.

Prof John Daly  Head of School, School of Nursing, Family & Community Health (SNFCH), UWS (Co-Supervisor).

A/Prof Patricia Davidson  Associate Professor of Nursing, Sydney West Area Health Service & SNFCH, UWS (Principal Supervisor). Co-Chair, Cardiovascular Clinical Expert Group, NSW Health.

Dr Peter Edwards  General Practitioner, Western Sydney Division of General Practice.

Ms Kerrie Goldston  Program Manager, Secondary Prevention, Heart Foundation of Australia.

Prof Rhonda Griffiths  Professor of Nursing, Sydney South West Area Health Service & SNFCH, UWS (Co-Supervisor). Director, NSW Joanna Briggs Centre for Evidence Based Nursing and Midwifery.

Dr Elizabeth Patterson  Head of School (Gold Coast campus), Senior Lecturer, Griffith University.

Mr Glenn Paull  Clinical Nurse Consultant, St George Hospital HF Program.

Dr Sue Phillips  Program Manager, National Institute of Clinical Studies.

Ms Julie Porritt  Principal Advisor for Nursing in General Practice, Australian Divisions of General Practice.

Ms Margaret Ryan  Practice Nurse, APNA Representative.

Prof Geoffrey Tofler  (Co-Supervisor) Cardiologist, Royal North Shore Hospital and The University of Sydney, Sydney, Australia. Co-Chair, Cardiovascular Clinical Expert Group, NSW Health.

Dr Ross White  General Practice Liaison Officer, Western Sydney Division of General Practice.

Ms Julie Yallop  Cardiovascular Research Unit, Department of Epidemiology and Preventive Medicine, Alfred Hospital, Vic, Australia.