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Exploring The Roles Of Nurse Practitioners In Australia And Social Theory Perspective. A Critical And Social Theory Perspective

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APPROVAL LETTER

This Research entitled "Exploring the roles of Nurse Practitioners in Australia and social theory perspective. A critical and social theory perspective" prepared and submitted by "Loretta Bernadette Gya" in partially fulfillment of the requirement for the degree of PhD Degree in Nursing has been examined and here by recommended for approval and acceptance

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Approved by the **COMMITTEE ON EXAMINATION** with the degree of PHD

Accepted in partial fulfillment of the requirements for the degree of PhD In Nursing.

Declaration of Originality

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma.

No parts of this thesis have been submitted towards the award of any other degree or diploma in any other tertiary institution.

No other person's work has been used without due acknowledgment in the main text of the thesis.

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You clearly see that the PhD is a journey of learning when you consider all the people you have learned from during this undertaking.

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Abstract

Background, aim and research questions: Collaborative work between nurse practitioners (NPs) and medical practitioners (MPs) in primary healthcare (PHC) settings is a novel approach to patient care in Australia. Hence, this multiple case study using mixed methods aimed to identify the conceptual and practical aspects of collaboration between NPs and MPs in Australian PHC settings. The rationale for conducting this study was to provide practitioners and policy-makers with information about the likely barriers and facilitators of collaborative practice models and current experiences of collaboration in PHC settings. This has not been examined before in Australia. Specifically, this study sought to answer three research questions: 1) What is the conceptual basis of collaboration as defined by NPs and MPs? 2) What are NPs' and MPs' experiences of collaborative practice? 3) What are the factors that enable the functioning of collaborative practice models?

Methods: This research is based on a multiple case study design using mixed methods. Participants were purposefully selected considering maximum variation of site characteristics and this resulted in a sample of six NPs, thirteen MPs and three practice managers from five primary healthcare sites. Data were collected through observations, questionnaires, documents and semi-structured interviews from the five selected cases. Thematic analysis was undertaken for qualitative data (observations, documents and semi-structured interviews), followed by deductive analysis whereby thematic categories were compared to two theoretical models of collaboration. Questionnaire responses were summarised using descriptive statistics. Data were then triangulated to generate a comprehensive and layered understanding of collaboration between NPs and MPs.

Results: The questionnaire data showed that NPs and MPs believed that collaboration was beneficial for patients (median [range]: NPs: 5.0 [4.2-5.0]; MPs: 4.7 [3.3-5.0]); they experienced high levels of collaboration (NPs: 4.5 [4.7-5.3]; MPs: 5.4 [2.7-6.0]) and were highly satisfied with their collaborative relationship (NPs: 5.1 [4.2-5.5];

MPs: 5.4 [2.6-6.0]). In interviews, NPs and MPs clearly defined their ideal of collaboration but experienced a less than ideal practice reality. In practice, system structures were not designed for collaborative practice between NPs and MPs. The health insurance system, legislative and policy requirements as well as infrastructure at practice level were seen by both NPs and MPs to impede the functioning of collaborative practice models because they disadvantaged NPs financially and fostered MP-led service delivery and health professionals working as separate entities. Furthermore, interviews and observations revealed the parallel existence of overlapping, complementary, old and new roles of NPs and MPs that made it difficult at times to recognise clear professional boundaries and easily understand the role of the NP. Enactment of roles also influenced perceptions of reimbursement and legal liability when sharing care of a patient. The identified challenges to collaborative working suggested that the establishment and sustainability of collaborative practice models relied on the willingness of individuals, their professional relationships with one another and the ability of NPs and MPs to establish new routines within existing structures and adjust to the co-existence of various roles. The comparison with theoretical models of collaboration confirmed a lack of system-level support for collaborative working in Australian PHC settings.

Conclusion: This study has generated new knowledge for Australian practitioners, political decision-makers and healthcare policy advisors. Specifically, working together in the context of PHC appeared to be less about the conceptual ideal of collaboration than how it was operationalised by NPs and MPs in terms of practical arrangements. Consequently, the forms of collaborative practice models varied. They occurred on a continuum ranging from shared patient care to separate healthcare provision and mainly manifested as models of autonomous healthcare consultations from NPs and MPs with occasional cases of shared care for patients. Healthcare system regulations limited the utilisation of NP capabilities and reduced opportunities to establish collaborative practice models. Since counting on the willingness of individuals to engage in collaborative practice is not sufficient for the introduction of

new models of care, healthcare system reforms need to focus on the facilitation of implementation and sustainability of collaborative practice models for NPs and MPs through amendments to legislation schemes. This includes changes to the current Medicare reimbursement scheme to allow more balanced financial positions of NPs and MPs and enable utilisation of unrestricted NP autonomy for the full benefit for patient care. Longitudinal cohort studies are recommended to compare collaborative practice models and their influence on patient outcomes.

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Abbreviations

ACNP	Australian College of Nurse Practitioners
AHPRA	Australian Health Practitioner Regulation Agency
AMA	Australian Medical Association
APNA	Australian Practice Nurse Association
CEO	Chief Executive Officer
CPM	Collaborative Practice Model
Doc	Document
FFS	Fee-for-Service
GP	General Practitioner
HREC	Human Research Ethics Committee
I	Interviewer
KPMG	Klynveld Peat Marwick Goerdeler (Company)
MBS	Medicare Benefits Schedule
MMR	Mixed Methods Research
MP	Medical Practitioner
NHMRC	National Health and Medical Research Council
NP	Nurse Practitioner
NSW	New South Wales (Australian State)
NUM	Nurse Unit Manager
Obs	Observation
PBS	Pharmaceutical Benefits Scheme
PHC	Primary Health Care
PM	Practice Manager
RACGP	Royal Australian College of General Practitioners
SA	South Australia
SOC	Scope of Practice
UK	United Kingdom
USA	United States of America
VIC	Victoria (Australian State)
WA	Western Australia

Glossary

Autonomy   Autonomy refers to the ability to make your own decisions (Cambridge Dictionaries Online, 2014) and work without the supervision of others (Weston, 2008)

"Having a sense of one's own identity and an ability to act independently and to exert control over one's environment, including a sense of task mastery, internal locus of control, and self-efficacy" (Australian Nursing and Midwifery Council, 2006, p. 5)

Case   In this study, a case refers to a practice setting within which the phenomenon of collaboration between nurse practitioners and medical practitioners was researched. The cases were instrumental (Stake, 1995, 2006) in order to explore the collaborative relationship, interactions, communication and behavioural patterns at each individual case. The term study site is used synonymously with case.

Collaboration   Collaboration is a dynamic process based on sharing, partnership, interdependence and equally shared power (D'Amour, Ferrada-Videla, San Martin Rodriguez, & Beaulieu, 2005).

Collaboration between a nurse practitioner and a medical practitioner is "an interdisciplinary process for communication and decision-making that enables the separate and shared knowledge and skills of the care providers to synergistically influence the client/patient care provided" (Way, Jones, & Busing, 2000, p. 3).

Collaborative arrangement   A legal requirement for nurse practitioners to enter a collaborative arrangement with a medical practitioner in order to access publically-funded healthcare subsidy schemes (*National Health (Collaborative Arrangements for Nurse Practitioners) Determination*, 2010).

Consultations   Consultations between health professionals are usually undertaken without a separate appointment for the patient (Way, Jones, & Baskerville, 2001). They include consultations during which the patient may be present or not.

Independence   Independence relates to the ability to live (and work) without being influenced or helped by others (Cambridge Dictionaries Online, 2014).

Medical practitioner   "A person whose primary employment role is to diagnose physical and mental illnesses, disorders and injuries and prescribe medications and treatments that promote or restore good health" (Australian Institute of Health and Welfare, 2014b, Section 4). Medical practitioners in Australia are required to be registered with the Australian Health Practitioner Registration Agency (AHPRA) in order to provide medical care.

Medicare   Medicare is Australia's public health insurance scheme, managed by the Department of Health, administered by the Department of Human Services (Australian Government - Department of Human Services, 2014b).

Nurse practitioner   "A registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master's degree is recommended for entry level" (International Council of Nurses, 2009, p. 1). Nurse practitioners in Australia are required to be registered by AHPRA and endorsed as NP.

Practice nurse   "A general practice nurse is a registered nurse or an enrolled nurse who is employed by, or whose services are otherwise retained by a general practice" (Australian Practice Nurse Association, 2014, para. 1). Practice nurses have the ability to autonomously see patients but commonly under the supervision of a general practitioner. In comparison to the NP, a practice nurse participates in many procedures in an assisting capacity and cannot access the Medicare Benefits Schedule (MBS) or Pharmaceutical Benefits Scheme (PBS).

Primary care   Primary care is part of primary healthcare. It describes a narrower focus of care delivery, commonly the first point of entry of a patient into the healthcare system, provided by an individual practitioner in one or several consultations with the aim to diagnose and treat (Keleher, 2001).

Primary healthcare   Primary healthcare in Australia is "socially appropriate, universally accessible, scientifically sound first level care provided by a suitably trained workforce supported by integrated referral systems and in a way that gives priority to those most need, maximises community and individual self-reliance and participation and involves collaboration with other sectors. It includes the following: health promotion, illness prevention, care of the sick, advocacy, community development" (Australian Primary Health Care Research Institute, 2014).

Referrals   Referrals between health professionals entail an additional appointment for the patient (Way, Jones, & Baskerville, 2001).

Registered nurse   Registered nurses in Australia are those who are registered with the national registration agency, the Australian Health Practitioner Regulation Agency (AHPRA). Registration is possible after the completion of a minimum 3-year nursing degree at a Bachelor level (Australian Institute of Health and Welfare, 2014c).

System structures   System structures in this study refer to national and state-wide healthcare system structures as well as to practice-level infrastructure and organisational arrangements.

Statement of Contributions to Jointly Published Work

Statement of contributions for Chapter 2 – Literature review

Views and experiences of nurse practitioners and medical practitioners with collaborative practice in primary health care -- an integrative review. *BMC Family Practice (2013), 14*(132), 1-11. doi: 10.1186/1471-2296-14-132

Statement of contributions for Chapter 3 – Methodology and Methods

Investigating characteristics of collaboration between nurse practitioners and medical practitioners in primary healthcare: a mixed methods multiple case study protocol. *Journal of Advanced Nursing*, published online 20/10/2013. doi: 10.1111/jan.12269

Statement of contributions for Chapter 3 – Methodology and Methods

CHAPTER ONE

INTRODUCTION

1 Chapter One - Introduction

Chapter one introduces the purpose of this three-year research project focused on capturing and understanding how collaboration occurs between nurse practitioners (NPs) and medical practitioners (MPs) in Australian primary healthcare (PHC) settings. In Australia, NPs and MPs work together in the PHC sector to provide better access to quality patient care (King, Corter, Brewerton, & Watts, 2012). It is a legal requirement that NPs enter a collaborative arrangement with a MP in order to access publically-funded healthcare subsidy schemes. In comparison to the wealth of international research on perceptions of and experiences with collaboration, Australian research accompanying the expansion of collaborative practice models with NPs and MPs is scarce, which led to the initiation of this study on Australian NP-MP practice models.

In this chapter, I provide a short history of the implementation to the healthcare system of NPs both internationally and nationally. The literature shows that NPs in PHC can contribute to better healthcare provision of patients (Stanik-Hutt et al., 2013) but appear to rely on the support of MPs (Lowe, Plummer, & Boyd, 2013). Therefore, nurse practitioners and MPs are often found to work in collaboration but multiple factors can hinder or enable the establishment of collaborative practice models. The challenges relating to interprofessional collaboration and the difficulty of integrating a new type of health professional in established systems are presented. Existing theoretical concepts of collaboration are outlined to provide the reader with an understanding of the conceptual underpinnings of collaboration. To locate this study in the Australian context, a summary of the small number of Australian studies and Government reports on perceptions and experiences with interdisciplinary collaboration in healthcare is presented.

Existing international evidence and some Australian research of multiprofessional teams indicate that collaboration between NPs and MP is a complex undertaking (Sullivan, 1998). Therefore, the present study investigated how NPs and MPs in

Australian PHC settings experienced collaboration to uncover the complexities in an Australian context. Throughout this chapter the importance of this study is highlighted and concludes with the aim and research questions that guided this research.

1.1   The primary healthcare context

Primary healthcare in Australia offers a range of services in the community so that accessing these services is often the first point of contact for patients. Healthcare providers include general practitioners and medical specialists, nurses, pharmacists and allied health workers (Australian Institute of Health and Welfare, 2014d). Australian PHC aligns itself with the WHO definition and is defined as

> *socially appropriate, universally accessible, scientifically sound first level care provided by a suitably trained workforce supported by integrated referral systems and in a way that gives priority to those most need, maximises community and individual self-reliance and participation and involves collaboration with other sectors. It includes the following: health promotion, illness prevention, care of the sick, advocacy, community development (Australian Primary Health Care Research Institute, 2014).*

Australian primary healthcare delivery is based on a mixed funding model that includes funding from national government programmes, state-level government programmes including community health services, direct payments from patients and private health funds (Australian Institute of Health and Welfare, 2014d). Government programmes at the national level include the Medicare Benefits Schedule (MBS) and the Pharmaceutical Benefits Scheme (PBS). Medicare, the public health insurance scheme, subsidises a wide range of health services listed on the MBS and prescription medicines listed on the PBS (Australian Institute of Health and Welfare, 2014a). Designated healthcare providers such as MPs, NPs, dentists, radiologists and allied health professionals can choose to charge the Government subsidised fee (known as bulk-billing) or charge an additional fee that the patient has to pay privately. In addition to the Medicare scheme, some patients opt to have private health insurance

that pays some costs not covered by Medicare such as allied healthcare services, ambulance services and dental treatment (Australian Institute of Health and Welfare, 2014a). Healthcare costs for PHC services in Australia account for 36.1% of the total healthcare expenditure (Australian Institute of Health and Welfare, 2014a).

1.2 Collaboration with nurse practitioners in primary healthcare

Worldwide, increasing numbers of nurses[1] work in advanced practice roles. Of particular interest to this study is the role of nurse practitioners. While regulations, credentialing processes, scope of practice and policies around advanced nursing practice and NP roles vary among countries (Duffield, Gardner, Chang, & Catling-Paull, 2009; Lowe, Plummer, O'Brien, & Boyd, 2012), it is generally acknowledged that a NP is a registered nurse:

> *who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master's degree is recommended for entry level. (International Council of Nurses, 2009, p. 1).*

The first NPs were accredited in the 1960s in the United States of America (USA) as a strategy to tackle the rising costs of the healthcare system and shortages of MPs in rural and remote areas (Barton & Mashlan, 2011; Schober & Affara, 2006; Silver, Ford, Ripley, & Igoe, 1985). An increased focus on PHC and the identified need to provide adequate access to healthcare services fostered clinical specialisation of nurses in PHC. This consequently led to the expansion of NPs in healthcare systems (Asubonteng, McCleary, & Munchus, 1995; Brush & Capezuti, 1996). Today, initiatives for the introduction of NPs to the healthcare system can be found in some countries in Asia, Africa, Europe and South America. Employment of NPs has been

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[1] Throughout the document the term nurses encompasses all general nurses while NPs refers specifically to endorsed NPs

established in North America, Ireland, United Kingdom (UK), Australia and New Zealand (Pulcini, Jelic, Gul, & Loke, 2010; Schober & Affara, 2006; Sheer & Wong, 2008).

A large number of studies have identified that NPs can effectively and safely undertake some services traditionally provided by MPs (Horrocks, Anderson, & Salisbury, 2002; Newhouse et al., 2011; Stanik-Hutt, et al., 2013). This was found in particular for PHC, including general practice settings (Dierick-van Daele, Metsemakers, Derckx, Spreeuwenberg, & Vrijhoef, 2009; Kinnersley et al., 2000; Laurant et al., 2009; Mundinger et al., 2000; Parkinson & Parker, 2013; Venning, Durie, Roland, Roberts, & Leese, 2000). While it is acknowledged that there is an overlap in the scope of practice of NPs and MPs in PHC, it is important to view both health professionals as complementary and independent healthcare providers with differing philosophies of care (Lowe, et al., 2012; Weiland, 2008). Therefore NPs may substitute MPs for some particular types of patient consultations, but this does not exclude the complementary collaborative care of patients, where the management of patient care is shared between both health professionals (Noroxe, Moth, Maindal, & Vedsted, 2013).

Nurse practitioners in PHC can contribute to solutions for current healthcare service delivery issues, which have occurred from escalating demands with an ageing population, an overall population growth, a rise in chronic diseases, an increase of healthcare service costs and workforce shortages (Australian Government, 2010). However, a World Health Organisation (WHO) report on healthcare workforce highlighted the underutilisation of advanced health practitioners, such as NPs, in addressing the current healthcare issues (World Health Organisation, 2013). This was ascribed to a lack of knowledge of the NPs' scope of practice, non-recognition of their skills and lack of financial and organisational support for their implementation (McInnes, 2008).

National and international empirical evidence of NP accounts from interviews and surveys indicate that the implementation of NPs in healthcare services appears to be linked to collaborative work arrangements with MPs (Burgess & Purkis, 2010; Desborough, 2012; Lowe, et al., 2013). Consequently, NP positions evolve where they receive support from MPs, leading to collaboration between the two professions. Collaborative care of patients has gained momentum over recent years. Collaborative practice models of nurses and MPs have been the ones most researched (Naccarella et al., 2006; Sarma, Devlin, Thind, & Chu, 2012).

However, an integrative review on collaboration between NPs and MPs in PHC identified numerous barriers to successful and satisfying collaborative work arrangements (Schadewaldt, McInnes, Hiller, & Gardner, 2013b). These factors relate to interpersonal differences, system structures such as legislation and organisational protocols, a lack of clarity as to professional roles and financial aspects of collaboration (Schadewaldt, et al., 2013b). The review identified research on NP-MP collaboration in PHC in the USA, Canada, UK, the Netherlands, Sweden, Ireland and New Zealand. No Australian studies on NP-MP collaboration in PHC were identified, re-enforcing the importance of this study (Schadewaldt, et al., 2013b). Details about the findings of the integrative review, the included studies and their methodological approaches to investigate views and experiences of NPs and MPs on collaboration are presented in the second chapter.

Collaboration between NPs and MPs cannot be discussed without addressing the historical relationship between the two professions. Two major works have highlighted some of the historical conditions that shape the relationship between nurses and MPs. One of the first publications on the working relationship of nurses and MPs that achieved wide attention was the publication titled *The doctor-nurse-game* (Stein, 1967). Stein (1967) described communication and behavioural patterns of nurses and MPs, illustrating the traditional hierarchy between nurses and MPs. An Australian doctoral thesis of historical case studies that reached international appreciation, specifically investigated the conditions that supported medical

dominance over other health professions, including nurses (Willis, 1983). In summary, Willis (1983) concluded that medical dominance was based on three pillars; autonomy over their own work, authority over other health professionals and sovereignty over health aspects and decisions at various levels in the society.

Both authors have revisited their research over two decades later and found evidence for ongoing issues in regard to power imbalances between nurses and MPs (Stein, Watts, & Howell, 1990; Willis, 2006). Willis specifically referred to the slow implementation of NPs in the Australian healthcare system as an example of "behind-the-scenes influence" (Willis, 2006, p. 428) of the medical profession. Other researchers confirmed a "structural embeddedness of medical dominance" (Bourgeault & Mulvale, 2006, p. 482) in healthcare systems of North America and the UK (McMurray, 2011). Introducing NPs as PHC providers to a sector that was and still is led by MPs can complicate the relationship between the professions. Aspects of medical dominance in the healthcare system influenced the approach to the study presented in this thesis.

The introduction of new models of care affects existing services and structures, which health professionals may perceive as an uncomfortable change to accustomed practice. American economists identified the introduction of NPs to healthcare systems as "disruptive innovation" (Christensen, Baumann, Ruggles, & Sadtler, 2006; Christensen, Bohmer, & Kenagy, 2000). Disruptive innovations offer "cheaper, simpler, more convenient […] services that start by meeting the needs of less-demanding customers" (Christensen, et al., 2000, p. 2). Nurse practitioners fulfil these criteria because they are able to diagnose and treat patients, provide cheaper healthcare services without compromising on quality and thus appeal to customers with unmet healthcare needs (Christensen, et al., 2006). As a consequence, NPs offer services that are part of a medical practitioner's work spectrum and "disrupt" existing service structures (Christensen, et al., 2000). It also creates an overlap of the scope of practice requiring the re-negotiation of professional boundaries and roles (Barton, 2006). Awareness for the overlap and shift in professional scopes and boundaries was

particularly important when researching settings where NPs and MPs work closely together.

In line with the theory of disruptive innovations, Greenhalgh (2008) synthesised findings of a literature review and identified interrupted routines as a challenge to collaborative working of differing health professionals. It was highlighted that the overlapping roles and scope of practice in teams made it difficult for some health professionals to have clear conceptions about their professional identity and establish successful routines (Greenhalgh, 2008). Furthermore, individual attitudes, economic pressures, policies, legislation and institutional conditions influenced collaborative work routines of health professionals (Greenhalgh, 2008). The implementation of collaborative practice models requires practitioners to adapt to changed routines of service provision. System structures can impede or facilitate the adaption process of disrupted routines and innovations. The author of an analysis of the Canadian healthcare system concluded, "it is currently not feasible to implement system-based team structures." (Jansen, 2008, p. 222). System structures and their readiness for collaborative care models also play a role in the approach of this study on Australian NP-MP collaboration. In addition, the viewpoint of NPs as disruptive innovations and the blurring of roles in teams were parts of the lens through which the data of this study were examined.

International research shows an increase of NPs in collaborative practice models with MPs but indicates challenges for the establishment of collaborative practice models. Before delving into conceptual details of collaboration, the Australian context of NP implementation is presented.

1.2.1 Policy context for nurse practitioners in Australia

Following the positive results of pilot projects, the first NPs in Australia were formally authorised to practice in 2000 by the registration board (Australian College of Nurse Practitioners, 2014). Further pilot projects to evaluate the role and its effectiveness accompanied the expansion of NPs throughout all seven Australian

states and territories. Tasmania was the last state to endorse NPs in 2009 (Australian College of Nurse Practitioners, 2009). In September 2014 there were 1128 endorsed NPs in Australia (Nursing and Midwifery Board of Australia, 2014b). In contrast to other countries, where NPs are predominantly authorised as PHC providers (Heale, 2012; Phillips, 2007), the Australian landscape of NPs differs. Nurse practitioners in Australia were introduced within a variety of specialties, with the majority working in emergency care and only approximately 6% working in PHC (Gardner, Gardner, Middleton, & Della, 2009; Middleton, Gardner, Gardner, & Della, 2011). The number of NPs in the PHC sector might have increased more rapidly since the latest survey in 2009, with increased access to Medicare funding allowing for more funded positions outside the public healthcare sector. Medicare statistics summarising NP services, reflected in the use of MBS items, showed a steady increase from 41,173 items used in 2011 compared to 154,065 items used in 2013 (Australian Government - Department of Human Services, 2014a). However, according to authors of a systematic review on nurse-led care, PHC is dominated by medical practitioners and "NPs are not part of the general practice landscape in Australia" (Hoare, Mills, & Francis, 2012, p. 974).

Nurse practitioner endorsement in Australia is regulated through a national body, the Australian Health Professional Regulation Agency (AHPRA). This endorsement includes the ability to prescribe, but state-level legislation *regulates* prescribing rights (Nursing and Midwifery Board of Australia, 2011). Nurse practitioners are registered nurses with a minimum educational level of a Master's degree (Nursing and Midwifery Board of Australia, 2014a). Since 2010, NPs are authorised to prescribe medication as listed in the Pharmaceutical Benefits Scheme (PBS) and access the Medicare Benefits Schedule (MBS) (Department of Health, 2014b; *Health Insurance (Midwife and Nurse Practitioner) Determination*, 2011). The MBS applies to NPs working in private settings such as the patient's home, aged care facilities, general practices or in a private consulting room (Department of Health, 2014a). Similar to some states in the USA (Phillips, 2014), it is a prerequisite by Australian law for NPs

to work with at least one collaborating MP to access MBS items (*National Health (Collaborative Arrangements for Nurse Practitioners) Determination*, 2010). This determination is crucial to this study because of its regulative effect on collaborative working between NPs and MPs. The determination, as enabled by the *Health Insurance Regulations 1975*, section 2F, defines collaborative arrangements as being one of the following: (1) the NP is employed or engaged by a MP or an institution that employs or engages MPs, (2) a patient is referred to the NP by a MP, (3) a written agreement about collaborative practice between the NP and the MP exists, or (4) an agreement about collaborative care for an individual patient is stated in the patient's clinical notes by the NP.

The Australian Government's determination of NP-MP collaborative arrangements has been criticised. While NPs valued the access to MBS items, the requirement of a formal agreement to collaborate with a MP was seen as unnecessary (Carrigan, 2011). However, to date, reports about collaborative arrangements in Australia remain anecdotal (Carrigan, 2011) and the practical consequences of the determination in regards to collaborative practice of NPs and MPs in PHC settings still need to be established (Cashin, 2014).

Following this introduction to the NP role, its implementation in Australian healthcare and its link to collaborative work with MPs, the next section outlines the concept of collaboration.

1.3   The theoretical concept of collaboration

The healthcare literature offers a variety of definitions and conceptual models of collaboration in healthcare. Terms related to collaboration include: working together, teamwork, multidisciplinary or interdisciplinary care and I will try to make their often subtle distinctions clear in the following paragraph.

While the dictionary simply states collaboration as *working with* (Merriam-Webster Dictionary, 2011), the healthcare literature ascribes collaboration more meaning than

that (Petri, 2010). In general, the body of literature shows that collaboration is understood as a dynamic process based on sharing, partnership, interdependence and equally shared power (D'Amour, et al., 2005). Compared to working together or teamwork, collaboration is characterised by a more intense relationship and interaction between individuals (Sullivan, 1998). This relationship is usually based on trust, respect, willingness to collaborate and communication, but this is not considered sufficient for successful collaboration in healthcare (Henneman, 1995; San Martín-Rodríguez, Beaulieu, D'Amour, & Ferrada-Videla, 2005). The success of collaboration between individuals also depends on conditions within the organisation and system structures (San Martín-Rodríguez, et al., 2005).

Both multidisciplinary and interdisciplinary care are considered forms of collaboration, with multidisciplinary care referring to teamwork of multiple disciplines who look after the patient but who also carry out individually based care (Callaghan, 2006; D'Amour, et al., 2005; Satin, 1994). It is distinct from interprofessional collaboration through its lack of integration of different perspectives of health professionals (Jessup, 2007). Interdisciplinary care refers to "a deeper level of collaboration where members of different disciplines engage in planning and prioritising patient care through collective action, by pooling together their specialised knowledge and expertise" (Callaghan, 2006, p. 390; D'Amour, et al., 2005; Satin, 1994).

For this study, the term collaboration was chosen to broadly describe the relationship, interactions and working arrangements of NPs and MPs, including both interdisciplinary and multidisciplinary aspects of care. According to Sullivan (1998) a surrogate term for collaboration is collaborative practice. I want to distinguish between a practice setting where NPs and MPs work collaboratively and the mode of working in collaboration. Thus, in this study the terms collaboration/collaborative practice refer to the way of operating collaboratively while a clinical setting is called collaborative practice model.

One definition of collaboration from Canadian researchers was especially relevant to this study because it was developed to specifically describe collaborative practice between NPs and MPs:

> *an interdisciplinary process for communication and decision-making that enables the separate and shared knowledge and skills of the care providers to synergistically influence the client/patient care provided (Way, et al., 2000, p. 3).*

This definition was constructed with input from NPs and family physicians, experienced in collaborative practice and therefore was based on primary research and not simply on findings from a literature review (Way, Jones, & Baskerville, 2001). Considering the vast literature on theoretical concepts of collaboration my study did not develop another definition but identified if the participants' ideas and expectations of collaboration and practice experiences corresponded with existing definitions and conceptual models.

With an understanding of the concept of collaboration in mind, the next sections outline research on experiences with collaborative practice models of nurses, NPs and MPs, undertaken in the public and private healthcare sector in Australia. It will be highlighted why my study focused on addressing a knowledge gap in the Australian context of PHC.

1.4   Australian research on collaboration

In general, research on collaborative working of healthcare professionals in Australia has largely referred to collaboration between MPs and nurses generally (Chaboyer & Patterson, 2001; Mills & Fitzgerald, 2008; Stein-Parbury & Liaschenko, 2007), and has included NPs and MPs in hospital settings such as intensive care units (Copnell et al., 2004) and emergency departments (Jones, Christoffis, Smith, & Hodyl, 2013; Lee, Jennings, & Bailey, 2007) or included NPs from a variety of settings (Foster, 2010; Wilson, Coulon, Hillege, & Swann, 2005) Other Australian studies included multidisciplinary teams without NP-MP collaboration as a distinct feature. These

studies included entire teams investigating the influence of interventions to foster collaboration of multiprofessional teams in general practices (Black et al., 2013), power dynamics in teams in various rural healthcare settings (McDonald, Jayasuriya, & Harris, 2012; Nugus, Greenfield, Travaglia, Westbrook, & Braithwaite, 2010), attitudes (Braithwaite et al., 2013) and experiences (Parker et al., 2013) of health professionals with collaboration. In none of these multiprofessional studies were NPs part of the team.

Information on how collaboration takes place between NPs and MPs in PHC comes from anecdotal reports (Anderson, 2012; Anonymous, 2012; Boase, 2009; Gosby, 2013), which lack a structured and evidence-based approach of investigating collaboration between NPs and MPs. Some challenges of collaboration with MPs were alluded to in Government reports of pilot projects, documenting NP implementation in various Australian states and territories. While PHC was not the specific focus of these pilot projects, some reports highlighted the importance of collaboration for the successful implementation of NPs in the Australian healthcare system, which confirmed the international evidence. A report by KPMG for the Western Australian Government (Government of WA, 2011) emphasised that the agreement of MPs to work in collaboration with NPs became crucial with the introduction of collaborative arrangements. The findings of these reports indicated that NPs worked autonomously but in collaboration with other health professionals (ACT Government, 2002; Department of Human Services SA, 1999; Department of Human Services VIC, 1999; NSW Department of Health, 1995; Queensland Health, 2003). Difficulties of collaboration were seen in blurred roles within the collaborative approach and the disruption of existing professional relationships (Chiarella, 1996; NSW Department of Health, 1995). Several reports identified opposition of medical organisations and practitioners to the NP role (Government of South Australia, 2002; NSW Department of Health, 1995). In Victoria, a report evaluating NP projects and representing the views of the Australian Medical Association (AMA) and the Royal Australian College of General Practitioners (RACGP) stated that the medical

associations did not support independent NP practice, including authority to prescribe, refer and order diagnostic tests (Pearson, Nay, Ward, Lenten, & Lewis, 2002). However, the same report identified that NPs were well supported by individual MPs in all 16 pilot projects (Pearson, et al., 2002). Seven years later, an evaluation report on the implementation of NPs in the state of New South Wales confirmed that the resistance from the AMA was not found throughout the medical profession as more and more MPs accepted NP colleagues (Della & Zhou, 2009).

Some of the reports and research publications on the implementation of NPs in Australia have touched on issues of NP-MP collaboration but the topic has not gained as much attention as in other countries such as the USA or Canada. Therefore, knowledge on the perceptions and experiences of NP-MP collaboration in Australian PHC settings to date is limited to anecdotal reports. The available research evidence is based on NPs working collaboratively in non-PHC settings or on trials tentatively implementing NPs into the healthcare system. Without evidence derived from thorough research, there is little basis to advocate to policy makers, insurers, public health services and funders to provide support for and to strengthen collaborative approaches to healthcare.

1.5   Significance of this study

Despite the wealth of international research undertaken to clarify the concept of collaboration between health professionals and more specifically between nursing and medical professionals there is a "jumble of meanings and descriptions put forward by collaborators and scholars of collaboration" (Sullivan, 1998, p. xvii). The outcomes of international research confirm the complexity of collaboration and its related concepts, and therefore it is important that findings are not lightly transferred from one setting to another. This is even more significant considering the collaborations researched were in different countries and healthcare systems, with practitioners who have undergone varied forms of education, and where politics and funding models function in different ways. For example, collaborative practice models with NPs may

work differently in the USA where the majority of the population is not covered by public health insurance (Smith & Medalia, 2014) or in the UK where the National Health Service (NHS) employs most health professionals (National Health Service, 2015) and hence funding of collaborative practice models has a different basis than in Australia. Another factor that distinguishes Australian models from the international context is the fact that NPs in countries such as the USA, Canada and the UK work primarily in PHC whereas when the present study was planned most NPs in Australia worked in collaboration within hospitals. Furthermore, in the UK NP practice is not regulated through any professional or government body so that collaborative working with MPs and other health professionals may occur differently to Australian arrangements (Hoare, et al., 2012). Therefore, a major purpose of this study was to identify how NPs and MPs in Australia define and experience collaboration.

The little evidence regarding NP-MP collaboration for the Australian context is out-dated, since NPs passed their trial-status and established long-term positions within PHC. Research into the collaborative work of NPs and MPs has mainly been undertaken in hospital settings. Furthermore, the recently changed legislation underpinning collaborative arrangements may affect the work of NPs and MPs working collaboratively (Cashin, 2014; Middleton, et al., 2011). Since the legislation does not apply to NPs in public hospitals (*Health Insurance (Midwife and Nurse Practitioner) Determination*, 2011) it is reasonable to assume that most NP positions that are affected by this legislation are in PHC. To my knowledge the present study was the first to investigate how the mandated collaborative arrangements have been operationalised in PHC practice by MPs and NPs.

The international and national research, as well as anecdotal reports, confirm the continuation of professional power imbalances between NPs and MPs with the medical professional often holding a dominant role as PHC provider. The introduction of NPs to PHC disrupts traditional hierarchies between nurses and MPs because of the advanced levels of autonomy that nurses bring, their enhanced authority to practice, and therefore the different expectations of how they might work

in these settings. Moreover, this study sought to investigate experiences and perceptions of NPs and MPs on disruptions to established systems and routines, including the existence of MP dominance in the Australian context of collaboration. The views of both NPs and MPs helped to identify their mutual readiness to work in partnership in PHC.

Due to the small percentage of NPs working in PHC in Australia, this study focused on a rare phenomenon, collaborative practice of NPs and MPs in PHC settings. However, with the long-term implementation of NPs in the Australian PHC system, collaborative practice models are expected to become more common. By identifying the successful elements of collaborative practice models it may accelerate the process of implementing those models.

The outcomes of this exploratory multiple case study contribute to an understanding of how and whether NPs and MPs work collaboratively in PHC and may help to inform theory, elaborate on models of collaborative practice and direct future research. More specifically, the findings of this study will highlight the legal and financial hurdles to collaborative practice that can be addressed by reformed policies and may guide government decisions to ensure sustainability of collaborative practice models. Insights into the roles and routines of NPs and MPs in collaborative practice models add to role clarity and bring out their distinct contribution to patient care, which may lead to better quality patient care. This type of study will be the first of its kind in Australia focusing on both NPs and MPs in PHC.

1.6   Research aim and design

Based on identified knowledge gaps, this study aimed to investigate conceptual and practical aspects of collaboration between NPs and MPs in PHC settings in Australia. First, to gain an understanding of how NPs and MPs define collaboration, I inquired about defining characteristics of collaboration from the participants' view. Second, real-world experiences and the perceptions of participants were examined to generate a comprehensive framework about the perceived realities of working in collaborative

practice models, specifically focusing on barriers, professional relationships, interactions, team roles and organisational structures. Finally, factors suggesting successful operationalisation of collaborative practice models were identified. The specific research questions were:

− What is the conceptual basis of collaboration as defined by NPs and by MPs?

− What are Australian NPs' and MPs' experiences of collaborative practice in PHC?

− What factors enable collaborative practice models to function?

With only limited insights into the everyday realities of NPs and MPs in Australian PHC collaborative practice models, a mixed-methods qualitatively dominated case study research design was chosen to obtain in-depth knowledge about perceptions, relationships, working practices, behavioural patterns and reasons for particular actions; and how these factors might have been influenced by system structures. Interviews, observation and documentary data supported by quantitative questionnaire data were used to describe, examine and collate the views, experiences and system conditions of NPs and MPs who worked together in five PHC settings.

1.7   Thesis structure

This thesis is organised in five chapters. Following the introduction in this chapter, the second chapter comprises an integrative literature review summarising international research on NPs' and MPs' understanding of collaboration, the perceived barriers and facilitators to collaborative practice and their attitude about working in collaboration. The review was published (Schadewaldt, et al., 2013b) and was integrated into this thesis in its published version (section 2.1). The third chapter presents the methodology and methods of the study, including the design framework, data collection processes and data analysis. Chapter four outlines the aggregated findings of this study, beginning with results of the survey. Themes and sub-themes that were developed from the qualitative data are presented followed by findings from deductive analysis in reference to theoretical models of collaboration. In chapter five, findings are discussed in relation to the research questions of this study and compared

and contrasted with other research. The last chapter finishes with an outline of the study's strengths and limitations; and recommendations that can be drawn from the findings.

CHAPTER TWO

LITERATURE REVIEW

2   Chapter Two - Literature Review

This chapter gives an overview of international research literature investigating barriers and facilitators to collaboration between nurse practitioners (NPs) and medical practitioners (MPs) and their views on working together in PHC settings. Given the dearth of studies on collaboration between NPs and MPs in PHC settings in Australia, a literature review was undertaken to screen and summarise the evidence from other countries. The amount of literature on collaboration among health professionals is large and some findings of multidisciplinary collaboration or MPs collaborating with general nurses may overlap with findings of collaboration between NPs and MPs. However, the historical and often hierarchical relationship between the nursing and medical profession has changed due to the establishment of more advanced nursing roles and in particular the uniqueness of the NP role in terms of nursing autonomy required the conduct of a review focussing on current NP-MP collaboration. While other reviews were identified that reported on the effectiveness of NPs in PHC in comparison to MPs, no literature review was identified that summarised NPs' and MPs' experiences, including their perceptions of barriers, facilitators and attitudes towards collaboration. Considering that studies with this focus have been conducted using quantitative and qualitative methods, it was deemed appropriate to conduct an integrative review where all research relating to perceptions of barriers and facilitators and attitudes towards collaboration could be considered for inclusion in the review. In this chapter I present the published integrative review (Schadewaldt, et al., 2013b) that was conducted for this thesis and I conclude with additional papers that have been identified since the upper search date limit for the published review.

2.1 Integrative review (publication)

Schadewaldt, V., McInnes, E., Hiller, J. E., & Gardner, A. (2013). Views and experiences of nurse practitioners and medical practitioners with collaborative practice in primary healthcare -- an integrative review. *BMC Family Practice, 14*(132), 1-11. doi: 10.1186/1471-2296-14-132 (see Appendix 7.13)

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Title

Views and experiences of nurse practitioners and medical practitioners with collaborative practice in primary healthcare – an integrative review

Background

A nurse practitioner (NP) in primary healthcare collaborates on average with 4.4 medical practitioners (MPs) and most of these MPs work on-site with the NP (Koren, Mian, & Rukholm, 2010). In most countries with NPs, it is a legal requirement for NPs to have a formally established collaborative agreement for MP support or supervision (Health Professions Regulatory Advisory Council, 2007; Lowery & Varnam, 2011; *National Health (Collaborative Arrangements for Nurse Practitioners) Determination*, 2010). The legal obligation to collaborate with a MP is crucial for NPs to enable full practice authority and reimbursement of NP services (Buppert, 2010; van Soeren, Hurlock-Chorostecki, Goodwin, & Baker, 2009). While there is debate about the necessity of this legislative requirement (Buppert, 2010; Carrigan, 2011), it has been identified that a good collaborative relationship can improve patient outcomes such as reduced waiting times, improved prescribing processes, shorter treatment periods and lower costs (Cowan et al., 2006; Ettner et al., 2006; McCaffrey et al., 2010; Tschannen & Kalisch, 2009; Zwarenstein, Goldman, & Reeves, 2009). Furthermore, collaboration increases work satisfaction (De Guzman, Ciliska, & DiCenso, 2010) and decreases the perception of job strain (Almost & Laschinger, 2002) for NPs. The above reasons emphasise the importance of a successful collaborative practice model for MPs and NPs.

Collaboration, as described in the literature, involves trust, mutual respect, shared decision-making and equality (D'Amour, et al., 2005; Petri, 2010). Collaboration in practice often does not necessarily include these attributes but rather exists solely through referrals and occasional consultations between health professionals (Johnston, 2003; Koren, et al., 2010; Mian, Koren, & Rukholm, 2012; Way, Jones, & Baskerville, 2001). A survey of 378 PHC NPs identified that many bi-directional referrals occur between NPs and family MPs or MPs working in community health centres, but only one-way referrals from NPs to specialists were observed (Mian, et al., 2012). It appears that collaboration can range from an intense relationship and regular knowledge exchange between NPs and MPs to a more distant and superficial co-existence of services provided by NPs and MPs (Way, Jones, & Baskerville, 2001).

No matter what form of collaboration is in place, a number of factors can influence the functioning or failure of collaborative practice between NPs and MPs. Literature reviews (Clarin, 2007; Fewster-Thuente & Velsor-Friedrich, 2008; Heatley & Kruske, 2011; McInnes, 2008; Mills & Hallinan, 2009; Patterson & McMurray, 2003; San Martín-Rodríguez, et al., 2005) and primary research (Chaboyer & Patterson, 2001; Donald et al., 2009; Maylone, Ranieri, Griffin, McNulty, & Fitzpatrick, 2011; Mills & Fitzgerald, 2008; Running, Hoffman, & Mercer, 2008) have highlighted a number of barriers and facilitators to collaborative practice and perceptions of health professionals of working in collaboration. These relate to funding issues, traditional role allocation, legislation, personal experience with and attitudes towards collaboration and organisational aspects (Burgess & Purkis, 2010). The existing reviews focus on collaboration in multidisciplinary teams, in hospital settings and collaboration between general nurses and MPs. Collaboration between NPs and MPs in PHC may differ to other settings and roles, because NPs bring increased autonomy to the clinical setting that may challenge the traditionally MP dominated domain of PHC, where nurses have long been working to support the MP and perform delegated tasks (Finlayson & Raymont, 2012; Patterson & McMurray, 2003).

Therefore, this literature review aims at summarising the existing evidence about the views and experiences of NPs and MPs with collaborative practice in PHC settings. The findings of the review will provide information about health professionals' understanding of collaboration, the perceived barriers and facilitators to collaborative practice and their attitude about working in collaboration. Since this review aims to aggregate data of qualitative and quantitative evidence and not to re-interpret findings, an integrative synthesis was the method chosen for this literature review (Dixon-Woods, Agarwal, Jones, Young, & Sutton, 2005). The steps for integrative reviews outlined in Whittemore and Knafl (2005) were followed and thematic synthesis for "views studies" applied as described by Harden and Thomas et al. (Harden et al., 2004; Thomas & Harden, 2008).

Methods

A number of methods are available for the synthesis of qualitative and quantitative evidence (Cochrane Qualitative and Implementation Methods Group, 2011; Pawson, Greenhalgh, Harvey, & Walshe, 2005; Popay et al., 2006; Pope, 2006; Sandelowski, Barroso, & Voils, 2007; Whittemore & Knafl, 2005). A majority of these methods focus on effectiveness or intervention reviews and add findings of non-experimental research to the synthesis of trials in a separate step (parallel or multi-level synthesis). For this review Whittemore and Knafl's (2005) approach to the synthesis of qualitative and quantitative evidence was chosen because their focus is not on effectiveness reviews and statistical pooling of data. They suggest an integrated approach that is reflected in the simultaneous process of synthesising data from quantitative and qualitative research under themes that were addressed in studies using a variety of designs and methods. However, Whittemore and Knafl (2005) lack a detailed description of how data extraction, the analysis and synthesis can be undertaken; therefore, we relied on other researchers' methods to guide these processes. We drew on principles described by the Joanna Briggs Institute (The Joanna Briggs Institute, 2011), the Cochrane Qualitative and Implementation Methods Group (Cochrane Qualitative and Implementation Methods Group, 2011)

and the thematic synthesis approach for qualitative data developed by Thomas and Harden for literature reviews on participant views (Thomas & Harden, 2008). The latter matched the purpose of this review that also looked at views and perceptions.

Eligibility criteria

Studies were included in the review if they focused on a population of NPs (nurses with a postgraduate certification and an advanced level of practice autonomy (Australian Nursing and Midwifery Council, 2006; Schober & Affara, 2006) and MPs in PHC settings. The outcomes of included studies needed to report on a) facilitators and/or barriers to collaboration and b) experiences and perceptions of NPs and MPs on collaboration. Study designs that generated qualitative or quantitative data were included. Opinion papers and anecdotal reports were excluded.

Information sources and search strategy

The following databases were searched: Cochrane Library, Joanna Briggs Institute Library of Systematic Reviews, PubMed/MEDLINE, CINAHL, ProQuest (Dissertation and theses) and Informit (Health collection). The review also contains grey literature such as theses and dissertations.

When available medical subject headings or index terms were used in each database. An example of a typical search is shown in Table 1 for the MEDLINE database using OvidSP. The inclusion period of papers comprised the years from January 1990 to September 2012 to ensure the inclusion of papers that reported collaboration between NPs and MPs from countries where the NP role has been implemented for a much longer time and collaboration may be at a more advanced stage than in other countries (Sheer & Wong, 2008). No language restrictions were applied.

Results from all databases were combined in Endnote®, duplicates deleted and the results screened by title and abstract for suitability for the literature review. One reviewer examined the full text of potentially relevant papers for final inclusion or exclusion in the review. Reference lists of included papers were screened for eligible studies.

Table 1 Medline Search Strategy

Search	Search terms
1	*Cooperative Behavior/
2	*Partnership Practice/
3	*Physician-Nurse Relations/
4	*Interprofessional Relations/
5	*Nurse Practitioners/
6	*"Attitude of Health Personnel"/
7	"collaborative practice".ab,ti.
8	collaboration.ab,ti.
9	"nurse practitioner?".ab,ti.
10	1 or 2 or 3 or 4 or 7 or 8
11	5 or 9
12	10 and 11
13	6 and 11
14	12 or 13

Assessment of methodological quality

A separate appraisal tool was used for each included study type (2005). The following were chosen due to their brevity, clarity, appropriateness; and because their items covered the most common assessment criteria of other tools:

− For cross-sectional studies – 11 Questions to help you make sense of descriptive/cross-sectional studies (Eleven Questions, 2012)

− For surveys – CEBMA Appraisal Questions for a Survey (Centre for Evidence-based Management, 2012)

− For qualitative studies – JBI Qualitative Assessment Research Instrument (QARI) (The Joanna Briggs Institute, 2011)

− For mixed methods research – Scoring System for appraising mixed methods research (Pluye, Gagnon, Griffiths, & Johnson-Lafleur, 2009)

No articles were excluded from the review based on their methodological quality to not exclude valuable insights from weaker studies (Hannes, 2011), unless findings were not supported by the presentation of appropriate quotations from participants (The Joanna Briggs Institute, 2011).

Data extraction

Firstly, study details such as the methodology, the population and the context of the study were extracted from each study and organised in an evidence table (Appendix 7.10). Secondly, findings were extracted from the primary sources into a spread sheet and grouped under one of the outcome categories: barriers, facilitators, and perceptions/views of collaboration (Whittemore & Knafl, 2005). Findings to be extracted from qualitative studies for the purpose of this review were themes, key concepts or results and conclusions developed by the authors of the papers (Sandelowski & Barroso, 2003; Thomas & Harden, 2008). No direct quotations of individuals were extracted since they were considered raw data and not the outcome of an interpretative process undertaken by the authors (Sandelowski & Barroso, 2002).

A separate table was created for relevant quantitative data and organised under the same outcome categories as the qualitative data.

Data analysis and synthesis

Repeated screening of the articles and reading of extracted data in spread sheets enhanced the iterative process of developing sub-categories (Noyes & Lewin, 2011a). These sub-categories were further collapsed into descriptive themes (Thomas & Harden, 2008).

As "counting highlights the recognition of patterns in the data" (Whittemore, 2007, p.152) a simple listing of the most common statements relating to barriers or facilitators to collaboration was part of the data synthesis. This approach is similar to content analysis, suggested by Dixon-Woods, et al. (2005) as one possible approach to synthesising results.

Results from quantitative studies were juxtaposed with qualitative findings within each descriptive theme and outlined in a descriptive summary, supported by tabulation of data (Evans, 2007). Since the synthesis of findings in this review was a meta-aggregation (The Joanna Briggs Institute, 2011) of results, it was summative

and did not include the re-interpretation of the primary data (Evans, 2007; Noyes & Lewin, 2011b).

Results

The literature search identified 3635 papers. After excluding duplicates and papers published before 1990 there were 2256 papers for review. The flow chart in Figure 1 summarises the review process.
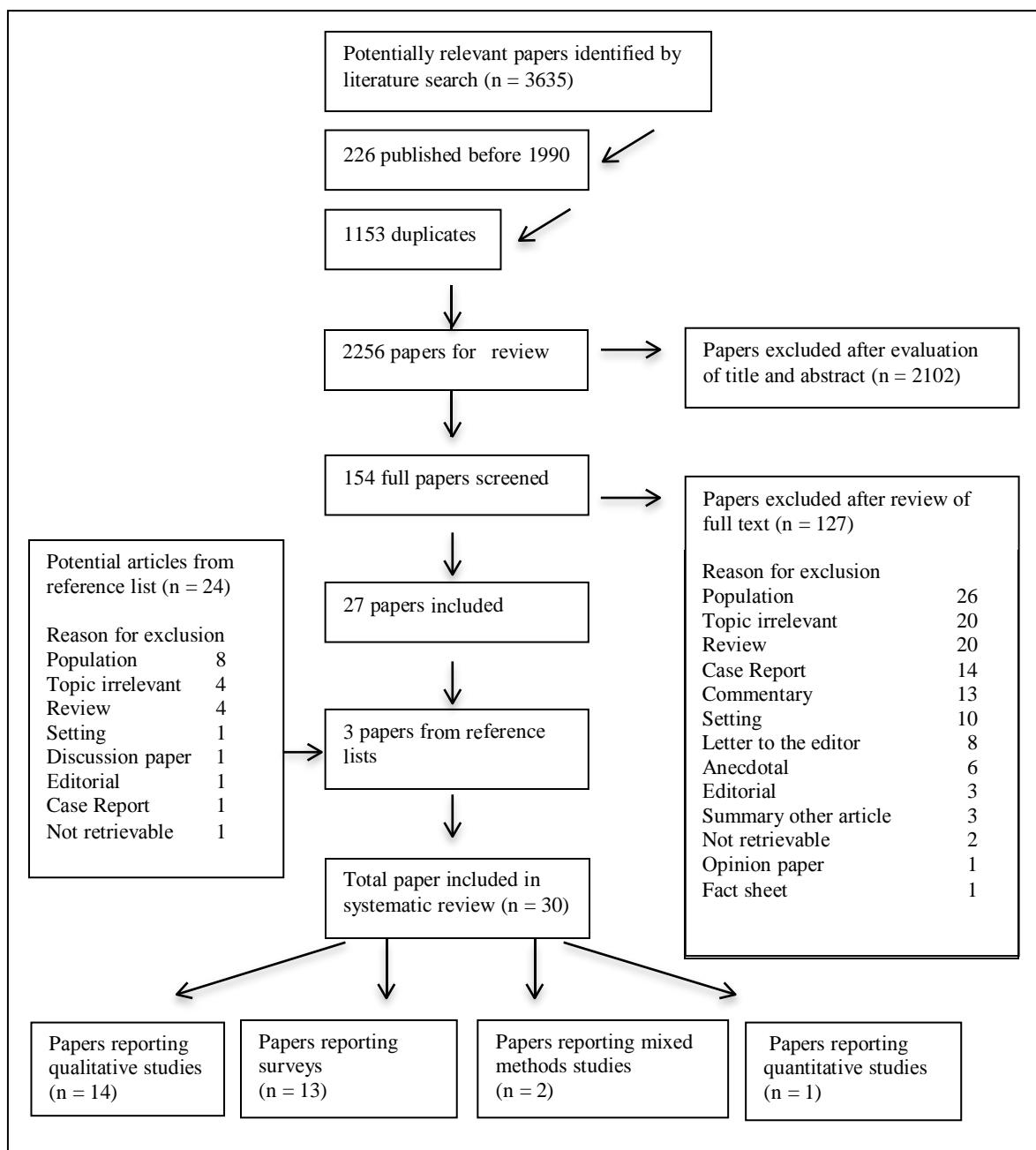
Figure 1 Study Selection Process

In total there were 30 papers included in the review, reporting 27 studies. The most common reasons for exclusion were a population other than NPs and MPs in a PHC setting, no information relevant to the research question or the papers were literature reviews.

There was an almost equal number of papers reporting qualitative studies (n = 14) and surveys (n = 13), whereas there were only two mixed methods study papers and one paper reporting data from a cross-sectional design as part of one of the mixed methods studies. However, most of the surveys applied a mixed-methods design, using open-ended and closed questions. A meta-analysis of quantitative results was not possible because only one study investigated effects of an intervention on perceived collaboration.

The evidence of this review is based on studies including a total of 1641 MPs and 380 NPs (among those were 4 APNs with a similar level of authority than NPs). The majority of studies were undertaken in the USA (11) followed by Canada and the UK (6 each) with one study undertaken in each of the Netherlands, Sweden, Ireland and New Zealand.

Methodological quality of studies

Overall, studies were of moderate quality with some information difficult to assess due to weaknesses in reporting (Appendix 7.11 - Quality appraisal of studies). Issues for qualitative studies were the lack of reporting of a philosophy and the researchers' background. One study (Ford & Kish, 1998) was excluded from the analysis, because no illustrative quotations from participants were provided to assess the credibility of findings (The Joanna Briggs Institute, 2011).

All survey papers reported a clear aim of the study and used the appropriate design to answer the research question. The survey studies lacked sufficient response rates and representativeness of the sample. A major flaw in most studies was the use of self-developed questionnaires without the reporting of their psychometric properties.

Two studies applied a mixed methods design (Legault et al., 2012; Way, Jones, & Baskerville, 2001). Both studies had clear qualitative objectives and used appropriate qualitative methods for the research process. Both studies did not state the researchers' background. For the quantitative part, both studies did not apply appropriate sampling procedures and used a convenience sample of one (Legault, et al., 2012) or four (Way, Jones, & Baskerville, 2001) practices.

From Way et al.'s comprehensive mixed methods study (Bailey, Jones, & Way, 2006; Way, Jones, Baskerville, & Busing, 2001; Way, Jones, & Baskerville, 2001), one part was published with results from a cross-sectional analysis of referral patterns between NPs and MPs (Way, Jones, Baskerville, et al., 2001). The use of encounter forms for referral patterns may not be a valid measure for collaboration since it relies on self-report. The strengths and weaknesses of each study are documented in the evidence table (Appendix 7.10).

Results – Facilitators and barriers of collaboration

Factors facilitating or impeding collaborative practice between NPs and MPs were identified in 18 of the 30 papers, including qualitative, survey and mixed methods studies. Often facilitators were identified as the opposite of obstacles to collaborative practice. Therefore the facilitator and the corresponding barrier were matched and counted as one thematic factor impacting on collaboration. Those factors are listed in order of their frequency of appearance in Table 2.

Table 2 Barriers and Facilitators to Collaboration

Factors impacting on collaboration	Frequency*
Clarity of NP role & scope of practice	15
NPs take over workload from MPs	11
Confidence in each other's competence	11
Complementary skills and practice ideology	9
Knowing the NP/MP & good working relationship	9
Reciprocity (including the absence of hierarchy & control)	9
Clear legal liability	8
Effective communication (including the use of technologies)	8
Financial support for NP role	7
Mutual trust & respect	7
Support from MPs	6
Shared responsibility	6
High level of NP autonomy	5
Working in close physical proximity	4
Regular meetings & time to collaborate	3
Positive attitude towards collaboration	3
Official recognition of NP role	3
Collaboration develops and improves over time	2
MPs' concern of becoming deskilled (barrier only)	1
MPs feel threatened by NPs (barrier only)	1

Data were extracted from qualitative, survey and mixed-methods studies. The frequency refers to the number of times each barrier and facilitator was found in 18 studies.

The most common barrier to collaboration was the lack of awareness by MPs of the scope of practice of NPs, their level of education and what is inherent to their role (Azzi, 1998; Bailey, et al., 2006; Houlihan, 2001; Legault, et al., 2012; Long, McCann, McKnight, & Bradley, 2004; Main, Dunn, & Kendall, 2007; Marsden & Street, 2004; Way, Jones, & Baskerville, 2001; Wilson, Pearson, & Hassey, 2002). Collaboration worked well where MPs noted that NPs took over some parts of their workload such as education and follow up care (Bailey, et al., 2006), 'routine cases' (Offredy & Townsend, 2000) or patients with minor illnesses and chronic diseases (Long, et al., 2004), so that MPs were able to focus on more complex cases (Johnston, 2003). However, not all MPs have experienced a decrease in workload because NPs would consult the MP for their patients (Main, et al., 2007) and supervision of NPs increased the workload of MPs (Fletcher, Baker, Copeland, Reeves, & Lowery, 2007).

To make collaboration work, NPs and MPs have to be confident in the competence of the collaborating partner. Both professions valued having competent colleagues. For MPs and NPs themselves this also included that NPs were competent in realising their limits and seeking assistance when needed (Johnston, 2003; Lindblad, Hallman, Gillsjo, Lindblad, & Fagerstrom, 2010; Long, et al., 2004). While having complementary skills and similar goals were seen as an asset to collaboration (Azzi, 1998; Faria, 2009; Hallas, Butz, & Gitterman, 2004), ideological differences in the practice style could cause difficulties in establishing a collaborative relationship (Bailey, et al., 2006; Faria, 2009; Main, et al., 2007; Way, Jones, & Baskerville, 2001).

An important factor for successful collaboration was previous experience of working with the NP or MP (Bailey, et al., 2006; Faria, 2009; Legault, et al., 2012; Long, et al., 2004; Main, et al., 2007; Way, Jones, & Baskerville, 2001; Wilson, et al., 2002) and having a good relationship (Faria, 2009; Offredy & Townsend, 2000). Developing a good collaborative relationship took time and improved once the NPs and MPs got to know each other, which also helped to establish trust among the health professionals (Faria, 2009; Hallas, et al., 2004; Long, et al., 2004). A period of 3-6 months was observed to be sufficient to establish a collaborative relationship (Faria, 2009; Legault, et al., 2012; Long, et al., 2004).

While the reciprocity of referrals and consultations (Bailey, et al., 2006; Long, et al., 2004; Way, Jones, & Baskerville, 2001) as well as the absence of hierarchical structures were considered to foster collaboration, NPs and MPs also reported control issues as a barrier to collaborative practice. NPs often perceived a hierarchical relationship with the MP that was described as a power struggle for NPs (Carnwell & Daly, 2003) and experienced by NPs when the MP decided over the range of tasks to be undertaken by the NP (Offredy & Townsend, 2000). Medical practitioners reported losing control of patient triage through the introduction of NPs (Bailey, et al., 2006).

The fourth most common obstacle to work in collaborative practice with a NP was the concern of MPs about legal responsibility. Most considered themselves liable for the care provided by the NP (Azzi, 1998; Bailey, et al., 2006; Legault, et al., 2012; Long, et al., 2004; Main, et al., 2007; Marsden & Street, 2004; Way, Jones, & Baskerville, 2001). An equal amount of findings identified effective communication (Dierick-van Daele et al., 2010; Faria, 2009; Hallas, et al., 2004) as crucial to collaboration. In addition to face-to-face communication, two studies identified the use of technologies such as messaging systems as beneficial for regular communication (Legault, et al., 2012; Way, Jones, & Baskerville, 2001).

Nurse practitioners and MPs strongly perceived that economic constraints had a negative impact on collaborative practice. The lack of financial support for the NP role often made employment of a NP not financially viable for a practice setting. There was a perception that the healthcare system did not sufficiently reimburse NP services (Azzi, 1998; Faria, 2009; Way, Jones, & Baskerville, 2001; Wilson, et al., 2002). As important as funding for collaborative practice models were trust and respect between NPs and MPs. Mutual trust and respect was perceived by NPs when MPs were referring patients to them (Long, et al., 2004) or advice seeking was reciprocal (Bailey, et al., 2006).

The frequency count of barriers and facilitators to collaboration showed that support from the MPs was crucial to establish a collaborative practice with the NP (Azzi, 1998; Lindblad, et al., 2010). Other experiences reported by NPs and MPs as important for collaboration were sharing responsibilities of complex cases (Azzi, 1998; Dierick-van Daele, et al., 2010) rather than leaving complex cases to either the NP or the MP (Azzi, 1998; Long, et al., 2004; Offredy & Townsend, 2000). In terms of responsibilities, some MPs perceived that NPs were not prepared to take on the level of responsibility appropriate to the NP role (Main, et al., 2007). In general, a high level of NP autonomy was a crucial component to collaboration, because limitations in the NP's autonomy; in particular their inability to prescribe or order diagnostic tests was found to increase the MPs' workload and consequently

negatively influence collaborative practice (Azzi, 1998; Carnwell & Daly, 2003; Lindblad, et al., 2010; Marsden & Street, 2004).

Further fostering factors were working in close physical proximity or on the same site (Bailey, et al., 2006; Faria, 2009; Way, Jones, & Baskerville, 2001), taking time for regular meetings (Faria, 2009; Legault, et al., 2012), a positive attitude towards collaboration (Faria, 2009; Hallas, et al., 2004); and the official recognition of the NP role, including the legal protection of the professional title 'nurse practitioner' (Long, et al., 2004; Offredy & Townsend, 2000).

Two quantitative studies investigated what NPs and MPs experienced as barriers or facilitators to collaborative practice and their results support the qualitative findings. In De Guzman et al.'s (2010) survey of 29 NPs working at Canadian PHC sites, the NPs stated the unwillingness of specialists to accept their referrals (53.5%), the MPs' lack of understanding of the NP role (42.8%) and the personality of the MPs (35.7%) as the most common challenges in their collaborative practice with the MPs. Of a list of facilitators of collaboration, NPs identified the trust shown by MPs in making shared decisions (57.1%), the respect shown by the MPs (42.8%) and the personality of the MPs (46.4%) as the most common facilitators (De Guzman, et al., 2010).

Way et al. (2001) considered the imbalance of referrals between NPs and MPs as a barrier to collaborative care because it would indicate a lack of shared care. They found that only 2% of 173 patient encounters with a GP resulted in a referral to a NP in contrast to 16% of 79 patients who saw a NP and were then referred to a MP for follow-up (Way, Jones, Baskerville, et al., 2001).

Results – Experiences and views of collaboration

Qualitative and quantitative studies have identified differences in the perception and understanding of collaboration between NPs and MP. Five descriptive themes were developed from the extracted data, not all of them were found in both qualitative and quantitative data.

The essence of collaboration and practice reality

While NPs and MPs agreed on some essential components of collaboration, there were differences in their understanding about several of these components (Table 3).

Table 3 Comparison of Nurse Practitioner and Medical Practitioner Views

Dimensions of comparison	Nurse practitioner views	Commonalities	Medical practitioner views
Important elements of collaboration	Respect as a health professional, Reciprocal relationship	Working together Consultations Trust & mutual respect Communication Competence Coordination NP autonomy Personality Shared philosophy Sharing	Complementary practice style Similar vision Shared goals
Sharing	Exchange of knowledge and ideas about patient management	Important for collaboration	Shared offices, shared patients
Working together	Reciprocal discussion	Important for collaboration	Providing advice to NPs
Practice reality	Collaboration can be hierarchical and one-sided; only initiated by NPs for consultation	Perceived level of communication is high Perceived level of collaboration is collegial	Collaboration can be an interdependent and a hierarchical relationship
Competence	Defined by MP, pressure to demonstrate competence	Important for collaboration	Important that NP recognises limits
Autonomy	NP is autonomous health professional NP has full responsibility for patient care, consultations with MP when required	Important for collaboration	NP is assistant, limited autonomy of NPs NP is autonomous when no MP consultation is required
Supervision	Some NPs valued MP input, others felt controlled through supervision	MP is available on site for NP	MPs prefer that NP practices under MP supervision for complex cases

Data extracted from 13 studies

Two studies explicitly investigated the elements that were important to NPs and MPs about collaboration: working together, consultations, trust and mutual respect, communication, competence, coordination, NP autonomy, the health professionals' personality and a shared philosophy (Azzi, 1998; Hallas, et al., 2004). However, in Hallas et al.'s (2004) survey of 24 paediatric NPs and their 24 collaborating

paediatricians, NPs understood the term "sharing" as the exchange of ideas and knowledge while MPs referred to shared patients or shared offices. This study also reported that NPs saw collaboration as a reciprocal discussion about patients while MPs described collaboration as advice seeking of NPs.

Characteristics considered essential for MPs but that were not found in NP statements were complementary practice styles and a similar vision (Hallas, et al., 2004) or a shared goal (Bailey, et al., 2006). For NPs it is particularly important to be respected as a health professional (Hallas, et al., 2004) and to work in a reciprocal relationship (Bailey, et al., 2006). However, in practice, NP-MP work arrangements were often one-sided and lacked reciprocity, with collaboration predominantly initiated by NPs who consulted the MP when a problem was outside their scope of practice (Johnston, 2003; Way, Jones, Baskerville, et al., 2001; Way, Jones, & Baskerville, 2001). Since MPs served as a (supervisory) resource for NPs, NPs perceived that they worked in a hierarchical relationship where demonstrating competence was a one-way process (Faria, 2009; Way, Jones, & Baskerville, 2001). NPs stated their experience of being under constant pressure to demonstrate their competence because NP competence was defined by the MPs (Bailey, et al., 2006; Offredy & Townsend, 2000).

Three author groups explicitly concluded that collaboration in practice did not reach the ideal (Bailey, et al., 2006; Johnston, 2003; Legault, et al., 2012) with NPs expecting a collegial relationship with MPs but actually experiencing a more hierarchical situation. While some MPs agreed that collaboration can exist as true reciprocity they rather acknowledged that forms of collaboration range from an interdependent to hierarchical relationship (Bailey, et al., 2006). Contrary to some of these findings, NPs and MPs rated their working relationships with each other as collegial (Fletcher, et al., 2007) and their level of collaboration and communication as high (Holden, Watts, & Walker, 2010) when measured on attitude scales.

Supervision and autonomous practice

The concept of supervision and autonomous NP practice were common themes relating to collaboration. Medical practitioners rarely saw NPs as autonomous health professionals, however attitudes differed between MPs employing a NP and those who did not.

Some MPs saw the NP in the role of an assistant or MP extender (Faria, 2009; Fletcher, et al., 2007). Medical practitioners preferred to see the NP practicing under their direct supervision if managing complex cases (Fletcher, et al., 2007). The survey of Hallas et al. (2004) revealed that some NPs saw supervision as negative, as being controlled by MPs, others valued supervision as having the MP available on site. Similarly, MPs understood supervision as providing consultations to the NPs or simply being available on site. Autonomous NP practice for the NPs comprised full responsibility for patient care with MP consultation when required. In contrast, MPs considered NPs as autonomous when they had no need to consult with a MP (Hallas, et al., 2004).

Quantitative data supported these perceptions of supervision and autonomous NP practice. Nurse practitioners perceived, more than MPs, that they could perform tasks autonomously (Fletcher, Copeland, Lowery, & Reeves, 2011; Houlihan, 2001). Some MPs stated that NPs require regular MP supervision (Houlihan, 2001) and that NPs care for patients who are too complex for the NPs' skills and knowledge (Fletcher, et al., 2007). GPs who worked with a NP were more supportive of NPs performing most tasks without supervision than GPs who did not work with a NP (Carr, Armstrong, Hancock, & Bethea, 2002).

Differences in the views of medical practitioners with and without experience of collaborating with nurse practitioners

Three cross-sectional surveys reported that MPs with previous experience of working with a NP exhibit a more positive attitude towards collaboration with NPs (Aquilino, Damiano, Willard, Momany, & Levy, 1999; Carr, et al., 2002; Street & Cossman, 2010). Medical practitioners who had experience in collaborating with a NP were

significantly more likely to disagree that NPs provide low-quality PHC, and more likely to support NP prescribing, consider that NPs can attract new patients, agree that patients accept NPs and believe that NPs free up MP time (Aquilino, et al., 1999; Street & Cossman, 2010). In Carr et al.'s survey 100% of the GPs who worked with a NP agreed that NP should work in PHC compared to 89% of the GPs who did not (Carr, et al., 2002). No qualitative studies investigated those differences.

Medical practitioners' concerns and ambivalence about working with nurse practitioners

Qualitative data revealed a number of concerns of MPs to working in collaboration with NPs. Some of these concerns were also identified as barriers to collaborative practice such as concern about: NP education and competence (Katz & MacDonald, 2002; Wilson, et al., 2002), NPs' limited scope of practice for patients with multiple comorbidities (Fletcher, et al., 2007), ultimate liability for NP care (Katz & MacDonald, 2002) and financial disadvantages (Wilson, et al., 2002). Other issues for MPs were that they could be left with complex patient cases that increased their workload but also deskilled them in areas taken over by the NP (Wilson, et al., 2002). In Katz and MacDonald's (2002) focus group study of Canadian MPs who had not worked with NPs before, the MPs expressed concern about quality and fragmentation of care. Some MPs stated that they considered the difference of education between NPs and MPs as a barrier to acceptance of NPs as equal partners (Katz & MacDonald, 2002). In a sample of British GPs, Wilson et al. Wilson, et al. (2002) identified that MPs felt threatened in their role by NPs and were concerned about their professional status and a loss of self-esteem. Furthermore, they stated that a NP would be more expensive to employ than a practice nurse (Wilson, et al., 2002).

The ambivalence of MPs was often based in insecurity about the advantages and disadvantages of collaborating with a NP. Marsden and Street (2004) found that MPs valued the benefits for patients of longer consultations with the NP but simultaneously were concerned about the cost effectiveness of those consultations. In a study by Dutch researchers (Dierick-van Daele, et al., 2010), MPs stated that

prescribing authority for NPs would be more practical for their collaborative practice but they were hesitant to grant their collaborating NP this right. Medical practitioners valued NP competence, however, competence was often equated to the competence of NPs to refer patients outside the NP scope of practice and appropriate consultation with the MPs (Lindblad, et al., 2010; Long, et al., 2004; Way, Jones, & Baskerville, 2001).

Medical practitioners' reasons for working with nurse practitioners

Medical practitioners who worked in collaboration with a NP, reported that NP tasks may be complementary to the MP's scope of practice (Katz & MacDonald, 2002) and this was valued by some MPs because they could focus on patients with more complex issues (Long, et al., 2004). Nurse practitioners were acknowledged as an extra resource for the MPs (Katz & MacDonald, 2002; Lindblad, et al., 2010) and one MP perceived the NP as a colleague to discuss patients, specifically their psychosocial needs (Marsden & Street, 2004). Medical practitioners in particular valued NPs' educational and interpersonal skills (Fletcher, et al., 2007; Johnston, 2003; Marsden & Street, 2004).

Three survey studies from the UK (Carr, et al., 2002), USA (Sciamanna, Alvarez, Miller, Gary, & Bowen, 2006) and New Zealand (Mackay, 2003) identified that the majority of MPs would be willing either to work in collaboration with or to employ a NP for reasons of increased patient choice, reduced workload, more cost-effective use of resources, MP shortage and reduced waiting times for patients (Carr, et al., 2002).

Discussion

This review describes the experiences and views of NPs and MPs working collaboratively in PHC. Summarising quantitative and qualitative data has shown that NPs and MPs rated their collaborative practice experience as collegial (Fletcher, et al., 2007; Holden, et al., 2010) but at the same time obstacles, concerns and different perceptions were voiced in qualitative inquiries. Nurse practitioners and MPs face a number of barriers when working in collaboration. Concurrently they have found

ways to overcome these obstacles and improve the collaborative relationship through negotiation, clarifying roles and creatively working around organisational impediments. Thus, collaboration includes working around barriers and using facilitators for long-term establishment of collaborative practice.

While there was overlap in the majority of components that NPs and MPs considered as essential for collaboration, the detailed analysis revealed that the professions might ascribe a different meaning to these components. This was also the result of a study that investigated collaboration in nursing homes, where advanced practice nurses and MPs used the same terms to define collaboration but had a different understanding about these terms (O'Brien, Martin, Heyworth, & Meyer, 2009).

A fine line lies between MP supervision being perceived as hierarchical or consultative. This perception seemed very much influenced by the individual situation and personality of the health professional. The strong movement seen in the USA towards unsupervised NP practice may not be welcomed by all NPs who may find having some medical support reassuring (Buppert, 2010; Lee, 2011; Lowery & Varnam, 2011). However, NPs may wish to work in an autonomous manner and still be able to consult with a medical colleague when needed, identified as one way of collaboration by studies included in this review (Hallas, et al., 2004; Johnston, 2003). A survey of PHC NPs in the USA confirmed that NPs provide 80% of their services autonomously or with minimal consultation (Koren, et al., 2010).

Nurse practitioners, more than MPs, seemed confident in autonomous NP practice, but MPs who worked with NPs showed more trust in the NPs' capabilities and support for autonomous NP work than MPs who lacked this experience (Aquilino, et al., 1999; Carr, et al., 2002; Street & Cossman, 2010). The reasons for this may be that the MPs' work experience with the NP increased their confidence in the benefits of collaboration or that MPs who have a positive attitude about collaboration with a NP are more likely to work with one. Consequently NPs rely on the support and willingness of MPs to work with them. There is evidence from a replication study

undertaken in the USA that NP-MP collaboration increased since the original survey 20 years earlier (Running, et al., 2008).

The majority of MPs who had worked with NPs acknowledged that NPs were an asset to the practice and the patients. However, this was limited to tasks undertaken with routine patients. Medical practitioners also valued NP competence, which for some meant NPs who were competent to realise their boundaries and seek advice when appropriate. This reveals a paternalistic attitude of MPs instead of recognising the capabilities of NPs in terms of their professional scope of practice. Finlayson and Raymont (2012) raise the point that NP employment through MPs will influence their collaborative relationship because the employer-employee relationship is hierarchical by definition.

Working towards successful collaboration may be achieved through interventions that target effective collaborative practice (Vazirani, Hays, Shapiro, & Cowan, 2005; Way, Jones, Baskerville, et al., 2001; Way, Jones, & Baskerville, 2001). Some of the concerns raised by MPs may be reduced through better information strategies about the NP role and early exposure to interprofessional education (Hammick, Freeth, Koppel, Reeves, & Barr, 2007; Jackson, Nicholson, Davidson, & McGuire, 2006; World Health Organisation, 2010; Zwarenstein, Reeves, & Perrier, 2005). The simple use of DVDs explaining the education pathway and the skills of NPs increased significantly the knowledge of PHC MPs and their positive attitude towards NPs and collaborative practice (Nasaif, 2012).

Limitations

No secondary reviewer assisted in the appraisal of studies and extraction of data. The data to be extracted had been specified in advance with the outcome categories and since there has been no re-interpretation of data, it is unlikely that results have been distorted from those of the primary data.

No attempt was made to contact authors, so that the methodological quality may rather relate to reporting quality and the way the study was conducted may be of

better quality than reflected in the article. The assessment of qualitative studies was difficult due to the lack of reporting on the researcher's background. While word limitations may restrain authors from reporting additional information, two sentences about their background and influence on the project would provide the reader with information crucial to establishing the credibility of findings (Blignault & Ritchie, 2009).

While all included studies investigated nurse practitioners who were educated at a postgraduate degree level and who practiced at an advanced level that included the diagnosing of patients, regulations around the NP role, licensure and practice vary among and within countries (Duffield, et al., 2009; Schober & Affara, 2006; Sheer & Wong, 2008). Therefore, themes and factors identified in this review may only apply to the particular NP role in the PHC setting of the country of study.

Conclusion

This integrative review of literature is important to highlight NPs and MPs experience and perceptions of working collaboratively in PHC. It is the first review to specifically look at nurse practitioners, not general nurses and to only include studies undertaken in PHC settings and not secondary or tertiary institutions.

By integrating quantitative and qualitative data a comprehensive synthesis of research evidence on collaboration between NPs and MPs in the PHC setting was possible. The results of this review show that collaboration develops step by step, that professional hurdles need to be overcome, and that positive experiences of working collaboratively may be the strongest force to promote and advance collaboration between NPs and MPs. Further research into the most effective strategies to prepare NPs and MPs for collaborative practice is necessary. In addition clear policies on liability and funding strategies are necessary to dispel MPs' concerns and facilitate collaborative practice.

<div align="center">END OF PUBLICATION</div>

2.2   Update of integrative review

The last search of databases for the published review was conducted in September 2012. Therefore, the literature searches were updated to August 2014 in order to identify recent relevant publications. An alert service for all databases was set up based on the original search strategy. Potentially relevant research studies were also identified through professional networks. This resulted in 21 potentially relevant papers, including two unpublished doctoral theses. Eighteen studies were excluded because the population consisted of healthcare teams or collaboration with practice nurses (11), the setting was a hospital (2), the report was a literature review addressing a different question (2), the topic was on NP implementation (2) or presented an anecdotal case report (1).   Three research papers were eligible; two surveys (one of them a longitudinal study) and one qualitative study, all of moderate to good methodological quality (Table 4).

Table 4 Evidence Table with three Additional Studies

Author Year	Aim	Methodologies/ Design	Population, sample size, sampling	Context/ Setting	Data collection methods	Outcomes	Strengths and limitations
(Poghosyan, Nannini, Stone, & Smaldone, 2013)	To explore domains that are important for NP professional practice in primary care settings	Qualitative descriptive study	16 NPs Purposeful sample, convenience sample	Various PHC sites, Massachusetts, USA	In-depth interviews	5 themes: NP-physician relations, independent practice and autonomy, and professional visibility, organizational support and resources and NP-administration relations - Barriers: Lack of MP support, in general more system support for MPs - Facilitators: communication, MP support, trust/rapport, respect, collaboration and teamwork, and collegiality important for NP– physician relations. - More experienced NPs needed less consultations, less-experienced ones considered MP collaboration as resource - Sub-themes of autonomy themes: independent decision making, responsible for patient care, policies, and practice within the scope of practice. - Despite legislative requirement of written collaborative arrangement NPs practice without it (independently) - Most of the NPs characterise their role as independent with little day-to-day contact with their collaborating physician - Policies at each site defined and sometimes limited NP independence - NP autonomy and independence is supported and encouraged by physicians	Strengths: participant voices well presented, inductive and deductive data analysis, results credible Limitation: philosophy and researcher background and influence not stated
(Donelan, DesRoches, Dittus, & Buerhaus, 2013)	To analyse the attitudes and experiences of MPs and NPs in primary care settings.	Mailed survey	505 MPs, 467 NPs Random sampling	PHC settings, USA	Self-developed questionnaires, separate for NPs and MPs	- Collaborative practice: 80.9% of NPs reported working with a MP vs. 41.4% of MPs reported working with a NP (p < 0.001) - Significant differences between NPs and MPs on NP scope of practice and policies regulating it; and quality of care. All p < 0.001 - Statistically sign disagreements which services are deferred by the NP to the MP. (p < 0.001) - Sign differences in the individual services provided by NPs and MPs, but majority of items were performed by both	Strengths: large sample size and good response rate (61.2%), possibly generalisable results Limitations: psychometric properties of tool unclear, not reported; non-significant results were not reported (may distort overall findings)
(Sarma, et al., 2012)	To examine the age, period and cohort effects of Canadian family physicians' decisions to collaborate with NPs	3 national mailed surveys Data presented separately for each HP group and for MP gender	20,710 family physicians convenience sample of all MPs who responded	10 provinces, Canada	National workforce surveys for family physicians	Collaboration of MPs with NPs has increased from 8-23% between 2001 and 2007 - No difference of decision to collaboration with NPs between newer or older MP cohorts, also no age difference in these cohorts. - Age of MPs does not affect decision to collaborate with NPs. - MPs working in fee-for-service model are less likely to collaborate with NPs - MPs in rural settings are more likely to collaborate in general, but also with NPs, no gender difference	Strength: large cohort, results most likely generalisable despite low response rates, gender responses separately presented Limitation: convenience sample and low response rates for each survey

A qualitative study based on in-depths interviews with 16 NPs working at various PHC sites in Massachusetts, USA, investigated organisational climate and its effect on NP practice. Two of five themes were relevant to this literature review: NP-MP relations and NP autonomous and independent practice (Poghosyan, et al., 2013). Nurse practitioners stated similar barriers and facilitators to collaborative practice as identified in the integrative review: NPs considered communication, MP support, trust, respect, regular teamwork and working at a collegial level as facilitators to collaborative working (Poghosyan, et al., 2013). In regard to supervision and autonomous practice, NPs in Poghosyan et al.'s (2013) study worked autonomously with little day-to-day contact with their collaborating MPs. Despite the legislative requirement of a written collaborative arrangement in Massachusetts, the researchers found that most NPs worked independently, without a signed agreement. While less experienced NPs valued MP collaboration as resource, experienced NPs required fewer consultations. Nurse practitioners felt that autonomous NP practice was strongly supported by their collaborating MPs (Poghosyan, et al., 2013).

A Canadian longitudinal study from 2001-2007 based on three national surveys including 20,710 family physicians aimed to identify MP characteristics that influenced their decision to collaborate. Collaboration was measured as a dichotomous variable whether or not patient care was shared between the MP and other health professionals. The study found a self-reported increase in MPs collaborating with NPs from 8% to 23% within 6 years (Sarma, et al., 2012). No significant differences were found between newer and older MP cohorts, MPs age groups or gender. MPs were more likely to share patient care with NPs when they worked in rural settings or group practices and less likely to collaborate with NPs when they were married or worked in a fee-for-service model. This indicates that rural settings and group practices may be a facilitator of collaboration and fee-for-service models a limitation to NP-MP collaboration (Sarma, et al., 2012).

The third study was a USA-based national survey of 505 PHC MPs and 467 PHC NPs, which investigated their attitudes and experiences of collaborative practice

(Donelan, et al., 2013). They found that about twice the number of NPs reported working with MPs than vice versa (80.9% of NPs worked with a MP vs 41.4% of MPs reported working with a NP ($p < 0.001$)). Most likely this indicates that several MPs work with the same NP.

Donelan et al.'s (2013) study uncovered some new information on differing perceptions of collaborating NPs and MPs that were not identified in the integrative review. Significant differences between the groups were found in several statements. NPs agreed more than MPs that they worked to their full scope of practice, that NPs should be allowed hospital referral privileges and NPs should be paid the same as MPs for the same services provided (Donelan, et al., 2013). Medical practitioners strongly agreed that they provided higher-quality patient care than NPs while NPs strongly disagreed with this statement. Approximately 90% of MPs versus 61% of NPs agreed that NPs passed on particular services to MPs ($p < 0.001$). These data also showed that most services were provided by both professional groups, suggesting an overlap of the scope of practice of the two professions. The largest difference in service provision was perceived for patients with complex chronic conditions for which only 28.3% of MPs agreed that NPs provided this service compared to 67.7% of NPs (Donelan, et al., 2013). The study corroborated the existence of differing perceptions of collaboration within collaborating partners and added details about the areas of difference. Unfortunately, the authors did not report any non-significant results, which may distort a complete picture of opinions on collaborative practice of the population surveyed.

In summary, the three additional studies confirmed existing barriers and facilitators and the strong theme of NP autonomy as part of collaborative practice. A new finding was the clear increase of NP-MP collaboration, defined as shared care of patients, in the Canadian health workforce, indicating that collaborative practice models have become more common in that country (Sarma, et al., 2012). Perceptions between NPs and MPs differed on NP scope of practice and performance of services (Donelan, et al., 2013). While differing perceptions of NPs and MPs on the concept of

collaboration were identified in the integrative review, findings of Donelan et al.'s (2013) study shed further light on the dimensions of these differences.

This comprehensive literature review has highlighted the lack of Australian studies on collaboration between NPs and MPs in PHC. In studies from other countries it is evident that collaboration is complex and influenced by individual and system level factors. Since no data are available for the Australian PHC system it was timely to undertake a study to identify how collaboration between NPs and MPs occurs in Australian PHC settings and to identify NP and MP views on influencing factors. The next chapter outlines the methodology and design of this research endeavour.

CHAPTER THREE

METHODOLOGY AND METHODS

3   Chapter Three - Methodology and Methods

This chapter outlines the methodology and methods of this study and highlights the reasons for the chosen research approach. It begins with the description of the philosophical stance and design framework on which the study is based. Background on the rationale to use a case study design and the benefits of mixed methods research for the investigation of collaboration in PHC settings is given. Prior to the outline of data collection methods, the recruitment and site selection processes are explained. The presentation of methods includes details on data sources, the preparatory stages of data collection, the pre-testing of methods and implementation of data collection in the field. Details about data analysis cover inductive, deductive and descriptive approaches and incorporate a delineation of the process of triangulation of data in this study. The methodology chapter closes with a summary of measures for quality assurance.

3.1   The philosophical stance of pragmatism

This research comprised multiple case studies employing mixed methods research based on the philosophical stance of pragmatism. Three American philosophers, Charles Sanders Peirce, William James and John Dewey developed and refined the philosophical stance of pragmatism from 1870 (Dewey, 1952). Pragmatism is a school of thought that emphasises the practical consequences of an idea (Dewey, 1952). Peirce wrote: "different beliefs are distinguished by the different modes of action to which they give rise" (1878, p. 85). That means, for research findings to become meaningful they need to be applicable in practice and seen in light of the difference they can make to the social situation observed (Greene & Hall, 2010; Hall, 2013). Consequently, pragmatic research uses a value-oriented approach, working towards an environment of democracy, freedom, equality and progress (Johnson & Onwuegbuzie, 2004).

Pragmatists do not claim to be able to create a complete picture of reality because reality is time and context-bound (Cherryholmes, 1992). Dewey considers enquiry as a dynamic ongoing process through which ideas are refined and evaluated until they

reach a stage where they become consequences of "warranted assertibility" (Dewey, 1938, p. 11). That means, research findings – assertions – are only true under certain circumstances and are prone to revisions through further enquiry (Dewey, 1952). Therefore, inferences from enquiry through a pragmatic lens are seen as "provisional truth" (Johnson & Onwuegbuzie, 2004, p. 18), that may change over time.

It is claimed that pragmatism fostered the transition from a dualistic perspective on research paradigms, where objectivity and subjectivity were separate entities, to a post-positivist view, where the use of subjective and objective knowledge and qualitative and quantitative research is possible (Johnson & Onwuegbuzie, 2004; Morgan, 2007). Thus, pragmatism helped to overcome the incompatibility of paradigms and paved the way for mixed methods research (Bryman, 2006). Among other research paradigms including post-positivist, constructivist, and critical theory, pragmatism has been identified as the paradigm with the greatest potential for mixed methods research due to its openness to multiple realities, the rejection of traditional dualism, an epistemology supporting that knowledge is constructed *and* based on reality; and its flexibility of mixing methods (Johnson, Onwuegbuzie, & Turner, 2007; Morse & Niehaus, 2009; Onwuegbuzie, Johnson, & Collins, 2009).

The focus on practical consequences gives researchers the freedom "to choose the methods, techniques, and procedures" (Creswell, 2014, p. 11), necessary to best answer research questions and solve real-world problems. However, pragmatism has been criticised as an overly simplistic way of directing research, with researchers who pragmatically combine research methods being accused of neglecting the philosophical underpinnings of research (Bryman, 2006; Denscombe, 2008; Denzin, 2012). Therefore it is important to outline some of the key elements of pragmatism such as its focus on practical consequences and problem-solving, value-oriented approach and its acceptance of provisional truth to identify the philosophical lens of this multiple case study using mixed methods. Following the methodological positioning of the study, the next section outlines the design framework that guided this research.

3.2   Multiple case study design

A case study is "the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances" (Stake, 1995, p. xi). Case study research aims to uncover the uniqueness of a phenomenon, taking into account its multifaceted perceptions in a real-life context (Simons, 2009; Stake, 1995). It is the recommended approach "when the investigator has little control over events" (Yin, 2009, p. 2). Case studies should answer questions about how and why a phenomenon occurs in a particular context (Yin, 2009). For the investigation of collaboration between NPs and MPs the contextual conditions in which collaboration occurred were very important, as they might have influenced how collaborative practice models were realised.

Multiple cases are chosen to generate a comprehensive understanding of the issue under investigation, based on a collective of various cases (Simons, 2009; Stake, 1995). Stake distinguishes an intrinsic case study, where the entire case is the object of investigation from an instrumental case study, where the case is the mean to study a particular phenomenon (Stake, 1995, 2006). A third form of case studies is a collective case study, comprising multiple sites, often as a collective of instrumental cases (Stake, 1995, 2006). The latter was the design used for this study. The collective of cases refers to various PHC settings. The phenomenon common to all cases is collaboration between NPs and MPs. Thus, the cases were instrumental to investigate a particular phenomenon within the cases. In other words, the cases, with their differences and similarities, were studied with multiple methods to better understand the phenomenon so that the cases were the means to study the phenomenon of collaboration.

Multiple case studies are advantageous because they are considered to produce more substantial and robust results than a single case study (Eisenhardt & Graebner, 2007; Yin, 2009). The combined findings of multiple cases are less prone to artefacts or exceptional features found in one particular case, so that multiple cases provide a more powerful basis for conclusions, and findings are more likely to be considered generalisable because they are derived from various settings and can lead to common

conclusions (Yin, 2009). Whilst some authors agree that generalisation from case study research is possible (Flyvbjerg, 2011; Stake, 2006; Yin, 2009), it needs to be acknowledged that case study research focuses on individualism and particularity and is not the research method of choice if one wants to produce generalisable results (Stake, 2006). In line with a pragmatic approach, the focus lies on the transferability of findings from one setting to another and how understanding of one case is of value to another environment (Morgan, 2007).

Within the multiple case study design mixed methods research (MMR) was applied (Yin, 2014). The rationale to use MMR is presented in the following section.

3.3 Mixed methods research

Mixed methods research (MMR) is defined as a "type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches […] for the broad purposes of breadth and depth of understanding and corroboration" (Johnson, et al., 2007, p. 123). Thus, it enables the uncovering of various layers of an issue of enquiry by employing a combination of methods and applying both inductive and deductive approaches (Creswell, 2007; Morse & Niehaus, 2009). While researchers already used multiple methods in fieldwork studies in the first half of the 20th century, the development of MMR as a purposeful approach to triangulating methods and data sources for data enrichment, corroboration or identification of contradictions occurred in the past 30-40 years (Creswell, 2014; Johnson, et al., 2007).

Advantages conferred by the MMR approach are the potential reduction of weaknesses of each individual method, the greater pool of evidence for a research problem and its openness for basing research on parallel paradigms (Creswell, 2014). However, implementing MMR can also be problematic for a number of reasons: It may be more time consuming and expensive compared to single method studies; researchers need to be knowledgeable in or willing to learn qualitative and quantitative methods and analytical approaches; and interpreting conflicting evidence can be challenging

(Creswell, 2014). For beginner researchers using MMR, the inconsistent use of terms such as integration, triangulation or combination of methods in the literature can be confusing. Practical guidance of how data are combined is still developing (Castro, Kellison, Boyd, & Kopak, 2010; Dixon-Woods, et al., 2005; Erzberger & Kelle, 2003) and more details on pragmatic approaches of data triangulation are required (Östlund, Kidd, Wengström, & Rowa-Dewar, 2011).

In health science, MMR is helpful because many complex issues and systems exist that can be comprehensively investigated with a multitude of methods and the inclusion of multiple perspectives (Creswell, Klassen, Plano Clark, & Smith, 2011). It has been successfully applied in research of various PHC settings, where more exhaustive analyses of the situations were possible through mixed methods research (Creswell, Fetters, & Ivankova, 2004).

A review of the literature identified numerous models of mixed methods research (Östlund, et al., 2011). Attempts have been made to organise existing models into a structure that can assist researchers to choose the model that best matches their research purpose. A well-known classification is outlined by Creswell and Plano Clark (2011), distinguishing between models that collect data concurrently (convergent model) or chronologically (sequential model). They further differentiate between models that seek to understand (exploratory model) or aim to explain a particular issue (explanatory model). Mixed methods research approaches can also be categorised based on the point of mixing. Mixing can occur during data collection, data analysis, data interpretation or at the level of design, which may include embedding one design into another; or by mixing theoretical frameworks (Creswell & Plano Clark, 2011).

Another perspective on MMR, which addresses mixing at the level of philosophical assumptions, was developed by Greene (2007). The approach emphasises how different worldviews or "mental models" (Greene, 2007, p. 12) can inform the research process within the same study. Therefore, it is possible to base one part of the study on a positivist worldview and the other part of the study on a constructivist worldview and

triangulate results from both. It represents a dialectical perspective of mixed methods research (Greene & Hall, 2010).

The mixed methods approach deemed most appropriate for this study is one proposed by Morse and Niehaus (2009). Their assumption for MMR is that there is always a core component and one supplemental component. Thus, one methical approach is given more weight than the other. A study may be either "qualitatively-driven" or "quantitatively-driven" (Morse & Niehaus, 2009, p. 24). The core component comprises the main part of the study and is seen as the dominant data source compared with the supplemental component. While Creswell and Plano Clark (2011) also assign priority to one methical approach in their sequential model, they emphasise the chronology of data collection/analysis so that the first phase of the study informs the second phase. This is not found in Morse and Niehaus's approach (2009), where concurrent data collection and analysis is possible while one methical approach is given more weight throughout the research process.

In regard to this study, based on the literature review, it became evident that information for the Australian setting would be derived most efficiently from a qualitative enquiry, since no prior studies investigating NP-MP collaboration had been identified. However, extensive quantitative research from other countries provided tools to measure elements of collaboration that could be used for this study. Therefore, in the current study, the core component consisted of a qualitative part with a supplemental quantitative component (Morse & Niehaus, 2009). The supplemental quantitative component comprised the application of scales measuring elements of collaboration. Despite the use of interviews and observations in the qualitative core component, the research approach was not a purely inductive one inasmuch as the study was also informed by existing knowledge about elements of collaboration identified through the literature review. Accordingly, existing knowledge from the global literature and theoretical frameworks were used to guide the development of semi-structured interviews and observations, and data analysis (explained in sections

3.6.1, 3.6.3 and 3.7). The frameworks, used for this study, are two theoretical models of collaboration. They are presented in the next section.

3.4   Collaboration models as theoretical frameworks

Two theoretical models of collaboration were used in this study as a guide for interview questions, observations and deductive data analysis. They were selected from a range of models because the *Conceptual Model of Collaborative Nurse-Physician Interaction* focused specifically on collaboration between nurses and MPs (Corser, 1998); and the *Structuration Model of Collaboration*, based on extensive research on interprofessional collaboration, was tested in various settings, including PHC (D'Amour, et al., 2005; D'Amour, Goulet, Labadie, Martin-Rodriguez, & Pineault, 2008; D'Amour, Goulet, Pineault, Labadie, & Remondin, 2004; D'Amour, Sicotte, & Levy, 1999; Drummond, Abbott, Williamson, & Somji, 2012).

Six dimensions of both models overlap including dimensions such as trust and respect, communication and joint goal setting (Dimensions 1-6 in Table 5). In addition, each model contains differing but complementary dimensions. The *Conceptual Model of Collaborative Nurse-Physician Interaction* includes social and historical dimensions (Dimensions 7-13 in Table 5) that affect collaborative practice such as conditions of power symmetry between practitioners, traditions of professionalization in nursing and medicine and the complexity of care environment (Corser, 1998). The influences of these social and historical aspects were investigated in the five cases of this study. The *Structuration Model of Collaboration* covers organisational and structural dimensions (Dimensions 14-17 in Table 5), for example support for innovation to establish new models of care, connectivity of individuals with their organisations and leadership to foster collaborative working (D'Amour, et al., 2008). This study captured the existence or absence of these structures at the five study sites. The two conceptual models were developed for North American settings, but offered useful content for data collection in the Australian settings and were applied as a framework for deductive data analysis, which is outlined in more detail in section 3.7.

Table 5 Dimensions of the Structuration Model and Nurse-Physician-Interaction Model of Collaboration

	Dimension	Model
1	Mutual trust and respect	C, S
2	Formalisation tools (policies, protocols, agreements)	C, S
3	Communication/behaviour tendencies/Information exchange	C, S
4	Compatible role perceptions/mutual acquaintanceship	C, S
5	Joint goal setting and decision making	C, S
6	Complementary management of influencing variables/Client-centred orientation vs other allegiances	C, S
7	Conditions of power symmetry	C
8	Traditions of professionalization	C
9	Traditional gender/role norms	C
10	Personal attitudes	C
11	Complexity of care environment (the higher, the more collaboration)	C
12	Prevalent social reality	C
13	Nursing/medical school curricula	C
14	Support for innovation	S
15	Connectivity	S
16	Centrality (authorities that provide clear directions that foster collaboration, inherits a strategic and political role)	S
17	Leadership (local person)	S

C = Conceptual Model of Collaborative Nurse-Physician Interaction (Corser, 1998)

S = Structuration model of collaboration (D'Amour, et al., 2008)

Following the description of the design framework and methodological approach, the recruitment process for this study is explained in the next section.

3.5   The process of recruitment

The flow chart in Figure 2 describes the process of recruitment from initial contact to final arrangements for the data collection period. Recruitment took place from August 2012 to May 2013.

An email with an attached research invitation for NPs and MPs was sent out to the Australian College of Nurse Practitioners' (ACNP) email list, a national organisation with NP members from all States and Territories in Australia. The same email was sent to the Royal Australian College of General Practitioners (RACGP), GP Super Clinics and Medicare Locals (Local organisations to co-ordinate community needs and healthcare services in PHC) with a request to forward the research invitation to the members of the organisation. While the email was sent out nationally, it was stated that

Western Australia and the Northern Territory were excluded from participation due to the higher costs of travel to remote locations, which would have exceeded the study budget.
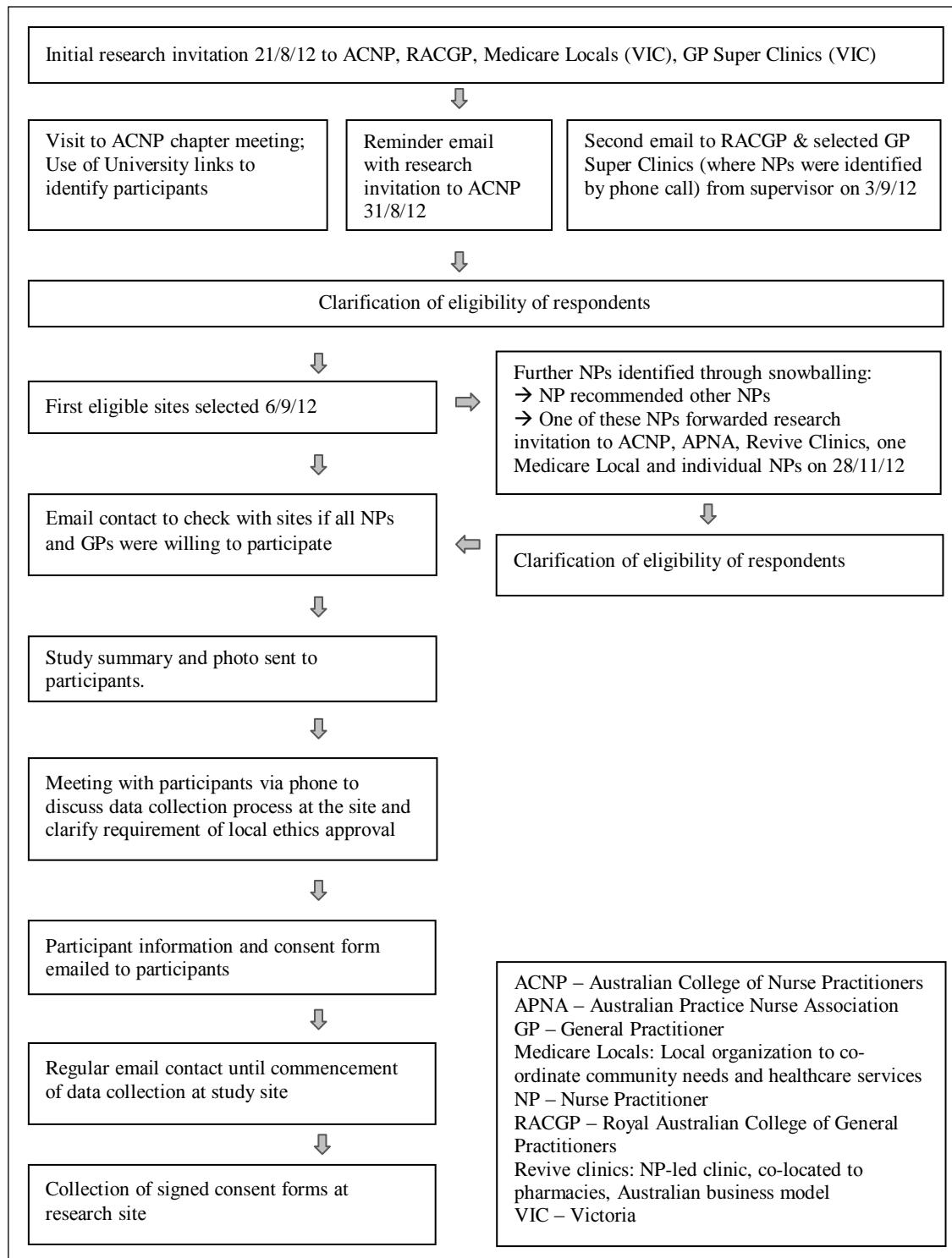

Figure 2 Flow Chart Recruitment Process

A reminder email was sent to the ACNP members ten days after the first email. Since there were few usable responses to the second reminder and to not overburden recipients with emails (Dillman, Smyth, & Christian, 2009) it was decided to not send out a third reminder email with a research invitation.

Due to a lack of responses from organisations other than the ACNP, one of the supervisors sent a second research invitation to confirm credibility of the student project. As a result, the RACGP division of South Australia and the Northern Territory agreed to publish the research invitation in their newsletter. Since there was no response from either other RACGP divisions or the Medicare Locals, the supervisor sent out a second email applying a more personal approach, so that emails to Medicare Locals were sent to the chairman and CEO, whose names had been identified via Internet websites. This turned out to be difficult since many Divisions of General Practice had been consolidated as Medicare Locals and contact details were often out-dated.

Using professional and personal links to identify and contact potential cases has been described as one of the most efficient strategies to gain access to the field (Lofland, Snow, Anderson, & Lofland, 2006). Consequently, I undertook additional approaches for recruitment by attending meetings of the Victorian Chapter of the ACNP and presenting the project to the NPs there. In addition I called GP Super Clinics within 80km of Melbourne (maximum daily travel distance for site visits during data collection in Victoria) to identify endorsed NPs on site. I also used University links to establish contact with potential participants.

Throughout the recruitment phase a snowball sampling technique was applied to identify further potential participants (Patton, 2002) by asking each individual to promote the study with each research invitation sent. During data collection at the first site further potential participants were identified through the NP working there. Contact information for these NPs was sought through an Internet search and five NPs were contacted with an email inviting them to participate in the research project. One

of the five NPs also forwarded the research invitation of her own accord to her professional network that included the ACNP, the Australian Practice Nurse Association (APNA), the Revive Clinics (NP-run clinic network), one Medicare Local and some private contacts. Her email can be considered a second recruitment round since it triggered responses from 25 potential sites within the following two weeks. Responses to the research invitation and any correspondence with potential participants were monitored in a database.

3.5.1 Selection of sites

At the time of data collection there were approximately 22,555 MPs working in PHC (Australian Health Practitioner Regulation Agency, 2011) so that the selection of participating cases was determined by the much smaller number of NPs. A recent survey by the Australian College of Nurse Practitioners found that 30 (13%) of 217 NPs who responded to the survey work in PHC/general practice (Australian College of Nurse Practitioners, 2011). Assuming that a maximum of 13% of the 590 endorsed NPs in 2012 (Nursing and Midwifery Board of Australia, 2012) worked in a PHC setting, the potential sample size could have comprised 77 NPs who might have worked in collaboration with a MP. Based on similar studies of NP-MP collaboration (Dierick-van Daele, et al., 2010; Legault, et al., 2012; Way, Jones, & Baskerville, 2001), it was anticipated that a maximum of 20 participants across a minimum of three sites with different characteristics and at least one NP and one MP per site was sufficient to generate a comprehensive understanding of collaborative practice.

Potential sites were screened against selection criteria by email or during an initial phone call. Eligible sites were those where NPs and MPs worked together in a PHC setting such as general practices, community health centres, private practices or clinics offering specialist services such as health promotion, family health, cardiac health or, drug and alcohol withdrawal. To be considered a primary health care setting, patients would use these sites as the primary access point for their healthcare and establish an ongoing relationship with the health professionals. The location of the PHC site was within the community and they provided coordinated services with and referrals to

other services (Department of Health - State Government of Victoria, 2014). Hospitals, aged care facilities and rehabilitation centres were excluded. To guarantee typical and routine behaviour and communication between NP and MP they had to have experience of working together for at least 12 months. In addition, both NPs and MPs had to be registered health professionals with AHPRA and NPs also had to be endorsed as NPs for at least 12 months to ensure that both practitioners had completed their education and training and worked in their professional roles for an adequate amount of time. Practitioners had to work for at least 2.5 days per week to increase the chances for observing interaction between the practitioners. It was further clarified if other NPs and MPs working at the site were willing to participate. Furthermore, where these positions existed, practice managers (PMs) were asked to participate in an interview to capture their perspective on the collaboration between NP and MP. In addition to site eligibility, site characteristics such as practice size, practice type (public or private) location (urban or remote), PHC specialty and type of collaborative arrangement were identified to inform the decision about site selection. Once eligibility was confirmed, a telephone conference was undertaken with potential site staff, myself and the principal PhD supervisor to go through the study and in particular data collection processes in more detail. Following this meeting, the consent forms were sent to potential participants by email. The signed consent forms were collected once I was on site and met with the participants.

The case selection process is illustrated in Figure 3. From a list of 24 sites, achieved through all forms of recruitment within the first recruitment month, only three sites matched the inclusion criteria completely. To increase the potential sample the following inclusion criteria were modified:

− NPs and MPs working together for 12 months was reduced to 6 months

− NPs and MPs being registered with AHPRA for 12 months was reduced to 6 months

− NPs being endorsed as NPs for 12 months was reduced to 6 months

- NPs and MPs working on the same premises was changed to NPs and MPs working collaboratively through phone, email, patient records and face-to-face encounters. The latter was necessary to consider the most frequent way NPs were working within PHC settings.

- NPs working at least 2.5 days per week in the PHC setting was reduced to working at least 1 day per week in the setting under investigation.

Thus, an additional five sites became eligible for inclusion (Figure 3). One site was recruited into the study as a result of the participant's involvement at the first site due to the snowballing technique. The second recruitment round yielded responses from 25 sites of which four were eligible for the study. In total, this resulted in 13 eligible sites from which seven sites were selected purposefully based on maximum variation of site characteristics to retrieve variety of information on collaborative practice in PHC settings (Patton, 2002). However, while variety is important, in case study research cases were also chosen according to their value in terms of learning (Stake, 1995) and their richness of information (Patton, 2002). Consequently, I selected sites with rural and urban locations, with staff numbers between five and 30 health professionals, with varying forms of collaborative agreements between NPs and MPs, sites that provided specialised care and general healthcare services and practices that were publicly funded or privately owned.

The length and timing of data collection varied from site to site and was dependent on a number of factors such as the working hours of the practitioners, their availability, and practicalities of travelling depending on the proximity of sites. Consequently my site visits ranged from a couple of hours on a number of days at some sites to consecutive full days over a two-week period at other sites.
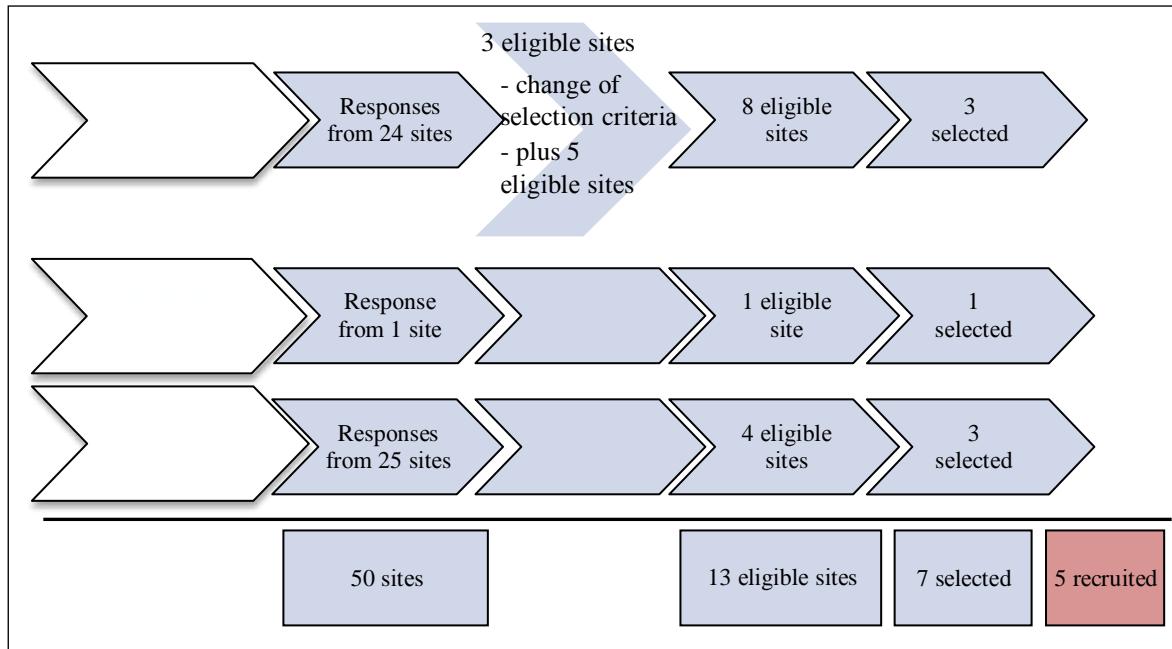
Figure 3 Flow Chart Selection of Sites

Due to delays in achieving external ethics approval from two sites, only five cases were finally recruited into the study. Two PHC sites that were co-located with a hospital required ethics approval from the hospital HREC for the study to be undertaken. The application process for these sites took from January to June 2013. At one site obtaining ethics approval took so long that the data collection period for this study had expired. The HREC at the other site required an amendment to the protocol, which we did not agree with. Therefore, both applications were withdrawn from these sites.

The data collection methods and data sources for this study are described in the next section.

3.6 Data collection methods

This section presents information on the data sources for this study and the development and testing of data collection methods. Once sites were confirmed as study cases, data collection was undertaken in three phases involving four data sources: 1) observation of NPs and MPs to capture actual behaviour and context; 2) questionnaire with quantifiable and validated measurement of collaboration

administered to NPs and MPs; 3) individual interviews were conducted with NPs, MPs and PMs using a semi-structured interview style to record perceptions, experiences, expressed feelings and thoughts; 4) throughout the data collection period at each site, practice documents relating to the collaborative arrangements at each site were collected to gain further insights in work mechanisms and roles that were defined in writing in these documents. Finally, this section also gives a justification for the order of methods as applied in the data collection phase.

3.6.1   Observations

The first data collection phase comprised observations in each PHC setting. Observations were used to obtain an impression of how collaboration between NPs and MPs took place (Lofland, et al., 2006; Patton, 2002). The lack of studies using observations was identified in the preparatory literature review, indicating that most studies solely used interviews and scales to investigate collaboration. However, those methods reflect only perceived collaborative practice, whilst undertaking observations of NP-MP interactions added an outsider perspective on collaborative behaviour.

For preparation and to develop and hone observation skills, I undertook observation exercises in public transport areas and cafes. While surroundings were described, lighting conditions and sounds jotted down, the focus of observations was on people and how they moved, dressed and talked. After 15-30 minutes of observations I wrote down complete observation notes and checked them the next day to compare what was recorded in the notes and how observations were memorized.

At the study sites, I followed the NP to record all NP-MP encounters in the role of a non-participant observer. While openness is emphasised in qualitative inquiry, I used an observation sheet with operationalised dimensions to organise observation in such a complex setting (Patton, 2002; Spradley, 1980; Stake, 1995). The observation sheet (Appendix 7.1) lists nine elements for observing settings based on recommendations by Spradley (1980) such as the practice layout, staff structure, interaction and communication between NP and MP including referral patterns and the number and

length of consultations. Field notes were supplemented with more details as soon as practical after the observation sessions (Lofland, et al., 2006). The observation sessions were completed when data saturation was achieved and observed instances became repetitive (Patton, 2002; Yin, 2009). Based on previous research on interprofessional collaboration (Miller et al., 2008; Reeves et al., 2009; Szekendi, 2007; Van Soeren, Hurlock-Chorostecki, & Reeves, 2011) it had been estimated that one to two weeks of full-time observation per case were sufficient. Full-time observation was chosen to minimise total time per case for practical reasons.

3.6.2 Questionnaires

In the second phase of data collection, NP and MP participants were given questionnaires containing three scales measuring experience with current collaboration, satisfaction with this collaboration and beliefs in the benefits of collaboration (Appendices 7.2 and 7.3). Questionnaires were used to gather information on knowledge, behaviour or attitude of a study population (Rubenfeld, 2004). The purpose of this questionnaire was threefold: First, to enhance the descriptive results of interviews and observations through quantifiable measures; second, to validate corresponding statements and observations with the quantitative scores of the scales; and finally, to compare NPs' and MPs' perceptions on collaboration.

Published research on collaboration was screened to identify existing validated measures of collaboration among health professionals and more specifically, between nurses and MPs. Using existing measures for a questionnaire is recommended because it saves time and costs to develop a new measure and validity and reliability are already established (Boynton & Greenhalgh, 2004; Punch, 2003). Out of 15 identified measures, three scales were selected for this study. The reasons for choosing these scales were their brevity (about 2-3 minutes per scale) to avoid overburdening participants; the scales were tested in appropriate settings or population, and they underwent psychometric testing. Permission to use the scales was obtained. The scales are:

Satisfaction with current collaboration scale: This 15-item scale uses 6-point Likert scales to measure levels of satisfaction with various dimensions of collaboration. The scale, originally developed by Way *et al.* (2001), has been developed and applied in PHC settings. Donald (2007) modified the scale by adding four questions that were also relevant to my study and by reducing the Likert scale from 7 to 6 points. A 6-point Likert scale omits the neutral position and forces the participant to indicate an opinion direction, which was desirable for this study. Therefore, the modified version (Donald, 2007; Donald, et al., 2009) was used for this study. Separate scales for NPs and MPs exist for the assessment of satisfaction but they entail the same questions.

Experience with current collaboration scale: This scale uses 6-point Likert scales to assess agreement or disagreement with nine statements on current experience with collaboration. The scale was also originally developed by Way *et al.* (2001) and then modified by Donald (2007). The modified version (Donald, 2007; Donald, et al., 2009) with a reduced Likert scale of 6 instead of 7 points was used for this study. Separate scales for NPs and MPs exist for the assessment of experiences but they entail the same questions.

Both scales (Appendix 7.2 and 7.3) were pilot-tested for content validity, relevance and understandability by the original authors (Way, Jones, & Baskerville, 2001) in Canadian PHC settings. The modified versions by Donald (2007) were also tested for construct validity by comparing each of the scales with a single general question. This resulted in Spearman's $r = 0.89$, $p < 0.001$ for the scale measuring experience with current collaboration and $r = 0.91$, $p < 0.001$ for the scale on satisfaction with collaboration (Donald, 2007), indicating very good construct validity.

There were noteworthy advantages and limitations to these two scales (Donald, 2007). The advantages were the availability of separate scales for NPs and MPs, their brevity and their specific applicability in the PHC setting. A weakness of both scales was the limited testing of psychometric properties for both the original and modified version of both scales. For instance, construct validity was not tested for the original instrument.

Furthermore, reliability testing was omitted, and while a number of validated measures were available, no concurrent validity was established for both versions. Despite these shortcomings, the modified versions (Donald, 2007) were used because of all instruments evaluated they best fitted the purpose of this study.

Beliefs in the benefits of collaboration scale: The third scale was originally developed to evaluate an interdisciplinary collaborative service delivery model in Canada (Sicotte, D'Amour, & Moreault, 2002). It was applied in large PHC teams as a subscale of a scale that measured collaborative processes (Sicotte, et al., 2002). The subscale used for this study, measures beliefs in the benefits of collaboration and uses 5-point Likert scales to assess agreement or disagreement with five statements (Sicotte, et al., 2002). The subscale had high reliability (Cronbach's α coefficient of 0.91). Factor analysis showed sufficient loading of the items on a single factor confirming high construct validity (Sicotte, et al., 2002).

The three scales were combined in a questionnaire and supplemented with three questions on demographics and nine items on the professional's role and status in the practice setting. These additional questions were constructed and designed according to textbook recommendations since the order and wording of questions and the layout of response items can heavily influence the response rate and the validity and reliability of responses (De Vaus, 2002; Dillman, 2000).

The complete questionnaire was pre-tested in a convenience sample of one medical practitioner, one nurse, three academic researchers, and two researchers with experience in questionnaire development with a list of instructions about issues for which feedback was sought. This debriefing list was constructed following suggestions in De Vaus (2002) and is provided in Box 1.

Box 1 List of instructions for reviewing the questionnaire

1) Please record the time it takes to complete the questionnaire

2) Were there difficulties in reading, comprehending or answering the questions? If so, please specify.
- Comment on anything that made you hesitate to respond and why.
- Comment on anything that wasn't clear to you or you found confusing such as wording of questions/items or order of questions. Feel free to suggest an alternative.

3) Are there any questions/items not listed in the questionnaire you would consider relevant for inclusion? Feel free to make a suggestion.

4) Are there redundant questions/items?

From the feedback of the seven pre-testers, minor changes were made such as rewording some questions and changing the order of questions. The questionnaire was then pilot-tested with the same instructions as given to the pre-testers (see Box 1) in a sample of three NPs and four MPs who were working in PHC settings to guarantee maximum similarity with the study population (De Vaus, 2002). To avoid piloting the questionnaire with potential participants in the main study, the questionnaire was sent to NPs and MPs who were either working in Australian States and Territories that were not included in the study or NP candidates who were ineligible to participate. Feedback from those pilot-testers was positive. It was noted though that the questions on the two scales adapted from (Donald, 2007) focused too strongly on joint care of NP and MP and may not reflect the high level of work independently carried out by NPs. Since it was not possible to amend the existing scales without testing the psychometric properties, no further changes to the scales were made. An additional question about independent NP practice was added in the interview schedule (Appendices 7.4 - 7.6) to give participants the chance to comment on this topic. The final version of the questionnaires for both NPs and MPs can be found in Appendices 7.2 and 7.3.

Several strategies (Jones, Story, Clavisi, Jones, & Peyton, 2006) were taken into account to increase the response rate to the questionnaire. These steps included:

- personalised cover letter enclosed with questionnaire,

- return envelope was included,

- prior contact with participants was made,

- professional layout of questionnaire and cover letter,

- questions and the questionnaire were kept as short as possible,

- questionnaire topic was relevant for participants,

- no sensitive questions were asked, and

- participants were verbally reminded to complete the questionnaire.

The questionnaire was given to the participants once the observation period at each site was completed and returned before interviews were held. In person-delivery of questionnaires further increased the response rate and reduced nonresponse errors (Dillman, et al., 2009).

3.6.3   Semi-structured interviews

In the last phase of data collection, semi-structured interviews were held with individual NPs, MPs and PMs. Practice managers were interviewed where available because they provided another perspective on how NPs and MPs collaborated. Interviews enabled in-depth collection of data that reflect experiences, feelings, attitudes and opinions (Kvale & Brinkmann, 2009) that could not be observed (Patton, 2002). Thus they were a complementary method and served as an additional source of information. The interviews covered understanding and experience of collaboration, examples of collaboration and consultation, shared decision-making, barriers and facilitators to collaboration, collaborative arrangements, supervision and autonomy (Appendices 7.4, 7.5 and 7.6). The strength of the semi-structured interview format is that it "provides a balance between structure and openness" (Gillham, 2005, p. 79). The interview schedule allowed a systematic process of the interview, but at the same time the interview remained conversational and was open for emerging topics (Gillham, 2005; Patton, 2002). Questions could be asked to clarify details or elucidate observations made during the observational phase of the study. Interviews were audio-

recorded with participant consent and conducted at a time and place convenient for participants, mostly in the practice setting during or after working hours. To guarantee best possible documentation of what had been said, the interviewer transcribed the interviews soon after recording (Gillham, 2005).

Interview questions were developed based on two approaches: 1) Questions were derived from other literature reporting studies about collaboration between NPs and MPs (Faria, 2009; Hallas, et al., 2004; Way, Jones, & Baskerville, 2001); 2) The two theoretical models of collaboration (see section 3.4) guided the development of questions. Accordingly, questions addressed the dimensions that were identified in the theoretical models as being most crucial to collaboration (Table 6). For example, the dimension of joint goal setting/mutual decision-making was covered by a question that asked "How do you decide together on a patient's treatment?". Another example is the question: "Are there practice features in place that streamline/foster collaborative care?" that relates to the dimension of protocols or policies.

Three pilot-interviews with nursing academics, two of them with previous experience in PHC, were undertaken to practice interview situations and test interview questions. The interview schedule was refined after each interview. In total, two questions were deleted because they were considered repetitive; questions about NP prescribing and funding of the NP role were added, the wording of some questions was changed as they were not clear to interviewees and some questions were grouped differently. The interviewees also reported that they felt comfortable with the way the interview was undertaken and the majority of questions were clear and easy to answer.

After completion of interviews at the first site, some questions were re-organised according to priority; and back-up questions developed based on the fieldwork experience. For questions where participants responded evasively a similar but differently worded question was formulated to be able to glean more information on the subject. These questions are shown in brackets in the interview schedules (Appendices 7.4, 7.5 and 7.6).

Table 6 Dimensions of Collaboration and Interview Questions

Model	Dimension	Covered in MP interview	Covered in NP interview
C, S	Mutual trust and respect	Overall covered	Overall covered
C, S	Formalisation tools (policies, protocols, agreements)	Q8, Q15	Q8, Q12, Q14
C, S	Communication/behaviour tendencies/Information exchange	Q4, Q5, Q6, Q9	Q4, Q5, Q6
C, S	Compatible role perceptions/mutual acquaintanceship	Q5, Q6, Q7	Q5, Q6, Q7
C, S	Joint goal setting and decision making	Q10, Q11	Q9, Q10
C, S	Complementary management of influencing variables/Client-centred orientation vs other allegiances	Q9, Q10, Q11	Q9, Q10
C	Conditions of power symmetry	Q10, Q11, Q12, Q15	Q9, Q10, Q12, Q14, Q15
C	Traditions of professionalization	Q1, Q13?, Q17	Q1, Q16
C	Traditional gender/role norms	Q12	Q15
C	Personal attitudes	Q3, Q5, Q6, Q7, Q12, Q14	Q3, Q5, Q6, Q7, Q11, Q15
C	Complexity of care environment (the higher, the more collaboration)	Q1, Q5	Q1, Q5
C	Prevalent social reality	Overall covered	Overall covered
C	Nursing/medical school curricula	Q17	Q16
S	Support for innovation	Q2, Q8, Q12, Q16	Q2, Q8, Q13, Q15
S	Connectivity	Q4, Q5, Q6	Q4, Q5, Q6
S	Centrality (authorities that provide clear directions that foster collaboration, inherits a strategic and political role)	Q8 (indirectly covered)	Q8 (indirectly covered)
S	Leadership (local person)	Q2, Q8 (indirectly covered)	Q2, Q8 (indirectly covered)

C = Conceptual Model of Collaborative Nurse-Physician Interaction (Corser, 1998)

S = Structuration model of collaboration (D'Amour, et al., 2008)

3.6.4 Documents

A fourth source of data was practice documents that outlined the collaborative relationship. Documents and institutional records can serve to validate and expand evidence from other data sources or identify contrast to what was observed on site or recorded in interviews (Patton, 2002). Documentary data sources for this study comprised written collaborative arrangements, the NP's scope of practice document and practice newsletters or information flyers. This data collection method was added to the protocol and approved by the HREC, once data collection at the first site started. It had become apparent that practice documents provided information about the

collaborative relationship between the NP and the MP, about the NP position in the practice and how the NP role was defined at the specific site. Furthermore, some documents outlined communication and referral mechanisms as well as responsibilities of each health professional involved in the collaborative arrangement. Thus, the documents were useful to enhance understanding of collaboration and answer the research questions. Where these documents existed, copies were collected for analysis. Textual data such as definitions of the collaborative arrangements, regulations about referral and consultation mechanisms, statements about responsibilities and scope of practice were extracted.

The next paragraph explains why data collection occurred in the chosen sequence.

3.6.5 Justification of the order of methods

Undertaking mixed methods research requires reflecting on the sequence of methods (Creswell, 2007; Wheeldon, 2012). The decision to start with observations was based on the fact that observations would be least influential on other methods because I did not reveal any pre-defined dimensions of collaboration to participants. It also guaranteed openness and conveyed that I did not go into the setting with any preconceptions of individuals. Interviews were chosen to be the last phase of the study to exclude influence on responses to the questionnaires or behaviour during observations by raising awareness of collaborative practice with interview questions. The questionnaire as the second method of data collection might have suggested to the participants some ideas about collaborative practice that might have subsequently influenced responses to interview questions. However, in the interview situation it was possible to clarify a person's ideas and possibly identify observer misimpressions through further enquiry. An interview of about 30-45 minutes length provided sufficient opportunity for participants to intensely reflect on his/her understanding of and experiences with collaboration and enabled the collection of rich data relating to individual perceptions and views about collaboration. Thus it was deemed appropriate to conduct the interviews at the end of the data collection phase.

The description of the data collection methods applied in this study follows the account of data analysis.

3.7   Data analysis and triangulation of findings

This section provides details on data analysis and how data were triangulated. Analysis in case study designs can be based on both categorised data and interpretation, that is on both analysis of frequencies and narrative description (Stake, 1995). Analysis of data in this study included thematic analysis of qualitative data and descriptive statistical analysis of questionnaire data. The triangulation of textual data such as interview transcripts, observation notes and practice documents as well as questionnaire results are explained. There were five approaches to data analysis:

1) Since analysis of qualitative data begins during the data collection phase (Hammersley & Atkinson, 2007), observation notes and interview transcripts of each site were read at least once before entering the next site. A brief case description of each site including the practice layout, staff present and common activities was written down to assist with the analysis. In addition, I recorded my impression of the site, including my opinion of how and if interactions took place. I reflected on the participants' behaviour and how the data could answer the research questions. Preliminary data analysis occurred by noting down ideas, observed relationships or patterns and issues that needed further enquiry at later sites (Grbich, 2007).

2) Thematic analysis (Braun & Clarke, 2006) was used to identify recurring themes, events and patterns in qualitative data (Lofland, et al., 2006; Patton, 2002). Interview, observation and document data were analysed following Braun and Clarke's (2006) approach of thematic analysis. They argue that thematic analysis can be undertaken within every epistemological stance or theoretical framework and this flexibility fitted the pragmatic perspective of this study. Consequently, no qualitative data analysis process belonging to a particular philosophical assumption such as in Grounded Theory data analysis (Glaser & Strauss, 1967) was applied, but the six steps of thematic analysis suggested by Braun and Clarke (2006) were followed. Their data

analysis approach involved a recursive process, which meant steps were repeated in a cyclical way as necessary (Table 7).

Table 7 Thematic Analysis Process

Six steps of thematic analysis*
1 Familiarising yourself with your data
2 Generating initial codes
3 Searching for themes, collating codes
4 Reviewing themes
5 Defining and naming themes
6 Producing the report

(Braun & Clarke, 2006)

A first step of thematic analysis involved the transcribing process, undertaken by the researcher. By listening to the data, ideas developed and were noted down. Braun and Clarke (2006) describe this as an interpretive process, in which data become meaningful and a first understanding of the data is generated. All interviews were listened to and compared with the transcripts to verify accuracy.

QSR International NVivo 10 software was used to assist data management and analysis. All interview transcripts, observation notes and practice documents were uploaded to the programme in three separate folders for each type of data. To allow comparison of the participants' views (interviews), the researcher's observations and documents describing the collaborative practice (practice documents), the three data types were coded separately and later compared (Figure 4). A separate analysis of the individual data sources was considered preferable to a combined analysis of data sources to illustrate differences between participant statements and observer impressions. A combined analysis might have concealed these differences.
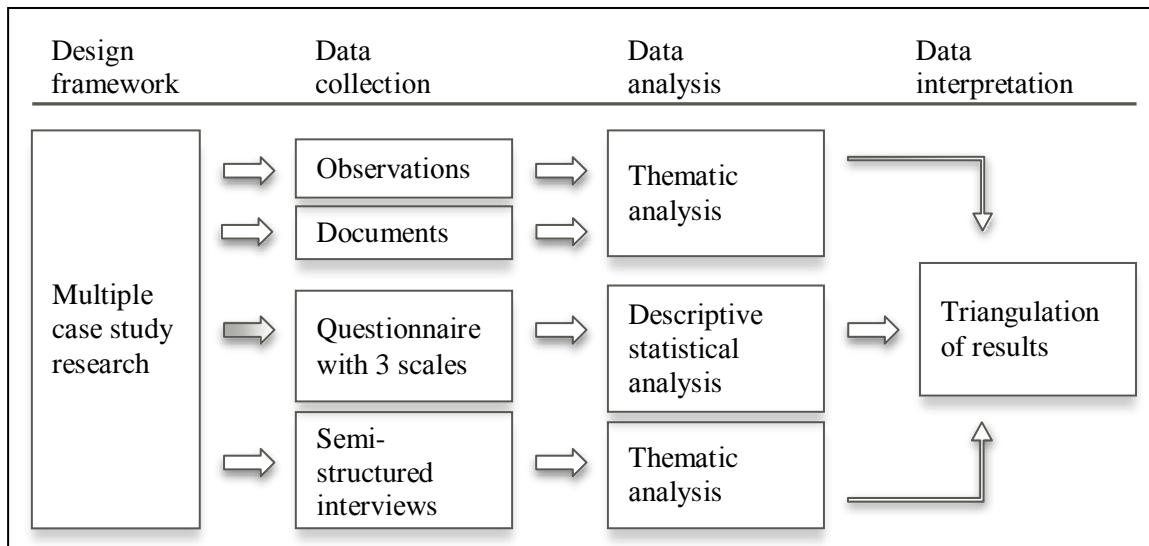
Figure 4 Research Process

All transcripts were read again within NVivo to organise segments of data into meaningful codes, the second step of analysis. Braun and Clarke (2006) distinguish 'data-driven' (inductive) or 'theory-driven' (deductive) coding. First, an inductive analysis of qualitative data was undertaken. Codes were created and, where possible, labelled with expressions participants used, to stay close to the participant meanings. Although I had been exposed to literature on the topic, it was important during this stage of analysis that I put any preconceptions aside and approached the data with an open mind. Through discussions with supervisors and reflections in the research diary, the influence of pre-existing ideas during the analysis process was kept to a minimum. Throughout the coding process, tentative codes were checked against transcripts of three interviews by two supervisors (AG, EM) and discussed in meetings (Graneheim & Lundman, 2004). During the entire analysis process, AG and EM reviewed the developed codes and themes at regular meetings to confirm that themes reflected the data and to increase trustworthiness in the data.

Following this data-driven and inductive perusal, existing dimensions of the two theoretical models of collaboration (Corser, 1998; D'Amour, et al., 2008) were used for a theory-driven and deductive review of the data. According to Hammersley and Atkinson (2007) the use of more than one theoretical framework is reasonable for data

analysis. Dimensions such as 'support for innovation', 'centrality' or 'policies and protocols' from the models (see Table 6), were checked against codes. This process was related to Yin's (2009) analysis technique of pattern matching whereby empirically derived patterns and predefined patterns can be compared. If a dimension of the two models of collaboration was not covered in an existing code, all data were read again, searching specifically for text that related to the dimension of one of the frameworks if that text existed. A new code relating to that dimension was then developed.

By using both data-driven and theory-driven approaches to the data, codes were generated based on participant meaning and current literature. The inductive approach identified new codes inherent to the participants and sites of this study. The deductive approach assisted with determining how close the data set of this study was to existing models.

Once all data types were coded into sets of codes, an intensified interpretive process began, outlined as the third step of analysis (Braun & Clarke, 2006). Codes were compared and collapsed into broader categories in search for developing themes. In a fourth step, these preliminary themes were reviewed against all the codes they entailed and reviewed against the data set to check if segments of text were missed that would fit under one of the themes (Braun & Clarke, 2006). This shows the recursive process of data analysis. Analysis was completed once no new themes emerged (Patton, 2002). The fifth step described by Braun and Clarke (2006) is the final naming of themes. It is about "identifying the 'essence' of what each theme is about" (Braun & Clarke, 2006, p. 92) and putting it in relation to the research question. By reading through all underlying codes of one theme and refining the name of the theme to best describe all included data content, the final themes were developed. Themes were continually refined while writing up the narrative of the results section.

No member checking of final themes was applied to validate findings since study participants may have a different perspective from the researcher who is guided and

informed by literature and theory (De Laine, 1997), as well as developed insights from other sources of study data. Thus, lacking the researcher's knowledge of theoretical concepts they may not understand the social constructs the researcher derived from the data (De Laine, 1997; Sandelowski, 1993).

3) Descriptive statistics: Scoring of the three scales and other questionnaire items were analysed using descriptive comparisons between NP and MP responses. Results are presented as median, minimum and maximum values for continuous data. The median as the middle value of a range of data points was calculated using SPSS for the index scores for each scale and for individual scale items (Marston, 2010). Due to the small sample size no interquartile range is presented because minimum and maximum values provide a better picture of the sample including outliers.

4) Triangulation: Triangulation is an important feature of mixed methods research. It is about "what more can be known about a phenomenon when the findings from data generated by two or more methods are brought together?" (Moran-Ellis et al., 2006, p.47). Mixed methods research is not only the application of multiple methods within one study, but methods are triangulated to strengthen the findings through data verification, validation and disclosure of contrasting findings (Patton, 2002). Denzin (2009) distinguishes four types of triangulation where theories, data sources, investigator perspectives and/or methods are combined. The last describes triangulation of results derived from various methods. Morse and Niehaus (2009) call the triangulation of results the "results point of interface" (p. 56). In a first step of triangulation, codes and themes developed from interview data were compared to codes and themes developed from the observation data to test for convergent, complementary or contradictory findings (Erzberger & Kelle, 2003). For comparison of codes, categories and themes, a table format was used and codes, categories and themes from interviews and observations were copied into two columns, matching the same codes in one row (Figure 5). Thus, I was able to visually compare codes from both data sources and could easily identify new or supporting codes derived from observations. This step allowed triangulating interview and observation codes, which

were then combined under a common theme. Reasons for differences and commonalities of themes and sub-themes between the data sources were discussed with the supervisors and are reported as triangulated results in the narrative of the results section. At this stage, I drew on findings from the document analysis when they were useful to clarify or support themes or subthemes that related to structural and organisational conditions.

Interview codes			Observation codes		
Practice structure and collaboration	14	26	Practice structure and collaboration		
Fitting patients in when MP input is needed (no system how to deal with extra appointments)	2	2			
Layout of practice - NP work space (more from observations)	3	4	The NP office CONFIRMS and strengthens interview data	9	14
			NP has no office to herself (only NP2)	4	8
			Office swapping and structure	5	6
MPs not involved in decision for collaborative practice	4	5			
New staff has to be prepared to work in collaborative practice	2	2			
Triaging decisions	9	13	Triaging problem	1	1
			Lack of patients for NPs - being idle NEW	9	10
Systemically and sociologically imposed imbalance of equity	20	199	Imbalance of equity	23	72
Sociological, historically developed imbalance	19	130	Sociological structures of imbalance of equity	21	54
'It's just about people letting go a little bit' - sharing care CAN BE MERGED WITH MPS ARE DOMINANT CARE PROVIDER	13	20	MPs are the dominant care provider - the 'God-syndrom' CONFIRMS It's about people letting go a little bit - inequality	18	42
'I would say my patient with me, first!' - MP has primary choice over patients, is gatekeeper	8	8	Patient belongs to MP	6	7
			MP has final say about patient	3	3
			MPs have priority to see patients	2	2
Loss of being informed (loosing control) - better title for this code	5	5			
Some MPs are prepared to let go and share care	4	4			
			NP provides (unsolicited) feedback to the MP - passive involvement of MP NEW	4	6

Figure 5 Comparison of Interview and Observation Codes

The next step of triangulation included the comparison of themes from the qualitative data to questionnaire results, called between-methods triangulation (Denzin, 2009). During this step, findings were considered in relation to each other after data had been analysed in each method (Moran-Ellis, et al., 2006; Morse & Niehaus, 2009). Any relationship or dissonance between the data types were investigated by searching the text for explanations and discussion with the supervisors. As before, the triangulated findings were woven together at the point of data interpretation and presented in a narrative (Fetters, Curry, & Creswell, 2013).

5) The last approach to data analysis was a cross-case analysis: a synthesis of findings of different cases, undertaken throughout the data analysis process (Patton, 2002). Cross-case analysis in multiple case study designs is used to understand commonalities and differences between the cases (Stake, 2006). Data from all cases were considered

as one pool of evidence so that text was coded and categorised without generating themes for individual cases. Codes with a large amount of data were examined for differences and commonalities between NPs and MPs as well as between cases and are reported as narrative in the results section.

Multiple cases, mixed methods and triangulation of findings added to the high quality of data in this study. Further measures for quality assurance in this study are described in the following sections, addressing ethical principles for research involving humans and the steps taken to add rigour and trustworthiness to the study.

3.8   Ethical considerations

Ethics approval for this study was granted by the Human Research Ethics Committee of the Australian Catholic University in August 2012 (Appendix 7.9). Informed consent was obtained in writing from participants. Their voluntary participation in the study, benefits and risks, confidential data management and their right to withdraw from the study at any time during the project was explained to them. Participant autonomy was respected by providing informed choice of participation (Beauchamp & Childress, 2008; National Health and Medical Research Council [NHMRC], 2007). However, I acknowledge that this study involved several members of a practice team within the same workplace and withdrawal for one team member may have been difficult because their withdrawal would have become known to others.

Participants were guaranteed that data would be stored in a secure place. Until completion of the research, data are stored in a re-identifiable format with a pseudonym or participant number replacing identifiers (NHMRC, 2007). Privacy is protected by using pseudonyms in reports and publications (Holloway & Wheeler, 2010). However, guaranteeing anonymity in such a small sample is difficult (Simons, 2009). Thus, results are presented in an aggregated format and direct quotes are shown only if participants cannot be identified.

Participants can feel uncomfortable or get emotionally distressed during observations or interviews (Holloway & Wheeler, 2010; Patton, 2002). Should participants of this study have become visibly upset or distressed as a result of study participation, free nationally available counselling services or support through professional associations would have been offered to them. Confirmation of continuing consent was sought verbally from participants before entering subsequent phases of the study.

3.9　Quality assurance and rigour

Several steps were taken to assure quality of data, rigour of the study process and trustworthiness of the findings. If the researcher is able to provide convincing evidence for systematic and rigorous fieldwork, credibility and trustworthiness of data can be achieved (Lincoln & Guba, 1985).

First, the use of multiple methods and triangulation of findings increased credibility (Lincoln & Guba, 1986), in preference to (construct) validity, by providing multiple perspectives and measures of the same phenomenon (Yin, 2009). One might consider the collection of data and the majority of analysis undertaken by the sole researcher as a threat to the validity of findings. In addition, observations may have provided a more etic (outsider) than emic (insider) viewpoint of collaborative practice. Through method-triangulation, it was possible to confirm and contrast the outsider's perspective with the insiders' perceptions and capture practice reality of each case as close as possible within the given timeframe.

Second, while case study research is undertaken to understand the uniqueness of a case and not to generalise (Stake, 1995), transferability (Lincoln & Guba, 1985) of findings to similar settings is possible when findings are generalised in light of a broader theory (Yin, 2009). That means, the transferability of findings can be facilitated through the use of existing theoretical frameworks (Yin, 2009). In this study, transferability was established by comparing findings with dimensions of two theoretical collaboration models (Corser, 1998; D'Amour, et al., 2008) in the deductive analysis. The transferability of findings of this study to another context is justified when the findings

match dimensions of the theoretical frameworks. Findings can also be generalised if they occur regularly during the study (Stake, 1995; Yin, 2009). Stake (1995) states that multiple cases can "increase the confidence" (p. 8) someone has about a generalisation.

Furthermore, transferability can be established through presentation of "thick descriptive data" (Lincoln & Guba, 1986, p. 77) including description of the setting and context. The description of study site context and the representation of participant quotes to support the themes derived from the data of this study provide the basis for rich data presentation. This helps others to judge if the setting in this study matches another context and findings may be applicable to that context.

Third, reflexivity in qualitative investigations is crucial to find out in what way predispositions of the researcher "may have constrained what was observed and understood" (Patton, 2002, p. 301). Part of reflexivity relates to the researchers' potential influence on the research process and interpretation of data (Schutt, 2012). Therefore, a statement about the background of the researchers and how this may have influenced the research is commonly suggested (Blignault & Ritchie, 2009). My nursing background might have given this study a nursing point of view and arguments might be raised about the neutrality of the researcher in examining medical practitioners. A number of factors enabled me to distance myself from the nursing profession and increased objectivity in the process of this study. I have neither worked in a NP role nor a PHC setting. For several years I have not worked clinically and coming from a different country also assisted in distancing myself from NP and MP care models in Australia.

As a researcher, my presence during observations may have affected behaviour of participants. It was recorded in the observation notes and discussed with the principal supervisor that NP and MP at one site were well aware of me listening to and watching their interactions. After some days of observing no further comments about my presence were made by staff, suggesting a reduced influence of my presence in the

setting. This outlines the importance of an extended stay within the field to enable collection of credible data (Lincoln & Guba, 1986).

Self-reflexivity "includes the dialectical process of experiencing oneself as a subject as well as of reflecting on oneself as an object" (Aron, 2000, p. 668). That means, the researcher should not only engage in self-reflexivity "as an isolated mind in private contemplation" (p. 9) but discuss assumptions and experiences with others, for example supervisors (Dowling, 2006). Regular meetings with PhD supervisors at early stages of the project helped to emphasise where my approach to writing and interpreting existing literature required a more neutral tone towards MPs. Awareness of this potential bias, as well as continued discussion and review of findings by the supervisors, prevented a too individualistic perspective on the data of this study.

Furthermore, reflecting on my thoughts and their potential influences on the data in a research diary, helped to minimise potential preconceptions and one-sided thinking. Writing a research diary or reflective journal is a common feature to support the process of self-reflection and to explicitly monitor thoughts, feelings, reactions and expectations of the researcher throughout the research process (Simons, 2009). These notes were checked during data analysis to identify preconceptions that might have influenced the process of analysis.

Fourth, reliability, or dependability as the preferred term in qualitative research (Lincoln & Guba, 1986), was established through the use of a protocol (Schadewaldt, McInnes, Hiller, & Gardner, 2013a) and exact documentation of each step of the process to facilitate traceability for external persons (Yin, 2009). The protocol, as the foundation for the conduct of this study, provided information on the approach of this study and was the basis for standardisation of research approaches. A well-structured database in the QSR International NVivo 10 software was used for data management and served as the evidentiary source of conclusions (Yin, 2009).

In summary, credibility, transferability, reflexivity and dependability were established to increase the trustworthiness in the findings of this study and adhere to a rigorous research design.

3.10 Summary

This chapter outlined the methodology and methods of a study that investigated conceptual and practical aspects of collaborative practice between NPs and MPs in the Australian PHC setting. The multiple case study design applied mixed methods research and triangulated findings from observations, questionnaires, documents and semi-structured interviews. The barriers to collaboration between NPs and MPs as suggested by the international literature, are multiple and complex. These barriers include differing professional constructions of collaborative practice, legislative hurdles, regulation of practice and a lack of resources to establish collaboration models (Schadewaldt, et al., 2013b). Hence, a case study design using mixed methods was considered appropriate to research the complexity of the phenomenon of collaboration and to address the research questions on conceptual and practical aspects of collaboration (see section 1.6).

Each data collection method added a layer of understanding of how collaboration occurred between NPs and MPs in PHC settings. The questionnaire collated information on the current status of experience, satisfaction and beliefs in the benefits of collaboration. The interviews focused on the interpersonal processes and the subjective experiences and perceptions of collaboration as depicted by the participants. Document analysis provided further data about the operationalisation of collaboration, on which NPs, MPs and PMs outlined their common understanding of collaborative practice and the NPs' scope of practice within this collaboration. The observations served to examine the occurrence of collaboration through an outsider perspective. The pragmatic approach facilitated inductive and deductive analysis of qualitative data and the triangulated interpretation of findings.

Triangulation of qualitative data occurred at the step of thematic analysis and interpretation, in which interview and observation codes were first analysed separately and then contrasted to identify commonalities and differences between the emic perspective of participants and the etic perception of the observer. The identified themes from qualitative data were triangulated with the survey results and apparent differences are addressed in the discussion chapter.

Characteristics of five cases were examined and the perspectives of NPs and MPs recorded to illustrate how collaborative practice occurred and to understand what collaboration meant to the professionals involved. The following chapter reports the findings of this investigation.

CHAPTER FOUR

RESULTS

4 Chapter Four – Results

This study sought to generate an understanding and comprehensive picture of collaboration between NPs and MPs in Australian PHC settings. Chapter Four presents findings from interview, observation, document and questionnaire data. Three research questions guided the study to identify 1) the conceptual basis of collaboration as defined by NPs and MPs; 2) NPs' and MPs' experiences of collaborative practice and 3) factors that enable the functioning of collaborative practice models. Following an introduction to the sample and context, the results from the questionnaire are reported. The remainder of the results chapter is structured by the four main themes and sub-themes that were developed through thematic analysis of triangulated interview, observation and documentary data. The main themes were *an idealistic definition*, *influence of system structures*, *influence of individual role enactment* and *making it work: adjustment to new routines*. In the last section, the findings of deductive analysis, for which data of this study were compared to two theoretical collaboration models, are presented. The research questions will be answered in the discussion chapter through the interpretation of triangulated findings from qualitative data and questionnaire results.

4.1 Sample profile and context

Before the presentation of study findings, the study sample and settings are outlined. Description of sites and characteristics of individuals are provided in order to contextualise the study sites. However, description of participants has been deliberately limited to avoid identification of individuals and comply with ethical requirements for confidentiality and anonymity. These requirements were very important due to the relatively small PHC community that employ NPs. In addition, all participants are presented as female to further disguise individuals. A short generic overview of the five sites and their work arrangements provides the reader with an idea about the organisational context of the study sites.

Practitioners from 50 primary healthcare sites responded to the research invitation. Of those, 13 sites matched the inclusion criteria while others were ineligible (Figure 6). The ten sites that were not PHC settings were responses from NPs and MPs in hospitals, aged care facilities and a cosmetic surgery practice. Six sites were excluded because travelling to their locations would have exceeded the study budget.
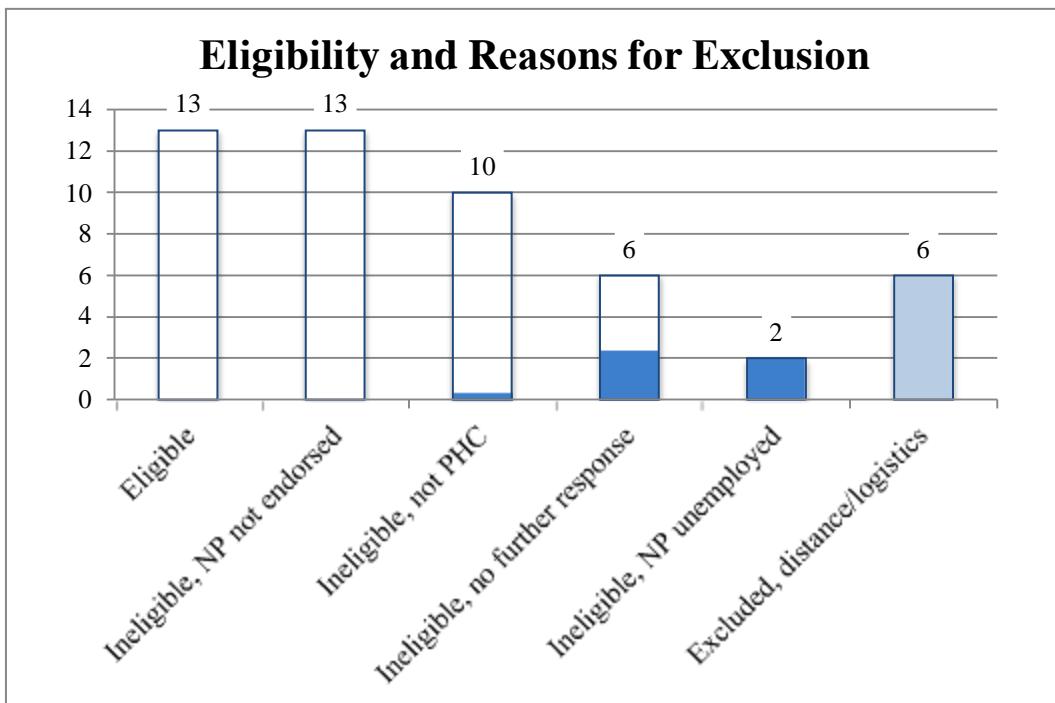
Figure 6 Site Eligibility and Reasons for Exclusion

Of the 13 sites, five were selected for the study including 22 participants with six NPs, 13 MPs and three PMs. One of the MPs agreed verbally to observations but did not find the time to sign the consent form, fill out the questionnaire or be interviewed. Therefore only observational data were available for this participant. Nine male and four female MPs participated; all NPs and PMs were women (Table 8).

In total, data collection included 143 hours of direct observation, a return of 18 questionnaires (95% return rate), compilation of 12 practice documents and 21 interviews ranging from 16 – 60 minutes in duration.

Table 8 Study Sample Characteristics

	Sites
Practices	4 private practices, 1 community centre
Locations	New South Wales, South Australia, Tasmania, Victoria
NPs per practice	1 – 2
MPs per practice	2 – 20
	Individual participants
Nurse Practitioners	6, all female
NP specialties	PHC, cardiology, aged care, drug and alcohol withdrawal
Working as NP (median, range)	2.0 years (0.5 -11.5)
Medical Practitioners	13, four female
MP specialties	General practice/PHC, cardiology, gerontopsychology
Experience in PHC (median, range)	NPs: 8.75 years (1.2 - 15)
	MPs: 13.0 years (2.3 – 34)
Practice Managers	3, all female

The MP group included 11 general practitioners, one cardiologist and one gerontopsychiatrist[2] with a median work experience in PHC of 13 years (range, 2.3 – 34). While all NPs worked in PHC settings, only three of them identified as PHC NPs and others were specialised in drug and alcohol withdrawal, cardiology and aged care. The median work experience of NPs in PHC settings was 8.75 years (range, 1.2 – 15). Nurse practitioners had been working as endorsed NPs for 2 years (median), ranging from six months to 11.5 years at the time of data collection. Two practice managers and one manager of chronic care services were interviewed. The latter was working in a semi-clinical, semi-administrative position and not as PM but due to overlap of her responsibilities with those of a PM it was appropriate to interview her. For de-identification purposes, the term practice manager (PM) is used throughout the thesis. At other sites PMs were not involved in the collaboration and therefore not interviewed.

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[2] Comparison of responses by type of MP or NP was not undertaken due to the small sample size and because the focus of this study was not on different opinions by type of MP or NP but on entire cases.

Sites were located in New South Wales, South Australia, Tasmania and Victoria (Table 8). Locations of the sites included country towns with a population under 2000, larger towns with 200,000-300,000 residents and cities with populations ranging from 1 - 4 million. The sample included three general practices, one PHC specialist practice and one community centre. All practices were privately owned while the community centre was publicly funded.

The organisational context and working structures differed at all sites. One large general practice comprised four locations including 20 MPs and data were collected at two of them. The NP worked mostly in the community and had no dedicated workspace in the general practice so that face-to-face interaction with MPs was rare. The specialist practice also comprised 20 MPs and one NP. The participating NP and MP shared all patients, with the MP being responsible for diagnosing and the NP undertaking disease monitoring and education. However, patients were seen at different days in separate consultations. The other general practices were of medium (total of seven NPs/MPs) and small size (total of three NPs/MPs) and more conventional general practice settings with NP and MP seeing patients in their offices. Practice managers managed the four private practices. At the community centre no MPs were consistently present on site. The NP ran the centre in her position as nurse unit manager and hardly any face-to-face interaction occurred between NP and the four regular MPs visiting patients on site. All five sites employed administrative staff and sometimes practice nurses and allied health professionals. Larger practices also included business/financial managers. Not all MPs in larger practices worked with the NP and not all MPs at the study sites were participants in this study.

In general, separate healthcare consultations of NPs and MPs prevailed at all sites with NPs and MPs as autonomous health professionals. The collaborative character of the practice models only emerged when mutual patients were discussed or referred to another health professional. Information exchange about patient care occurred through meetings, internal messaging systems, phone calls and referral letters. Face-to-face contact between NPs and MPs at sites ranged from daily to weekly encounters.

Following this description of the cases and work arrangements at the five study sites, findings are reported. First, I outline questionnaire results from three scales measuring various aspects of collaboration. Subsequently, the four main themes are explained and finally the comparison of data with theoretical collaboration models is presented.

4.2   Questionnaire results

Results from the scales that measured belief in the benefits of collaboration, the experience of collaboration and satisfaction with collaboration are presented in this section. Following advice from a statistician no significance testing was undertaken due to the small sample size. High scores on all scales indicated positive perceptions in the descriptive analysis. Median index scores of the three scales showed 1) NP and MP groups strongly believed that collaboration was beneficial for patients; 2) they experienced high levels of collaboration and 3) were highly satisfied with their collaborative relationship (Table 9). The data revealed a greater variation among MP responses reflected in a wider range for all three scales. Instead of interquartile ranges, the minimum and maximum are presented for all scales to reflect the full range of responses in this small sample.

Table 9 Index Scores of three Scales (Median and Range)

Index scores	Median* [Range]	
	NPs	MPs
Beliefs in the benefits of collaboration	5.0 [4.2-5.0]	4.7 [3.3-5.0]
Experience with current collaboration	4.9 [4.7-5.3]	5.4 [2.7-6.0]
Satisfaction with current collaboration	5.1 [4.2-5.5]	5.4 [2.6-6.0]

Median of means of individual responses

Individual scale items for the beliefs in the benefits of collaboration scale (Table 10) show that responses were similar between both groups with MPs scoring slightly lower for item four, the belief that collaboration was a better answer to the patient's bio-psychosocial needs compared to care by an individual health practitioner.

Table 10 Beliefs in the Benefits of Collaboration (Median and Range)

Beliefs in the benefits of collaboration	Median* [Range]	
Collaboration…	NPs	MPs
Improves the quality of care and services	5.0 [4.0-5.0]	5.0 [4.0-5.0]
Provides better support to clinicians	5.0 [4.0-5.0]	5.0 [3.5-5.0]
Fosters increased integration of interventions	5.0 [4.0-5.0]	5.0 [3.0-5.0]
Is a better answer to patient's bio-psychosocial needs	5.0 [5.0-5.0]	4.5 [3.0-5.0]
Results in greater patient satisfaction	5.0 [4.0-5.0]	5.0 [3.0-5.0]

Median of responses across the group

Individual scale items of the experience with collaboration scale measured the participants' agreement with statements such as NP and MP planned together, communicated care, shared responsibility, co-operated in making decisions, coordinated care and experienced trust and respect. Table 11 illustrates that the practitioner groups had similarly high median scores for all items, indicating a perception of high occurrence of collaborative interaction. As revealed by the minimum scores, individual MPs indicated disagreement for the first five scale items whereas individual NPs indicated disagreement for the last item about full collaboration for shared decisions.

Table 11 Experience with Current Collaboration (Median and Range)

Experience with current collaboration	Median* [Range]	
The NP and MP…	NPs	MPs
Plan together to make decisions about the care for the patients	4.5 [4.0-5.0]	5.0 [2.0-6.0]
Communicate openly as decisions are made about patient care	5.0 [5.0-5.0]	6.0 [2.0-6.0]
Share responsibility for decisions made about patient care	5.0 [4.0-6.0]	5.0 [2.0-6.0]
Cooperate in making decisions about patient care	5.0 [5.0-6.0]	5.5 [2.0-6.0]
Consider both nursing and medical concerns in making decisions about patient care	5.0 [4.0-6.0]	5.0 [2.0-6.0]
Coordinate implementation of a shared plan for patient care	4.5[4.0-5.0]	5.0 [4.0-6.0]
Demonstrate trust in the other's decision making ability in making shared decisions about patient care	5.5 [5.0-6.0]	5.0 [5.0-6.0]
Respect the other's knowledge and skills in making shared decisions about patient care	5.0 [5.0-6.0]	6.0 [5.0-6.0]
Fully collaborate in making shared decisions about patient care	4.5 [3.0-5.0]	5.5 [4.0-6.0]

Median of responses across the group

Results on the third scale (Table 12) show high levels of satisfaction with the current collaboration in both groups for all scale items. The biggest difference in NP and MP

responses was found in satisfaction with shared planning (first item) with NPs being less satisfied than MPs. Individual MPs were dissatisfied with a number of issues, reflected in the minimum scores of some items. Several individuals were dissatisfied (NPs) and strongly dissatisfied (MPs) with the amount of time they spent with the collaborating practitioner, illustrated in the low minimum scores in both groups (item 12).

Table 12 Satisfaction with Current Collaboration (Median and Range)

Satisfaction with collaboration The NPs' and MPs' level of satisfaction with…	Median* [Range] NPs	MPs
Shared planning that occurs between NP & MP while making decisions about patient care	4.5 [3.0-6.0]	6.0 [2.0-6.0]
Open communication between NP & MP that takes place as decisions are made about patient care	5.0 [4.0-6.0]	6.0 [2.0-6.0]
Shared responsibility for decisions made between NP & MP about patient care	5.0 [5.0-6.0]	5.0 [2.0-6.0]
Cooperation between NP & MP in making decisions about patient care	5.0 [5.0-6.0]	5.5 [2.0-6.0]
Consideration of both nursing and medical concerns as decisions are made about patient care	5.0 [4.0-6.0]	5.0 [3.0-6.0]
Coordination between NP & MP when implementing a shared plan for patient care	5.0 [3.0-6.0]	6.0 [3.0-6.0]
Trust shown by NP & MP in one another's decision making ability in making shared decisions about patient care	6.0 [5.0-6.0]	6.0 [3.0-6.0]
Respect shown by NP & MP in one another's knowledge and skills	6.0 [5.0-6.0]	6.0 [3.0-6.0]
The amount of collaboration between NP & MP that occurs in making decisions about patient care	5.0 [4.0-6.0]	5.0 [2.0-6.0]
The way that decisions are made between NP & MP about patient care	5.0 [5.0-5.0]	5.0 [2.0-6.0]
Decisions that are made between NP & MP about patient care	5.0 [5.0-5.0]	6.0 [3.0-6.0]
The amount of time you spend consulting with the NP/MP	4.0 [2.0-5.0]	5.0 [1.0-6.0]
The availability of the NP/MP	5.0 [3.0-5.0]	5.0 [3.0-6.0]
The appropriateness of consultations initiated by the NP/MP	5.5 [3.0-6.0]	5.0 [3.0-6.0]
The quality of care provided by the NP/MP	6.0 [5.0-6.0]	6.0 [5.0-6.0]

Median of responses across the group

Five MPs and one NP used the free text field at the end of the questionnaire provided for any additional comments participants wished to make. In general, MPs and NPs emphasised satisfaction with the quality of care provided by the collaborating practitioner and the individual they were working with. One participant expressed concerns in regard to MP workload, fragmentation of care, difficulties of sharing responsibility and the lack of time for collaboration on the questionnaire. Interview

and observation data explored these issues in more detail and will be discussed further in sections 4.5.1 and 4.5.2.

While the quantitative results depicted an overall positive picture of collaborative practice models, qualitative data provided more in-depth information about how collaboration worked, why it did or did not work and what factors participants considered important for working collaboratively. Results from thematic analysis of interview and observation data are presented in four main themes in the next sections. The first of these themes covers participants' views on essential elements of collaboration, which reflect the participants' theoretical ideal of collaboration. Themes two and three include practical experiences with working in collaboration. Theme two summarises external influences from system structures while theme three describes internal influences through the way roles were enacted within the collaboration. The fourth theme identifies the factors that facilitated collaborative working of NPs and MPs.

4.3 Theme 1 – An idealistic definition

This theme reflects participants' descriptions of how they define collaboration and what they considered to be the essential elements of working in collaboration. An open interview question: *How would you define collaboration, what do you consider essential elements of collaboration?* was asked to elicit the participants' understanding of collaboration. Synthesis of responses from NPs and MPs demonstrated that their understanding of a definition of collaboration was similar. Differing perceptions of NPs and MPs on elements of the definition of collaboration are highlighted in the narrative. In general, their responses mainly referred to a theoretical ideal of collaboration, which was only partially confirmed in practice.

Simply put, collaboration for NPs and MPs meant working together as a team towards a common goal. The goals for participants were improved patient outcomes and being able to offer better access and quality of care by providing an additional service through the collaborative approach. *"Professionals working together to*

produce the best outcomes for the patient" (MP). Common terms used by NPs, MPs and PMs to define collaboration were 'sharing' and 'communication'. Sharing referred to shared decision-making and also sharing patients, knowledge and responsibilities. *"Shared care. Shared responsibilities, shared decision-making, interactive decision-making. I don't know if that makes sense, but that's collaboration to me" (MP).* To enable 'sharing' of patient care, communicating with each other was regarded as one of the most important elements of collaboration. *"I guess without communication there is nothing, is there?" (PM).* One MP expressed that collaboration meant relying on each other. *"We heavily rely on each other" (MP).* None of the other participants expressed the aspect of interdependency in collaboration so clearly. In contrast to interdependency, another MP emphasised that collaboration included health professionals who worked as individuals and only when necessary interacted and communicated. *"Collaboration for me just means [...] everyone works individually but if a need arises just to communicate with each other" (MP).* This MP was the only participant who identified the element of separate service provision by NPs and MPs as defining aspect of collaboration.

For NPs and MPs an important element of collaboration was the use of each other's strengths by learning from each other and being open towards different care approaches. *"I would define collaboration as ... working together and using each other's strengths and learning from each other. [...] And collaborating - good effective collaboration maximises the strengths of each individual" (NP).* Maximising complementary skills and strengths required an understanding of each other's roles, scope of practice and practice limitations. Participants reported that awareness and understanding of each other's role were essential for working collaboratively. *"One of the keys is, collaboration doesn't happen if there is obviously a lack of knowledge between health professionals on who can do what? So each health professional has to know what the other can do" (NP).* Furthermore, working in a new model of care with a practitioner who brings a different skill set required *"the willingness to work*

with other people" (MP) and openness for new care approaches. *"It's an openness, a willingness to see, to try, you know, that it wouldn't hurt" (NP).*

Participants commonly mentioned trust and mutual respect as defining elements for collaboration and as prerequisites to establish a relationship. *"The issues of trust, that's probably the key to people having good collaborative relationships that both parties will trust that you know to consult when you need to consult"(NP).* The quote indicates that collaboration was not only about trust in the other's abilities, but also about trusting that the person unsure about a clinical decision would seek advice appropriately. Mutual respect for each other's skills and way of practice further helped to develop the collaborative relationship. *"It's a respectful position about what nurses bring to the care of the patient, it's respected. That adds to the whole collaborative process" (NP).*

Another defining element of collaboration was the equality of team members. Nurse practitioners, MPs and PMs emphasised that team members were at an equal level within the collaborative relationship. *"It isn't me telling [NP name] what to do and it isn't [NP name] telling me what to do" (MP).* A second quote supports the importance of equality of team members within collaborative practice models.

> *"I think that was the first thing that we wanted, and I made that quite clear in our collaborative agreement, that we do different things, but we are on an even [keel …] I don't think, it is about supervision… I really don't, because I think (laughs) my days of supervision are gone, I don't need to be supervised in what I do any more" (NP).*

However, as will be shown in the following themes, actual clinical practice was incongruent with the definition of collaboration provided by NPs and MPs. Participants themselves realised that their definitions might rather reflect a theoretical ideal of collaboration in *"a perfect world"*, as indicated in the following quote:

> *"For me collaboration means two people working together to achieve a common goal. So that's a definition I use and in my role, for me that*

*would, ideally, in a perfect world that would mean a nurse practitioner
and a general practitioner working together with mutual respect and trust
for the outcome being the best patient care that we can provide together
as a team" (NP).*

Other participants also recognised that working together in practice differed to their definitions. Therefore, they considered collaboration a *"high ideal" (MP)* and spoke about *"true collaboration"* conditionally, indicating that there was another level of collaboration that was more "true" or more "ideal" than what they experienced. One NP clearly stated that she had *"a bit of an idealistic definition of collaboration".*

In summary, there was a mutual understanding between NPs and MPs about the theoretical concept of collaboration. Participants defined collaboration as working together *and* working individually towards the improvement of patient outcomes. Collaboration for participants meant working in a respectful relationship with combined strengths, knowing each other's role and skills, having trust and being open and willing to work in a new model of PHC. Important elements of collaboration were communication, sharing, helping each other and working as equal partners. While important elements of collaboration were well-defined in theory, they were acknowledged as representing an ideal that was not always found in day-to-day practice.

Having established the participants' understanding of the ideal of collaboration, the next main themes reflect on the practical experiences of collaboration between NPs and MPs. Throughout the following themes and sub-themes it is highlighted whether aspects of the definition of collaboration were found in practice and how they manifested.

4.4   Theme 2 – Influence of system structures

The second theme describes influences of system structures on collaborative working. The theme has three sub-themes. The first, *hierarchical healthcare system regulations*, addresses regulations that created a power imbalance between NPs and

MPs, which stands in contrast to an understanding that collaboration entails equal partners. The second sub-theme, *the impact of time and infrastructure on NP-MP interaction*, illustrates how participants managed practical issues of shared care, mainly in the form of intra-organisational structures that shaped the frequency of collaboration and how NPs and MPs interacted. The third sub-theme titled *pressure to integrate into established services*, reflects on the influence of existing structures of PHC service delivery and how these structures generated difficulties and pressure for NPs to integrate; and thus challenged the establishment of collaborative practice models of NPs and MPs.

4.4.1   Hierarchical healthcare system regulations

The first sub-theme includes system regulations impeding NPs to work as equals with MPs. Following a listing of policies relating to external influences on collaboration such as the public health insurance system, financial implications associated with working together and the legislation underpinning collaborative arrangements; the consequences from these policies for collaborative practice are described.

One of the major constraints identified was the fee-for-service (FFS) reimbursement system of Medicare (Australia's public health insurance system) for PHC services. NPs in private practice can use four professional attendance MBS items for patient consultations, for which their patients can claim Medicare reimbursement (*Health Insurance (Midwife and Nurse Practitioner) Determination*, 2011). Nurse practitioners, MPs and PMs critiqued the fee-for-service MBS reimbursement items for a number of reasons: First, reimbursement rates and available MBS items for NPs were considered insufficient and unfair. For example, electrocardiography or female pelvic ultrasounds were common investigations for NPs working in cardiac care or women's health, respectively, but would incur the patient a private fee if ordered by the NP. In these cases, care needed to be escalated to the MP for ordering the investigations once the NP completed the initial patient assessment. *"Why do I see it not as equal? Because… […] they [MPs] have the capacity to request more investigations than we do. I think, our practice [services that are covered by MBS*

items] is somewhat restricted by what Medicare says" (NP). Second, MPs are able to claim a bulk-billing incentive item not available to NPs. Third, Medicare policy on reimbursement of a joint approach to patient care as part of the 'Chronic disease management plans', requires MPs to sign off on care plans, so that billings for those go to MPs. However, typically the NP spent most of the time with the patient for assessment and planning. *"She [NP] does lots of planning, then I see the person, sign off on a plan, because that's the way it generates an item number, unfortunately" (MP)*.

Further financial constraints to collaborative practice were identified. While discussing mutual patients was a common occurrence and considered important for a shared and complementary approach to a person's care, there was a lack of adequate financial compensation. *"Medicare is really only interested in the times in which you are doing a face-to-face consultation with the client" (NP)*;

> *"If there needs to be feedback to [NP name] or [NP name] needs to talk to me we have to do that in our own time. And that can be a significant amount of time during the day you don't get paid for" (MP)*.

Furthermore, one NP expressed her frustration about private health funds not reimbursing NP services. *"And the private health funds [insurance] are not interested. But as you know you can get a massage and claim against your private health fund [...] Some inequities again, isn't there?" (NP)*. Several NPs, MPs and PMs also perceived publicly funded NP positions as a facilitator for the establishment of collaborative practice models because public funding guarantees the absence of a fee-for-service structure and the costs of funding NP positions are carried by Government organisations. However, Government funding does not necessarily create NP positions. While the community centre in this study was Government funded, the NP could only be employed as a nurse unit manager because the funding body declined to pay a NP position.

A Department of Health policy also affected the collaborative relationship. To access

the Medicare Benefits Schedule (MBS) and write PBS-subsidised prescriptions, NPs are required by Australian law to have a written or verbal collaborative arrangement with one MP (*Health Insurance (Midwife and Nurse Practitioner) Determination*, 2011; *National Health (Collaborative Arrangements for Nurse Practitioners) Determination*, 2010). In my study, four of five cases had a written agreement whereas by law a verbal agreement would have been sufficient (King, et al., 2012), which suggests that NPs and MPs felt more comfortable supporting their work arrangements in writing. In the community centre, no written arrangement existed but the legal determination was fulfilled because the organisation for which the NP worked sub-contracted MPs.

Some NPs and MPs perceived the determination as positive because they considered it a safety net, which supported NP practice when a patient scenario required a second opinion or transfer of care through the availability of a MP. *"I do find it helpful. I think it's safe. I think that's the biggest issue, the fact that you know you've always got that backup" (NP).* On the other hand, NPs critiqued the legal formalisation of collaboration. They considered it common sense to consult with another health professional when they needed a second opinion. *"It's a sore point that nurse practitioners fought not to have formal [legally required], because we feel we would refer anyway if we find something outside our scope" (NP).* This NP was referring to collaborative arrangements that were formally required through legislation.

The policies and regulations outlined above had consequences for clinical practice of collaboration models. Many of these restrictions weakened the NP's position as a legitimate healthcare provider within the collaborative practice. This created a hierarchical, as opposed to balanced, professional relationship and contradicts the definition of ideal collaboration (section 4.3). Difficulties of generating income decreased their chances of finding a practice that was willing to employ them. *"In a private GP practice, at this stage, [we] couldn't make enough money to fund ourselves or make it worthwhile for them [NPs] to fund us" (NP).* Within the practice, NPs felt they were not entitled to demand their own office because they could not

contribute sufficient income to the practice. With the current Medicare reimbursement policy, practices had a better financial return through MP consultations. Consequently, receptionists at some sites were advised to book patients with a MP, if available, rather than giving them a consultation with a NP. *"It's a business model that is based on throughput by GPs" (NP).* Thus, the funding system created a hierarchy where MPs were given precedence to see patients. These issues were not a problem in the publicly funded community centre. How NPs and MPs dealt with these issues and why they continued to work together is depicted in theme four (section 4.6).

The NPs' dependency from MPs fostered the hierarchy between the two professions. Situations in which healthcare system regulations dictated the involvement of a MP affected the NPs' ability to provide a complete episode of care within their own right. Evidence from observations and interviews showed NPs in the position of subordinate, being dependent on the MPs' time and willingness to assist. Involving the MP was not up to the NP's judgement but a system requirement, which imposed a hierarchy. *"The actual typing and signing of papers has to be done by the doctor still. So that is a hierarchy that's imposed, an imposed hierarchy and it limits our capacity to serve these people" (NP).* This dependency was not observed for MPs. For clinical practice, policies limiting independent NP practice resulted in workflow inefficiencies because both practitioners had to interrupt the consultation with their own patient – the NP to call the MP and the MP to assist the NP (see in more detail section 4.5.1).

Not only dependency but a form of control from one profession over another was created by linking NP access to reimbursement schemes to the willingness of MPs to enter into a collaborative arrangement. One NP reported that she was unable to establish a NP-led clinic because MPs declined to engage in a collaborative arrangement. *"By law I needed a GP to actually sign off for me to do that otherwise I couldn't get paid. So I could do the work but I couldn't get paid [reimbursed by Medicare]" (NP).* Patients consulting a NP in a stand-alone NP clinic would have to

pay the costs of their consultation, medication and diagnostics privately. This would make it unlikely for the NP to secure many patients. The ministerial determination (*National Health (Collaborative Arrangements for Nurse Practitioners) Determination*, 2010) claims to regulate a collaborative arrangement and collaborative by definition would entail shared power and equality (D'Amour, et al., 2005) but in practice it disadvantaged NPs. None of the participants thought that a collaborative arrangement could also mean that NPs served as backup for MPs or MPs could not access MBS items without NP approval, an indication that both NPs and MPs adjusted to the determination of one-sided supervision.

The NP's limited ability to contribute to practice income reinforced uncertainty about the financial sustainability of NPs, which may impede the establishment of collaborative practice models because potential loss of income prompted MPs' concerns. *"I guess, from a financial point of view, income-wise for the practice it's kind of borderline, it's not a pot of gold or anything for practices out there"* (MP). Furthermore, NPs and MPs at each site were required to develop their own funding strategy, which is reflected in the diversity of funding models (Table 13). Most NPs were paid an hourly rate, with all MBS reimbursements paid over to the practice. One of the NPs generated her income with the four MBS attendance items for NPs and also received 50% of the MP's MBS reimbursement for 'Chronic disease management plans' (MBS items 721 and 723). However, she mentioned that generating her own income was a physical strain because she skipped lunch breaks and worked extra hours to be able to see more patients in a day. *"Last night when I was looking through them [income figures], I am thinking: Oh my goodness, this is really awful, why am I doing this? […] It can really burn you out"* (NP).

Table 13 Funding Models

Employment situation	Salary	MBS remuneration
2 NPs employed by practice	Fixed salary	To practice
1 NP employed and also funded by the State Government	Fixed salary	Unclear
1 NP funded by Government Grant	Fixed salary	To practice
1 NP subcontractor	Generating income with MBS professional attendance items (MBS items 82200, 82205, 82210, 82215), plus MP shares income for 'Chronic disease management plans' (MBS items 721 and 723)	85% to NP 15% to practice (administration costs)
1 NP subcontractor	Fixed salary	To practice

MBS = Medicare Benefits Schedule

In summary, this sub-theme outlined systems restrictions, including the Medicare insurance system, financial resources and legislative policy that imposed hierarchy within collaborative practice models. While some participants expressed a perception of equality within their collaborative relationship, and negated that *"there is any sort of hierarchy" (PM)*, interview and observation data revealed an imbalance between NPs and MPs. This imbalance was based upon healthcare policy that created systems and professional practice inefficiencies, which promoted NPs' dependency upon MPs' to practice. Interdependency, a commonly described aspect of collaboration in the literature (Bosque, 2011; D'Amour, et al., 2005) and expressed by one MP in the definition of collaboration, was not found as a common feature of collaboration in clinical practice.

In addition to the impact system structures had on collaboration, NPs and MPs realised that operationalising collaboration in practice was also influenced by organisational structures at practice level. These are addressed in more detail in the next sub-theme.

4.4.2 The impact of time and infrastructure on NP-MP interaction

A lack of time and practice infrastructure affected the manner and frequency by which NPs and MPs collaborated, specifically impacting on the form and style of collaborative interaction. One of the major challenges mentioned by NPs and MPs

was a lack of dedicated time to actually collaborate, that is, discuss shared patient cases, which was also identified in the survey. There was a notion that most of the participants would have liked to have time for more face-to-face interaction or meetings, but the busyness of the practice did not allow for this.

> *"We don't have a system here where there is protected time for us to sit down with the practitioner and be able to communicate the concerns and that sort of thing. It sort of ends up being something in the hallway: 'Oh by the way, I saw that person and this and that'" (MP).*

Observations showed that it was difficult to arrange dedicated meeting times and not all staff members could or would attend due to having the day off or being too busy. A MP stated on the questionnaire that due to time constraints *"most of the 'collaboration' tends to happen in front of the patient" (MP)* and in the interview she added that it was then difficult to change statements made by the NP without undermining the patient's trust in the NP. Finding time to talk about shared patients was more difficult at three sites where the NP and MP were not on site together on a regular basis. Conversations were more sporadic suggesting that physical proximity increased the chances of communication and collaboration.

In terms of infrastructure, it was found that communicating efficiently was a problem in larger practices. Some MPs appeared not to be aware of the option to work with a NP in the practice and consequently her service was not requested and care for patients was not shared. *"It is such a fast growing practice that a lot of them [MPs] still don't even realise that she [NP] is here" (PM).* This exemplifies the difficulty of effective collaboration for patient care where the practice layout spans over a large spatial area and there is no system of communicating to all practice staff the presence and role of the NP. Communication structures that facilitated collaboration are presented in theme four (section 4.6).

Practice infrastructure at smaller sites also impacted on collaboration. One site lacked chairs and tables in the kitchen, forcing staff to stand while they had lunch and I

observed how some staff at this site had lunch alone at the desk in their offices. The lack of a communal room and equipment impeded opportunities for communication, a defining principle of collaboration. *NP has lunch, standing. There are no chairs to sit. Some admin staff are in the kitchen. There is not much time for conversation. Everyone is standing while eating (Observation (Obs)).*

While practice-level conditions made face-to-face meetings sometimes difficult, NPs and MPs appeared to have differing perceptions of the importance of face-to-face meetings. At one site a NP was scheduling her time in between home visits according to the availability of the MPs at the practice. For her it was important to have the chance for a face-to-face conversation with the MPs about their mutual patients. She said: *"I'll catch them informally again, I hover (laughs), make myself available, when I know they have a break" (NP).* One MP also valued this time of direct exchange but noted: *"It just seems to happen that we meet there" (MP).* The MP seemed unaware of the significance of this meeting to the NP, not realising that the NP had actively tried to be around to meet her. For the MP the meetings seemed a convenience, for the NP a priority when working together.

While NPs and MPs agreed on communication as a defining element of collaboration, their practice experience was characterised by a lack of face-to-face communication. This was mostly due to a lack of time and practice infrastructure, which required NPs and MPs to rely on occasional information exchange. A third sub-theme around system structures was developed. Established systems of service delivery were set up for MPs as primary service providers and influenced the introduction of NPs to collaborative practice models in PHC. The pressure for NPs to integrate is explained in the next section.

4.4.3   Pressure to integrate into established services

The third sub-theme illustrates the pressure on NPs to integrate into existing healthcare services. While MPs were well established in PHC, interview statements and observations revealed that NPs experienced pressure to find and assert their

position within the existing system, promote their role, prove their worth within collaborative practice models, and be accepted as a new professional by patients and colleagues.

All six NPs were conscious of their pioneering role and engaged in promotional activities about the NP profession. However, NPs commented on the difficulty of promoting themselves. *"Being prepared to promote and promote and self-promote and that's uncomfortable because it can feel like blowing your own trumpet, but you are actually just gonna keep […] selling the message" (NP).* Some NPs did not differentiate their role from the practice nurse role nor emphasise being a NP. *"I always introduce myself [to patients]: 'I am a nurse, working with the doctor'" (NP).* When I asked another NP why she did not explain her role to someone who called from an external health institution, she said: *'It's too much of a hassle sometimes' (Obs).*

Nurse practitioners reported feeling under pressure to justify their position in the practice and prove their worth. One NP reported a patient satisfaction survey she initiated and in which she received very good feedback. That was important for her because *"that was something I could demonstrate to the practice manager and the board that what I am doing is worthwhile" (NP).* One MP suggested that NPs should work in specialised areas such as wound care and not as a *"general MP type primary healthcare provider" (MP).* This MP worked with a NP who saw acute and chronic patients, very similar to the MPs' role. Some MPs were sceptical as to whether NP care differed from care provided by MPs. *"[Is it] just another way […] of doing something that GPs are already doing?"(MP).* This viewpoint illustrates the need for NPs to prove their particular contribution within the PHC setting.

The pressure of NPs to integrate was further noticeable in statements where they expressed joy and relief at being accepted by MPs. *"Two days ago I got a call from a GP to say 'can you actually take over this person's prescribing while I am going away?' […] And that was just a fabulous moment!" (NP).* Observations confirmed the

NPs' reports of relief once they were acknowledged. This was noted when they expressed satisfaction about their advice being taken on board or MPs commending them. *[NP name] says that this is the first time that [MP name] has put her on an equal level and asked her to see her patients. 'So far I have been submissive' she says. I can hear how happy she is (Obs).*

The difficulties with integration were also reflected in the NPs' negative experiences with dismissive MPs, including those not participating in this study or external to the practice setting. For example some MPs rejected NP assessments or referral letters. In addition, NPs had to deal with a dismissive attitude of some MPs, which was reported by one of the PMs: *"I had one GP saying to me, initially: 'Why if they want to be doctors don't they?' that sort of attitude" (PM).* Another NP highlighted her experiences of a MP-focused PHC system emphasising the need to adjust to that particular model: *"And that's probably what I learned, or what I adjusted to in the first 6 months, [...] that it is very medically driven here" (NP).* Dealing with and adjusting to rejection was perceived as an additional stressor for NPs. Despite that they found strategies to integrate into MP-focused systems, which are addressed in theme four (section 4.6).

Lack of integration of NPs into the practice settings was most noticeable at three sites where NPs had no dedicated office space. Due to a shortage of rooms some practitioners had to change offices and some NPs used MP consulting rooms. Nurse practitioners stored materials and utensils in a box or movable storage trolley to adjust to this situation. Sharing of consulting rooms was perceived as problematic, which was apparent in the observation summarised in Box 2. A nurse practitioner who was interrupted several times by a MP became clearly frustrated without openly showing this to the MP. The MP's behaviour revealed a lack of respect towards the NP's position in the practice and her work space. The NPs' hesitation to more clearly confront the MP about her behaviour might have been based in her dependency from the MP as outlined in section 4.4.1. In a similar situation of avoiding confrontation a

NP commented: '*I can't believe I did this just to keep the peace' (Obs),* indicating her ambivalence about backing down.

Box 2 Observation notes – Fighting for Physical Integration and Respect

8.45am – Following a room swapping, the NP takes all the things belonging to the MP from her office to the MP's office and explains to me: "So that there are no interruptions today".

9.05am – The MP comes through the NP's open door, apologises and explains that she forgot her blood pressure machine. She takes it out of a drawer and leaves. "No worries", says the NP.

9.13am – The MP comes into the NP's office again to grab something. When the MP opens the NP's cupboard door, the NP asks the MP what she is looking for. The MP tells her and the NP says, that she has that in her own room. The NP says: "I show you!", walks into the MP's office and shows her and says: "Okay, no more interruptions for today. The NP laughs. [I am not sure if she is annoyed]

10am – The NP's patient leaves. The MP wants to put something in a special bin for infectious material that is in the NP's office. It is missing in her room. Before the MP can step into the NP's office (the door is open), the NP stops the MP and says: "We need to draw a line." The MP stops because the NP stands in front of her and the NP then walks the MP back into the corridor. The MP explains that there is no bin in her room. The NP is about to start a discussion. She breaks up [maybe because she has seen the patient sitting in the MP's office] and says something like: 'Okay, no big deal now. I will ask the PM to order a bin for your room.' She gives the way free for the MP to dump the rubbish in the special bin in her room.

I ask what that was about. The NP closes the door and then indicates to bang her head on the table. She seems very annoyed. She explains that she thinks that the MP does not have the awareness of how often she interrupts and how disrespectful this is. She says, the MP wouldn't just walk into the other MP's office to get her things. She says that the MP sees her (NP) not as equal. She says, she will need to talk to her, which will be challenging but there is no other way.

One NP had no consulting room allocated within the practice because she worked mainly in nursing homes or visited patients at home. The lack of designated workspace caused uncertainty about her availability amongst the collaborating MPs because she only returned to the practice sporadically and used different locations within the practice to complete administrative work. I observed her working with a laptop on her knees, surrounded by other staff and asking others to print items for her.

9.30am – Communal area: In a corner is a $1m^2$ small desk with computer and printer. The NP wanted to print something there, but it is occupied by someone [...] Standing, she is going through her papers, makes phone calls, operating in the middle of the room. There is no privacy (Obs).

In contrast, one practice specifically designed the practice with an office for the NP. While the NP and MPs considered this as an adequate solution, several interruptions from other staff were observed, even when patients were present, because the NP office was also used as a storage room. The MP at this site explained that the design of a new practice would provide more private space for the NP. At other private practice sites the lack of office space was realised as not ideal but appeared to be accepted as the best possible solution within given circumstances. Personal office space for the NP was no problem at the publicly funded community centre where the NP had her own office as unit manager. For most sites, the lack of physical integration conveyed that NPs were accorded an inferior status, revealing the strong positions of MPs in established privately funded PHC services.

This sub-theme reflects NPs' pressure to professionally and physically integrate themselves in comparison to MPs who did not have to promote their role and justify their existence given their long-standing history as PHC professionals. Nurse practitioners and MPs appeared to be at differing starting points within the collaborative practice model, with NPs having to situate themselves within well-established healthcare delivery systems. The reactions of some MPs revealed that some sites had not successfully accommodated the NP within existing infrastructure.

In summary, the second main theme describes the influence of external structures on collaboration. The findings indicate how systems structures and established MP positions within PHC disadvantaged NPs professionally and financially, and often reinforced hierarchical conditions between the NP and MP. Furthermore, MPs, NPs and PMs needed to manage practice-level structures such as a lack of face-to-face meetings, which were difficult to organise within the existing infrastructure and time constraints of NPs and MPs. Nurse practitioners were under pressure to find their

place in a MP-directed system, while MPs were required to accept NPs as autonomous PHC providers. The challenges of collaboration enforced through system structures contrast with the participants' expectations and definitions of collaboration. The practical experiences outlined in this theme reveal discrepancies with some elements of the definition of collaboration. In particular, elements of equality between team members, interdependency and sharing were not always present in collaborative clinical practice. While this theme highlights external structures affecting collaborative practice between NPs and MPs, the next theme outlines the participants' perceptions of self, professional roles and their enactment within the collaborative relationship.

4.5 Theme 3 – Influence and consequences of individual role enactment

This theme reflects NPs' and MPs' experiences of role enactment and their reactions to changing and blurred professional roles. Role enactment refers to the process of participants familiarising themselves with their roles as collaborating colleagues and performing their specific roles within the team. This theme is divided into two sub-themes. The first sub-theme describes the participants' ambivalence about both new and old roles. This includes NPs' and MPs' ambivalent perceptions of NP autonomy and how NPs exercised their autonomy, which resulted in an overlap and complementarity of roles of NPs and MPs. Remains of the traditional nurse-doctor relationship revealed that a return to old roles served as a retreat to better define professional boundaries. The second sub-theme focuses on the participants' differing perceptions of medico-legal liability and reimbursement for shared care. Their perceptions were a consequence of how practitioners enacted and interpreted their roles in clinical practice. While liability and reimbursement are clearly regulated in theory, participants interpreted them differently, which affected collaborative working.

4.5.1   Ambivalence about both new and old roles

This sub-theme shows how roles inherited by NPs and MPs influenced collaborative working. To understand how roles were defined at the five study sites, I looked at the way roles were allocated, perceived and implemented within NP-MP collaborative practice models. The enhanced level of NP autonomy appeared to affect role understanding and enactment. This sub-theme reflects how role behaviour created particular interaction patterns between the NP and MP that had consequences for the practitioners' workflow. Furthermore, Interview and observation data revealed a blurring of professional roles at times, however there was also evidence of distinct role behaviour, with MPs as the dominant care provider and NPs functioning in a subordinate healthcare provider role, as practice nurses.

Participating MPs strongly supported an autonomous NP role and some MPs expected NPs to take more responsibility for their patients by making autonomous decisions about patient care. *"I would expect [NP name] to make the actual [patient] management decisions" (MP).* On the other hand, some MPs expressed a general concern about appropriate decision-making by NPs. *"I always worry, if there was something missed" (MP).* Consequently, MP support for NP autonomy was tied to certain conditions: NPs had to work within their abilities or on simple cases, they had to be experienced in their area and most importantly had to have team support. *"If they [NPs] are working autonomously in an independent unit where there is no GP backup I would be opposed to that" (MP).* The NPs' abilities to make autonomous decisions evoked MP perceptions of fragmented care. *"If something will arise in the future there is no continuity of care. What is the point of me to be his doctor if I didn't know what has happened to him?" (MP).* These statements by MPs showed their ambivalence about the autonomous character of the NP role and revealed a concern about quality of patient care. One incidence was observed where NP and MP disagreed on the NP's decision to not involve the MP, which caused tension between the NP and MP.

This ambivalence might have been based in a general lack of understanding about the

NP role and their scope of practice shown by some MPs. *"Just in terms of what her role is, probably it's still a bit up in the air to me" (MP).* Furthermore, role differentiation was difficult because NPs were often known as practice nurses by MPs and regularly functioned as practice nurses:

> *"I guess, the confusing thing is, with nurse practitioners in general practice, that they don't work entirely as a nurse practitioner. So depending on who they are seeing and what they are doing, they're either working as a nurse practitioner or as a practice nurse" (PM).*

The practice nurse role of NPs was corroborated by observations of NPs, who prepared forms for MPs, spent time with patients for which the MP billed or gave vaccinations on behalf of the MPs. In addition, the NP role in itself was so diverse that being fully aware of the characteristics of the role was challenging. *"That's the biggest challenge: understanding the role. And I don't blame them [MPs] for that, because each role is needs-based and they [the roles] are hard to get your head around" (NP).*

Nurse practitioners valued their autonomy but showed ambivalence about making autonomous decisions, for example, NPs hesitated to prescribe medications and left decisions about investigations to MPs. *"Double-checking"* with MPs was reported by NPs as medico-legal protection and could be interpreted as a lack of confidence of some NPs to use their full autonomy. This was also noticed by MPs: *"The biggest challenges have probably come in her finding her feet as to what she is comfortable saying and how much authority she is comfortable taking" (MP).* A MP corroborated this with a comment on the questionnaire: *Some NPs can't or don't want to make a full decision on her/his scope (MP).* These examples show that NPs like MPs were not always clear about their role and scope of practice.

The autonomous roles of NP and MP in a lot of situations seemed to be intertwined with the collaborative roles of the practitioners. Nurse practitioners explained that collaboration and autonomy could not be separated because an autonomous NP

consultation with a patient would also be a collaborative undertaking as soon as this patient was followed up by a MP or the NP informed the MP about what she had done. There was ambivalence if a NP following up a patient on behalf of the MP could be labelled as working collaboratively or if the follow up visit in itself should be considered autonomous NP practice: *"So is that collaborative? I mean, I am really doing this on her behalf but I am making a lot of decisions but then still checking [with the MP]" (NP).* Nurse practitioners had difficulties to define if having a brief conversation with a MP about a patient was collaboration or still autonomy because ultimately only the NP saw the patient. Consequently, NPs as well as PMs described NPs as working autonomously *and* collaboratively. *"I do 100% autonomy, but I also do 100% collaborative, too. Does that make sense?" (NP).*

The ways that NPs exercised and MPs accepted NP autonomy, influenced referral and consultation patterns between NPs and MPs. Observations showed that MPs mostly *referred* patients to the NP, that is they passed on the patient for an additional consultation with the NP; while NPs in addition to referrals *consulted* MPs, that is they sought advice from MPs while the patient was with them. *"Probably the younger women with UTIs, Pap smears, virtually 100% have gone over to the nurse practitioner" (MP).* Nurse practitioners consulted MPs regularly for cases on which they wanted a second opinion: *"I kind of feel, if I am not sure, then I check with them" (NP).* They also consulted them when MP involvement was mandatory based on policy restrictions (see section 4.4.1). While regular MP consultations were reported in interviews at all five sites, observations revealed that the decision to involve the MP differed between individual NPs depending on their level of confidence to make autonomous decisions.

Consultation patterns of the NP had effects on the MP's volume of work and on the workflow of both practitioners. Nurse practitioners and MPs perceived an alleviation of workload for MPs where the scope of practice of NPs and MPs overlapped and NPs took over work from MPs. *"They [patients with routine issues] can be seen by the nurse practitioner, which lifts our burden. So that's a positive thing" (MP).* On

the other hand, MPs commented on interruptions to their workflow caused by NPs who needed to consult with them about the care of patients, which led to a perceived increase of workload. *"I was really busy and then sometimes, you know, extra referrals from the nurse practitioner can be a little bit too much, because it is an extra appointment" (MP).* Nurse practitioners also experienced interruptions to their workflow. It was observed that NPs waited between 1 to 25 minutes with the patient in their offices until the MP arrived to assist with the patient. Furthermore, NPs relied on the willingness of MPs to see their patients, illustrated in the comment a NP made during observations: *She explains that she was lucky to find her [MP] in a 'receptive' mood (Obs).*

In spite of the observed one-sided consultation patterns with NPs seeking advice more than vice versa, NPs and MPs perceived that they worked in a reciprocal relationship.

> *"The collaboration with us is mutual on both sides […] they [MPs] ask us a question because they want us to come in and see what you think. That goes both ways, so it's not just that they are assisting us with our patients, we're assisting them with their patients" (NP);*

> *"There are questions that I don't know answers to and I seek their advice and there'll be questions that they won't know the answer to and they'll seek my advice" (MP)*

The NPs' enhanced level of autonomy led to an expansion of their scope of practice and in some cases caused an overlap with the scope of practice of MPs. This similarity of NP and MP tasks enforced the lack of clarity about roles. *"I know that she does some of the work that I would otherwise be doing" (MP).* In that regard, the overlap of NP and MP roles led to blurred professional boundaries. *"The thing in general practice is trying to have the roles clearly defined on what's a nursing role and what's a medical role because there are grey areas where they overlap" (NP).* The lack of differentiation of the NP role from the MP role in practice occurred despite clear statements about the NP's scope of practice in practice documents.

However, the blurring of roles rarely affected clinical practice because the NP and MP worked either in separate autonomous patient consultations or worked with complementary skills for shared patient consultations. For most patient consultations, interview and observation data clearly showed NPs and MPs functioning as autonomous care providers, with both professions individually providing complete episodes of care without collaborative interaction. *"It's a separate process. I usually make my decisions and if she sees a patient she makes her decisions" (MP).* For these parallel autonomous consultations the NP applied nursing and medical skills whereas for shared episodes of care NPs focused on nursing care and MPs on medical care so that roles complemented each other. In particular the educational role of the NP complemented MP consultations that focused on diagnostics and medication.

> *"So I think, that [diagnosing] is the cardiologists' role and from then on they can come to me for all the management issues, you know, education, the lifestyle, the action plans, all the other issues that revolve around chronic illness" (NP).*

Working together with complementary skill sets and using each other's strengths was an important element of the definition of collaboration as outlined in theme one (section 4.3) and repeatedly observed when participants drew on expertise of the collaborating partner. *The MP asks the NP where she refers patients to for mental health advice (Obs).* Medical practitioners perceived that working in this complementary manner enhanced collaborative practice: *"It just adds another dimension to your understanding of the patient" (MP).*

The complementarity of roles was also evident when NPs and MPs worked in traditional role patterns, reflecting hierarchical tendencies. As outlined before, NPs worked in the traditional role of the practice nurse at times and likewise interview and observation data showed MPs as the dominant care provider. Self-perpetuating traditions of MP's "owning" patients and making final decisions were evident in statements of participants: *"But there still is a hierarchy where… In general practice, I feel like the patients still belong to one of the doctors"(NP).* This attitude was also

found in a PM who explained that the MPs could decide first, if they wanted to squeeze in an acute patient or if they should be booked with the NP instead. It showed an implicitness of MPs having the primary choice of patients.

Language used by MPs also revealed the existence of historical ways of thinking. This was shown by some MPs both male and female considering themselves as *"supervisor"*, describing the NPs as their *"right hand"* or talking about the NPs, who were all female in this sample, as *"girls"*. Often these statements were explicit acknowledgements of the NPs' importance to patients and the additional value to the practice, particularly evident in the following statement. *"But these girls are helping out enormously in terms of patient load" (MP).* Therefore, this behaviour could be interpreted as a form of subconscious paternalism. The presence of traditional role patterns in day-to-day practice appeared to be accepted by NPs and MPs. This suggests that the return to familiar roles, and going back and forth between old and new roles, was part of the process of finding matching roles within the collaborative practice models.

In summary, role understanding, development and enactment influenced the way a NP and MP worked together. Both practitioners perceived advantages of autonomous NP practice but appeared to be comfortable with the option of MP back up. Autonomous practice of NPs challenged the collaborative relationship where the scope of practice was not clear, overlapped with the MP's scope of practice or resulted in an increase of NP consultations. Observations clearly showed that these one-sided consultation patterns were based on 1) the NP's confidence to make autonomous decisions and 2) policy restrictions that required MP involvement. Contrary to these observations some NPs and MPs expressed a perception of bi-directional collaboration.

Working together meant that NP and MP had to assume new roles, the NP as autonomous decision-maker and the MP as supporting colleague and not as supervisor. While new roles developed, NP and MP occasionally retreated into

familiar and more traditional role behaviour as part of the process of finding positions in the collaborative practice model. The co-existence of new and old roles resulted in a mixture of overlapping and complementary roles at times. Therefore, role understanding was important, as highlighted in the definition of collaboration. Nurse practitioners and MPs found ways to operationalise their collaborative working, so that the blurring of roles was rarely a problem in clinical practice: NP and MP worked separately for most patient consultations, in which the NP used nursing and medical skills, whereas for shared patient consultations NPs seemed to practice nursing and MPs practiced medicine and thus complemented each others' roles.

However, the blurring of professional boundaries was a problem when NP and MP views differed on who was legally responsible and should be reimbursed for shared patient care. The second sub-theme of theme three about *influence and consequences of individual role enactment,* presents these issues.

4.5.2   Differing interpretations of reimbursement and liability for shared care

Sharing was an essential aspect of the participants' definitions of collaboration. The second sub-theme of theme three depicts NPs' and MPs' differing interpretations of policies on reimbursement and medico-legal liability for shared care cases. Their perceptions on these policies reflect how they interpreted their roles within the team and highlight that sharing in practice was not as straightforward as it appeared on paper.

Differing opinions on billing when sharing care were evident in the data. Nurse practitioners consulting the MP for less than a minute was a common occurrence but no Medicare item was available to allow for reimbursement of these advice-seeking consultations, if the MP had not seen the patient. *"Nurse practitioners […] contacting a general practitioner for advice when they have a question, we don't have a way to bill that" (MP).* Some NPs were concerned that MPs were not reimbursed for these times. Other NPs considered it inappropriate for the MP to bill the patient for a short consultation, which was possible when the MP had joined the NP's session with the

patient, because these NPs believed discussing patient issues was a courtesy among colleagues.

> *"The billing thing is, I think, is the biggest issue. I am troubled with that sometimes and the fact that I don't think somebody walking in the room for two seconds saying 'hello' warrants an item number. And I think some doctors here would dispute that, because they have seen the patient. But it's not. If someone's booked in with the nurse practitioner for care and the doctor chooses to come in or you just ask advice, I don't think that warrants an extra item number. And that's something that's not been sorted out here properly. […] It's the fact that they want reimbursement for something they have done that's taken two seconds. That's the issue. But I don't think that's fair on Medicare or the patient"* (NP).

From interviews and observations, it appeared to be rather random when and if a MP put in a Medicare item number for these short consultations. The randomness of billing despite Medicare policies on what constitutes a consultation[3] indicates that there was room for interpretation, depending whether the MP considered herself as reimbursable practitioner or advice-giving colleague.

Perceived lack of clarity about a regulation called 'escalation of care' contributed to problems around billing. Escalation of care refers to a situation where a patient has a condition or requires care that is beyond the NP's stated scope of practice, in which case the MP is needed to assume care (Department of Health, 2014a). If care is escalated to the MP, both NP and MP are able to claim a Medicare item. While this function was valued by NPs and MPs, some NPs perceived the escalation of care clause as a grey area, because often the line was thin between asking for a second opinion and passing on patient care. *"I am mindful of the fact that sometimes, I don't know if it's an escalation of care or if we are just asking for their opinion. […] So I*

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[3] If a medical practitioner wants to submit a Medicare item number for a short consultation with a patient (no matter if it is a joint consultation with the NP or a single consultation) the MP needs to take a short examination of the patient's "obvious" problem and record it in the patient's medical record as determined by MBS item 3 for Level A consultations (Australian Government - Department of Health, 2014b).

am mindful of that as to how we do [bill]" (NP). These statements show that reimbursement for shared episodes of care was not straightforward in practice despite existing regulations. In clinical practice, this relied on an interpretation by NPs and MPs of how their roles were enacted; that is which of the practitioners considered themselves reimbursable for a patient consultation.

Aside from differing views on billing processes, differences in the perception of medico-legal responsibility in collaborative practice models were reflected in participant statements. Professional guidelines clearly state each health professional is responsible for his or her own actions and decisions (Medical Board of Australia, 2014; Nursing and Midwifery Board of Australia, 2008, 2014a). When asked about who was legally liable when sharing patient care three contrasting opinions were voiced: First, the MP was responsible for shared patients, second, the decision-maker was responsible for patient care and third, the MP and NP shared responsibility of a mutual patient. While liability is theoretically clear, the variety of views indicates that there was room for interpretation, subject to how NPs and MPs considered their role in regard to liability in collaborative practice models.

The majority of MPs considered themselves responsible for shared patients, even for those patients looked after by the NP alone. There was a belief amongst MPs they were *"ultimately responsible."* Excerpts from an interview illustrate this common opinion of MPs.

> *I* *"And if you [NP and MP] then make a decision on the treatment for the patient or on medication who is then liable for the patient care?"*
>
> *MP* *"It's me!"*
>
> *I* *"It's you?"*
>
> *MP* *"It's me and that is why I always tell her [NP] that, 'because it is my responsibility what you do. I know you are providing the care and you have the insurance [indemnity insurance] but basically I am responsible for the patient care. So you let me know!' "*

Nevertheless these MPs were willing to work in collaboration with NPs. Medical practitioners were aware of the NPs' indemnity insurance but held concerns about legal implications if patient treatment had negative consequences. In the role of "doctors" or in some cases practice owners, some MPs saw themselves partially accountable in case of a legal dispute. As employers, MPs may carry vicarious liability for their employee, that is, they may be held accountable for the NP's negligent action if the NP was employed by that MP. A comment on the questionnaire noted that the NP's limited scope of practice and her adherence to guidelines made balanced and shared responsibility difficult to achieve. This comment helps to understand the MPs' perception of ultimate responsibility because they perceived that MPs assumed a larger scope of practice than NPs.

Only MPs had the opinion that MPs possessed sole responsibility. Nurse practitioners and some MPs considered the practitioner primarily caring for a patient responsible. *"If I write the order then I would be responsible totally for my actions and if the GP writes the order then they would be totally responsible" (NP).* Nurse practitioners and MPs emphasised that NPs were legally liable for their autonomous decisions about patient care. *"I think I am responsible for my own practice like every registered nurse is, really" (NP).* However, system requirements for NPs to obtain a signature from the MP for certain procedures (chronic disease management plans, referrals, diagnostic imaging; see 4.4.1), destabilised the concept of being accountable for one's own practice. For example, it was the NP's decision to refer a patient to mental health services, but the MP slipped into the role of the person responsible because she had to sign the referral form.

Some NPs and MPs agreed that they shared responsibility if they had discussed a patient together. *"I presume, I'd be liable for any specific suggestions I made […], I'd share the responsibility for that" (MP).* Shared responsibility came into effect when a practitioner gave advice to another practitioner and this was recorded in the patient notes and incorporated in the patient's care. However, for MPs it was difficult to know if the "quick" advice in the corridor would be used and regarded as MP

involvement in patient care and consequently if it made them legally liable for this patient. Therefore, MPs preferred to be either fully involved in patient care and see the patient or not be included at all. *"If she doesn't refer [to] me I don't want to know anything about her patient. I don't want to know anything. If she refers a patient to me, then I want to know everything. I want to take over" (MP).*

None of the participants mentioned practical experiences with indemnity insurance claims regarding shared patient care but the variety of responses clearly mirrored a lack of clarity about legal liability. Some participants realised that they had not discussed liability with each other. *"Probably the ultimate responsibility is mine. But I don't know what [NP name]… I haven't had that discussion with her" (MP).* Others thought that the collaborative arrangements served to establish legal liability within the collaborative practice. One MP stated that the collaborative arrangements *"made us, the GPs, much happier about our risk" (MP)* because these documents commonly stated the NPs' scope of practice and their limitations of practice. However, the determination itself does not stipulate the assignment of liability. Therefore, collaborative arrangements appear to have rather blurred the lines of liability.

Observations at one site revealed a good example of blurred lines of liability for shared patient cases. Participants, mostly the NP, used the MPs' login details to work on documents and patient records on behalf of the other health professional. While this reflected a large amount of trust between practitioners, it also touched on legal issues of collaboration when shared care may lead to a misuse of the documentation system that makes it impossible to retrace who provided care to a patient. Documents outlining the collaboration model at this site specifically stated, *"Consultations performed in her role as NP will be documented under her own name removing any blurred boundaries between services…" (Scope of practice document (Doc SOC)).*

In summary, the way roles were enacted and assumed had consequences for the understanding and interpretation of reimbursement and liability for shared care. Ambivalent viewpoints about legal liability and applying Medicare's billing

regulations to advice seeking conversations highlighted a lack of clarity around financial and legal responsibilities between NPs and MPs. This led to reported inconsistencies in reimbursement claims and confusion about legal consequences for joint patient care. The billing issue was most prevalent in a practice where the NP and MP collaborated quite intensively and a lot of patients were known to both the NP and MP. It was less problematic in practices where NPs worked in Government-funded positions. While some participants agreed on shared responsibility for mutual patients, there was inconsistency about the degree of responsibility within a shared care case. In particular, the problem of legal liability lay in borderline cases where MPs did not see a patient but assumed some level of responsibility because they had provided a suggestion about patient care. Furthermore, detailed descriptions of situations when accountability was shared or even a discussion about it seemed neglected at most sites.

In summary, theme three comprised NPs' and MPs' experiences and perceptions of how their roles within collaborative practice models were enacted and has also highlighted the consequences of differing role interpretations. Roles were shaped by the NPs' level of confidence to use their full autonomy and by the MPs' openness to fully embrace NP autonomy. With both NPs and MPs occupying positions as autonomous PHC providers with the ability to provide a complete episode of care, professional boundaries became fuzzier and the roles of NPs and MPs overlapped yet complemented each other. The parallel existence of overlapping, complementary, old and new roles made it difficult at times to recognise clear professional boundaries and easily understand the role of the NP. However, the occasional blurring of roles was resolved by carrying out consultations separately or managing shared consultations through complementary roles.

Nonetheless, blurred professional roles affected the participants' perceptions of legal liability and reimbursement of shared consultations. Depending on how practitioners perceived their role, their interpretation of who should be reimbursed or legally responsible for mutual patients in practice differed despite existing policies. With the

perceived risk of being drawn into a professional negligence action, MPs retained their concern of ultimate responsibility, in particular in regard to vicarious liability. It was therefore understandable that MPs were wary about entering collaborative arrangements and about providing support for patients they had not seen.

The perceived difficulties in sharing care for patients showed that operationalising shared care between NPs and MPs in PHC appeared to be more complex in practice than the 'ideal' definitions of collaboration suggested. In particular sharing of care and understanding each other's roles were challenges in practice. This suggests that working together in collaborative practice models may differ to the theoretical definitions.

Having outlined the challenges to collaborative working in regard to system structures and individual role enactment, the next theme focuses on factors that facilitated functioning of collaborative practice models.

4.6 Theme 4 – Making it work: Adjustment to new routines

The last theme delineates the participants' strategies and abilities to successfully work together. With an ideal of collaboration in mind and differing practical experiences, participants were required to frequently adjust expectations and compromise to accommodate system structures and changes in role characteristics. Aspects influencing the success of collaborative practice models were identified at practice level and the individual level. At practice level, early planning of infrastructure and preparation of staff, adjustment of communication structures and support from the PMs all facilitated collaboration. At the individual level, collaboration worked because NPs respected existing routines, NPs and MPs valued individual relationships and personalities; and practitioners were willing and motivated to work together despite challenges. This theme revisits some challenges mentioned in themes two and three and reflects how they were managed to make the collaboration successful. *"Within the given structures, that we work in, I think, it is about as good as it could be, really. For now, you know" (NP).*

The planning stage before the implementation of a collaborative practice model provided the basis for making the establishment of the collaboration more likely. Planning and preparation were required to clarify practicalities and roles. One MP explained how she consulted experts to identify the right NP for her practice and developed a concept for the collaborative practice model. Initial meetings in larger practices were used to present the model to the management board and other MPs in the practice to dispel concerns and clarify questions. Planning also needed to address space and equipment, which was identified as problematic at some sites. *"So we had to put in a sink, change the curtain; change it into a clinical room. So it wasn't just a matter of slotting someone in. We had to kind of make it happen" (PM).*

Preparatory discussion also occurred around the collaborative relationship, often outlined in a written collaborative arrangement as required by law. Nurse practitioners found that developing the document with discussions and planning the collaborative arrangement within the team was a *"source of clarity" (NP)* and helped the MPs to understand the role. Getting clarity about the role of the NP was considered an essential element of the collaboration in the participants' definition (see theme one, 4.3). Medical practitioners with a good understanding of the role stated that the role had been well explained to them in advance, either by the NP or the medical association, which provided NP job descriptions. Most of the MPs ascribed their knowledge about the NP role to their practice experience with the NP. The following statement represents a MP with a sound understanding of the role.

> *"I had a reasonable idea. My expectations would have been someone who has a higher level of expert knowledge than I would expect from a general […] nurse. Someone who is capable of making management decisions autonomously and someone who has specific roles beyond that, such as the capacity to prescribe and order an investigation and things like that. I mean, that's tied in with the autonomy and intricate, improved medication and management role" (MP)*

The process of adjustment continued once collaborative practice models were implemented. Medical practitioners and NPs were required to adapt expectations about regular face-to-face meetings because the lack of space and time did not allow for many direct interactions between NP and MP. Therefore, other ways of communication were established and used. In terms of face-to-face communication, two types of interaction occurred: formal and informal meetings (Table 14). Two of the five sites held planned team meetings on a weekly or fortnightly basis. To enable team meetings and manage the busyness of clinicians, one practice introduced a rule that no patients would be booked over lunchtime and all staff could meet during lunch. Scheduled team meetings were seen as a way of fostering communication in a relaxed atmosphere.

> *"It keeps the communication going between them all in a way that is not that hurried in a corridor, a quick comment, sort of over the shoulder type of thing. It's time for them to really be able to communicate with each other" (PM).*

Observations confirmed these meetings as facilitators of collaboration since they provided the only time that allowed for an extended discussion of organisational issues in the practice and patient cases that benefited from a team approach.

Table 14 Infrastructure and Methods of Communication

Infrastructure and communication methods	P1	P2/P4*	P3	P5	P6	Total
Formal (planned) meetings	N	N	Y	Y	N	2/5
Informal (spontaneous) meetings	Y	Y	Y	Y	Y	5/5
Electronic messaging system	Y	Y	Y	Y	N	4/5
Patient records/referral letters	Y	Y	Y	Y	Y	5/5
Communal area/kitchen	Y	Y	Y	Y	Y	5/5
Table/chairs to sit for lunch	Y	Y	Y	N	Y	4/5

P = practice, N = No, Y = Yes

*P2 and P4 include one practice with two locations

In the absence of scheduled meetings, informal encounters became more important since they were the only face-to-face time for the collaborating professionals. These

meetings were described as *'informal talk in the corridors', 'door-to-door'* conversations or a *'chat over coffee'* and observed on a regular basis at all sites. Nurse practitioners and MPs considered regular meetings as ideal, but in the absence of these, the spontaneous conversations were considered satisfactory. *"It feels informal because it is here in the tea room and in between. But it's sufficient"* (NP). One NP and MP at a site with no regular meeting times tried to align their patient appointments on one particular day to increase the chance of seeing each other in between consultations, corroborating the importance of face-to-face communication. Arranging meeting time is an example of how NPs and MPs developed new routines.

Opportunities for interactions improved through use of a communal area. All sites had a kitchen area that was used for lunch breaks, team meetings and private talks. *"So if you have somewhere where people can sit down and have that meal together or morning tea together or somewhere to sit, that enhances collaboration"* (NP). Observations confirmed that communication and lunch breaks were significantly longer and more common where participants had the opportunity to sit down together.

Where there were difficulties with meeting face-to-face, the use of electronic communication systems such as email or internal messaging was crucial for clinical practice. *"We use the electronic system, the intra office email quite well […] and I think, it's a really good way of communicating and I think, it is used really well"* *(PM).* Most participants used electronic communication and considered it helpful because it caused no interruptions and the addressee could respond whenever convenient. Electronic patient records and referral letters were other essential mediums to inform each other about patients. High quality notes with detailed information were appreciated by NPs and MPs and facilitated shared care. Sufficient communication opportunities can prevent the MPs' perception of fragmentation of care and loss of information, identified in theme three (section 4.5.1).

Practice managers played a major role in fostering collaboration through the adjustment of practice systems and infrastructure. Practice managers in three

practices had assisted with the initial setup of the collaboration model and arranged for systems that facilitated collaboration such as technologies, rooms and equipment. *"Our practice manager has done a lot of that assisting backup" (NP).* They managed resources and one PM monitored revenues, mostly to make sure that no staff member was disadvantaged through the addition of a NP to the practice.

Furthermore, PMs were involved in the organisation of team meetings and information flow between NPs and MPs. Participants saw the PMs as the contact person for practice improvements, and moderator in case of conflicting interests. *"We did discuss this with our practice manager, how to improve this" (MP); "The manager […] is the one who handles the doctor's questions when they say 'what do we need her for?' She would explain the role and that" (NP).*

Considering the tasks of the PMs, their input into the functioning of the collaboration should not be underestimated. Nevertheless, practices without the active involvement of a PM seemed to function equally well. However, it was mentioned that a non-supportive PM in a previous practice hindered the implementation of a collaboration model.

Besides working around practical challenges, individual attitudes towards collaboration were found to have a significant impact on the success of collaboration. Nurse practitioners showed respect for existing routines, knowing that they had to integrate themselves in a *"non-threatening way" (MP).* Consequently, they used their enhanced autonomy cautiously within the MP dominated settings. *"You don't try to take over. That would be a bad thing. And that would make us [NPs] very unpopular" (NP).* While NPs, MPs and PMs emphasised that the collaboration worked because *"people are not stepping on other people's toes" (MP),* there was more evidence that this referred to NPs and did not so much apply to MPs. It was well accepted that MPs made final decisions about patient care and would not discuss their treatment plans with the NP. *"When it comes to the big decisions, the GPs would be consulted" (NP).*

Accordingly NPs developed a strategy of careful negotiation within the MP's domain of patient care. A NP explained that MPs needed to trust her that

> *"I am not gonna charge off and change everything. I respect what they have got in place is in good intent. I think, I can add suggestions and tweak things and I won't do it [change everything], I'll ask them" (NP).*

Another NP described that she approached the MP in the practice who she knew was most agreeable with her idea of patient care in a particular case. Thus she found a way of getting approval for care without offending any of the MPs. *"I think, there is a little bit of ... I don't want to say manipulation... umm...a bit of selective choosing (laughs)" (NP).* The NPs' choice to involve the MP in care decisions was sometimes purposeful to slowly enter the MP's domain of PHC. Nurse practitioners considered this a sign of respect towards MPs. *"I am respectful of the fact that I don't want to go bulldoze around, I don't want to upset anybody. I just want it to be a slow progression" (NP).* It seemed NPs found a strategy of cautious confidence, which allowed them to make autonomous decisions and appear confident but not over-confident in their behaviour.

Because system conditions made it difficult to establish a collaborative practice model, individual relationships became more important. Participants were very clear that the collaboration worked because of their trustful and respectful relationship. *"My ability to be a nurse practitioner and collaborate with them is an extension of a pre-existing collaborative relationship" (NP).* Participants noted that MPs became more trustful over time; for example, they transferred tasks to the NP that were previously undertaken by the MP. *"They [MPs] have expanded what they are happy for me to do" (NP).* Developing trust through positive experiences also contributed to diminished MP concerns. *"I'm just one of these older GPs who have gone from being totally opposed to the idea of nurse practitioner to being a complete convert" (MP).* Likewise, NPs emphasised the practical experience of collaboration as driver for the relationship to deepen.

"So there is almost an agreement. And once you work with particular clinicians for a long time you get to understand what they will and won't do. And then you find, you see them less and less, but the collaboration has become an understanding" (NP).

Respect from MPs was perceived by the NPs when their suggestions were accepted and incorporated in patient care. *"They'll ask me to do this [to look after] someone in the nursing home [who was] not well, because, I belong. They know me and that relationship is established"* (NP). One NP stated that she respected the long-term relationship between the MP and her patients and would hold back suggestions about the MP's patients even if she had a different opinion about it.

For collaborative relationships to develop the personality of a person was very important and MPs emphasised that the collaboration worked because of the individual NP. One MP stated on the questionnaire that her satisfaction with the collaboration *"is at least partly due to the personality style of the nurse practitioner"* (MP). Consequently, positive experiences with collaboration were often ascribed to the individual and not the collaboration model itself. *"And we have developed a really close relationship with one exceptionally good person, and our relationship is based on that one person"* (MP). One NP stated that it was important for NP positions to become role-based, not individual-based so that MPs recognised the high quality and expertise inherent to the NP role and not just the individual.

Many interview statements and observed instances revealed that collaboration between NPs and MPs was successful because of the willingness of individual practitioners to work together against system structures and interprofessional role differences. For NPs and MPs this meant to be open to new care approaches, to compromise and adjust their expectations. In reference to system structures, the collaborative practice models in this sample worked because most MPs were willing to take a financial risk by working in collaboration with NPs for the advantage of better patient care. *"It is an important part of our practice, so I think, we should do it, even if it's not a money making thing"* (MP). Considering the restrictions through

Medicare regulations, policy and legislation, MPs as well as NPs in this study sample were well aware of the fact that the collaboration models in the private sector existed because of the willingness of MPs. One MP in a general practice explained that the NP could not *'survive'* without the support from MPs. *"Collaboration between nurse practitioners and doctors depends on [...] whether the owner of the practice is willing to do that or not"* (MP).

In relation to care approaches of participants and their individual roles within a team, NPs and MPs needed to be open-minded and willing to try something new. Openness and willingness to work together, were aspects of the definition of collaboration and indeed noticeable in all participants. *"I feel like I am working in a really innovative practice with some really forward thinking people"* (NP). The goodwill of NPs and MPs at some sites was required in situations of interrupted workflow due to unplanned consultations. Both MPs and NPs appeared to accept the interruptions as part of the work arrangements, which showed their willingness to collaborate despite inconvenience to their own workflow. One nurse practitioner described the experience of adjusting her role expectations as a process of

> *"continual adjustment of expectations on everyone's part. [...] When I started, my expectations what I would be doing and how the role would be (laughs), constantly having to re-adjust them in a way and that's exactly where we are in the whole process and it's the same for the doctors."*

Participants were prepared to compromise, however as one NP made clear, only because the collaboration model was *"in its infancy"* (NP).

The willingness to work together was most likely facilitated through the participants' realisation of the benefits of working collaboratively. Positive consequences through collaboration might have increased their motivation to establish collaborative practice models despite challenges. Nurse practitioners, MPs and PMs reported their perceptions of benefits for patients through a collaborative approach. They perceived

advantages of improved access and quality of care through the addition of the NP in their practice. *"She [NP] contributes so well to the quality of our [patient] management" (MP).* In particular, quality of care was acknowledged as excellent by NPs and MPs when commenting on their collaborating practitioner in the free text field of the questionnaire. Participants noted that practice capacity increased and waiting times for acute patients were reduced. *"We were having to turn people away. […] we were just getting overloaded so we couldn't see everyone. So [NP name] sees a lot more of those people now" (MP).* For the community centre, the NP's ability to refer clients to the hospital enhanced a timely admission of clients in need because they did not have to wait for a MP to arrive at the centre. Furthermore, participants reported about the advantage to have complementary skills and specialties. This gave NPs and MPs the opportunity to work in their area of interest. *"They are actually skilled to do the things that probably I'm not, because everyone has their own, different interests" (MP).* Some participants perceived collaboration as marketing for the practice and saw potential to attract health professionals to work there. *"It adds value and it stimulates new ways of doing things and maybe some research and profile for the practice and integration with other specialists" (MP).*

In summary, this theme outlined how NPs and MPs managed and adjusted to new routines of working together. Due to NPs' and MPs' willingness and capability to accept inflexible system structures and to actively manage modifiable aspects of collaborative practice, collaboration between NPs and MPs worked well even if the conditions differed from the theoretical ideal of collaboration. Participants agreed that planning in terms of infrastructure and practice layout as well as preparing staff members for the new role of the NP facilitated collaboration. More time for face-to-face meetings was wanted but limited through the lack of dedicated time and space.

Nonetheless, NPs and MPs managed to communicate because they accepted information exchange through other means. Sporadic meetings were considered sufficient but for these to happen a communal area and physical proximity were required. Practice managers were able to assist to a certain degree with smooth

running of the collaborative practice but sites without direct assistance from the PM worked equally well. Nurse practitioners acknowledged that change needed time and they respected existing routines to a certain extent. They adjusted their level of autonomous decision-making to a degree that was accepted by MPs and found strategies to cautiously integrate themselves as primary care providers.

It appeared the individual relationships that participants established within collaborative practice models helped them to adjust to system barriers and accept challenges. The personality of individuals was valued and played an important role for the functioning of collaborative working. Many examples showed that the willingness of participants to work together within restrictive frameworks was one of the most important facilitators of collaborative practice models. This willingness of NPs and MPs to make their collaboration work was driven by a motivation to improve patient outcomes and use the benefits of complementary skills.

The last theme focused on modifiable routines for NPs and MPs and intra-personal factors that made the collaboration work. In contrast, many system structures were unlikely to change over a short period of time, which forced NPs and MPs to use their own skills and motivation to establish collaborative practice models and new routines of working. The success of collaborative practice models appeared to rely on the contribution of individuals.

Following the presentation of themes, the next section presents the findings of deductive analysis. Once thematic categories were developed from inductive analysis of data, deductive analysis was undertaken to compare categories derived from the data of this study with dimensions of theoretical models of collaboration based on previous research (see section 3.7).

4.7   Comparing results to existing collaboration models

As outlined in the methods chapter (section 3.4), two theoretical models among many were selected to provide an orientation for the collection of data and to provide a

structure for deductive analysis of results. The *Structuration Model of Collaboration* was developed by Canadian researchers, D'Amour and colleagues (2008), to assess interprofessional and inter-organisational collaboration based on ten dimensions. Corser (1998) derived the *Nurse-Physician Interaction Model* from a review of American literature to identify facets of collaboration between nurses and MPs. The models and their dimensions complemented each other in their foci on collaboration, first, specifically between nurses and MPs (Corser, 1998) and second on interprofessional collaboration applied in PHC settings (D'Amour, et al., 2008; D'Amour, et al., 2004). Both models describe influencing dimensions on the existence and functioning of collaboration with some overlapping dimensions (Table 15).

The aim of deductive analysis was to compare the dimensions of influence on collaboration of this study with the existing theoretical frameworks and thus identify differences and similarities with international models of collaboration. The comparison was undertaken by screening through developed categories in NVivo and checking them against the 17 combined dimensions of the two theoretical models.

A majority of dimensions of the two theoretical models overlapped with the findings in this study (Table 15). Strong evidence of the importance of mutual trust and respect, communicative behaviour and infrastructure for information exchange, shared goals and decision-making for collaboration were identified in both theoretical models and at sites in this study. Likewise formalisation tools such as policies, protocols and agreements, understood as structural factors affecting collaboration, were found in this study and in the earlier models. The formalisation of work arrangements such as written collaborative agreements can assist to clarify roles and responsibilities, the latter identified as a neglected area of consideration between NPs and MPs in my study. D'Amour, et al. (2008) state "collaboration is influenced less by the degree of formalization than by the consensus that emerges around formalization mechanisms" (p. 6).

Table 15 Comparison of Dimensions of Collaboration Models

Dimension	This study	C	S
Mutual trust and respect	x	x	x
Formalisation tools (policies, protocols, agreements)	x	x	x
Communication/behaviour tendencies/Information exchange	x	x	x
Compatible role perceptions/mutual acquaintanceship	x	x	x
Joint goal setting and decision making	x	x	x
Complementary management of influencing variables/Client-centred orientation vs other allegiances	x	x	x
Conditions of power symmetry	x	x	
Traditions of professionalization	x	x	
Traditional gender/role norms	x	x	
Personal attitudes	x	x	
Complexity of care environment (the higher, the more collaboration)	x	x	
Prevalent social reality	x	x	
Nursing/medical school curricula	--	x	
Support for innovation	x		x
Connectivity	(x)		x
Centrality (authorities that provide clear directions that foster collaboration, inherits a strategic and political role)	(x)		x
Leadership (local person)	(x)		x
Ambivalence about autonomy	x		
Financial structures	x		

x = part of the collaboration model; (x) = only marginally part of the collaboration model;
-- = not addressed in my study
C = Conceptual Model of Collaborative Nurse-Physician Interaction (Corser, 1998)
S = Structuration model of collaboration (D'Amour, et al., 2008)

The dimension of compatible role perceptions/mutual acquaintanceships referred to professionals, who had established a professional relationship and were aware and knowledgeable about each others' roles and level of competence. In my study, while participants agreed about the importance of these dimensions, in practice the NP role and scope of practice was not always well understood. As found in both theoretical models, collaboration was influenced by a number of competing factors, including professional, personal and organisational allegiances, as well as patient interests that may compete with the individual's understanding of patient care. Therefore, negotiation, adjustment and compromise were important for collaboration as reported by NPs and MPs in this study.

Aspects of role enactment were mostly addressed in Corser's (1998) model of nurse-physician interaction. Personality, willingness and personal values as well as traditional role patterns and power symmetry were identified as having a strong influence on the functioning of collaboration in the current study. However, conditions of power symmetry were largely impeded by system structures and to a smaller extent by traditions of professionalisation and traditional gender or role norms as described by Corser (1998).

The influence of the complexity of care environment with intensified interactions for patients with more complex issues and the influence of current conditions ("social reality" (Corser, 1998, p. 330)) such as system structures and role enactment were congruent with Corser's model (1998). In agreement with D'Amour et al.'s structuration model (2008), support for innovation was evident at all five study sites in my study in the form of willingness and openness to new ways of working.

Three dimensions developed by D'Amour et al. (2008) were only marginally present at the five sites in my study and not derived from inductive analysis. First, connectivity was defined by D'Amour, et al. (2008) as a connection between individuals and the organisation they work in. Some participants stated that support from the management level was important for the establishment of the collaborative practice model: *"We have a meeting every year with the chief executive and we talk about where it is going" (MP). "The organisation has been very very supportive" (NP).* Connectivity could only be applied to the larger sites of my study and the community centre whereas participants in smaller sites were more connected with other individuals in the practice.

Second, centrality, described as authorities that provide clear directions including professional boards (D'Amour, et al., 2008), associations or government institutions, were only marginally identified in my study. While participants mentioned strategies from Government and professional associations that influenced collaboration, participants did not always find that these institutions provided helpful directions. A

NP expressed her frustration with vague directions by authorities. *"I asked the nurses' board about that [access to PBS] and they weren't clear" (NP).* It is important to note that the Structuration Model was developed in Canada, where 'health authorities' govern the provision of healthcare in designated areas (D'Amour, et al., 2008). Therefore, the model might relate to these institutions and not those found in the Australian healthcare system. In addition, centrality might play a larger role in inter-organisational collaboration, another focus of the Structuration Model but not of this study.

The third dimension, for which only limited evidence was found, is the influence on collaboration through the presence of a person who actively advances collaboration through leadership. None of the participants identified a team member with such a position or role. Again, leadership positions might be more present in inter-organisational settings, for which the Structuration Model was originally developed (D'Amour, et al., 2008).

My study identified two influencing factors of collaboration not included in the two theoretical models: the consequences of NP autonomy on role enactment and the influence of fiscal systems on the functioning of collaboration. The issue around NP autonomy might be a particular problem for NPs and MPs but not found to be a problem between other professions or organisations (D'Amour, et al., 2008) or between general nurses and MPs (Corser, 1998), where lines of authority might be more clear. However, Corser (1998) touched on the issue of autonomy with the dimension of power dynamics.

Financial issues and their impact on collaboration were highlighted by my study and in previous research on collaboration between nurses and MPs, including Canadian research (Faria, 2009; Roots, 2012; Way, Jones, & Baskerville, 2001); therefore it is unclear why this is not reflected in the two theoretical models. Corser (1998) as well as D'Amour and colleagues in their publications (2008; 2004) acknowledged that economic constraints and resources influence processes of collaboration but did not

consider them important enough to add as an extra dimension in their models. Based on the findings of my study, financial issues appeared to be a significant influence on collaboration and future models should consider economic influences as separate dimension.

Scrutinising the findings of this study in light of existing theoretical models, in addition to the inductive analysis of data, strengthened and deepened the analysis and highlighted influencing factors of collaboration in the Australian PHC context. Yin describes the comparison of findings with existing theoretical models as a form of analytical generalisation, where "a previously developed theory is used as a template with which to compare the empirical results of the study" (Yin, 2003, p.33). Therefore, I propose that the findings of this study are transferable to similar PHC settings within Australia, and could be applicable beyond the Australian context.

In summary, the majority of aspects of Australian NP-MP collaborative practice models resemble dimensions of collaboration described in the two models selected for comparison. Some dimensions of the Structuration Model (D'Amour, et al., 2008) referring to inter-organisational collaboration do not fit the private practice models of this study. Furthermore, governance through leadership and central authorities were not identified in the Australian context, where collaborative practice models appear to be based on a bottom-up approach of individual practitioners. Different to Corser's Model from 1998, it seems that gender norms have lost their effect on collaborative practice today since the working relationships between NPs and male or female MPs in my study did not differ.

The findings of my study contribute two influential dimensions of collaboration, which had not been part of the two theoretical models chosen for comparison: the manner by which NP autonomy was accepted and practiced as well as the influence of financial constraints. Both previous models (Corser, 1998; D'Amour, et al., 2008) did not have a specific focus on the professional group of NPs, so that NP autonomy was discovered as a new factor affecting the operationalisation of collaborative

practice models. Financial constraints might have been more prominent in this Australian sample of PHC sites because securing sustainable funding for collaborative practice models might have been more difficult compared to the Canadian context where collaborative practice models are often supported with Government funds (APHCRI, 2014).

This chapter concludes with a summary of all findings from this study.

4.8 Summary

In summary, the aim of this study was to investigate conceptual and practical aspects of collaborative practice in PHC settings. The specific research questions were: What is the conceptual basis of collaboration as defined by NPs and MPs? What are Australian NPs' and MPs' experiences of collaborative practice in PHC? What factors enable collaborative practice models to function? The findings in this chapter filled the research gap of how collaboration occurs at Australian PHC sites and what factors shape the collaboration. The study contributes new empirically derived knowledge on collaborative processes in the Australian PHC context, identifying influencing factors and expanding theoretical models of collaboration.

The use of mixed methods research within multiple PHC cases, both private and public, and the employment of multiple data sources enabled the complexity of collaborative working between MPs and NPs to be captured. The triangulation of methods and data added value beyond the findings based on a single methods approach. For example, the largely positive responses to the questionnaire items could be compared and contrasted with qualitative data that were obtained from interviews and observations. Observations, particularly observed interactions and working processes, enabled confirmation of participants' accounts of their experiences of collaboration, and also revealed more clearly actual work patterns and behaviours. For example, the reported two-way consultations and referrals between NPs and MPs were observed as rather one-sided consultation patterns from NPs to MPs. Furthermore, observation data unequivocally showed that largely NPs and MPs

function as autonomous healthcare providers, mainly working in parallel, with only a small number of patient cases cared for using a shared approach. This was not apparent in interviews. The application of inductive and deductive approaches to data analysis allowed extensive evaluation of dimensions of collaboration in Australian settings against existing collaboration models.

Overall, analysis of questionnaire results about satisfaction and experience with collaboration and beliefs in the benefits of collaboration showed positive perceptions of collaboration between NPs and MPs. Comments in the free-text field on the questionnaire indicated difficulties of working together that were elaborated on in interviews and also visible during observations.

Through thematic analysis, four themes were developed from the data. The first theme, *an idealistic definition*, presents the NPs' and MPs' definition of collaboration. While participants were able to clearly define elements of collaboration, their practice experiences proved their definition to be a conceptual ideal of collaboration. The ideal was found in clinical practice where NPs and MPs had developed respectful and trustful relationships and shared a common goal to work together for better patient outcomes. However, the ideal was moderated by the large proportion of autonomous healthcare provision by NPs and MPs, system structures, practicalities of working together and the process of finding their roles as collaborating partners.

Themes two and three summarised internal and external influences on collaboration. In theme two, titled *influence of system structures*, it was shown how external structures, such as policies, practice infrastructure and the dominance of existing PHC structures created hierarchies and impeded collaborative work of NPs and MPs at an equal level. It became evident that the power imbalance between NPs and MPs was reinforced through system restrictions rather than through the use of power and dominance of individual MPs. Theme three, *influence and consequences of individual role enactment*, illustrated individual-related influences on collaborative working between NPs and MPs. The way NPs and MPs internalised new and old roles and

perceived new patterns of responsibility as well as reimbursement for shared care added to the complexity of collaboration, already complicated by externally imposed system structures. The challenges experienced in clinical practice required NPs and MPs to frequently adjust their idealistic definition and expectations and adapt to practical reality.

Theme four, *making it work: adjustment to new routines*, depicted the processes and factors that enabled NPs and MPs to adjust to new routines. It became clear that interpersonal relationships, the willingness to compromise and to creatively implement new routines of communication were crucial to making collaboration work. Models of collaboration were established through a continual process of adjustment and adaptation. The results highlight that collaborative practice models could be perceived as successful even if they do not match the conceptual ideal of the definition of collaboration.

The comparison with other collaborative practice models in the deductive analysis of the data revealed many similarities with existing models (Corser, 1998; D'Amour, et al., 2008). However, it appears that collaborative practice models in Australia were a bottom-up endeavour, guided by the willingness of practitioners, whereas the Canadian Structuration Model of Collaboration (D'Amour, et al., 2008) identified large organisational authorities and leadership as important to actively support the establishment of collaborative practices. Two dimensions not specifically identified in the previously developed models were derived from the data of this study based on the comparison of dimensions from the model with the categories developed through inductive analysis. These new dimensions of NP autonomy and financial system structures appear to play a major role in collaborative work arrangements between NPs and MPs in the Australian context of PHC.

In summary, the key findings of this study are: 1) NPs and MPs were clear about the definition of collaboration but experienced a less than ideal practice reality; 2) The establishment and success of collaborative practice models relied on the willingness

of individuals and their professional relationships with one another because system structures were not designed for collaborative practice between NPs and MPs; 3) Working together appeared to be a process of establishing new routines facilitated through the ability of NPs and MPs to adjust to practicalities of existing structures and differing perceptions and enactment of roles.

In the next chapter I discuss whether and how the research questions have been answered, relate the main findings to research literature and highlight strengths and limitations of this study.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5 Chapter Five – Discussion and Conclusion

This thesis presents a multiple case study using mixed methods research. The study aimed to investigate conceptual and practical aspects of collaboration between NPs and MPs in five PHC settings in Australia. The three specific research questions of this study were:

- What is the conceptual basis of collaboration as defined by NPs and MPs?
- What are Australian NPs' and MPs' experiences of collaborative practice in PHC?
- What factors enable collaborative practice models to function?

The study is the first in Australia to have comprehensively and rigorously researched NPs' and MPs' perceptions and experiences with collaborative practice models in PHC. In this chapter, I present key findings associated with each research question and examine if the research questions were answered. The findings are compared with the wider research literature on interprofessional collaboration in PCH and other healthcare sectors to position the findings in the context of other research results. The particular methodological strengths and limitations of this study are also reported and recommendations for policy, practitioner work and research are outlined. The chapter concludes with a summary of key findings and contributions of this research.

The following section summarises whether and how the study aim was achieved with this multiple case study approach.

5.1 Achievement of the study aim

Theme one (*An idealistic definition*, section 4.3) primarily contributed to the first research question by presenting the participants' definitions of collaboration. Nurse practitioners' and MPs' definitions of collaboration reflected a conceptual ideal of collaborative working that was not generally matched by their practice experience. In summary, NPs and MPs understood collaboration as working together *and* working individually towards the improvement of patient outcomes based on a trustful and respectful relationship; and the willingness to work with combined strengths and

understanding of each other's role and skills. Nurse practitioners and MPs considered communication, sharing, helping each other and working as equal partners as crucial elements of collaboration. In clinical practice, this study found mutual trust and respect between NPs and MPs and a willingness to work together with complementary skills for the patient's benefit. However, contrary to the definitions provided by participants, in practice NPs and MPs predominantly provided a separate healthcare service to their patients, worked within existing hierarchies and experienced challenges in regard to roles and responsibilities when sharing patient care. The partial mismatch between conceptual ideal of collaboration and collaboration in practice revealed an "idealistic" definition of collaboration provided by participants.

Interviews with NPs, MPs and PMs, conversations during observations and the questionnaire captured the experiences of both NPs and MPs and provided answers to the second research question. In the questionnaire, NPs and MPs reported that they experienced high levels of collaboration and were satisfied with their collaborative relationship, and strongly believed in the benefits of collaboration (section 4.2). However, analysis of qualitative data revealed a more nuanced and somewhat ambivalent picture of NPs' and MPs' experiences of collaboration. The ambivalence is captured in themes two and three. Theme two (*Influence of system structures,* section 4.4) highlighted the challenges of NP-MP collaboration generated by external structures such as policies of the healthcare system, legislation, practice-level infrastructure and inflexible work arrangements. Challenges were reported by both NPs and MPs and observed specifically at the four private practice sites and less so at the publicly funded community centre. This difference between private and government-funded public sites is in line with findings from deductive analysis (section 4.7) that showed that leadership and support from external sources (Government) can facilitate collaborative practice models.

Furthermore, theme three (*Influence and consequences of individual role enactment,* section 4.5) summarised new insights about the complexity of adapting to new roles

and letting go of internalised role behaviour. This was shown by NPs and MPs moving back and forth between the traditional role of nurses as assistants to MPs and MPs as dominant care providers and solo clinicians, in contrast to newly assumed roles of NPs as autonomous health professionals and MPs as collaborators in a team. New and old roles co-existed and this led to blurred perceptions of medico-legal liability and reimbursement for shared patient care. By highlighting ambivalences of NPs and MPs about their roles within the team, the existing understanding of blurred professional boundaries has been expanded.

The third research question focused on identifying factors that enable functioning of collaborative practice. Theme four (*Making it work: Adjustment to new routines,* section 4.6) highlighted the importance of the participants' willingness and ability to make collaboration work within existing system structures and the complexity of assuming new roles. A shared motivation to work together for the patient's benefit and established professional relationships between NPs and MPs helped them to modify routines and adjust to system barriers. Since system restrictions were unlikely to change over a short period of time, the success of collaborative practice models appeared to rely on the contribution of individuals, and their skills and ability to establish new routines of working. As shown by the questionnaire results, NPs and MPs overall were satisfied with their collaborative relationship and believed that collaboration was beneficial for patient care (section 4.2). All practitioners reported advantages from working in collaboration, which could be an indication for all five sites being considered as well-functioning models of collaboration. An important point here is that models of collaboration did not have to reach the conceptual ideal of collaboration. Nurse practitioners and MPs were able to value the collaborative work arrangements and routines they had established and in which they were operating.

In summary, the multiple case study design and the use of mixed methods research in this study enabled a comprehensive examination of the aim and the three research questions. The participants' definitions of an ideal of collaboration were only partially fulfilled in their clinical practice. Nurse practitioners and MPs reported

positive perceptions of working together, despite the challenges posed by system structures at policy and practice level and differing perceptions of role enactment. With their willingness and ability to modify routines and accept existing frameworks, NPs and MPs were able to establish well-functioning models of collaboration. The individual determination of practitioners to make it work was crucial for the implementation of these models of care because their establishment was challenging at those sites where external support by Government agencies was lacking.

5.2   Key findings in comparison with previous research literature

Three key findings can be derived from this study. First, NPs and MPs were clear about the conceptual ideal of collaboration but experienced a different practice reality, which was a practice model of parallel, autonomous service provision with occasional collaboration as evidenced by instances of shared decision making and mutual discussion about patient care. Second, although system structures were the main impediment to establish sustainable collaborative practice models, the willingness of practitioners and their individual relationships helped to partially overcome the effect of system restrictions and organisational barriers. Third, participants perceived working together as a continual process of establishing and fitting into new routines, noticeable in their moving back and forth between new and traditional roles.

This section is organised around these three key findings. Each finding is discussed in relation to findings from other studies for contextualisation with national and international research on collaborative practice models. I did not limit the literature for comparison to studies that primarily focused only on NPs and MPs within PHC settings, but drew upon findings from other research on interdisciplinary collaboration that focused on various healthcare settings and other health professionals.

5.2.1   A continuum of ideal collaboration and autonomous service provision
This section discusses the differences identified in this study between the NPs' and MPs' definition of ideal collaboration and the way in which collaboration was

operationalised in practice. The discrepancy between a theoretical ideal and the clinical practice of working together is a common phenomenon, which has also been described in previous research of Canadian PHC NP-MP practice models (Bailey, et al., 2006) and Australian PHC practices with general nurses and MPs (Phillips et al., 2008). In particular, the discrepancy refers to the problem of a lack of equality and balanced power distribution between the nursing and medical professions, one of the most complex aspects of collaboration (Rose, 2011). Canadian researchers assert that inequality in healthcare teams "is troublesome given that evidence indicates that a substantial degree of equality is required for interprofessional collaboration" (Zwarenstein, Rice, Gotlib-Conn, Kenaszchuk, & Reeves, 2013, p. 7).

The discrepancy in my study also refers to the fact that NPs and MPs worked separately most of the time. Both NPs and MPs completed autonomous episodes of care and made autonomous decisions about patient treatment without conferring with one another. These autonomous episodes of care sometimes evolved into a collaborative undertaking, when another practitioner was consulted or informed about the patient. Some participants in this study were not sure if communication by electronic means, the occasional talk in the corridor or written notes could be considered collaboration. Their uncertainty indicated an understanding of collaboration that required more than just exchange through these methods and longer face-to-face communication was indeed valued. Some NPs found it difficult to determine what constitutes collaboration, when practice experiences differed to their conceptual ideal of collaboration. It appeared that the ideal was linked to an understanding by NPs and MPs to spend more time together and share care of a patient through mutual case discussion and shared decision making based on the use of complementary skills and equal input and responsibility for patient care.

This understanding of 'true' collaboration co-existed with the separate and autonomous episodes of care that prevailed at most sites. These findings confirm international research and were observed in an ethnographic study of three PHC teams in the USA (Chesluk & Holmboe, 2010) and in Canadian NP-MP practice

models (Roots, 2012). In another Canadian study primary healthcare NPs self-reported that they provided 80% of their services without or with minimal MP involvement (Koren, et al., 2010). A single case study in the UK found this number to be at 94% based on an audit of the NP's work in a general practice setting (Reveley, 2001). Consequently, working separately, alongside each other rather than collaboratively seems to be the norm in collaborative practice models. Even referrals and consultations can be questioned as indicators of collaboration because they do not necessarily lead to shared care of a patient. Parker, et al. (2013) considered consultations and referrals between professionals as "sequential care" (p. 4) rather than collaborative care. After identifying a lack of joint interaction between health professionals in collaborative practice models, British researchers questioned the applicability of the term collaboration, when one wants to adhere to "conceptual fidelity" (Knowles et al., 2013, p. 7).

Autonomy and collaboration have long been discussed as corresponding as well as mutually exclusive concepts. One school of thought considers autonomy and collaboration as complementary concepts (Burgess & Purkis, 2010; Way, et al., 2000). An Australian study on the history of NP implementation compared NP practice to the autonomous practice of MPs who worked as part of a team but made autonomous decisions on patient care (Foster, 2010, p. 198). The link between autonomy and collaboration is supported by other studies, mostly based on interviews with health professionals who considered autonomy to be an essential component of collaborative practice and a well-functioning nurse-physician relationship (Burgess & Purkis, 2010; Martin & Coniglio, 1996; Schmalenberg et al., 2005; Way, et al., 2000).

Another school of thought argues that autonomy may be counterproductive to collaborative teamwork since it is strongly linked to individualism (San Martín-Rodríguez, et al., 2005). Rose states that aiming at autonomy may be the wrong way to achieve collaborative practice as "collaboration by definition implies interdependency as opposed to autonomy" (Rose, 2011, p. 5). Martin et al. (2005) interviewed advanced practice nurses (APNs) and MPs and found that autonomy and

interdependence might be "incongruent concepts" (p. 327) of collaboration. The findings are based on statements of MPs who emphasise their commitment to teamwork and recognition of the autonomous role of APNs but at the same time want to be informed about the APNs' treatment of patients (Martin, et al., 2005).

The two schools of thought facilitate understanding of the ambivalence of NPs and MPs in this study about the large portion of separate autonomous service provision within collaborative practice models. There appears to be ambiguity about the presence of the concept of collaboration in healthcare teams so that the use of the term collaboration might be "rhetorical" (Zwarenstein, et al., 2013, p. 7). This leads to three possible consequences.

First, clinicians and researchers could refrain from using the term collaboration to describe what is happening in day-to-day practice in Australian PHC settings. However, this is unlikely to be realised because participants of my study tended to do so. In addition, the term is commonly used by researchers and practitioners for work arrangements that fail to conform to the concept of collaboration as defined (O'Brien, et al., 2009; Rose, 2011).

Second, the definition of collaboration could be re-defined to acknowledge experiences in practice. An adapted definition of collaboration would mean collaboration that can include unequal power distribution between health professionals and in which sharing and interactions occur in a minority of patient cases with often one-sided consultation patterns. This revised definition of collaboration would match the practice experiences of NPs and MPs in my study.

Third, a possible consequence could be to combine the existing definition and practice experiences under an umbrella concept to reflect the practice reality of the five sites in this study. The umbrella concept for this study is a continuum of collaborative practice models. It appeared NPs and MPs accepted that they worked in collaborative practice models without reaching all aspects of the ideal of collaboration. This suggests that it might be sufficient to establish a practice model

without striving for the conceptual ideal of collaboration. One in which NPs and MPs can work alongside each other while providing an independent service to their patients, with professional backup when required. I argue that collaborative practice models may be understood as a practice setting where NPs and MPs are enabled to practice in an autonomous manner as well as truly share the care of their patients. In other words, collaborative practice models can comprise parallel autonomous service delivery by NPs and MPs, include systems restrictions and ambivalences about roles; and at the same time, but to a much smaller extent they involve collaboration as conceptually defined.

The umbrella concept of a continuum of collaborative practice models is illustrated in Figure 7. The continuum represents collaborative practice models that vary in their degree to which aspects of collaboration reached the theoretical concept and to which parallel autonomous healthcare delivery by NPs and MPs dominated. For some patients, NP and MP discussed patient care, jointly decided the patient's treatment and communicated well with each other, thus practicing collaboration close to the conceptual ideal. In other instances, NP and MP saw their patients autonomously, but due to restrictions of the NP's authority to order a particular diagnostic test, the NP involved the MP in the patient's care to sign the form. This exemplifies the other end of the continuum, parallel service provision by practitioners with occasional interaction. The placement of these collaborative practice models along the continuum indicates that clinical practice of NPs and MPs was dynamic and influenced by factors such as systems and organisational structures, the agreement or disagreement on role enactment, the practitioners' ability and willingness to establish and adapt to new routines. The daily operationalisation of the model could be more collaborative or more autonomous depending on practitioner preferences; patient needs or other factors such as requiring MP sign-off on ordering tests.
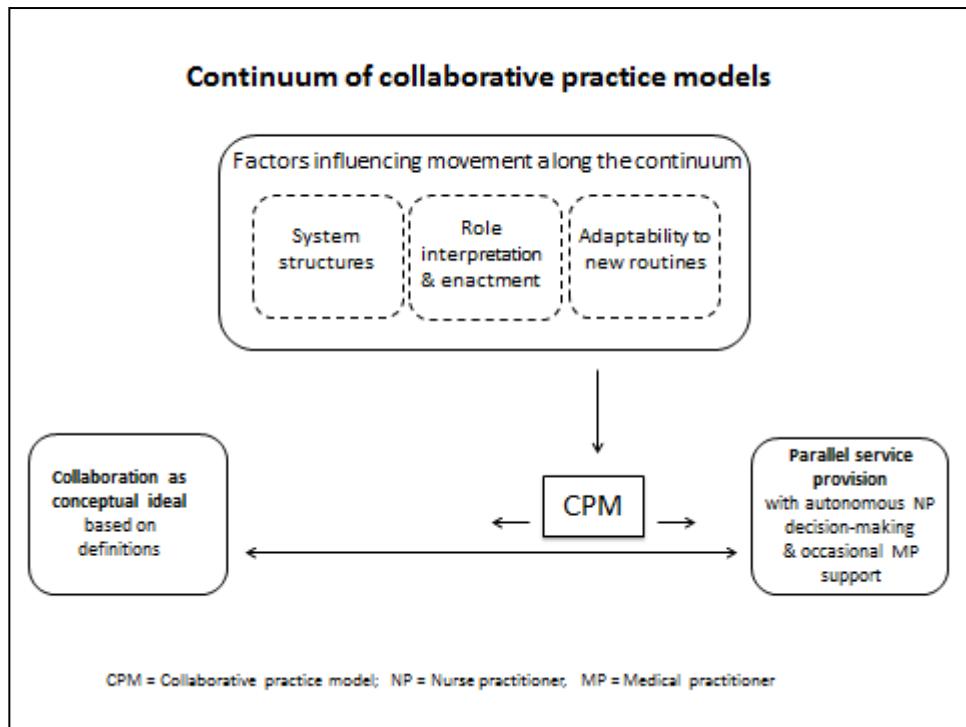
Figure 7 Continuum of Collaborative Practice Models

The idea to use a continuum for the description of collaboration is not new (Coeling & Cukr, 1997; Gerardi & Fontaine, 2007; Oandasan et al., 2006; Satin, 1994). However, Sullivan (1998) critiqued continua of collaboration because he claimed that "collaboration does not seem to occur in fragments; it is or it is not" (p. 92). Sullivan (1998) noted that if one wants to adhere to conceptual definitions of collaboration, collaboration cannot occur in stages. That means, if practice reality does not match the conceptual definition of collaboration the practice model cannot be considered as collaborative. This reflects a dualist understanding of collaboration. Following this dualist perspective none of the sites in my study exhibited all conceptual aspects of collaboration and therefore should not be titled collaborative practice models. Nonetheless, participants viewed their practice arrangements as collaborative practice models. Therefore, the continuum I suggest represents not a spectrum of collaboration but a variety of collaborative practice models. These collaborative practice models include, to varying degrees, the conceptual ideal of collaboration as well as parallel service provision with occasional interaction of practitioners.

5.2.2   Interpersonal relationships essential to overcome system restrictions

This section discusses the system restrictions to the ideal of collaboration. The lack of equality between NP and MP in this sample was largely created through system conditions that favoured MPs as the main provider of healthcare within collaborative practice models. In line with the findings of this study, an analysis of interview data from multi-professional healthcare teams in rural areas of Australia revealed Chronic Disease Management Team Care Arrangements, an Australian Government incentive scheme, as facilitators of shared care of patients (McDonald, et al., 2012; Parker, et al., 2013). However, reimbursement for these MBS items is paid to the MP, even if the NP completes the majority of the patient's care.

Granting NPs access to MBS items was reported by USA-based researchers as enabling collaborative practice models (Bourgeault & Mulvale, 2006; Brooten, Youngblut, Hannan, & Guido-Sanz, 2012; Phillips, 2007). While the Australian Government approved NP access to MBS items, NPs in my sample were disadvantaged in collaborative practice models by: 1) lower rates of reimbursement than MPs for patient consultations, and 2) the limited MBS numbers available to them (Australian Government - Department of Health, 2014a). This finding was supported by an Australian case study of a general practice setting with one employed NP, in which reimbursement rates for NP and MP were compared in an economic evaluation (Helms, Crookes, & Bailey, 2014). An analysis of NP-MP collaborative healthcare teams in North American healthcare systems confirmed a "structural embeddedness of medical dominance" (Bourgeault & Mulvale, 2006, p. 482).

An example of the structural embeddedness of medical dominance in Australia are the Federal Government funded *GP Super Clinics*, where a mix of health professionals provide patient care but which are GP-led as indicated in their name (Australian Government, 2011). More recently the proposed 2014 budget by the current Australian Government focuses on support for MPs, in particular GPs, but NPs and allied health professionals do not appear on their agenda (The Department of Health, 2014). Overlooking the importance of the contribution of NPs to the

healthcare system is also evident in recent reports of Health Workforce Australia that works together with Government and non-government organisations and advises on "planning, training and reform of Australia's health workforce" (Health Workforce Australia, 2013). Health Workforce Australia published workforce projections for MPs, nurses and midwives without specifically mentioning the role of NPs or other advanced practice nursing roles (Health Workforce Australia, 2012a, 2012b). The lack of acknowledgement of NPs and other specialty nursing roles in these reports makes their contribution to healthcare invisible.

It is of concern that NPs are not routinely part of these proposed reforms, because evidence, based on interviews with key stakeholders and analyses of the research literature, has shown that targeted Government initiatives to support team care approaches yielded positive effects on the implementation of team care models in Canada and the USA (Bourgeault & Mulvale, 2006; Naccarella, et al., 2006). The initiatives included incentive payments for MPs to join healthcare teams and Government funded NP positions (APHCRI, 2014; Mable, Marriott, & Mable, 2012; Roots, 2012). Initiatives like these may assist to circumvent the fee-for-service model, which was identified by both quantitative and qualitative research as an impediment to collaboration. A survey of 20,710 Canadian MPs showed that MPs working in a FFS model were significantly less likely to collaborate with NPs (Sarma, et al., 2012). An ethnographic study of three PHC teams in the USA identified FFS models as a disincentive for health professionals to discuss mutual patient cases in the absence of a patient because it solely reimburses practitioners for face-to-face consultation time with patients (Chesluk & Holmboe, 2010). The Medicare schedule clearly states that "only that time during which a patient is receiving active attention should be counted" (Australian Government - Department of Health, 2014a, Note A1) for billing purposes, discouraging case discussions among health professionals. Technically, case conference MBS items exist in Australia, but several restrictions to their use apply, for example they are charged solely by the MP and the patient must be present during the consultation (Australian Government - Department of Health, 2014a).

Besides financial impediments to collaboration, the Australian determination of collaborative arrangements adds to the power imbalance between NPs and MPs in Australian PHC settings. While collaborative arrangements in Australia and the USA guarantee NPs access to a MP for consultation needs, it has been argued that they create a dependent and unequal relationship (Battaglia, 2010; Currie, Chiarella, & Buckley, 2013). Findings of a survey of advanced practice nurses in the USA emphasised that collaborative arrangements deprived NPs' leverage in negotiating the collaborative agreement or business terms such as income, leave regulations or payment for administrative support (Minarik, Zeh, & Johnston, 2001). This dependency was also noticeable in my study when NPs did not request adequate practice space or were unable to establish their own clinic.

The policies underpinning collaborative arrangements as set out in Australia and the USA lack interdependency and shared power, essential elements of collaboration (D'Amour, et al., 2005). Consequently, the determination might need to be re-labelled to better address what it actually regulates, namely a form of MP support for NPs to guarantee them access to the Medicare Benefits Schedule (*Health Insurance (Midwife and Nurse Practitioner) Determination*, 2011). In an attempt to clarify the specific purpose of collaborative arrangements, public speeches, letters and media coverage of the time when the policy was released were reviewed. None of these documents stated an explicit policy goal of the legal determination, which further questions its purpose in the current format.

Collaborative arrangements also contribute to an underutilisation of NPs (Weiland, 2008). Critics of collaborative arrangements argue that no differences in the quality of NP care were established in USA states with, or without, mandated MP involvement (Buppert, 2010; Lowery & Varnam, 2011). However, findings of my study are in line with conditions in the American context, where collaborative arrangements are proven hurdles for NP practice (Institute of Medicine, 2010; Reagan & Salsberry, 2013). A cross-sectional analysis from 2001-2008 of 41 USA states showed that

restrictive collaborative practice arrangements limited growth of NP numbers by 25% (Reagan & Salsberry, 2013).

Qualitative studies and literature reviews corroborated that these system-level policies restrict advanced practice nurses and NPs in their choice of practice, hinder their practice in an area of need without a collaborating MP (Iglehart, 2013; Minarik, et al., 2001) and force them to practice below their potential so that care resources are underutilised (Bailey, et al., 2006; Bauer, 2010). If care resources are underutilised, it can be argued that this may have direct effects on patient care. Recommendations for the Commonwealth's budget made to the Australian Government by the National Commission of Audit emphasised the importance of expanding the scope of practice of NPs for sustainable healthcare delivery (National Commission of Audit, 2014).

Besides healthcare system structures, organisational structures contributed to the lack of equality between NPs and MPs. Similar to findings of my study, the lack of space for NPs in PHC settings was identified as a problem in a case study of three PHC sites in Canada (Sangster-Gormley, Martin-Misener, & Burge, 2013) and in interviews with 16 NPs practicing in PHC settings in the USA (Poghosyan, et al., 2013). While most NPs in my sample practiced in a consulting office, they often had to change offices and others accessed that office to obtain equipment. This was not observed for MP offices. It appeared MPs were given priority for offices and resources, which researchers described as "structural discounting" (Martin & Hutchinson, 1997, p. 90) of NPs. Nonetheless, NPs in my study rather worked under these non-ideal conditions in regard to the practice layout than not to work in collaborative practice models. This attitude indicates the NPs' acceptance of a slow progress of integrating into existing structures.

In regard to practice-level structures, the role of the PM requires consideration. Practice managers were not essential for establishing collaborative practice models because collaborative practices without their input were part of this study sample. However, in this study, PMs were identified as important for the provision of

resources and establishment of communication systems. Furthermore, deductive analysis uncovered a lack of local leadership, an important dimension of the Canadian Structuration Model (D'Amour, et al., 2008), referring to a person who takes on responsibility to enhance the collaboration. Literature reviews have emphasised the importance of PMs through their administrative support (San Martín-Rodríguez, et al., 2005) and in their potential role as "change champion" (McInnes, 2008, p. 26). An analysis of well-functioning professional relationships between nurses and MPs in five USA hospitals identified PMs as moderators in conflict situations (Schmalenberg, et al., 2005). Practice managers through the acquisition of equipment and infrastructure for collaboration and their ability to moderate between NPs and MPs could have the potential for more actively leading the implementation of collaborative practice models in Australia.

Considering the barriers for collaborative practice due to existing systems, organisational structures and neglect from Government agendas, collaboration between NPs and MPs rather appeared to exist through individual relationships. Interpersonal relationships and the personality of practitioners were significant factors for successful collaboration in other studies (Faria, 2009; Legault, et al., 2012; Poghosyan, et al., 2013). Likewise, in my study, NPs and MPs valued each other's personality and contribution to care, allowing them to develop their professional relationship. The good relationship between individual NPs and MPs may explain the perceived reciprocity of practitioners despite the identified barriers to collaboration. Fairman (2002) and Donald (2007) identified collaboration as a personal process between NPs and MPs and "even the passage of time and legislation cannot remove the inherent intimacy of the concept" (Fairman, 2002, p.169). Surveys of MPs in the USA (Street & Cossman, 2010) and Australia (Jones, et al., 2013) showed that MPs who worked with a NP have more favourable attitudes towards NPs compared to MPs who lack this experience. Findings of my study confirmed that relationships develop through recurring positive experiences of working together, which can create more

favourable attitudes towards collaboration and help to dispel concerns or misperceptions.

Clearly, collaborative practice models in the Australian PHC context would not exist without the personal commitment of NPs and MPs. Their willingness and ability to work around system barriers was based in the value they ascribed to the relationship they had developed. This argument is also supported by my study's survey results, which confirmed the positive perception of the collaborative relationship. Furthermore, the comparison with the Canadian model (D'Amour, et al., 2008) in the deductive analysis showed that Australian PHC collaboration models were a bottom-up approach, driven by individuals and receiving limited support and governance through Government and healthcare system structures.

5.2.3   Working together as a process of establishing new routines

In this section the development of new routines and roles and how participants incorporated them in their collaborative practice are discussed. Globally, NPs have entered the healthcare system as disruptive innovations. This concept describes an innovative and newly introduced feature to a system that interrupts routines of service delivery but in the long-term is beneficial to system outcomes (Christensen, et al., 2006; Heidesch, 2008). However, restrictive policies in Australia have led to the underutilisation of NPs, slowing down their successful implementation into PHC (see 5.2.2). For NPs the process of disruption has brought along pressure to integrate and many have experienced rejection from MPs and other health professionals in Australia (Foster, 2010; Wilson, et al., 2005), and around the world (Barton, 2006; McMurray, 2011). Experiences of non-acceptance appear to be part of the adaptation process for both NPs and MPs.

As a consequence of these experiences NPs have developed strategies to appear less 'disruptive' to existing structures and to facilitate collaborative working with MPs. Nurse practitioners in the current study were all capable of making autonomous decisions and in agreement with findings of previous studies, valued their enhanced

autonomy and self-directed management of patients (Kramer & Schmalenberg, 2003; Parker, Forrest, Desborough, McRae, & Boyland, 2011). However, they adopted a level of assertiveness that did not threaten or undermine the MPs' position, knowing that pushing for change too fast could challenge the collaborative relationship. Therefore, NPs in the Australian context of PHC had to be able to work competently but not act over-confidently with their competence.

A similar phenomenon was described in *The Doctor-Nurse Game*, a publication of observed behaviour of nurses and MPs (Stein, 1967), as a strategy to avoid any disagreements between nurses and doctors. "The nurse must communicate her recommendations [to the doctor] without appearing to be making a recommendation" (Stein, 1967, p. 699). In today's NP-MP collaboration, this behaviour was used as a way of integrating into existing structures. Assertiveness and confidence of NPs has been reported as facilitators of collaborative working in a mixed methods study of NPs and MPs working together in long-term care homes in Canada (Donald, 2007). Unassertive behaviour, including MP involvement where not strictly required, by otherwise very confident and highly competent NPs, as a purposeful strategy to enter existing MP-dominated structures was observed in my study at all five sites. This strengthens the idea that MP involvement might sometimes be a conscious strategy and not unique to the six NPs in this sample. The NPs' behaviour may be due to the emergent role of NPs in PHC settings with MPs and may change once NP and MP have established long-term working relationships.

Further consequences of NPs as disruptive innovation in collaborative practice models with MPs were identified in this study. Disruptive innovations can lead to disrupted routines, which Greenhalgh (2008) highlighted as a challenge for collaborative working. For example NPs and MPs in my study experienced interruptions to their workflow. The inefficiency of these routines was also highlighted in a UK-based ethnographic inquiry of NPs in general practice (Main, et al., 2007, p. 483) and reported by MPs in PHC clinics in the USA who perceived an increase of workload due to supervision requirements of NPs (Fletcher, et al., 2007).

Since many of the interruptions in my study were based on the mandatory involvement of MPs (see section 4.4.1, examples of electrocardiography and pelvic ultrasound), it can be assumed that these interruptions would be minimised if NPs had access to more MBS items and Medicare policies were less restrictive.

The disruption of existing routines required developing new routines. In agreement with a Canadian ethnographic study of three multiprofessional PHC teams, a lack of communal space and time constraints of clinicians impeded frequent meetings (Oandasan et al., 2009). However, face-to-face meetings have been consistently reported as one of the most important features of collaboration because they guarantee verbal exchange of ideas and information with immediate feedback when needed (Chesluk & Holmboe, 2010; Legault, et al., 2012; Macnaughton, Chreim, & Bourgeault, 2013). Consequently, the *"corridor conversations" (NP)* and a *"chat over a cup of coffee" (MP)* became significant new routines for information exchange.

The addition of NPs to PHC sites also disrupted traditional role behaviour of NPs and MPs. The MPs' practice routine of functioning as the main care provider was interrupted by the NP's ability to practice as an autonomous healthcare provider. Adherence to familiar roles was reflected in the subconscious paternalism of some MPs in this study. Another Australian study with a focus on multidisciplinary teams identified team structures in which "negotiated orders of power can exist in spite of benevolent attitudes" (Nugus, et al., 2010, p. 899). In other words, MPs in my study embraced NPs as collaborating practitioners but were still caught in familiar hierarchies, which were nurtured to some extent by system structures fostering uni-directional authority (Willis, 2006). Likewise the NPs' previous routines of functioning in more traditional nursing roles were disrupted by their enhanced level of autonomy that required them to carry more responsibility.

Looking at the NPs' and MPs' traditional role behaviour from a role theory perspective, it is not surprising to find that hierarchical structures exist in relation to NPs' and MPs' roles because roles can be attributed to expectations of cultural norms

(Biddle, 1986). In role theory it is assumed that "persons are members of *social positions* and hold *expectations* for their own behaviors and those of other persons" (Biddle, 1986, p. 67). Behaviour within social networks and relationships is linked to the identity of an individual, based on "internalized role expectations" (Stryker & Burke, 2000, p. 286). In my study, NPs and MPs worked in distinct nursing and medical roles because these were in line with their expectations about the identity of nursing and medical care, respectively.

The identity of MPs is linked to their socialisation as silo-workers, for example, as found in interviews with nine Swedish GPs (Hansson, Friberg, Segesten, Gedda, & Mattsson, 2008). The MPs' practice routine had not needed communication or collaboration with other health professionals in the past and explains one-sided consultation patterns from NPs to MPs in my study. Canadian researchers found that MPs rarely consulted with NPs, even after an intervention addressing collaborative working of NP-MP teams in PHC (Bailey, et al., 2006). An Australian study of various healthcare services corroborated that MPs were "less enthusiastic" (p. 14) than other healthcare professions about interprofessional collaboration (Braithwaite, et al., 2013). In addition, existing legislative policies fostered one-sided consultation patterns from NPs to MPs. In many cases, NPs had to involve the MP in an episode of care so as not to overstep their legal professional boundaries.

For NPs, a strong influence on their role and identity adjustment was based in the way NPs used their autonomy. Nurse practitioners in this study valued their autonomy. Concurrently, they were reluctant to work to their full autonomous scope sometimes. Furthermore, autonomous practice was complicated by policy restrictions to their autonomy. Experiencing this triangle of influence on practicing autonomously appeared to be part of the NPs' process of finding their identity and responding to new role expectations. Feminist researchers developed the term 'relational autonomy', claiming that autonomy is hardly ever absolute but context bound and linked with given structures (MacDonald, 2002). Nurse practitioners in my study possessed

relational autonomy in the sense that they were entitled to work as autonomous health practitioners *within* a framework of professional structures, legislation and policies.

As a consequence of finding new routines and defining new identities, this study identified the blurring of professional boundaries and the coexistence of new and traditional roles that were assumed by practitioners. This finding is consistent with other research, both qualitative and quantitative. The blurring of professional boundaries was described as a problem in a grounded theory study of five PHC sites in the UK because it negatively affected role understanding, agreement on scope of practice and responsibility (Main, et al., 2007).

A systematic review of 13 international studies across all types of healthcare settings reported that the combination of task delegation, substitution and complementation in NP-MP teams added to the complexity of blurred role boundaries between NPs and MPs (Niezen & Mathijssen, 2014). In my study, day-to-day practice of participants was not affected by blurred roles because NPs and MPs accepted that "their roles are simultaneously similar but quite distinct from each other." (Weiland, 2008, p. 347). Consequently, the coexistence of roles developed into new clinical routines, in which complementary roles were assumed for shared care whereas in autonomous patient consultations, the NP role combined a medical and nursing focus.

However, the blurring of professional boundaries became a problem where both NP and MP perceived to be responsible or reimbursable for mutually completed care episodes. It is acknowledged that lines of legal liability can be blurred in team structures (Jansen, 2008; Niezen & Mathijssen, 2014; Price & Williams, 2003) and the legislation underpinning collaborative arrangements appears to have added to the confusion about legal liability (Battaglia, 2010; Cashin et al., 2009), with many NPs and MPs in my study assuming that collaborative arrangements regulate legal liability. At present, the determination of collaborative arrangements draws MPs into a commitment of "collaborative" working with a NP for which consequences in practice are not well understood. Battaglia (2010) proposed complete practice

independence for NPs so that "a practicing NP would generally bear the full liability for instances of malpractice arising from care provided by that NP" (Battaglia, 2010, p. 1151).

To assist with clarification of legal liability Resnick and Bonner (2003) emphasise the importance of outlining the scope of practice of NP and MP, communication and referral mechanisms in writing. Clarifying expectations of team members is important since understanding and perceptions of roles and concepts such as autonomy, independence and collaboration might differ between team members (Braithwaite, et al., 2013). The fact that the majority of sites in my study had a written agreement about the nature of the collaboration whereas by law a verbal agreement would have been sufficient (King, et al., 2012) suggests that NPs and MPs felt more comfortable determining their work arrangements in writing. Such agreements do not have to be linked to legislation since the current ministerial determination restricts NP practice and fails to clarify legal liability.

5.2.4   Summary of key findings

This study contributed new knowledge about collaborative practice models involving NPs and MPs in PHC settings in Australia. Three key findings emerged from the Australian context.

First, it appeared that in the context of PHC, working together was not so much about the conceptual ideal of collaboration but rather how it was operationalised by NPs and MPs in terms of practical arrangements. Collaboration between NPs and MPs in primary healthcare settings needs to be seen in the broader context of collaborative practice models that sit along a continuum of an ideal of collaboration and parallel autonomous service provision by NPs and MPs (Figure 7). The continuum of collaborative practice models is useful to illustrate that there was not one most successful model but all five sites were well-functioning collaborative practice models with some working more towards the parallel autonomous service provision end and others towards the conceptual ideal of collaboration.

The second key finding confirmed existing literature that system structures were a barrier to collaborative working between NPs and MPs because these imposed a power imbalance between NP and MP. This imposed hierarchy between NP and MP within PHC sites was irrelevant to some degree in that NPs were welcomed and accepted by MPs and other staff members, and both NPs and MPs valued their established professional relationships. The insecurity over financial benefits from collaborative practice models suggests deficiencies in the Government's operationalisation to strengthen PHC in Australia (Australian Government, 2011; Department of Health and Ageing, 2009), as inadequate funding might prevent supportive MPs from collaborating with a NP. Consequently, this could limit the utilisation of NPs and their contribution to the quality of service provision in PHC. By triangulating these inductive findings with the results of deductive analysis, guided by two theoretical models of collaboration (Corser, 1998; D'Amour, et al., 2008), the lack of governmental, system-wide governance for the implementation of collaborative practice models was further highlighted. Collaborative practice models of NPs and MPs in PHC in Australia largely appeared to involve a private undertaking initiated by individuals who were attempting to provide sustainable healthcare within given resources.

The third key finding was that working in collaboration was a continual process of adjustment to new routines and roles for NPs and MPs. Collaboration occurred because individual NPs and MPs were willing to compromise, agree to financial risks, work within hierarchical system structures, and to embrace new routines. In accordance with previous research, NPs and MPs in my study appeared to have experienced a shift in their roles and responsibilities. Moving in-between new and traditional roles assisted in slowly finding and assuming new role identities within the collaborative practice model.

The findings of this study need to be seen in reference to methodological strengths as well as limitations, presented in the next section.

5.3 Strengths and limitations

This section provides the reader with information about the strengths and limitations of the study to facilitate critique about the credibility of the results and conclusions drawn from the data of this study. Stringent quality measures were applied to establish credibility and trustworthiness of findings as outlined in the methodology chapter (section 3.9). These included the adherence to the research protocol, the use of a research diary, discussion of findings with supervisors, data triangulation, and comparison with existing theoretical frameworks.

One important strength of this study was the inclusion of both NPs' and MPs' views and experiences. Australian literature reports repeatedly on NPs and their experiences and perceptions (Considine & Fielding, 2010; Desborough, 2012; Driscoll, Worrall-Carter, O'Reilly, & Stewart, 2005; Lowe, et al., 2013; Wilson, et al., 2005). Perspectives of PHC medical practitioners on collaborative practice are limited in Australian research (e.g. Braithwaite, et al., 2013; McDonald, et al., 2012; Parker, et al., 2013). Therefore, this thesis gave a voice to MPs who work in PHC settings and who were willing to "experiment" with a new model of collaborative care.

This study provides rare insights into the collaborative work of NPs and MPs in Australian PHC. While evidence is available from other countries on collaborative practice models, Australian research has focused primarily on emergency care teams (Jones, et al., 2013), mental health (Wand, White, & Patching, 2010) and practice nurses in PHC sites (Mills & Fitzgerald, 2008; Patterson & McMurray, 2003). The use of face-to-face individual interviews, direct observation, questionnaire survey and documents enabled an in-depth analysis of behaviour, communication and interaction between NPs and MPs in PHC settings. The inclusion of five different sites spread across four Australian states generated a broad perspective on collaboration based on a multi-method dataset. The similarity with other research and theoretical models strengthened the credibility of findings and suggest their transferability within the Australian context of PHC. However, since Western Australia, the Northern Territory and very remote areas were excluded from the study, the focus was on collaborative

practice in more populated areas with access to a broad range of healthcare services and a low percentage of Aboriginal and Torres Strait Islander peoples. Reasons for the exclusion of these areas included travelling logistics and budget limitations. It is acknowledged that collaborative practice models of NPs and MPs in these areas might work differently to those investigated in this study and require further research.

Participating sites had well-established patterns of working together and recruitment of a negative or disconfirming case (Patton, 2002; Yin, 2009) would have been a valuable addition to the sample. However, while I attempted to include sites with obvious inter-professional challenges, I was unlikely to find someone from such sites to agree to participate in this study. This became evident during the recruitment phase when some interested NPs withdrew their verbal consent because collaborating MPs declined to participate. A requirement of this study was the participation of both NPs and MPs at the sites. The recruitment of well-functioning teams was partly balanced out by participant statements about negative experiences in previous practices. While I was able to capture system barriers, perceptions of MPs who were not satisfied with working in a collaborative practice model could have provided information on some inter-personal issues and reasons why MPs opposed collaboration with NPs.

The selection criteria applied in this study could have included sites where NP and MP worked together for only 26 days (minimum of six months for one day per week). This was not the case but I acknowledge that the collaborative work experiences of most NPs and MPs in this sample is limited to 1-2 years. However this reflects the emergent role of NPs in PHC settings in Australia and the current reality of practice in these settings where there are NPs and MPs. Therefore, results should be considered in relation to the developing role of NPs in PHC settings as well as in collaborative practice models with MPs.

I acknowledge that my nursing background may have introduced a stronger view on the issues from a nursing perspective. As outlined in the section on quality assurance

(section 3.9), measures were taken to account for this potential threat to researcher neutrality.

Three potential explanations for the differences between qualitative (more negative) and quantitative (more positive) data are discussed here. First, the scales on experiences and satisfaction with collaboration focused largely on shared decision-making and its processes (Baggs, 1994; Way, Jones, & Baskerville, 2001). The two scales lacked the capacity to measure other aspects of collaboration, such as structural conditions, their influence on collaborative working, issues around autonomy, hierarchies and shifts in role boundaries. Therefore, the high levels of experience and satisfaction on these scales reflected more the collaborative relationship and interactions based on shared decision-making.

Second, the scores on the scales might have been high as an indicator for satisfaction with the achieved work arrangements because NPs and MPs – quite pragmatically – accepted the difference to the theoretical ideal of collaboration, realising the system constraints. Similarly, analyses of patient satisfaction surveys found that patients used mitigating factors in the evaluation of situations, for example, participants seek to explain negative circumstances and then rate the situation more positive (Edwards, Staniszweska, & Crichton, 2004; Williams, Coyle, & Healy, 1998). Applied to the high satisfaction scores with collaboration, it could mean that the scores illustrated the participants' attitude of "it is as good as it could be", taking into account existing limitations as mitigating factors for the quality of their collaboration.

Third, it is possible that the scale designs suffer from the problem of positive response bias which is a well-reported limitation of surveys (Hendriks, Vrielink, Smets, van Es, & De Haes, 2001; Sitzia, 1999; Sitzia & Wood, 1997; Williams, et al., 1998) and also the survey was administered to only a small sample. The multi-dimensionality of satisfaction as well as collaboration adds to the difficulty of appropriately capturing these concepts with scale items (Sitzia & Wood, 1997), confirming the invaluable contribution of the qualitative data derived from this

research for a comprehensive understanding of collaborative practice models in PHC in Australia.

Finally, I acknowledge the importance of the relationships between health professionals and their patients in the overall picture of collaboration in PHC. Today, collaboration often forms a multilateral relationship between healthcare providers and the patient for whom care is shared (Heatley & Kruske, 2011; Herrmann & Zabramski, 2005). The focus of my study was on the collaborative relationship between NPs and MPs who historically and through legislation have a unique working relationship. Therefore no data on the collaborative inclusion of patients were collected.

Having acknowledged the limitations of this study and its findings, I present recommendations derived from the triangulated outcomes of this research in the subsequent section.

5.4   Recommendations

Several recommendations for policy-makers, practitioner work and future research come from the findings of this study. First, at policy level, reimbursement structures for NPs need to be improved, as they appear to impede the implementation of collaborative practice models. In addition, changes to the current determination of collaborative arrangements are suggested. Second, for clinicians, practice-level infrastructure needs to address collaborative as well as autonomous practice of practitioners, including space, time management and planning of clinical operationalisation of collaboration. Third, the data suggest further research into NPs in independent clinics, evaluation of cost-effectiveness of collaborative practice models and development of scale measurements of collaboration. All recommendations are outlined in a short paragraph after highlighting a recommendation that applies to policy, clinical and research context.

Since it was identified that the term collaboration covered layers of collaboration, ranging from a surrogate term for teamwork to referrals to shared decision-making, individuals need to be precise when using the term. This will help to distinguish if their statements focus on for example, 1) a collaborative practice setting with multiple health professionals on one site where practitioners see patients individually, 2) on referrals and consultations across sites, or 3) on shared care where professionals collaboratively care for a mutual patient. Details about the extent of the described collaboration may assist to identify the collaboration as real or rhetoric within the specified settings.

5.4.1   Suggestions for policy

1) Collaborative practice models would be stronger and easier to establish through enhanced NP reimbursement. Policy-makers need to be aware that making the NP role in PHC financially more sustainable can increase the motivation for MPs to establish collaborative practice models. Reimbursement of NPs could be achieved through several approaches.

− Reimbursement for team care arrangements (MBS items 721 and 723) should be made available for NPs to initiate team care arrangements with allied health professionals as they are available in the form of chronic disease management items for MPs, so that NPs can receive reimbursement from Medicare without requiring the MP to sign the forms.

− Access for NPs to a similar range of MBS items currently available for MPs, including procedure-based items (e.g. conducting and interpreting electrocardiography and spirometry, ordering female pelvic ultrasounds and suturing wounds) in addition to time-based consultation items. Furthermore, NPs could be given access to MBS items covering annual cycles of care review for chronic diseases such as diabetes and asthma (e.g. MBS items 2546 and 2517) to attract reimbursement for assessment, monitoring, prevention and planning of chronic diseases, which are common services within the NP's scope of practice.

This would increase NP reimbursement and could increase their financial viability in PHC practices. In addition, it could potentially reduce mandated MP involvement that causes inefficiencies and interruptions for both practitioners.

− Access for NPs to Medicare bulk bill incentive items (MBS 10990-10992) to allow NPs to claim for bulk billed patient consultations. This item is currently available to GPs as an incentive and reward for bulk-billing disadvantaged patient groups who do not have to pay out-of-pocket. The ineligibility of NPs for this incentive scheme highlights another hierarchical difference between NPs and MPs and potentially disadvantages marginalised patient groups.

− Collaborative practice models with NPs and MPs could be supported by the Australian Government through financial incentives (similar to the practice nurse incentive programme), to compensate for times where both practitioners are involved in the care of one patient and case discussions in the absence of the patient are required.

− Australian Government funding for NP positions in PHC, similar to that in place in Canada, may foster collaborative practice models and facilitate comprehensive patient consultations by NPs that are not based on time-dependent, fee-for-service, healthcare provision.

− Furthermore, private health funds may introduce NP services in their catalogue to facilitate reimbursement for patients who use NP care services.

2) Findings of this study provided evidence for shortcomings of the current legal policies underpinning collaborative arrangements, the *National Health (Collaborative arrangements for nurse practitioners) Determination 2010* and *the Health Insurance (Midwife and Nurse Practitioner) Determination 2011*. Therefore, I argue for consideration of regulatory amendment. Two suggestions are:

− An additional element in the *National Health (Collaborative arrangements for nurse practitioners) Determination 2010* should address legal liability in shared care arrangements to reduce reluctance of MPs to work alongside a NP based on current misperceptions of liability (as documented in this study).

− An amendment to the *Health Insurance (Midwife and Nurse Practitioner) Determination 2011* should remove section 10 (1)(a) and thus grant NPs access to the Medicare Benefits Schedule and PBS-subsidised medicines without mandatory collaborative arrangement. Potentially, this would remove the dependency of NPs from MPs and be in accordance with the definition of collaboration that stresses interdependency. Furthermore, it would allow more NPs to provide services in rural and remote areas where there may be no MP available to participate in a collaborative arrangement.

5.4.2   Suggestions for practitioner work

1) Improvements in infrastructure and practice level arrangements are recommended to facilitate NP-MP interaction within practice settings.

− Opportunities for face-to-face meetings should be enhanced. Regular meetings can serve as an occasion to address practical issues between participants, to foster information exchange about mutual patients and increase mutual learning. Where scheduled meetings are not possible, opportunities for informal conversations can be enhanced through communal areas and facilities where this is possible.

− The role of practice managers in the establishment of resources and communication structures should be recognised and utilised as a potential leadership role for fostering collaboration.

− NPs should be given access to an office that is appropriate for private patient consultations and to resources that equal the MP's access to infrastructure.

2) Prior to working together, it is recommended that NPs and MPs communicate about how they operationalise their collaboration to foster preparatory clarification of scope of practice, consultation and referral mechanisms as well as roles and responsibilities.

− In agreement with most of the participants in this study and proposals in the literature, it appeared useful for practitioners to put this agreement in writing (on a voluntary basis and not based on legislative requirements).

− The voluntary agreement of collaboration may address liability of practitioners for different scenarios such as: 1) patients seen together; 2) patients seen by only one practitioner but advice was given by another practitioner (by phone, email, face-to-face conversation); and 3) NPs working under vicarious liability, when the employer (MP) may hold some responsibility for the employee (NP).

5.4.3   Suggestions for research

1) The majority of separate service provision within collaborative practice models reveals NPs as autonomous healthcare providers and future research could investigate frameworks within which NPs are able to establish their own businesses. This study showed that the dependency from MPs and low reimbursement rates made it difficult for NPs to establish their own clinic. A survey of NPs who work in an independent unit in PHC could serve as a needs assessment to support NPs wishing to pursue this path.

2) In terms of collaborative practice models, evaluation of their cost-effectiveness and impact on patient outcomes in PHC settings in Australia is needed, since available data are based on other healthcare sectors or other countries with differing healthcare systems. While randomised controlled trials might be difficult to conduct, a comprehensive longitudinal cohort study of collaborative practice models versus non-collaborative practice sites in the PHC context may be an appropriate study design for research on cost-effectiveness and patient outcomes.

3) Suggestions for methodological research: Rigorous testing of the scales measuring the experience and satisfaction with collaboration is advised prior to its continued application for the measurement of NP-MP collaboration in future research. Considering the multidimensionality of collaborative practice models and the common occurrence of autonomous service provision in collaborative practice

models an adaptation of the scales is proposed. A revised version of the scale may include additional scale items such as structural conditions, their influence on collaborative working, issues around autonomy, hierarchies and shifts in role boundaries.

I want to conclude this thesis with a focus on the positive messages to be taken away from the outcomes of this study. These final remarks summarise a three-year research project and its contributions to the implementation and improvement of collaborative healthcare services in Australia.

5.5 Conclusion

This study was designed to investigate how collaboration between NPs and MPs occurred in Australian PHC settings. The study was timely because with the Federal Government's approval to grant NPs access to MBS items, more NPs are able to work in private practice and PHC settings. Their collaboration with MPs in PHC is a new phenomenon that has not been investigated before in the Australian context. While findings from case study research have limited use for drawing conclusions for the general population of NPs and MPs, I argue that this study provides strong evidence of facilitators and limitations of collaborative practice models that have relevance to other practices with similar arrangements as the sites in this study. The similarity to experiences from other countries with different healthcare systems strengthens the transferability beyond the sites of this study.

The significant contribution of this research to existing knowledge lies in the provision of rigorous evidence on collaborative practice models in Australian PHC settings. Information from this study is based on a well-planned research design and replaces anecdotal reports. This will facilitate new discussions with policy makers, healthcare funds, medical and nursing associations, politicians and key stakeholders who influence healthcare reform. Central to the aim of this study was gaining an inside perspective of NPs and MPs, supplemented by an outsider perspective of the researcher, to generate a comprehensive understanding of collaboration.

Nurse practitioners in this study gave a voice to NPs working in PHC settings and summarised their experiences and views of collaborative working with MPs. This study revealed their inner conflict of wanting to practice autonomously with the occasional need to reassure themselves about their decisions. This finding provided an understanding about the difficulty of practicing at an advanced level of autonomy and some of the challenges associated with establishing collaborative practice models with medical professionals, who have for much longer worked autonomously.

This study offered unique insights into the opinions of Australian PHC MPs on working together with NPs. Clearly, the challenges of establishing collaborative practice models with equal practitioners could be ascribed much more to a structural embeddedness of MP dominance than individual resistance of MPs. Their resistance appeared to be less based on concerns of losing professional status but rather on the concern of entering unknown territory and handling system barriers. Medical practitioner accounts of practical issues and concerns helped to understand some reservations of MPs towards collaboration. Furthermore, their statements on positive experiences of working with NPs might convince other MPs to work in collaborative practice models.

This research contributes to existing knowledge by expanding theoretical models of collaboration (Corser, 1998; D'Amour, et al., 2008) through identification of further influencing factors on collaboration, specifically identified in the Australian context: the impact of the relational nature of NP autonomy and insufficient financial resources.

An important outcome of this study for practitioners is that collaborative practice models occur along a continuum of shared care and autonomous service provision. Accepting the variability of collaborative practice models and taking away the focus on the perfection of the theoretical ideal of collaboration, may assist NPs and MPs to find satisfaction in their achievements of working together. The motivation of individuals to establish collaborative practice models; their willingness to continually

adjust and adapt needs to be supported with the improvement of system barriers to facilitate the implementation and sustainability of collaborative practice models in the near future.

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APPENDICES

7 Appendices

7.1 Observation form

Characteristics of collaboration study – Observation form

Date: Time observed: Practice: Person:

Space	Actor	Activity	Object	Act	Event	Time	Goal	Feeling

Consultations   Initiated NP☐ GP☐ Length_____   Reason/Content of consultation

Meetings, formal   Initiated NP☐ GP☐ Length_____   Reason/Content of consultation

Meetings, informal   Initiated NP☐ GP☐ Length_____   Reason/Content of consultation

Referrals   Initiated NP☐ GP☐ Length_____   Reason of referral

7.2 Collaboration survey for medical practitioners

Dear

This questionnaire is the second part of my research project. It serves to measure attitudes and opinions about collaboration in your practice using some standard measurement tools. Your responses will identify differences among sites or differences between the professions, which will contribute to a better understanding of collaborative practice in the primary health care setting ▮▮▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮

All answers are completely confidential and w▮▮▮▮▮▮▮▮▮▮▮▮▮▮fied format. Your name on the first page of the questionnaire only serves to link your responses to your practice site (for the observations) and your statements in the interviews (following the questionnaire). A participant number will replace your name before entering the data into a database and conducting the analysis.

Some of the scales used in the questionnaire were laid out for NPs and MPs working at the same site. If some of the questions do not apply to your situation please indicate that next to the question or use the comments section.

As for the first part of the study, this part also received ethics approval from the Human Research Ethics Committee of the University (ID 2012 207V).

Once you have returned the questionnaire to me, I would like to invite you to the last part of the study, a face-to-face interview.

Investigators

Verena Schadewaldt, PhD candidate
Prof Anne Gardner, School of Nursing, Midwifery and Paramedicine
A/Prof Liz McInnes, School of Nursing, Midwifery and Paramedicine
Prof Janet Hiller, Faculty of Health Sciences, Associate Dean of Research

Collaboration Survey for Medical Practitioners

Participant number [   ]

Part 1: Professional Information

Name_____

1. How many years of experience do you have as a Medical Practitioner?

- ☐ 0-5
- ☐ 6-10
- ☐ 11-15
- ☐ 16-20
- ☐ 21-25
- ☐ 26+

2. How long have you been working in primary healthcare?

Years_____   Months_____

3. How long have you been working at this clinical site? (If more than one please provide details about the ones that are investigated for this study)

Years_____   Months_____

4. How many Nurse Practitioners, Practice Nurses and Medical Practitioners work at the study site(s) (including you)?

Nurse Practitioners_____

Practice Nurses_____

Medical Practitioners_____

5. What is your status at the study site(s)? (Tick all that apply)

- ☐ Owner
- ☐ Co-owner
- ☐ Employed
- ☐ Self-employed
- ☐ Other (please specify)

_____

6. What is your employment status at the study site(s)? (Tick all that apply)

- ☐ Full-time
- ☐ Part-time
- ☐ Sessional
- ☐ Other (please specify)

_____

7. How many hours per week on average are you working at the study site(s)?

_____

8. Have you worked in collaboration with a Nurse Practitioner before working at the site(s) you are working at current?

- ☐ No
- ☐ Yes

If yes, for how many years/months?

Years_____   Months_____

If yes, in what specialty? Please provide all discipline areas you worked in collaboration.

_____

Part 2: Beliefs in the Benefits of Collaboration

To what extent do you believe the following statements (Circle your answers):

Multidisciplinary team work (as compared to solo practice) …	Not at all			Completely		Don't know (√)
1. Improves the quality of the care and services offered to patients	1	2	3	4	5	
2. Provides better support to clinicians in their interventions	1	2	3	4	5	
3. Fosters increased integration of interventions	1	2	3	4	5	
4. Is a better answer to a patient's bio-psychosocial needs	1	2	3	4	5	
5. Results in greater patient satisfaction	1	2	3	4	5	

2/4

Participant number [ ]

Part 3: Provider Experience in Current Collaboration

Consider your current experience of collaboration with the nurse practitioner(s) you are working with and rate your level of agreement or disagreement with each statement.

Please check the **one best answer** for each statement below The nurse practitioner & you:	1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Slightly Agree	5 Agree	6 Strongly Agree
1. Plan together to make decisions about the care for the patients	☐	☐	☐	☐	☐	☐
2. Communicate openly as decisions are made about patient care	☐	☐	☐	☐	☐	☐
3. Share responsibility for decisions made about patient care	☐	☐	☐	☐	☐	☐
4. Co-operate in making decisions about patient care	☐	☐	☐	☐	☐	☐
5. Consider both nursing and medical concerns in making decisions about patient care	☐	☐	☐	☐	☐	☐
6. Co-ordinate implementation of a shared plan for patient care	☐	☐	☐	☐	☐	☐
7. Demonstrate trust in the other's decision making ability in making shared decisions about patient care	☐	☐	☐	☐	☐	☐
8. Respect the other's knowledge and skills in making shared decisions about patient care	☐	☐	☐	☐	☐	☐
9. Fully collaborate in making shared decisions about patient care	☐	☐	☐	☐	☐	☐

Part 4: Provider Satisfaction in Current Collaboration

Consider your current experience with the nurse practitioner you are working with and rate your current level of satisfaction or dissatisfaction with each statement.

Please check the **one best answer** for each statement below What is your current level of satisfaction with:	1 Strongly Dissatisfied	2 Dissatisfied	3 Slightly Dissatisfied	4 Slightly Satisfied	5 Satisfied	6 Strongly Satisfied
1. The shared planning that occurs between you and the nurse practitioner while making decisions about patient care	☐	☐	☐	☐	☐	☐
2. The open communication between you and the nurse practitioner that takes place as decisions are made about patient care	☐	☐	☐	☐	☐	☐
3. The shared responsibility for decisions made between you and the nurse practitioner about patient care	☐	☐	☐	☐	☐	☐
4. The cooperation between you and the nurse practitioner in making decisions about patient care	☐	☐	☐	☐	☐	☐
5. The consideration of both nursing and medical concerns as decisions are made about patient care	☐	☐	☐	☐	☐	☐
6. The coordination between you and the nurse practitioner when implementing a shared plan for patient care	☐	☐	☐	☐	☐	☐

3/4

Participant number [   ]

What is your current level of satisfaction with:	1 Strongly Dissatisfied	2 Dissatisfied	3 Slightly Dissatisfied	4 Slightly Satisfied	5 Satisfied	6 Strongly Satisfied
7. The trust shown by you and the nurse practitioner in one another's decision making ability in making shared decisions about patient care	☐	☐	☐	☐	☐	☐
8. The respect shown by you and the nurse practitioner in one another's knowledge and skills	☐	☐	☐	☐	☐	☐
9. The amount of collaboration between you and the nurse practitioner that occurs in making decisions about patient care	☐	☐	☐	☐	☐	☐
10. The way that decisions are made between you and the nurse practitioner about patient care (that is, with the decision making process, not necessarily with the decisions)	☐	☐	☐	☐	☐	☐
11. The decisions that are made between you and the nurse practitioner about patient care	☐	☐	☐	☐	☐	☐
12. The amount of time you spend consulting with the nurse practitioner	☐	☐	☐	☐	☐	☐
13. The availability of the nurse practitioner	☐	☐	☐	☐	☐	☐
14. The appropriateness of consultations initiated by the nurse practitioner	☐	☐	☐	☐	☐	☐
15. The quality of care provided by the nurse practitioner	☐	☐	☐	☐	☐	☐

Part 5: Demographic Information

1. What is your gender?

☐ Female

☐ Male

2. What is your age range?

☐ ≤ 29

☐ 30-39

☐ 40-49

☐ 50-59

☐ 60+

3. What is your highest level of education? (Please tick one box)

☐ Postgraduate degree level, not further defined

☐ Master degree level

☐ Doctoral degree level

☐ Other (please specify)

_____

Part 6: Comments

Please feel free to make any comments about the survey or something you would like to add. Use the back of the page if you need more space.

[   ]

Thank you for filling out the questionnaire!

4/4

7.3 Collaboration survey for nurse practitioners

Dear ████████   ████████████████████

This questionnaire is the second part of my research project. It serves to measure attitudes and opinions about collaboration in your practice using some standard measurement tools. Your responses will identify differences among sites or differences between the professions, which will contribute to a better understanding of collaborative practice in the primary health care setting.

All answers are completely confidential and will be analysed in de-identified format. Your name on the first page of the questionnaire only serves to link your responses to your practice site (for the observations) and your statements in the interviews (following the questionnaire). A participant number will replace your name before entering the data into a database and conducting the analysis.

Some of the scales used in the questionnaire were laid out for NPs and MPs working at the same site. If some of the questions do not apply to your situation please indicate that next to the question or use the comments section.

As for the first part of the study, this part also received ethics approval from the Human Research

Investigators

Verena Schadewaldt, PhD candidate

Prof Anne Gardner, School of Nursing, Midwifery and Paramedicine

A/Prof Liz McInnes, School of Nursing, Midwifery and Paramedicine

Prof Janet Hiller, Faculty of Health Sciences, Associate Dean of Research

Collaboration Survey for Nurse Prac

Participant number [ ]

Part 1: Professional Information

Name_____

1. How many years of experience do you have as a Registered Nurse?

☐ 0-5

☐ 6-10

☐ 11-15

☐ 16-20

☐ 21-25

☐ 26+

2. How many months and years of experience do you have as a Nurse Practitioner?

Years_____ Months_____

3. How long have you been working in primary healthcare?

Years_____ Months_____

4. How long have you been working at this clinical site? (If more than one please provide details about the ones that are investigated for this study)

Years_____ Months_____

5. How many Nurse Practitioners, Practice Nurses and Medical Practitioners work at the study site(s) (including you)?

Nurse Practitioners_____

Practice Nurses_____

Medical Practitioners_____

6. What is your status at the study site(s)? (Tick all that apply)

☐ Owner

☐ Co-owner

☐ Employed

☐ Self-employed

☐ Other (please specify)

_____

7. What is your employment status at the study site(s)? (Tick all that apply)

☐ Full-time

☐ Part-time

☐ Sessional

☐ Other (please specify)

_____

8. How many hours per week on average are you working at the study site(s)?

_____

9. Have you worked in collaboration with a Medical Practitioner before working at the sites you are working at current?

☐ No

☐ Yes

If yes, for how many months/years?

Years_____ Months_____

If yes, in what specialty? Please provide all discipline areas you worked in collaboration.

_____

Part 2: Beliefs in the Benefits of Collaboration

To what extent do you believe the following statements (Circle your answers):

Multidisciplinary team work (as compared to solo practice) …	Not at all				Completely	Don't know (√)
1. Improves the quality of the care and services offered to patients	1	2	3	4	5	
2. Provides better support to clinicians in their interventions	1	2	3	4	5	
3. Fosters increased integration of interventions	1	2	3	4	5	
4. Is a better answer to a patient's bio-psychosocial needs	1	2	3	4	5	
5. Results in greater patient satisfaction	1	2	3	4	5	

Participant number [   ]

Part 3: Provider Experience in Current Collaboration

Consider your **current** experience of collaboration with the medical practitioner(s) you are working with and rate your level of agreement or disagreement with each statement.

Please check the **one best answer** for each statement below **The medical practitioner & you:**	1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Slightly Agree	5 Agree	6 Strongly Agree
1. Plan together to make decisions about the care for the patients	☐	☐	☐	☐	☐	☐
2. Communicate openly as decisions are made about patient care	☐	☐	☐	☐	☐	☐
3. Share responsibility for decisions made about patient care	☐	☐	☐	☐	☐	☐
4. Co-operate in making decisions about patient care	☐	☐	☐	☐	☐	☐
5. Consider both nursing and medical concerns in making decisions about patient care	☐	☐	☐	☐	☐	☐
6. Co-ordinate implementation of a shared plan for patient care	☐	☐	☐	☐	☐	☐
7. Demonstrate trust in the other's decision making ability in making shared decisions about patient care	☐	☐	☐	☐	☐	☐
8. Respect the other's knowledge and skills in making shared decisions about patient care	☐	☐	☐	☐	☐	☐
9. Fully collaborate in making shared decisions about patient care	☐	☐	☐	☐	☐	☐

Part 4: Provider Satisfaction in Current Collaboration

Consider your **current** experience with the medical practitioner you are working with and rate your current level of satisfaction or dissatisfaction with each statement.

Please check the **one best answer** for each statement below **What is your current level of satisfaction with:**	1 Strongly Dissatisfied	2 Dissatisfied	3 Slightly Dissatisfied	4 Slightly Satisfied	5 Satisfied	6 Strongly Satisfied
1. The shared planning that occurs between you and the medical practitioner while making decisions about patient care	☐	☐	☐	☐	☐	☐
2. The open communication between you and the medical practitioner that takes place as decisions are made about patient care	☐	☐	☐	☐	☐	☐
3. The shared responsibility for decisions made between you and the medical practitioner about patient care	☐	☐	☐	☐	☐	☐
4. The cooperation between you and the medical practitioner in making decisions about patient care	☐	☐	☐	☐	☐	☐
5. The consideration of both nursing and medical concerns as decisions are made about patient care	☐	☐	☐	☐	☐	☐
6. The coordination between you and the medical practitioner when implementing a shared plan for patient care	☐	☐	☐	☐	☐	☐

3/4

Participant number [   ]

What is your current level of satisfaction with:	1 Strongly Dissatisfied	2 Dissatisfied	3 Slightly Dissatisfied	4 Slightly Satisfied	5 Satisfied	6 Strongly Satisfied
7. The trust shown by you and the medical practitioner in one another's decision making ability in making shared decisions about patient care	☐	☐	☐	☐	☐	☐
8. The respect shown by you and the medical practitioner in one another's knowledge and skills	☐	☐	☐	☐	☐	☐
9. The amount of collaboration between you and the medical practitioner that occurs in making decisions about patient care	☐	☐	☐	☐	☐	☐
10. The way that decisions are made between you and the medical practitioner about patient care (that is, with the decision making process, not necessarily with the decisions)	☐	☐	☐	☐	☐	☐
11. The decisions that are made between you and the medical practitioner about patient care	☐	☐	☐	☐	☐	☐
12. The amount of time you spend consulting with the medical practitioner	☐	☐	☐	☐	☐	☐
13. The availability of the medical practitioner	☐	☐	☐	☐	☐	☐
14. The appropriateness of consultations initiated by the medical practitioner	☐	☐	☐	☐	☐	☐
15. The quality of care provided by the medical practitioner	☐	☐	☐	☐	☐	☐

Part 5: Demographic Information

1. What is your gender?

☐ Female

☐ Male

2. What is your age range?

☐ ≤ 29

☐ 30-39

☐ 40-49

☐ 50-59

☐ 60+

3. What is your highest level of education? (Please tick one box)

☐ Postgraduate degree level, not further defined

☐ Master degree level

☐ Doctoral degree level

☐ Other (please specify)

_____

Part 6: Comments

Please feel free to make any comments about the survey or something you would like to add. Use the back of the page if you need more space.

[   ]

Thank you for filling out the questionnaire!   4/4

7.4   Interview schedule for medical practitioners

Interview Schedule for Medical Practitioners

1. Introductory questions around role, type of patients, employment status.

2. Who initiated the process of introducing a NPs to this practice?

3. How would you define collaboration?
   (- What are essential elements of collaboration between NPs and MPs?)

4. How would you describe someone who works collaboratively?
   (collaborative behaviour)

5. Please describe to me some situations where you collaborate with the NP?
   - Meetings, consultations, referrals
   (How do you communicate in the patient's notes?)

6. From your experience, what works well in this practice in regards to collaboration between NPs and MPs?
   (- What do you consider facilitators for collaboration in this practice? Can you give me some examples?)

7. What does not work so well?
   What could be improved?
   (Please describe to me some of the challenges for you working in collaboration in this practice?)
   (What do you think are the barriers to collaborative working with NPs?)

8. Are there practice features in place that streamline/foster collaborative care? If so what are they?

9. Did you experience any changes in the practice or for yourself through the collaboration with the NP?

10. How is the decision made about who of you will see a patient?

11. How do you decide together on a patient's treatment?
    Who is liable for the patient care?

12. What is your opinion on autonomous NP practice? (Advantages/disadvantages?)

13. Is it different collaborating with a NP compared to collaborating with other health care professionals? In what way?

14. What would you advise others to do to enhance collaborative working with NPs, if they are doing this for the first time?

15. Have you heard about the collaborative arrangements, required by the Government for NPs to access MBS and PBS items.
    - What are your thoughts about the collaborative arrangements in this practice?

16. Are you involved in prescribing practices undertaken by the NP? If so, how?

17. Did you have interdisciplinary units (shared classes with other health professionals?)
    - Where have you been trained?

Interview schedule for MPs – Version3 – 10/02/2013   1

7.5 Interview schedule for nurse practitioners

Interview Schedule for Nurse Practitioners

1. Introductory questions around role, type of patients, employment status.

2. Who initiated the process of introducing a NPs to this practice?

3. How would you define collaboration?
   (- What are essential elements of collaboration between NPs and MPs?)

4. How would you describe someone who works collaboratively?
   (collaborative behaviour)

5. Please describe to me some situations where you collaborate with the MP?
   - Meetings, consultations, referrals
   (How do you communicate in the patient's notes?)

6. From your experience, what works well in this practice in regards to collaboration between NPs and MPs?
   (- What do you consider facilitators for collaboration in this practice? Can you give me some examples?)

7. What does not work so well?
   What could be improved?
   (Please describe to me some of the challenges for you working in collaboration in this practice?)
   (What do you think are the barriers to collaborative working with MPs?)

8. Are there practice features in place that streamline/foster collaborative care? If so what are they?

9. How is the decision made about who of you will see a patient?

10. How do you decide together on a patient's treatment?
    - Who is liable for the patient care?

11. What would you advise others to do to enhance collaborative working with MPs, if they are doing this for the first time?

12. Please tell me what you know about the collaborative arrangements as required by the Government for NPs to access MBS and PBS items.
    - What are your thoughts about the collaborative arrangements in this practice? Are they helpful or not helpful for your practice as a NP and why?

13. How does NP prescribing take place in this practice?

14. How is your position funded?

15. How does autonomous practice for the NP work in this practice?

16. Did you have interdisciplinary units (shared classes with other health professionals?) - Where have you been trained?

Interview schedule for NPs – Version 5 – 10/02/2013   1

7.6 Interview schedule for practice managers

Interview Schedule for Practice Managers

1. Introductory questions around practice setting, staff and role, employment status

2. Who initiated the process of introducing a NPs to this practice?

3. How would you define collaboration?
   (- What do you understand about the meaning of collaboration?)

4. How would you describe someone who works collaboratively? (collaborative behaviour)

5. Tell me about your experience of working in a collaborative practice. What works well and what does not work so well?

6. Please describe to me some situations where the MP and the NP work collaboratively?
   - Meetings, consultations, referrals

7. Does your role as practice manager facilitate NP-MP collaboration? If so, how?

8. Are there practice features in place that streamline/foster collaborative care? If so what are they?

9. Please describe to me some of the challenges for the NPs and MP working in collaboration in this practice?

10. What do you consider facilitators for collaboration in this practice? Can you give me some examples?

11. How does autonomous practice for the NP work in this practice?
    - Examples?

Interview schedule for PM – Version 1 – 30/10/2012   1

7.7 Poster for practice settings

> # Research project at XXX Practice
>
> Currently a PhD student researcher and registered nurse is observing the work of nurse practitioners and general practitioners at XXX Practice. The researcher will follow the nurse practitioner and make notes about how the nurse collaborates with the doctor. The project has human research ethics approval.
>
> NO INFORMATION ABOUT PATIENTS WILL BE COLLECTED!
>
> Please notify practice staff or the researcher if you do not want the student in the room during your appointment.

7.8 Flyer for patients

The researcher is sitting with the Nurse Practitioner and observing her work, including consultation with patients. The researcher is NOT collecting information about patients so no information about you will be recorded or used in any form for the research project.

Please let practice staff or the researcher know if you do not want the r█████████lowing the █████████████████your appointment or if you want the researcher to leave the room at any time. This will not affect your care in any way.

Your understanding and support for this research project is very much appreciated.

7.9   HREC approval

<div style="border:1px solid">

Special Condition/s of Approval
Prior to commencement of your research, the following permissions are required to be submitted to the ACU HREC:

N/A

The following <u>standard</u> conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans* (2007) apply:

    (i)   that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
- security of records
- compliance with approved consent procedures and documentation
- compliance with special conditions, and

    (ii)   that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
- proposed changes to the protocol
- unforeseen circumstances or events
- adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

</div>

7.10 Evidence table (integrative review)

Reference	Aim	Methodologies/ Design	Population, sample size, sampling	Context/ Setting	Theoretical frameworks/ data collection methods	Outcomes	Strengths and limitations
Qualitative studies							
(Azzi, 1998)	To explore and define the meaning of collaborative practice as experienced by the NP and MP.	Exploratory and descriptive qualitative study (Grounded Theory)	3 NP-MP dyads in private practice Purposeful sampling	GP practices, South-Eastern USA	- Semi-structured individual interviews - Interviews with each NP-MP dyad - Observations - Content analysis	- Developed themes (frequency in data): Personality, Competence, Communication, Autonomy, coordination, Trust, Benefits of collaboration, Barriers - Barriers: Economical, traditional hierarchy, lack of collegial support, lack of autonomy, knowledge deficit, lack of shared responsibility - Some examples of successful collaboration	Limitations: Small sample size; author claims to use grounded theory for data analysis but applies summative content analysis throughout; researcher influence on data not discussed; author states that observations were undertaken but these data do not occur in the data analysis or results; no statement on ethics approval
(Bailey, et al., 2006)	To understand the experiences of NPs and MPs working in collaborative practice and to examine the impact of an educational intervention on interprofessional practice (comparison of practices)	Exploratory qualitative study, using narrative analysis, a form of interpretive analysis Part of a larger mixed methods study [19,59]	5 NPs and 13 family MPs Purposeful sampling	4 rural primary care practices, Ontario, Canada	- Interviews (based on 'Collaboration and Satisfaction About Care Decisions' instrument	- Themes: NPs' scope of practice and NP competence with an emphasis on role clarity and trust; issues around control at the work place; ideological differences regarding disease prevention and health promotion, differences in perceptions about the operation of collaborative practice and understanding that collaborative relationships evolve. - MPs participating in intervention to enhance collaboration indicated afterwards that they still 'rarely' consulted with NPs in their clinic. - The theoretical ideal of collaboration has not been achieved in practice - NP services were underutilized - Referral practices were not reciprocal. - Facilitators: length of time together, proximity to one another, past positive experiences	Strengths: Well described data analysis method; credible representation of participants Limitations: Data from 2000; limited generalisability; researcher influence on data not stated
(Carnwell & Daly, 2003)	To explore the current role of advanced NPs in PHC, and how NPs within three different nursing disciplines in PHC developed their roles	Exploratory qualitative study	18 advanced NPs (11 practice) managers) Purposive sampling	PHC practices and community centres; West Midlands, UK	- Semi-structured interviews - Content analysis and thematic analysis	- Barriers: NPs felt not supported by MPs, power struggle for NPs as 'handmaiden', lack of understanding of NP role by MPs; limited NP autonomy in regards to prescriptions increases MP workload. - Facilitators: NPs felt supported by MPs, MPs consulted the NPs if they were confident about the NPs' competence.	Strengths: Large sample size; well presented and credible results Limitations: Researcher influence on data not stated; research philosophy not stated
(Dierick-van Daele, et al., 2010)	To explore the value of NPs and to describe their role in PHC	Mixed-methods long-term study (4 years) This paper reports qualitative results	7 NPs 7 GPs (= 7 groups) Convenience sample	PHC practices, Netherlands	- 29 interviews - observations from consultations (quant data) - job satisfaction questionnaire	- 5/7 MPs considered NP's communication skills as good. - 4/7 NPs were very satisfied with MP supervision. - 6/6 MPs were very satisfied with the NP as PHC professional - NPs and MPs share care of patients with complex needs - MPs are mentors for NPs - Role clarity is important - MP noted that NP consultations differ to their own	Strengths: Participant voices are well presented Limitations: Authors lack to link qualitative findings to results from other methods; researcher influence on data not stated; research philosophy not stated; description of data analysis lacks detail

(Faria, 2009)	To explore and describe nurse practitioners' experiences and perceptions of interprofessional collaboration with MPs in PHC	Naturalist inquiry Qualitative descriptive study design	6 NPs Purposive and snowball sampling	1 Family Health Team, 1 PHC Network, 2 Community clinics, 1 Community Health Centre; Ontario, Canada	- semi-structured interviews, - content analysis	Seven themes: - quality of communication, - complementary vision, - physician remuneration methods, - establishing and maintaining relationships, - investing time and energy, - nurse practitioner competency and expertise - mutual trust and respect	Strengths: Well described study, participant voices are well presented, findings are credible Limitations: Researcher background stated but influence on data not discussed
(Ford & Kish, 1998)	To examine the perceptions of family MPs toward NPs and physician assistants	Qualitative study	10 MPs (residents) Convenience sample of MPs with random selection of participants	Family practice, Southeast USA	Semi-structured interviews	- MPs concerned about independent NP practice. - MPs made positive comments about NPs, but the approval was generally based on the NP's adherence to guidelines - MPs feel more comfortable with NPs in traditional roles. - MPs misinformation about NP role and qualification. - Diagnostic skills of NPs are limited (perceived by MPs) - NPs can alleviate MPs workload - NPs are cost-effective - Positive attitude towards NPs from MPs who had experience in working with them.	Limitations: Lack of participant citations to illustrate findings, researcher influence on data not stated; research philosophy not stated EXCLUDED FOR ANALYSIS
(Johnston, 2003)	To examine the phenomenon of MP valuing of NPs in rural PHC clinics	Naturalist Inquiry Descriptive exploratory design	10 MPs Convenience sampling	Rural PHC clinics, Central/ Southern Missouri, USA	Semi-structured interviews	3 overarching themes: NPs value to the MP, to the practice, to the patient - Differing perceptions of NPs and MPs about collaboration - Lack of reciprocity - MPs conceptualisation of collaboration is not conform to the ideal described in literature.	Strengths: participant voices are well presented, findings are credible, researcher background and influence on data stated Limitations: Short interviews (10-30 min) may lack in-depths data, not very well written
(Katz & MacDonald, 2002)	To elicit data about MPs' knowledge and ideas about working with NPs	Qualitative study	8 resident MPs, 3 faculty MPs Convenience sampling	Family Medicine Residency; Manitoba, Canada	3 focus group discussions	- Concern voiced by MPs towards collaboration - Advantages seen by MPs to work in collaboration - Barriers: NP education not equivalent to MP education, so NPs is not seen as equal partners; lack of understanding of skills of a NP	Strengths: researcher background stated Limitations: Poor reporting, research philosophy not stated, description of data analysis lacks detail
(Lindblad, et al., 2010)	To investigate and describe the experiences of advanced practice nurses (APN) and of their supervising MP, regarding the role and scope of practice	Qualitative study based in Anthropology	4 APNs (similar to NPs), 5 MPs Purposeful sampling	PHC centres, Sweden	- Interviews with APNs - Focus groups with MPs	Four themes were developed: Confidence and trust, the positioning of old and new roles (establishing role clarity), demarcation, expectations and experience of the NP as a resource	Strengths: participants well represented, findings credible Limitations: researcher background and influence on data not stated
(Long, et al., 2004)	To investigate how the working patterns of PHC teams have been altered as a result of the introduction of NPs, the ways in which NPs' skills are	Qualitative study	Interviewed: 4 NPs 3 GPs Focus groups: 3 GPs, 3 NPs 6 practice nurses, 3 practice managers	PHC practices, Northern Ireland	- Focus groups - semi-structured interviews	- Barriers: MPs have more time for complex cases (which by some has been experienced as stressful and some were concerned about becoming de-skilled in some areas), lack of understanding of the NP role, lack of clarity about legal situation for NPs - Facilitators: Respect from colleagues, support from MPs who had previously known the NPs, knowing your own limitations (perceived by NPs), official recognition of the	Strengths: participants well represented, findings credible Limitations: research philosophy and researcher background not stated

			integrated into the team and perceptions of the NP role		3 receptionists Purposeful sampling		NP role	
(Main, et al., 2007)	To explore, how health professionals perceive the role of NPs in PHC	Qualitative study, (Grounded theory)	10 GPs, 8 NPs, 1 practice nurse 2 managers Purposeful sampling	5 PHC Centres; Southampton City, UK	Semi-structured interviews	Barriers to NP role: organisational factors, training and prescribing issues, lack of a professional register, and cultural issues including tensions, boundaries and responsibility.	Strengths: participant voices are well presented, findings are credible Limitations: Authors claims to use grounded theory but no theory has been developed, rather descriptive presentation of findings; researcher influence on data not discussed	
(Marsden & Street, 2004)	To obtain the views of members of the PHC team about the NP role and to explore how this was perceived to impact on them, the practice and patient care.	Qualitative study	9 GPs (other staff, total of 27) Convenience sampling (practices), Purposive sampling (staff)	4 GP practice, North-West England	Semi-structured interviews in groups and with individuals	- MPs unclear about NP role - MPs experienced release of consultation time - MPs concerned about ultimate responsibility - MPs ambivalent about cost effectiveness of NP	Strengths: participant voices are well presented, findings are credible Limitations: Data from 2000, research philosophy, researcher background and influence on data not stated	
(Offredy & Townsend, 2000)	To explore the role and practice of NPs in general practice.	Qualitative study	4 NPs 4 GPs (4 receptionists, 24 patients) Convenience/ snowball sampling (practices), Purposive sampling (staff)	4 general practices; South-East England	Semi-structured in depths interviews	- Barriers: MPs concerned about legal responsibility - Facilitators: support from MPs, higher level of NP autonomy - Reduction of MP workload through NP - MP defines work that is delegated to the NP	Strengths: participant voices are well presented, findings are credible Limitations: Ethics approval not reported, Research philosophy not reported, Data analysis method unclear, researcher background and influence on data not stated.	
(Wilson, et al., 2002)	To explore views of GPs regarding their attitudes towards NP role	Qualitative study	25 GPs Purposeful sampling	4 GP practices, Yorkshire, UK	Focus groups	- Themes: NPs concerned about their status including job and financial security, about nursing capabilities including training and scope of responsibility, and about structural and organisational barriers	Strengths: Participants well presented, results are credible, large sample size suggests generalisability to similar setting. Limitations: Ethics approval not reported, research philosophy not reported, researcher background and influence on data not stated.	
Survey studies								
(Almost & Laschinger, 2002)	To test a theoretical model linking NP's perceptions of workplace empowerment, collaboration with	Mailed survey	54 PHC NPs (and 63 acute care NPs, not included in this review) Convenience	Ontario, Canada	- Kanter's structural theory of power in organisations - Survey including 'Conditions of work effectiveness	- NP workplace empowerment positively related to collaboration with MPs (r=.442, p=.0001) - NP's perceptions of job strain negatively related to collaboration with MPs (r=-.362, p=.004)	Strengths: Validated tools Good response rate Limitations: Limited generalisability due to convenience sample.	

Reference	Aim	Method	Sample	Setting	Instrument	Results	Strengths/Limitations
	MPs and managers, and job strain.		sample of registered nurses who indicated working as NP		questionnaire', 'Collaborative behaviour scale', 'Job content questionnaire'		
(Aquilino, et al., 1999)*	To evaluate factors associated with MPs' attitudes toward NPs providing PHC.	Mailed survey	259 PHC MPs Random selection of PHC MPs of list with all MPs in Iowa	non-institutional-based PHC sites; Iowa, USA	Survey (11-item questionnaire with 5 point Likert scale)	- MPs had more favourable attitudes towards NPs when they had previous experience working with NPs providing PHC (P = .01) - MPs were more likely to have had experience with an NP providing PHC if they were in pediatrics or obstetrics-gynecology (78.3% and 70.0%, respectively; P <.001), had been in practice for fewer than 20 years (P = .045), or were in practices with 5 or more MPs. - Age, sex, years in practice, and practice size, were not significantly related to MP attitude.	Strengths: Validated tool; Random sampling Limitations: Low response rate (42%); Data from 1994
(Bergeson, Cash, Boulger, & Bergeron, 1997)	To assess MPs' awareness of and attitudes toward the use of physician assistants and NPs	Mailed survey and follow-up interviews	277 family MPs Convenience sampling	Non-urban towns in Minnesota, USA	Self-developed mixed methods questionnaire with Likert-Scales and free text fields. Telephone interviews with 22 MPs	- 66.2% of MPs who had previously worked with NPs indicated their experience as positive, 21.5% as somewhat positive, 7.3% as neutral, 4.6% as somewhat negative and 0.5% as negative. - (other results were not reported separately for NPs and physician assistants)	Strengths: Data validation through follow-up interviews Limitations: Low response rate (46.2%); no psychometric properties reported for questionnaire, data analysis process of qualitative interview data unclear
(Carr, et al., 2002)	To investigate GP's perceptions of the NP role	Mailed survey	225 GPs	Lincolnshire and Sheffield, UK	- Self developed questionnaire with open and closed questions - descriptive and inferential statistics - content analysis	- More acceptance of NPs by MPs who employ NP - Different opinions between MPs who employ and who do not employ NPs - Reason to employ NPs: increased patient choice, reduced workload, more cost effective use of resources, MP shortage, reduced waiting times.	Strengths: Large sample size Limitations: Low response rate (33%); no psychometric properties of questionnaire reported; correlational analysis not undertaken for all results; findings from qualitative data not presented
(De Guzman, et al., 2010)	To identify the barriers and facilitators associated with the implementation of the NP role and the NPs' job satisfaction	Mailed survey	28 NPs Convenience sampling	Public Health Units; Ontario, Canada	Questionnaire with 6-point Likert scale based on questionnaire used in a previous study (included the ranking of barriers/facilitators)	- Facilitators: trust shown by the MP in making shared decisions, respect shown by the MP, personality and philosophy of the MPs - Barriers: most frequent: unwillingness of specialists to accept referrals from the NP, MP lack of understanding of the NP role, personality and philosophy of the MPs - NPs generally "satisfied" with collaborative relationship with the MP - NP work satisfaction positively correlated with satisfaction with their collaborative relationship with the MP ($r = 0.59$, p<0.01). - NP work satisfaction negatively correlated with the number of barriers present in their relationships with the MP ($r = -0.46$, p<0.05).	Strengths: Very high response rate (95%), generalisable within NP population Limitations: Sample size too small to detect significant differences; no psychometric properties of questionnaire reported
(Fletcher, et al., 2007)	To describe NPs' and MDs' perceptions of the role of NPs, the degree of collegiality between professions, and	Mailed survey Part of a mixed methods survey [75]. This paper focuses on 4	74 NPs, 79 MPs Convenience sampling	7 Veterans affairs outpatient clinics; Michigan, Indiana, Illinois, Ohio, USA	Closed- and open-ended questions plus several Likert-type questions	Three themes identified: Roles of the NP in PHC, workload reduction of MPs, clinical competence or independence of NPs. Results from quantitative data report attitudes of NPs and MPs towards collaboration	Strengths: Good overall response rate (61.4%), data validation through mixed-methods questionnaire Limitations: Participant selection process unclear, low response rate for MPs (49%), no psychometric properties of

	NPs' feeling of acceptance.	open-ended questions				questionnaire reported
(Fletcher, et al., 2011)	To examine the perceptions of NPs and MPs regarding NPs' roles as PHC providers	Mailed survey Part of a mixed methods survey [68]. This paper reports quantitative data	74 NPs, 79 MPs Convenience sampling	7 Veterans affairs outpatient clinics; Michigan, Indiana, Illinois, Ohio, USA	Closed- and open-ended questions plus several Likert-type questions	- NPs and MPs agreed on NP independence of care for chronic patients, but not for acute patients. - NPs were significantly more likely than MPs to indicate they independently conducted assessments, planned care, added or changed medications, and performed other unspecified activities for acute patients (p < 0.01) - NPs were more likely to care for patients with less comorbidity while MPs cared for patient with more comorbidity.	Strengths: Good overall response rate (61.4%), Confounding factors included in analysis Limitations: Data from 2004, low response rate for MPs (49%), no psychometric properties of questionnaire reported
(Hallas, et al., 2004)	To explore the attitudes and beliefs of pediatric NPs and pediatricians concerning collaborative practice relationships; and to explore the themes that emerged to establish a definition of collaborative practice between NPs and pediatricians	Mailed survey	24 pediatric NP and pediatrician dyads Random sampling from list of NPs	Paediatric PHC practices USA	- Mixed methods questionnaire with open ended questions and Likert scale rating - Collazzi's phenomenological methodology used for data analysis	- Definition of collaboration: (4 themes): Working together/collegial relationship, consultation, share philosophy/goals, complimentary practice styles/comfort level - Facilitators: Trust and mutual respect, communication, shared practice, competence (from NP data), similar vision (from MP data) - Barriers: Lack of respect, territorial/control issues, undesirable attitude/behavior of MPs, lack of competence (from NP data); Control/inflexible, NP competence in clinical practice, ineffective communication (from MP data) - Differing understandings of supervision and independence - Trust, clinical competence, knowing when to seek consultation were rated high as important characteristics of collaboration by NPs and MPs	Strengths: Random selection of participants, rigorous analysis method, data validation through mixed-methods questionnaire Limitations: Low response rate (17.3%); not all themes are supported with quotes.
(Holden, et al., 2010)	To identify the perceptions of NPs, MPs, pharmacists and nurses towards safety climate, communication and collaboration in PHC.	Survey	12 NPs, 39 MPs (46 nurses, 10 pharmacists) Convenience sample	4 military ambulatory care clinics; Midwestern USA	Safety Attitudes Questionnaire (77items), Likert-scales; adapted from the 'Flight Management Attitudes Questionnaire'	90.9% of NPs rated MPs as high/very high on collaboration or communication 82.8% of MPs rated NPs as high/very high on collaboration or communication	Strengths: Validated tool, good response rate (65%) Limitations: Sample size too small to detect significant differences
(Houlihan, 2001)	To compare perceptions of NPs and MPs about NP role	Mailed survey	28 family NPs, 37 family MPs Random sampling from list of participants	Air Force installations, USA	Self-developed questionnaire with Likert scales to rank the appropriateness of tasks for NPs; and questions for perceived barriers to NP deployment	- NPs perceived that they could independently treat 66% of 65 symptom/illness categories. The MPs perceived that NPs could only treat 29% of those categories. - Differences between NPs and MPs in a number of disease/illness areas for which NPs would need MP supervision. - 38% of MPs thought that NPs require supervision of an MP	Strengths: Good response rate (81%), validated tool, random sampling, results likely to be generalisable Limitations: Randomisation process not clearly described
(Mackay, 2003)	To explore perceptions of GPs in regarding the NP role, identifying their knowledge of and perceived	Mailed survey	50 GPs Convenience sampling	GPs in Northland District, New Zealand	Questionnaire, 5-point Likert scales, adapted from the 'Survey of General Practice Physicians' Opinion Concerning the Family	- 64% of MPs said they would be willing to employ an NP; and 86% indicated a willingness to work in collaboration with an NP - MPs reluctant to NP authority for prescribing, ordering tests and undertaking physical assessment. - Uncertainty about NP role and competence	Strengths: Results are well presented Limitations; Limited generalisability due to low response rate (46.3%) and convenience sampling, no psychometric properties reported

					Nurse Practitioner'		
(Sciamanna, et al., 2006)	To understand the acceptability for a model of chronic disease management, in which PHC patients see NPs for structured visits	Mailed survey	95 NPs, 77 MPs Random sampling	Metropolitan PHC practices, Philadelphia, Pennsylvania, USA	Self-developed questionnaire with 4 point Likert scales	- Most MPs and NPs believed that the proposed model of care would improve the control of chronic illnesses. - The logistic regression modelling revealed that NPs were 4.2 times more likely to support the model of care than were MPs (P ≤ .001; confidence interval [CI], 2.1-8.3).	Strengths: random sampling, validated outcome measure, potential confounders considered Limitations: Results may not be generalisable due to low response rate (53%)
(Street & Cossman, 2010)	To analyse how MP characteristics and close working relationships influence MPs' attitudes toward NPs	Online and mailed survey	463 MPs Convenience sampling	Mississippi, USA	Questionnaire developed by Aquilino et al. [85] with Likert scales (part of omnibus survey)	- GPs, MPs in public sector and MPs in larger practices are more likely to work in practices that also include NPs - MPs working with NPs are somewhat younger than those who do not. - MPs who practice alongside NPs and who have been in practice longer have the most positive attitudes toward NPs. - MPs had more favourable attitudes towards NPs when they had previous experience working with NPs	Strengths: validated tool, confounding factors considered, large sample size. Limitations: Low response rate (23.3%) and convenience sampling limits generalisability

Mixed-Methods studies

(Legault, et al., 2012)	To examine the development of collaborative relationships between family MPs and other team members	Qualitative evaluation of RCT Part of a mixed methods study	8 family MPs, 3 NPs 1 pharmacist	Family Practice, Ontario, Canada	- Collaboration Care Provider Survey (5, 12, 18 months) - focus groups - in-depths interviews - case study (each provider) - daily logs by NP/pharmacist	Barriers: Lack of role clarity, geographic separation, MPs concerned about legal responsibility of shared care. - Facilitators: Regular meetings, clarifying responsibilities, prior experience of working with NPs, phone messaging system to facilitate contact among each other. - approx. 6 months needed to establish an understanding of the areas of competency, scope of practice, individual strengths - Collaboration as the ideal practice was not always attained.	Strengths: Validated tool for quantitative measures, data validation through mixed-methods approach Limitations: NP/MP sampling process not described, researcher background and influence on data not stated
(Way, Jones, & Baskerville, 2001)	To develop, implement and evaluate an intervention to support NP/family MP structured collaborative practice, including the evaluation of satisfaction levels, change of attitudes towards collaboration over the course of project and identification of barriers and	Mixed-methods study with quasi-experimental design Project-related publications [59,60]	5 NPs 13 MPs Purposeful sampling	4 PHC practices, (2 control, 2 intervention sites) Ontario, Canada,	- Surveys and interviews of NPs/MPs, patients and key informants - patient encounter forms	- Barriers: Medico-legal concerns by MPs, lack of knowledge about NP role, practice structural and ideological differences (health promotion), lack of financial support - Facilitators: bi-directional consultation and referrals, working side-by-side at the same clinic, previous experience of working with NPs, clarification of values/ expectations about collaboration through discussion, use of technologies to facilitate collaboration across distance - NP and MPs in intervention sites had higher level of collaboration and higher satisfaction with collaboration post intervention.	Strengths: Comprehensive evaluation of NP-MP collaboration Limitations: Self-reported data on referrals from NPs/MPs, questionable to measure shared care based on referral patterns, small sample size limits generalisability

	facilitators to collaboration					

Cross-sectional study

	To determine which services are provided to patients by NPs and MPs and to determine the degree of collaboration/ shared care.	Mixed methods cross sectional study (this paper reports quant results of a larger mixed methods study) [19,60]	5 NPs 13 MPs Purposeful sampling	4 PHC practices Ontario, Canada	- Encounter forms filled out by NPs and MPs (400 patients encounters) - Referral mechanisms used to measure shared care/collaboration (- Patient interviews, not reported in this paper)	- Comparison of task of NPs and MPs: NPs similarly involved in curative services than MPs, NPs less involved in rehabilitation, more involved in disease prevention. - 16% of NP referrals were to MPs; 2% of referrals by MPs were to NPs (unidirectional referrals) - Underutilisation of NP skills	Strengths: Comprehensive evaluation of NP-MP collaboration Limitations: Self-reported data on referrals from NPs/MPs, questionable to measure shared care based on referral patterns, small sample size limits generalisability
PHC = Primary Healthcare, NP = Nurse Practitioner, MP = Medical Practitioner, GP = General Practitioner, APN = Advanced Practice Nurses, USA = United States of America, UK = United Kingdom						

7.11 Quality appraisal of studies (integrative review)

Qualitative studies	(Azzi, 1998)	(Bailey et al., 2006)	(Carnwell & Daly, 2003)	(Dierick-van Daele et al., 2010)	(Faria, 2009)	(Ford & Kish, 1998)	(Johnston, 2003)	(Katz & MacDonald, 2002)	(Lindblad et al., 2010)	(Long et al., 2004)	(Main et al., 2007)	(Marsden & Street, 2004)	(Offredy & Townsend, 2000)	(Wilson et al., 2002)
Philosophy congruent with methodology	U	U	U	U	+	U	+	U	+	U	U	-	-	U
Methodology congruent with aim	+	+	+	+	+	+	+	U	+	+	+	+	+	+
Methodology congruent with data collection methods	U	+	+	+	+	+	+	+	+	+	+	+	+	+
Methodology congruent with analysis	-	+	+	U	+	+	+	U	+	+	+	+	U	+
Methodology congruent with interpretation of results	-	+	+	+	+	+	+	U	+	+	-	+	+	+
Researcher background stated	-	-	-	-	+	-	+	+	-	-	-	-	-	-
Influence of researcher stated	-	-	-	-	-	-	+	+	-	U	-	-	-	-
Participant voices adequately represented	U	+	+	+	+	U	+	U	+	+	+	+	+	+
Ethical approval	U	+	+	+	+	+	+	U	+	+	+	-	-	U
Conclusions derived from data	-	+	+	+	+	+	+	+	+	+	+	+	+	+

Survey studies	(Almost & Laschinger, 2002)	(Aquilino et al., 1999)	(Bergeson, Cash, Boulger, & Bergeron, 1997)*	(Carr et al., 2002)	(De Guzman, et al., 2010)	(Fletcher, et al., 2007)	(Fletcher, et al., 2011)	(Hallas, et al., 2004)	(Holden, et al., 2010)	(Houlihan, 2001)	(Mackay, 2003)	(Sciamanna, et al., 2006)	(Street & Cossman, 2010)
Clear aim addressed	+	+	+	+	+	+	+	+	+	+	+	+	+
Design appropriate for research question	+	+	+	+	+	+	+	+	+	+	+	+	+
Clear selection process	+	+	+	+	+	-	+	+	+	+	+	+	+
Potential for selection bias	+	-	+	+	-	U	+	-	+	-	+	-	+
Subjects are representative	-	-	-	-	+	-	-	-	-	+	-	-	-
Power analysis included	-	-	NA	-	-	NA	-	-	-	-	NA	-	-
Response rate in % (satisfactory if ≥ 60%)**	68.8	42	46.2	33	96.5	61.4	61.4	17.3	65	81%	46.3	53	23.3
Valid and reliable measurements	+	+	U	U	U	U	U	U	+	+	U	+	+
Statistical significance assessed	+	+	NA	+	+	NA	+	+	+	U	NA	+	+
Confidence intervals given	-	-	-	-	-	NA	-	-	-	-	NA	-	-
Unaccounted confounding factors present	+	+	U	+	+	NA	-	+	+	+	NA	-	-

Mixed-methods studies	(Legault, et al., 2012)	(Way, Jones, & Baskerville, 2001)
Qualitative objective present	+	+
Design/methods appropriate for research question	+	+
Context described	+	+
Participants described & sample justified	-	+
Qual data collection & analysis described	+	+

Researcher's reflexivity described	-	-												
Quant sampling & sample appropriate	-	-												
Justification of measurements (validity)	+	+												
Confounding variables controlled	-	-												
Mixed-methods design justified by authors	-	1												
Combination of qual & quant data collection & analysis	+	+												
Integration qual & quant results	+	-												
Descriptive cross-sectional study	(Way, Jones, Baskerville, et al., 2001)													
Clear aim addressed	+													
Methods appropriate for research question	+													
Sample representative	-													
Measurements accurate and valid	U													
Data collection method appropriate	+													
Participant number large enough	U													
Results correct presented	+													
Analysis correct	-													
Findings clearly stated	+													

+ = yes; - = no; U = unclear; NA = Criterion not applicable because of descriptive design;

* Bergeson J, Cash R, Boulger J, Bergeron D: The attitudes of rural Minnesota family physicians toward nurse practitioners and physician assistants. J Rural Health 1997, 13(3):196-205.

** 60% was chosen based on recommendations in the literature

7.12 Published protocol

Schadewaldt, V., McInnes, E., Hiller, J. E., & Gardner, A. (2013). Investigating characteristics of collaboration between nurse practitioners and medical practitioners in primary healthcare: a mixed methods multiple case study protocol. *Journal of Advanced Nursing, 70*(5), 1184-1193. doi: 10.1111/jan.12269

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Abstract

Aim. To investigate characteristics of collaboration between nurse practitioners and medical practitioners in the primary healthcare setting in Australia.

Background. Recent definitions of collaboration in the literature describe it as being based on communication, shared decision-making and the respect and equality of team members. However, research demonstrates a tension between this theoretical ideal and how collaboration between nurse practitioners and medical practitioners occurs in practice. Different socialization processes of the two professions and legislative requirements influence collaborative practice. The way these two professions overcome traditional boundaries and realize collaborative practice in the primary healthcare setting needs to be examined.

Design. Mixed methods multiple case study including up to six sites with a minimum of six and a maximum of 20 participants in total.

Methods. Data on collaborative practice between nurse practitioners and medical practitioners in primary health care will be collected in three phases: (1) two-week direct observation in the practice setting to capture actual behaviour and context; (2) questionnaire to measure dimensions of collaboration; and (3) one-to-one semi-structured interviews with nurse practitioners, medical practitioners and practice managers to record experiences, perceptions and understanding of collaboration.

Discussion. Triangulation of findings will generate a comprehensive understanding of how collaboration between nurse practitioners and medical practitioners in Australia occurs in the primary care setting. The results of this study will inform nurse practitioners, medical practitioners practice managers and policy makers on successful models of collaboration.

Keywords: collaboration, collaborative behaviour, collaborative practice, cooperative behaviour, interdisciplinary care, nurse practitioner, primary health care

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Why is this research needed?

- A lack of empirical research on how collaboration is understood and experienced by primary healthcare nurse practitioners and medical practitioners has been identified.
- The mixed methods approach will complement existing research based on interviews and surveys, providing an additional perspective gained from observations.
- The necessity and usefulness of collaborative arrangements required by law need to be examined.

Introduction

Nurse Practitioners (NPs) were first introduced in the 1960s in America and the role was further developed in Canada and the UK. Nurse Practitioners were authorized in Australia in 2000 as a new model of care (Australian College of Nurse Practitioners 2010). Nurse Practitioners are highly qualified nurses with an enhanced level of authority to prescribe medication, refer patients and order diagnostic tests (ICN Nurse Practitioner/Advanced Practice Nursing Network 2013). While NP services have been identified as effective, safe and valued by customers (Gardner & Gardner 2005, Carter & Chochinov 2007, Allnutt et al. 2010, Fry et al. 2011), the introduction of nurses with increased autonomy requires the realignment of traditional boundaries in the healthcare system. The literature reports difficulties associated with NPs and medical practitioners (MPs) working together collaboratively in Australia and elsewhere (Wilson et al. 2005, Norris & Melby 2006, McInnes 2008). Challenges to establishing collaborative practice models between NPs and MPs have been identified for the primary, secondary and tertiary healthcare sectors and include misunderstandings about the NP role, economic barriers and the existence of hierarchical structures (San Martín-Rodríguez et al. 2005, Clarin 2007, Fewster-Thuente & Velsor-Friedrich 2008, Keith & Askin 2008).

Despite these challenges, collaborative practice among health professionals is likely to become more common in healthcare provision because it is regarded as one of the most effective strategies to manage patient care (Naccarella et al. 2006, Zwar et al. 2006, Liu & D'Aunno 2011). Collaboration is recommended in healthcare reforms globally as it is seen as a response to workforce shortages and an ageing population (Department of Health & Ageing 2009, Institute of Medicine 2011, Mable et al. 2012). Initiatives to promote collaborative practice aim to overcome the existing unidisciplinary and often fragmented management of patients and the lack of knowledge sharing across all

disciplines and settings (Thompson & Tilden 2009). Therefore, collaborative practice between NPs and MPs in the Australian primary healthcare setting is considered necessary, to improve and streamline patient care.

This protocol outlines a research project designed to investigate characteristics of collaboration between NPs and MPs in the primary healthcare setting in several Australian states (Queensland, New South Wales, South Australia, Victoria and Tasmania) and territories (Australian Capital Territory) to identify successful models of collaboration and to inform health professionals, researchers and policy makers.

Background

The concept of collaboration in the healthcare arena has been defined as people working towards a common goal (Gardner 2005, Petri 2010, Spector 2010, Bosque 2011) by means of communication (Way et al. 2001a, San Martín-Rodríguez et al. 2005, O'Brien et al. 2009, Petri 2010, Bosque 2011), shared decision-making (McKay & Crippen 2008, O'Brien et al. 2009, Petri 2010), having an understanding of each other's role (Gardner 2005, Herrmann & Zabramski 2005, Bailey et al. 2006, Barton 2006, Burgess & Purkis 2010, Petri 2010, Heatley & Kruske 2011), showing mutual trust and respect (King 1990, San Martín-Rodríguez et al. 2005, O'Brien et al. 2009, Petri 2010) and exercising bidirectional consultations and referrals (Bailey et al. 2006). A literature review, summarizing studies that investigated collaboration between NPs and MPs showed that these definitions describe an ideal that is not found in practice (Schadewaldt et al. 2013). Barriers to this ideal lie in personal, systemic, financial and historically developed aspects of the two professions working together. This includes the lack of clarity around the NP role and its scope of practice, limitations in funding of collaborative practice models and regulations of responsibilities and legal liability (Schadewaldt et al. 2013). In addition, the literature revealed differing perceptions towards collaboration expressed by nurses, NPs and MPs (Hojat et al. 2003, Hallas et al. 2004, Vazirani et al. 2005, Schadewaldt et al. 2013). This refers to differing views about how collaboration occurs in practice, ambivalence about NP autonomy and the level of MP supervision.

In 2010, the Australian Federal Government introduced two statutes to: (1) grant NPs access to the Australian Government's pharmaceutical and medical benefits funding schemes (Bartlett 2011); and (2) to regulate the access to those funding schemes by requiring NPs to have a collabo-

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rative arrangement with a medical practitioner (Roxon 2010). This form of collaboration 'requires a named doctor to approve' (Heatley & Kruske 2011, p. 56) patient care by an NP. This contradicts the meaning of a collaborative relationship where professionals are not affected by supervision of another professional group (Way *et al.* 2000). However, it is unclear if NPs in the context of a general practice setting perceive the arrangements as limiting to their practice because NPs have 'identified medical colleagues as a source of clinical mentorship' (Desborough 2012, p. 24). No research has been published reporting on how NPs and MPs realize the collaborative arrangements in practice.

Collaboration between NPs and MPs has been identified as a concept that is theoretically and practically necessary (Carr *et al.* 2002, Martin *et al.* 2005) and legislatively stipulated in Australia, but sometimes difficult to realize in practice. With the discrepancy between the Federal Government's definition of NP–MP collaboration and definitions located in the international literature, further understanding and investigation into NP–MP collaboration are necessary. No studies investigating barriers, enablers or views about the characteristics of NP–MP collaboration in the Australian primary healthcare setting were identified, which led to the initiation of this research project.

The study

Aim

The aim of this study is to investigate characteristics of collaboration between nurse practitioners and medical practitioners in the primary healthcare setting in Australia. The primary research question is: What are the characteristics of collaboration between NPs and MPs in the context of primary health care in Australia? Secondary questions are: What are the elements of a successful model of collabora-

tion between NPs and MPs in primary healthcare and how do NPs and MPs perceive collaborative practice?

Methodology

This research will undertake multiple case studies employing mixed methods (Creswell & Plano Clark 2011). The case study approach is used to examine the particularity of a phenomenon from multiple perspectives in a real-life context (Stake 1995, Simons 2009). Multiple case studies are advantageous because they are considered to produce more substantial and robust results than a single case study (Eisenhardt & Graebner 2007, Yin 2009). Mixed methods research serves to gain a multifaceted understanding of collaborative practice (Creswell & Plano Clark 2011, Morse & Niehaus 2009) and to capture both influences from the environment and the complexity of the case that cannot be captured by a single-method approach (Yin 2003, Simons 2009) (Figure 1).

Two theoretical models of collaboration will be used in this study as a guide for interview questions, observations and data analysis. From a range of models, these were selected because one focuses specifically on collaboration between nurses and medical practitioners (Corser 1998) and the other, based on extensive research on interprofessional collaboration, has been tested in various settings (D'Amour *et al.* 1999, 2004, 2005, 2008, Drummond *et al.* 2012). Both models incorporate dimensions of interpersonal behaviour, but each model contains differing complementary dimensions. The Conceptual Model of Collaborative Nurse-Physician Interaction includes social and historical dimensions that affect collaborative practice (Corser 1998), whereas the Structuration Model of Collaboration covers organizational and structural dimensions (D'Amour *et al.* 2008). These conceptual models were developed for North American settings, but may be useful for sites in other countries.
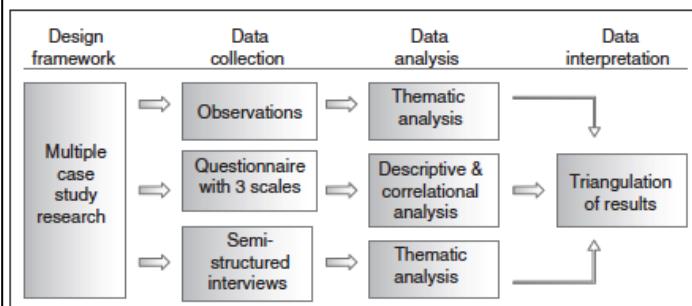

Figure 1 Research process.

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Participants

Eligible NPs and MPs are those who work together in a primary healthcare setting with experience of working together for at least 6 months. In addition, both NPs and MPs have to be authorized in their current role for at least 6 months. A snowballing technique will be used to identify potential participants (Patton 2002). A research invitation will be distributed by email to appropriate professional organizations. Nurse practitioners and MPs who express an interest in the study will be checked for eligibility during an initial phone call.

Up to six sites will be chosen based on maximum variation of site characteristics (Patton 2002). A meeting will be arranged with NPs and MPs at participating sites, either by telephone call or in person to go through study details and clarify questions participants may have prior to signing the consent form. Where these positions exist, practice managers will also be asked to participate in an interview of maximum one-hour length because they provide another perspective on how NPs and MPs collaborate. Written informed consent will be sought from all participants.

As there are 22,555 MPs working in primary healthcare (Australian Health Practitioner Regulation Agency 2011), the selection of participating cases will be determined by the much smaller number of NPs. A recent survey by the Australian College of Nurse Practitioners found that 30 (13%) of 217 NPs who responded to the survey work in primary healthcare/general practice (Australian College of Nurse Practitioners 2011). Assuming that a maximum of 13% of the 590 NPs (Nursing & Midwifery Board of Australia 2012) work in a primary healthcare setting, the potential sample size could comprise 77 NPs who may work in collaboration with an MP. It is anticipated that a maximum of 20 participants across a minimum of three sites with different characteristics and at least one NP and one MP per site are sufficient to generate a comprehensive understanding of collaborative practice.

Data collection

Once sites have been identified, data collection will be undertaken in three phases, as follows: (1) observation of NPs and MPs to capture actual behaviour and context; (2) questionnaire with quantifiable and validated measurement of collaboration administered to NPs and MPs; and (3) semi-structured interviews with NPs, MPs and practice managers to record perceptions, experiences, expressed feelings and thoughts.

Observations

The first phase will comprise observations by the primary author in each primary healthcare setting. Observations are used to obtain an impression of how collaboration between NPs and MPs takes place (Patton 2002, Lofland *et al.* 2006). The lack of studies using observations was identified in the preparatory literature review, indicating that most studies solely used interviews and scales to investigate collaboration. However, those methods reflect only perceived collaborative practice, whilst undertaking observations of NP–MP interactions will add an outsider perspective to capture actual collaborative behaviour. The non-participant observer (VS) will follow the NP to record all NP–MP encounters. While openness is emphasized in qualitative inquiry, the observer will use an observation guideline with operationalized dimensions to organize observation in such a complex setting (Spradley 1980, Stake 1995, Patton 2002). The dimensions to be observed will include the practice layout, staff structure, interaction and communication between NP and MP including referral patterns and the amount and length of consultations. Field notes will be supplemented with more details as soon as practical after the observation sessions (Lofland *et al.* 2006). The observation sessions will be completed when data saturation has been achieved and observed instances become repetitive (Patton 2002, Yin 2009). Based on previous research on interprofessional collaboration (Szekendi 2007, Miller *et al.* 2008, Reeves *et al.* 2009, Van Soeren *et al.* 2011), it is assumed that one to two weeks of full-time observation per case will be sufficient. Full-time observation was chosen to minimize total time per case for practical reasons.

Questionnaire

In the second phase, NP and MP participants will be given questionnaires containing three scales measuring experience with current collaboration, satisfaction with this collaboration and beliefs in the benefits of collaboration. The purpose of the questionnaire is threefold: first, to enhance the descriptive results of interviews and observations through quantifiable measures; second, to validate corresponding statements and observations with the quantitative scores of the scales; and third, to compare NPs and MPs perceptions on collaboration. The scales have undergone psychometric testing and permission to use the scales has been obtained. The scales are:

Satisfaction with current collaboration scale: This 15-item scale uses 6-point Likert scales to measure levels of satisfaction with various dimensions of collaboration. The scale has been developed and applied in primary healthcare

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settings, originally developed by Way *et al.* (2001b). Separate scales for NPs and MPs exist. A modified version by Donald *et al.* (2009) with an additional four questions that are relevant to this study and a Likert scale of six instead of seven points will be used for this study. A 6-point Likert scale omits the neutral position and forces the participant to indicate an opinion direction, which is desirable for this study.

Experience with current collaboration scale: This scale uses 6-point Likert scales assessing agreement or disagreement with nine statements on current experience with collaboration. The scale was also originally developed by Way *et al.* (2001b) and then modified by Donald *et al.* (2009). Separate scales for NPs and MPs exist. The modified version by Donald *et al.* (2009) with a reduced Likert scale of six instead of seven points will be used for this study.

Beliefs in the benefits of collaboration scale: This scale was originally developed as a subscale to measure interprofessional processes (Sicotte *et al.* 2002). The subscale measures beliefs in benefits of collaboration and uses 5-point Likert scales to assess agreement or disagreement with five statements (Sicotte *et al.* 2002).

Semi-structured interviews

In the last phase of data collection, semi-structured interviews will be held with individual NPs, MPs and practice managers. Interviews enable in-depth collection of data that reflect experiences, feelings, attitudes and opinions (Kvale & Brinkmann 2009) that cannot be observed (Patton 2002). Thus, they are a complementary method and serve as an additional source of information. Interviews have been chosen to be the last phase of the study to exclude influence on responses to the questionnaires or behaviour during observations by raising awareness of collaborative practice with interview questions. The interviews will cover understanding and experience of collaboration, examples of collaboration and consultation, shared decision-making, barriers and facilitators to collaboration, collaborative arrangements, supervision and autonomy. Interviews will be conducted at an agreed time and venue and audio-recorded with participant consent. To guarantee best possible documentation of what has been said, the interviewer will transcribe the interviews soon after recording (Gillham 2005).

Data analysis and integration

Analysis in case study research can be based on both categorized data and interpretation, that is on both analysis of frequencies and narrative description (Stake 1995). Data

will be analysed using inductive and deductive approaches. Transcripts from interviews and field notes from observations will be managed with QSR International's NVivo 10 software program. There will be five points of data analysis:

1) Particularities of each case will be described in a descriptive narrative (Yin 2009).
2) Thematic analysis (Braun & Clarke 2006) will be used to identify recurring themes, events and patterns in observational and interview data (Patton 2002, Lofland *et al.* 2006). This first step of analysis of qualitative data will be an inductive approach through which newly discovered themes will be categorized (Patton 2002). In a second step, a deductive approach will be applied by repeatedly reading through the raw data and searching specifically for statements or observations that relate to the dimensions determined by existing theoretical models previously outlined (Corser 1998, D'Amour *et al.* 2008). Related themes will then be extracted and allocated respectively (Patton 2002). This process is related to Yin's (2009) analysis technique of pattern matching whereby empirically derived patterns and predefined patterns can be compared. In a third step, counting and tabulation will be used to analyse quantifiable measures such as number of consultations, number of meetings and who initiated those interactions (Stake 1995).
3) Scoring of the three scales will be analysed using descriptive comparisons and independent samples t-test or Mann–Whitney-U-test, as appropriate to instrument characteristics, sample size and distribution of data, to identify differences between response scores of NPs and MPs.
4) Scores of the scales and relevant themes from interviews and observations will be compared and triangulated at the stage of data interpretation.
5) In a final stage, a synthesis of findings of different cases, a cross-case analysis, will be undertaken (Patton 2002). Cross-case analysis in multiple case study research is used to understand commonalities and differences between the cases (Stake 2006). The number of common occurrences across cases will give an idea about the generalizability of results (Stake 1995, Yin 2009).

Data integration of this mixed methods multiple case study will occur at two points: At analysis stage two, field notes and interview transcripts will be combined before the analysis stage and then analysed together, also called within-method triangulation (Denzin 2009, p. 301). At analysis stage four, findings from interviews and observations and the results of the questionnaires will be triangulated at the stage of data interpretation, also called

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between-methods triangulation (Moran-Ellis *et al.* 2006, Morse & Niehaus 2009). That means that findings will be considered in relation to each other after data have been analysed in each method (Moran-Ellis *et al.* 2006, Morse & Niehaus 2009). The triangulation of methods will serve as data verification, validation and disclosure of contrasting findings (Patton 2002). Data analysis will be complete when 'sources of information have been exhausted (...) [and] new sources lead to redundancy' (Patton 2002, p. 467).

Ethical considerations

Ethics approval for this study was granted by the Human Research Ethic Committee of the Australian Catholic University in August 2012. Site-specific approval will be gained prior to data collection where required.

Informed consent will be sought in writing from participants. Their voluntary participation in the study, benefits and risks, confidential data management and their right to withdraw from the study at any time during the project will be explained to participants. Their autonomy will be respected by providing informed choice of participation (National Health & Medical Research Council [NHMRC] 2007, Beauchamp & Childress 2008).

Participants will be guaranteed that data will be stored in a secure place. Until completion of the project, data will be re-identifiable with a pseudonym or participant number replacing identifiers (NHMRC 2007). Privacy will be protected by using pseudonyms in reports and publications (Holloway & Wheeler 2010). However, guaranteeing anonymity in such a small sample may be difficult (Simons 2009). Thus, results will be published in aggregated format and direct quotes will only be published if participants cannot be identified.

Participants may feel uncomfortable or get emotionally distressed during observation or interviews (Patton 2002, Holloway & Wheeler 2010). Therefore, free nationally available counselling services or support through professional associations will be offered to participants in case they become upset or distressed as a result of study participation. Confirmation of continuing consent will be sought verbally from participants before entering a new phase of the study.

Rigour

Several steps will be taken to assure quality of data. First, the use of multiple methods increases (construct) validity by providing multiple perspectives/measures on the same phenomenon (Yin 2009).

Second, while case study research is undertaken to understand the uniqueness of a case and not to generalize (Stake 1995), transferability (Lincoln & Guba 1985) can be established in multiple case study research when findings are generalized in light of a broader theory by comparing findings with dimensions of a theoretical framework, in this study with dimensions of the two collaboration models described earlier (Yin 2009). If findings relate to some of the dimensions of the models, their transferability to other settings is justified because they are supported by the theoretical framework. Findings can also be generalized if they occur regularly during the study. Stake (1995) states that case studies can 'increase the confidence' (p. 8) someone has about a generalization.

Third, a researcher diary will accompany each step of the research process to explicitly monitor thoughts, feelings, reactions and expectations that may at a later stage be used for data analysis (Simons 2009). Self-reflection in qualitative investigations is crucial to find out in what way predispositions of the researcher 'may have constrained what was observed and understood' (Patton 2002, p. 301).

Fourth, reliability will be established through the use of a protocol and exact documentation of each step of the process to facilitate traceability for external persons (Yin 2009). A well-structured database in the QSR International's NVivo 10 software will be used for data management and serve as the evidentiary source of conclusions (Yin 2009). If the researcher is able to provide convincing evidence for systematic and rigorous fieldwork, credibility and trustworthiness of data can be achieved (Lincoln & Guba 1985).

Discussion

Results from international studies suggest that, despite the large number of definitions and models describing the ideal of collaboration, the real-world experience is often a traditional model of unidisciplinary patient care under different levels of hierarchy (Martin *et al.* 2005, Bailey *et al.* 2006, Phillips *et al.* 2008). Professional, organizational and financial issues affecting collaboration between nurses or NPs with MPs reported from overseas indicate that similar issues may be evident in the Australian setting.

With collaborative practice being one of the most promising strategies to manage patient care (Naccarella *et al.* 2006, Zwar *et al.* 2006, Liu & D'Aunno 2011), successful models of collaboration are needed. The Australian Government supports collaboration between health professionals (Australian Health Ministers' Conference 2004); however, information on collaboration between NPs and MPs in the

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Australian primary healthcare setting is scarce. Thus, generating empirical data will build the evidentiary basis to either improve or reinforce collaborative practice between NPs and MPs working in primary health care. This mixed methods multiple case study research will be the first of its kind in Australia.

The research questions will be best answered by applying mixed methods research in a case study setting as outlined in this protocol. Rich description of collaborative practice and its circumstances will be generated. At the same time, the rich descriptive data are mirrored against quantitative measures to validate findings. The lack of mixed methods research in studies examining collaboration has been highlighted in the literature (Petri 2010).

This study is significant for the establishment of an understanding of collaborative practice and to promote the use of mixed methods research as an approach to fully capture the multiple angles of a phenomenon under investigation. This protocol will also serve as an example of developing a protocol for a mixed methods study with a qualitative core component.

Limitations

This study focuses on a small sample of Australian NP and MPs in the primary healthcare setting. The sample size is restricted by funding and logistical issues. Therefore, generalization of results from this study may be limited. However, the aim of this study is to generate a comprehensive understanding of how collaboration occurs in the primary healthcare setting. Including practice settings from several Australian states and territories will increase the richness of data.

The researcher comes from a nursing background and therefore establishing rapport with the MPs might be more challenging than with NPs. This may influence observation and interview results. However, recordings of the researcher's reflections and regular supervision meetings with other researchers will assist with preventing biased views and identifying them should they exist.

Conclusion

This protocol outlines a mixed methods multiple case study that will investigate collaborative practice between NPs and MPs in the Australian primary healthcare setting. This will fill knowledge gaps on how collaborative arrangements are realized between NPs and MPs, how obstacles are overcome and what resources are required to facilitate collaborative practice. Characteristics of several cases will be examined and the perspectives of NPs and MPs recorded to illustrate how collaborative practice occurs and to understand what collaboration means to the professionals involved.

An overview of the findings from the international literature was provided. The research questions, developed from research gaps identified with the literature review, have been presented. The multiple case study approach will apply mixed methods research and triangulate findings from observations, questionnaires and semi-structured interviews.

The outcomes derived from this study will serve as a knowledge base to expand theory and inform research and practice. Better understanding of collaboration will contribute to collaborative practice, increase knowledge sharing and eventually improve patient care.

Conflict of interest

No conflict of interest has been declared by the authors.

Author contributions

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE (http://www.icmje.org/ethical_1author.html)]:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

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7.13 Published integrative review

Abstract

Background: This integrative review synthesises research studies that have investigated the perceptions of nurse practitioners and medical practitioners working in primary health care. The aggregation of evidence on barriers and facilitators to working collaboratively and experiences about the processes of collaboration is of value to understand success factors and factors that impede collaborative working relationships.

Methods: An integrative review, which used systematic review processes, was undertaken to summarise qualitative and quantitative studies published between 1990 and 2012. Databases searched were the Cochrane Library, the Joanna Briggs Institute Library, PubMed, Medline, CINAHL, Informit and ProQuest. Studies that met the inclusion criteria were assessed for quality. Study findings were extracted relating to a) barriers and facilitators to collaborative working and b) views and experiences about the process of collaboration. The findings were narratively synthesised, supported by tabulation.

Results: 27 studies conducted in seven different countries met the inclusion criteria. Content analysis identified a number of barriers and facilitators of collaboration between nurse practitioners and medical practitioners. By means of data comparison five themes were developed in relation to perceptions and understanding of collaboration. Nurse practitioners and medical practitioners have differing views on the essentials of collaboration and on supervision and autonomous nurse practitioner practice. Medical practitioners who have a working experience with NPs express more positive attitudes towards collaboration. Both professional groups report concerns and negative experiences with collaborative practice but also value certain advantages of collaboration.

Conclusions: The review shows that working in collaboration is a slow progression. Exposure to working together helps to overcome professional hurdles, dispel concerns and provide clarity around roles and the meaning of collaboration of NPs and MPs. Guidelines on liability and better funding strategies are necessary to facilitate collaborative practice whether barriers lie in individual behaviours or in broader policies.

Keywords: Collaboration, Cooperative behaviour, Interprofessional relations, Attitude of health personnel, Nurse practitioners, Primary health care

Background

A nurse practitioner (NP) in primary health care collaborates on average with 4.4 medical practitioners (MPs) and most of these MPs work on-site with the NP [1]. In most countries with NPs, it is a legal requirement for NPs to have a formally established collaborative agreement for MP support or supervision [2-4]. The legal obligation to collaborate with a MP is crucial for NPs to enable full practice authority and reimbursement of NP services [5,6]. While there is debate about the necessity of this legislative requirement [6,7], it has been identified that a good collaborative relationship can improve patient outcomes such as reduced waiting times, improved prescribing processes, shorter treatment periods and lower costs [8-12]. Furthermore, collaboration increases work satisfaction [13] and decreases the perception of job strain [14] for NPs. The above reasons emphasise the importance of a successful collaborative practice model for MPs and NPs.

Collaboration, as described in the literature, involves trust, mutual respect, shared decision-making and equality [15,16]. Collaboration in practice often does not necessarily include these attributes but rather exists solely through referrals and occasional consultations between health professionals [1,17-19]. A survey of 378 primary health care NPs identified that many bi-directional referrals occur between NPs and family MPs or MPs working in community health centres, but only one-way referrals from NPs to specialists were observed [18]. It appears that collaboration can range from an intense relationship and regular knowledge exchange between NPs and MPs to a more distant and superficial co-existence of services provided by NPs and MPs [19].

No matter what form of collaboration is in place, a number of factors can influence the functioning or failure of collaborative practice between NPs and MPs. Literature reviews [20-26] and primary research [27-31] have highlighted a number of barriers and facilitators to collaborative practice and perceptions of health professionals of working in collaboration. These relate to funding issues, traditional role allocation, legislation, personal experience with and attitudes towards collaboration and organisational aspects [32]. The existing reviews focus on collaboration in multidisciplinary teams, in hospital settings and collaboration between general nurses and MPs. Collaboration between NPs and MPs in primary health care may differ to other settings and roles, because NPs bring increased autonomy to the clinical setting that may challenge the traditionally MP dominated domain of primary health care, where nurses have long been working to support the MP and perform delegated tasks [24,33].

Therefore, this literature review aims at summarising the existing evidence about the views and experiences of NPs and MPs with collaborative practice in primary health care settings. The findings of the review will provide information about health professionals' understanding of collaboration, the perceived barriers and facilitators to collaborative practice and their attitude about working in collaboration. Since this review aims to aggregate data of qualitative and quantitative evidence and not to re-interpret findings, an integrative synthesis was the method chosen for this literature review [34]. The steps for integrative reviews outlined in Whittemore and Knafl [35] were followed and thematic synthesis for "views studies" applied as described by Harden and Thomas et al. [36,37].

Methods

A number of methods are available for the synthesis of qualitative and quantitative evidence [35,38-42]. A majority of these methods focus on effectiveness or intervention reviews and add findings of non-experimental research to the synthesis of trials in a separate step (parallel or multi-level synthesis). For this review Whittemore and Knafl's [35] approach to the synthesis of qualitative and quantitative evidence was chosen because their focus is not on effectiveness reviews and statistical pooling of data. They suggest an integrated approach that is reflected in the simultaneous process of synthesising data from quantitative and qualitative research under themes that were addressed in studies using a variety of designs and methods. However, Whittemore and Knafl [35] lack a detailed description of how data extraction, the analysis and synthesis can be undertaken; therefore, we relied on other researchers' methods to guide these processes. We drew on principles described by the Joanna Briggs Institute [43], the Cochrane Qualitative and Implementation Methods Group [38] and the thematic synthesis approach for qualitative data developed by Thomas and Harden [37] for literature reviews on participant views. The latter matched the purpose of this review that also looked at views and perceptions.

Eligibility criteria

Studies were included in the review if they focused on a population of NPs (nurses with a postgraduate certification and an advanced level of practice autonomy [44,45]) and MPs in primary health care settings. The outcomes of included studies needed to report on a) facilitators and/or barriers to collaboration and b) experiences and perceptions of NPs and MPs of collaboration. Study designs that generated qualitative or quantitative data were included. Opinion papers and anecdotal reports were excluded.

Information sources and search strategy

The following databases were searched: Cochrane Library, Joanna Briggs Institute Library of Systematic Reviews, PubMed/MEDLINE, CINAHL, ProQuest (Dissertation and theses) and Informit (Health collection). The review

also contains grey literature such as theses and dissertations.

When available medical subject headings or index terms were used in each database. An example of a typical search is shown in the Additional file 1 for the MEDLINE database using OvidSP. The inclusion period of papers comprised the years from January 1990 to September 2012 to ensure the inclusion of papers that reported collaboration between NPs and MPs from countries where the NP role has been implemented for a much longer time and collaboration may be at a more advanced stage than in other countries [46]. No language restrictions were applied.

Results from all databases were combined in Endnote®, duplicates deleted and the results screened by title and abstract for suitability for the literature review. One reviewer examined the full text of potentially relevant papers for final inclusion or exclusion in the review. Reference lists of included papers were screened for eligible studies.

Assessment of methodological quality

A separate appraisal tool was used for each included study type [35]. The following were chosen due to their brevity, clarity, appropriateness; and because their items covered the most common assessment criteria of other tools:

- For cross-sectional studies – 11 Questions to help you make sense of descriptive/cross-sectional studies [47]
- For surveys – CEBMA Appraisal Questions for a Survey [48]
- For qualitative studies – JBI Qualitative Assessment Research Instrument (QARI) [43]
- For mixed methods research – Scoring System for appraising mixed methods research [49]

No articles were excluded from the review based on their methodological quality to not exclude valuable insights from weaker studies [50], unless findings were not supported by the presentation of appropriate quotations from participants [43].

Data extraction

Firstly, study details such as the methodology, the population and the context of the study were extracted from each study and organised in an evidence table (Additional file 2: Evidence table). Secondly, findings were extracted from the primary sources into a spreadsheet and grouped under one of the outcome categories: barriers, facilitators, and perceptions/views of collaboration [35]. Findings to be extracted from qualitative studies for the purpose of this review were themes, key concepts or results and conclusions developed by the authors of the papers [37,51]. No direct quotations of individuals were extracted since they

were considered raw data and not the outcome of an interpretative process undertaken by the authors [52].

A separate table was created for relevant quantitative data and organised under the same outcome categories as the qualitative data.

Data analysis and synthesis

Repeated screening of the articles and reading of extracted data in spreadsheets enhanced the iterative process of developing sub-categories [53]. These sub-categories were further collapsed into descriptive themes [37].

As "counting highlights the recognition of patterns in the data" ([54], p.152), a simple listing of the most common statements relating to barriers or facilitators to collaboration was part of the data synthesis. This approach is similar to content analysis, suggested by Dixon-Woods et al. [34] as one possible approach to synthesising results.

Results from quantitative studies were juxtaposed with qualitative findings within each descriptive theme and outlined in a descriptive summary, supported by tabulation of data [55]. Since the synthesis of findings in this review was a meta-aggregation [43] of results, it was summative and did not include the re-interpretation of the primary data [55,56].

Results

The literature search identified 3635 papers. After excluding duplicates and papers published before 1990 there were 2256 papers for review. The flow chart in Figure 1 summarises the review process. In total there were 30 papers included in the review, reporting 27 studies. The most common reasons for exclusion were a population other than NPs and MPs in a primary health care setting, no information relevant to the research question or the papers were literature reviews.

There was an almost equal number of papers reporting qualitative studies (n = 14) and surveys (n = 13), whereas there were only two mixed methods study papers and one paper reporting data from a cross-sectional design as part of one of the mixed methods studies. However, most of the surveys applied a mixed-methods design, using open-ended and closed questions. A meta-analysis of quantitative results was not possible because only one study investigated effects of an intervention on perceived collaboration.

The evidence of this review is based on studies including a total of 1641 MPs and 380 NPs (among those were 4 APNs with a similar level of authority than NPs). The majority of studies were undertaken in the US (11) followed by Canada and the UK (6 each) with one study undertaken in each of the Netherlands, Sweden, Ireland and New Zealand.

```
Potentially relevant papers identified by
        literature search (n = 3635)

226 published before 1990

1153 duplicates

2256 papers for review  ──►  Papers excluded after evaluation of
                              title and abstract (n = 2102)

154 full papers screened  ──►  Papers excluded after review of full
                               text (n = 127)

Potential articles from         27 papers included
reference list (n = 24)

Reason for exclusion                                 Reason for exclusion
Population          8                                Population              26
Topic irrelevant    4     3 papers from reference    Topic irrelevant        20
Review              4              lists             Review                  20
Setting             1                                Case Report             14
Discussion paper    1                                Commentary              13
Editorial           1                                Setting                 10
Case Report         1                                Letter to the editor     8
Not retrievable     1     Total paper included in    Anecdotal                6
                          systematic review (n = 30) Editorial                3
                                                     Summary other article    3
                                                     Not retrievable          2
                                                     Opinion paper            1
                                                     Fact sheet               1

Papers reporting   Papers reporting   Papers reporting mixed   Papers reporting
qualitative studies    surveys          methods studies        quantitative studies
   (n = 14)           (n = 13)             (n = 2)                 (n = 1)
```

Figure 1 Study selection process.

Methodological quality of studies

Overall, studies were of moderate quality with some information difficult to assess due to weaknesses in reporting (Additional file 3: Quality appraisal). Issues for qualitative studies were the lack of reporting of a philosophy and the researchers' background. One study [57] was excluded from the analysis, because no illustrative quotations from participants were provided to assess the credibility of findings [43].

All survey papers reported a clear aim of the study and used the appropriate design to answer the research question. The survey studies lacked sufficient response rates and representativeness of the sample. A major flaw in most studies was the use of self-developed questionnaires without the reporting of their psychometric properties.

Two studies applied a mixed methods design [19,58]. Both studies had clear qualitative objectives and used appropriate qualitative methods for the research process. Both studies did not state the researchers' background. For the quantitative part, both studies did not apply appropriate sampling procedures and used a convenience sample of one [58] or four [19] practices.

From Way et al.'s comprehensive mixed methods study [19,59,60], one part was published with results from a cross-sectional analysis of referral patterns between NPs and MPs [59]. The use of encounter forms for referral patterns may not be a valid measure for collaboration since it relies on self-report. The strengths and weaknesses of each study are documented in the evidence table (Additional file 2: Evidence table).

Results – facilitators and barriers of collaboration

Factors facilitating or impeding collaborative practice between NPs and MPs were identified in 18 of the 30 papers, including qualitative, survey and mixed methods studies. Often facilitators were identified as the opposite of obstacles to collaborative practice. Therefore the facilitator and the corresponding barrier were matched and counted as one thematic factor impacting on collaboration. Those

factors are listed in order of their frequency of appearance in Table 1.

The most common barrier to collaboration was the lack of awareness by MPs of the scope of practice of NPs, their level of education and what is inherent to their role [19,58,60-66]. Collaboration worked well where MPs noted that NPs took over some parts of their workload such as education and follow up care [60], 'routine cases' [67] or patients with minor illnesses and chronic diseases [63], so that MPs were able to focus on more complex cases [17]. However, not all MPs have experienced a decrease in workload because NPs would consult the MP for their patients [64] and supervision of NPs increased the workload of MPs [68].

To make collaboration work, NPs and MPs have to be confident in the competence of the collaborating partner. Both professions valued having competent colleagues. For MPs and NPs themselves this also included that NPs were competent in realising their limits and seeking assistance when needed [17,63,69]. While having complementary skills and similar goals was seen as an asset to collaboration [61,70,71], ideological differences in the practice style could cause difficulties in establishing a collaborative relationship [19,60,64,70].

Table 1 Barriers and facilitators to collaboration

Factors impacting on collaboration	Frequency*
Clarity of NP role & scope of practice	15
NPs take over workload from MPs	11
Confidence in each other's competence	11
Complementary skills and practice ideology	9
Knowing the NP/MP & good working relationship	9
Reciprocity (including the absence of hierarchy & control)	9
Clear legal liability	8
Effective communication (including the use of technologies)	8
Financial support for NP role	7
Mutual trust & respect	7
Support from MPs	6
Shared responsibility	6
High level of NP autonomy	5
Working in close physical proximity	4
Regular meetings & time to collaborate	3
Positive attitude towards collaboration	3
Official recognition of NP role	3
Collaboration develops and improves over time	2
MPs' concern of becoming deskilled (barrier only)	1
MPs feel threatened by NPs (barrier only)	1

*Data were extracted from qualitative, survey and mixed-methods studies. The frequency refers to the number of times each barrier and facilitator was found in 18 studies.

An important factor for successful collaboration was previous experience of working with the NP or MP [19,58,60,63,64,66,70] and having a good relationship [67,70]. Developing a good collaborative relationship took time and improved once the NPs and MPs got to know each other, which also helped to establish trust among the health professionals [63,70,71]. A period of 3–6 months was observed to be sufficient to establish a collaborative relationship [58,63,70].

While the reciprocity of referrals and consultations [19,60,63] as well as the absence of hierarchical structures were considered to foster collaboration, NPs and MPs also reported control issues as a barrier to collaborative practice. NPs often perceived a hierarchical relationship with the MP that was described as a power struggle for NPs [72] and experienced by NPs when the MP decided over the range of tasks to be undertaken by the NP [67]. Medical practitioners reported losing control about patient triage through the introduction of NPs [60].

The fourth common obstacle to work in collaborative practice with a NP was the concern of MPs about legal responsibility. Most considered themselves liable for the care provided by the NP [19,58,60,61,63-65]. An equal amount of findings identified effective communication [70,71,73] as crucial to collaboration. In addition to face-to-face communication, two studies identified the use of technologies such as messaging systems as beneficial for regular communication [19,58].

Nurse practitioners and MPs strongly perceived that economic constraints had a negative impact on collaborative practice. The lack of financial support for the NP role often made employment of a NP not financially viable for a practice setting. There was a perception that the health care system did not sufficiently reimburse NP services [19,61,66,70]. As important as funding for collaborative practice models were trust and respect between NPs and MPs. Mutual trust and respect was perceived by NPs when MPs were referring patients to them [63] or advice seeking was reciprocal [60].

The frequency count of barriers and facilitators to collaboration showed that support from the MPs was crucial to establish a collaborative practice with the NP [61,69]. Other experiences reported by NPs and MPs as important for collaboration were sharing responsibilities of complex cases [61,73] rather than leaving complex cases to either the NP or the MP [61,63,67]. In terms of responsibilities, some MPs perceived that NPs were not prepared to take on the level of responsibility appropriate to the NP role [64]. In general, a high level of NP autonomy was a crucial component to collaboration, because limitations in the NP's autonomy; in particular their inability to prescribe or order diagnostic tests was found to increase the MPs workload and consequently negatively influence collaborative practice [61,65,69,72].

Further fostering factors were working in close physical proximity or on the same site [19,60,70], taking time for regular meetings [58,70], a positive attitude towards collaboration [70,71]; and the official recognition of the NP role, including the legal protection of the professional title 'nurse practitioner' [63,67].

Two quantitative studies investigated what NPs and MPs experienced as barriers or facilitators to collaborative practice and their results support the qualitative findings. In De Guzman et al.'s [13] survey of 29 NPs working at Canadian PHC sites, the NPs stated the unwillingness of specialists to accept their referrals (53.5%), the MPs' lack of understanding of the NP role (42.8%) and the personality of the MPs (35.7%) as the most common challenges in their collaborative practice with the MPs. Of a list of facilitators of collaboration, NPs identified the trust shown by MPs in making shared decisions (57.1%), the respect shown by the MPs (42.8%) and the personality of the MPs (46.4%) as the most common facilitators [13].

Way et al. [59] considered the imbalance of referrals between NPs and MPs as a barrier to collaborative care because it would indicate a lack of shared care. They found that only 2% of 173 patient encounters with a GP resulted in a referral to a NP in contrast to 16% of 79 patients who saw a NP and were then referred to a MP for follow-up [59].

Results - experiences and views of collaboration

Qualitative and quantitative studies have identified differences in the perception and understanding of collaboration between NPs and MP. Five descriptive themes were developed from the extracted data, not all of them were found in both qualitative and quantitative data.

The essence of collaboration and practice reality

While NPs and MPs agreed on some essential components of collaboration, there were differences in their understanding about several of these components (Table 2).

Two studies explicitly investigated the elements that were important to NPs and MPs about collaboration: working together, consultations, trust and mutual respect, communication, competence, coordination, NP autonomy, the health professionals' personality and a shared philosophy [61,71]. However, in Hallas et al.'s [71] survey of 24 paediatric NPs and their 24 collaborating paediatricians, NPs understood the term "sharing" as the exchange of ideas and knowledge while MPs referred to shared patients or shared offices. This study also reported that NPs saw collaboration as a reciprocal discussion about patients while MPs described collaboration as advice seeking of NPs.

Characteristics considered essential for MPs but that were not found in NP statements were complementary practice styles and a similar vision [71] or a shared goal [60]. For NPs it is particularly important to be respected as a health professional [71] and to work in a reciprocal relationship [60]. However, in practice, NP-MP work arrangements were often one-sided and lacked reciprocity, with collaboration predominantly initiated by NPs who consulted the MP when a problem was outside their scope of practice [17,19,59]. Since MPs served as a (supervisory) resource for NPs, NPs perceived that they worked in a hierarchical relationship where demonstrating competence was a one-way process [19,70]. NPs stated their experience of being under constant pressure to demonstrate their competence because NP competence was defined by the MPs [60,67].

Three author groups explicitly concluded that collaboration in practice did not reach the ideal [17,58,60] with NPs expecting a collegial relationship with MPs but actually experiencing a more hierarchical situation. While some MPs agreed that collaboration can exist as true reciprocity they rather acknowledged that forms of collaboration range from an interdependent to hierarchical relationship [60]. Contrary to some of these findings, NPs and MPs rated their working relationships with each other as collegial [68] and their level of collaboration and communication as high [74] when measured on attitude scales.

Supervision and autonomous practice

The concept of supervision and autonomous NP practice were common themes relating to collaboration. Medical practitioners rarely saw NPs as autonomous health professionals, however attitudes differed between MPs employing a NP and those who did not.

Some MPs saw the NP in the role of an assistant or MP extender [68,70]. Medical practitioners preferred to see the NP practicing under their direct supervision if managing complex cases [68]. The survey of Hallas et al. [71] revealed that some NPs saw supervision as negative, as being controlled by MPs, others valued supervision as having the MP available on site. Similarly, MPs understood supervision as providing consultations to the NPs or simply being available on site. Autonomous NP practice for the NPs comprised full responsibility for patient care with MP consultation when required. In contrast, MPs considered NPs as autonomous when they had no need to consult with a MP [71].

Quantitative data supported these perceptions of supervision and autonomous NP practice. NPs perceived, more than MPs, that they could perform tasks autonomously [62,75]. Some MPs stated that NPs require regular MP supervision [62] and that NPs care for patients who are too complex for the NPs' skills and knowledge [68]. GPs who worked with a NP were more supportive of NPs

Table 2 Comparison of nurse practitioner and medical practitioner views

Dimensions of comparison	Nurse practitioner views	Commonalities	Medical practitioner views
Important elements of collaboration	Respect as a health professional, Reciprocal relationship	Working together	Complementary practice style
		Consultations	Similar vision
		Trust & mutual respect	Shared goals
		Communication	
		Competence	
		Coordination	
		NP autonomy	
		Personality	
		Shared philosophy	
		Sharing	
Sharing	Exchange of knowledge and ideas about patient management	Important for collaboration	Shared offices, shared patients
Working together	Reciprocal discussion	Important for collaboration	Providing advice to NPs
Practice reality	Collaboration can be hierarchical and one-sided; only initiated by NPs for consultation	Perceived level of communication is high Perceived level of collaboration is collegial	Collaboration can be an interdependent and a hierarchical relationship
Competence	Defined by MP, pressure to demonstrate competence	Important for collaboration	Important that NP recognises limits
Autonomy	NP is autonomous health professional	Important for collaboration	NP is assistant, limited autonomy of NPs
	NP has full responsibility for patient care, consultations with MP when required		NP is autonomous when no MP consultation is required
Supervision	Some NPs valued MP input, others felt controlled through supervision	MP is available on site for NP	MPs prefer that NP practices under MP supervision for complex cases

Data extracted from 13 studies.

performing most tasks without supervision than GPs who worked not with a NP [76].

Differences in the views of medical practitioners with and without experience of collaborating with nurse practitioners
Three cross-sectional surveys reported that MPs with previous experience of working with a NP exhibit a more positive attitude towards collaboration with NPs [76-78]. Medical practitioners who had experience in collaborating with a NP were significantly more likely to disagree that NPs provide low-quality primary health care, and more likely to support NP prescribing, consider that NPs can attract new patients, agree that patients accept NPs and believe that NPs free up MP time [77,78]. In Carr et al.'s survey 100% of the GPs who worked with a NP agreed that NP should work in primary health care compared to 89% of the GPs who did not [76]. No qualitative studies investigated those differences.

Medical practitioners' concerns and ambivalence about working with nurse practitioners
Qualitative data revealed a number of concerns of MPs to working in collaboration with NPs. Some of these

concerns were also identified as barriers to collaborative practice such as concern about: NP education and competence [66,79], NPs' limited scope of practice for patients with multiple comorbidities [68], ultimate liability for NP care [79] and financial disadvantages [66]. Other issues for MPs were that they could be left with complex patient cases that increased their workload but also deskilled them in areas taken over by the NP [66]. In Katz & MacDonald's [79] focus group study of Canadian MPs who had not worked with NPs before, the MPs expressed concern about quality and fragmentation of care. Some MPs stated that they considered the difference of education between NPs and MPs as a barrier to acceptance of NPs as equal partners [79]. In a sample of British GPs, Wilson et al. [66] identified that MPs felt threatened in their role by NPs and were concerned about their professional status and a loss of self-esteem. Furthermore, they stated that a NP would be more expensive to employ than a practice nurse [66].

The ambivalence of MPs was often based in insecurity about the advantages and disadvantages of collaborating with a NP. Marsden & Street [65] found that MPs valued the benefits for patients of longer consultations with the

NP but simultaneously were concerned about the cost effectiveness of those consultations. In a study by Dutch researchers [73], MPs stated that prescribing authority for NPs would be more practical for their collaborative practice but they were hesitant to grant their collaborating NP this right. Medical practitioners valued NP competence, however, competence was often equated to the competence of NPs to refer patients outside the NP scope of practice and appropriate consultation with the MPs [19,63,69].

Medical practitioners' reasons for working with nurse practitioners

Medical practitioners who worked in collaboration with a NP, reported that NP tasks may be complementary to the MP's scope of practice [79] and this was valued by some MPs because they could focus on patients with more complex issues [63]. Nurse practitioners were acknowledged as an extra resource for the MPs [69,79] and one MP perceived the NP as a colleague to discuss patients, specifically their psychosocial needs [65]. Medical practitioners in particular valued NPs' educational and interpersonal skills [17,65,68].

Three survey studies from the UK [76], US [80] and New Zealand [81] identified that the majority of MPs would be willing either to work in collaboration with or to employ a NP for reasons of increased patient choice, reduced workload, more cost-effective use of resources, MP shortage and reduced waiting times for patients [76].

Discussion

This review describes the experiences and views of NPs and MPs working collaboratively in primary health care. Summarising quantitative and qualitative data has shown that NPs and MPs rated their collaborative practice experience as collegial [68,74] but at the same time obstacles, concerns and different perceptions were voiced in qualitative inquiries. Nurse practitioners and MPs face a number of barriers when working in collaboration. Concurrently they have found ways to overcome these obstacles and improve the collaborative relationship through negotiation, clarifying roles and creatively working around organisational impediments. Thus, collaboration includes working around barriers and using facilitators for long-term establishment of collaborative practice.

While there was overlap in the majority of components that NPs and MPs considered as essential for collaboration, the detailed analysis revealed that the professions might ascribe a different meaning to these components. This was also the result of a study that investigated collaboration in nursing homes, where advanced practice nurses and MPs used the same terms to define collaboration but had a different understanding about these terms [82].

A fine line lies between MP supervision being perceived as hierarchical or consultative. This perception seemed very much influenced by the individual situation and personality of the health professional. The strong movement seen in the US towards unsupervised NP practice may not be welcomed by all NPs who may find having some medical support reassuring [3,6,83]. However, NPs may wish to work in an autonomous manner and still be able to consult with a medical colleague when needed, identified as one way of collaboration by studies included in this review [17,71]. A survey of primary health care NPs in the US confirmed that NPs provide 80% of their services autonomously or with minimal consultation [1].

Nurse practitioners, more than MPs, seemed confident in autonomous NP practice, but MPs who worked with NPs showed more trust in the NPs' capabilities and support for autonomous NP work than MPs who lacked this experience [76-78]. The reasons for this may be that the MPs' work experience with the NP increased their confidence in the benefits of collaboration or that MPs who have a positive attitude about collaboration with a NP are more likely to work with one. Consequently NPs rely on the support and willingness of MPs to work with them. There is evidence from a replication study undertaken in the US that NP-MP collaboration increased since the original survey 20 years earlier [30].

The majority of MPs who had worked with NPs acknowledged that NPs were an asset to the practice and the patients. However, this was limited to tasks undertaken with routine patients. Medical practitioners also valued NP competence, which for some meant NPs who were competent to realise their boundaries and seek advice when appropriate. This reveals a paternalistic attitude of MPs instead of recognising the capabilities of NPs in terms of their professional scope of practice. Finlayson and Raymont [33] raise the point that NP employment through MPs will influence their collaborative relationship because the employer-employee relationship is hierarchical by definition.

Working towards successful collaboration may be achieved through interventions that target effective collaborative practice [19,59,84]. Some of the concerns raised by MPs may be reduced through better information strategies about the NP role and early exposure to interprofessional education [85-88]. The simple use of DVDs explaining the education pathway and the skills of NPs increased significantly the knowledge of primary health care MPs and their positive attitude towards NPs and collaborative practice [89].

Limitations

No secondary reviewer assisted in the appraisal of studies and extraction of data. The data to be extracted had been specified in advance with the outcome categories

and since there has been no re-interpretation of data, it is unlikely that results have been distorted from those of the primary data.

No attempt was made to contact authors, so that the methodological quality may rather relate to reporting quality and the way the study was conducted may be of better quality than reflected in the article. The assessment of qualitative studies was difficult due to the lack of reporting on the researcher's background. While word limitations may restrain authors from reporting additional information, two sentences about their background and influence on the project would provide the reader with information crucial to establishing the credibility of findings [90].

While all included studies investigated nurse practitioners who were educated at a postgraduate degree level and who practiced at an advanced level that included the diagnosing of patients, regulations around the NP role, licensure and practice vary among and within countries [45,46,91]. Therefore, themes and factors identified in this review may only apply to the particular NP role in the primary health care setting of the country of study.

Conclusion

This integrative review of literature is important to highlight NPs and MPs experience and perceptions of working collaboratively in primary health care. It is the first review to specifically look at nurse practitioners, not general nurses and to only include studies undertaken in primary health care settings and not secondary or tertiary institutions.

By integrating quantitative and qualitative data a comprehensive synthesis of research evidence on collaboration between NPs and MPs in the primary health care setting was possible. The results of this review show that collaboration develops step by step, that professional hurdles need to be overcome, and that positive experiences of working collaboratively may be the strongest force to promote and advance collaboration between NPs and MPs. Further research into the most effective strategies to prepare NPs and MPs for collaborative practice is necessary. In addition clear policies on liability and funding strategies are necessary to dispel MPs' concerns and facilitate collaborative practice.

Additional files

Additional file 1: Medline search, Table with Medline search strategy.

Additional file 2: Evidence table, Table that provides details of all included studies.

Additional file 3: Quality appraisal, Table that outlines the quality appraisal of included studies.

Abbreviations

NP: Nurse practitioner; MP: Medical practitioner; GP: General practitioner; PHC: Primary health care; UK: United Kingdom; US: United States of America.

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7.14 Research portfolio related to candidature

Publications related to this thesis

Schadewaldt, V., McInnes, E., Hiller, J. E., & Gardner, A. (2013). Investigating characteristics of collaboration between nurse practitioners and medical practitioners in primary healthcare: a mixed methods multiple case study protocol. *Journal of Advanced Nursing, 70*(5), 1184-1193. doi: 10.1111/jan.12269

Schadewaldt, V., McInnes, E., Hiller, J. E., & Gardner, A. (2013). Views and experiences of nurse practitioners and medical practitioners with collaborative practice in primary health care -- an integrative review. *BMC Fam Pract, 14*(132), 1-11. doi: 10.1186/1471-2296-14-132

Presentations and educational activities

Schadewaldt, V. (11/2014) *Collaboration between nurse practitioners and medical practitioners – is it or is it not?* Invited speaker, Victorian Chapter Australian College of Nurse Practitioners Professional Development Day, ANMF, Melbourne

Schadewaldt, V. (12/2013) *Characteristics of collaboration between nurse practitioners and medical practitioners in the primary health care setting – a mixed methods multiple case study,* Presentation at the Faculty of Health Sciences HDR Seminar: Australian Catholic University Melbourne

Schadewaldt, V., McInnes, E., Hiller, J. E., & Gardner, A. (09/2013). *Models of Collaboration between Nurse Practitioners and Medical Practitioners in Primary Healthcare.* Poster and rapid communication session. 8th Conference of the Australian College of Nurse Practitioners, Hobart, Australia; p. 44

Schadewaldt, V., McInnes, E., Hiller, J. E., & Gardner, A. (07/2013). *Nurse practitioners' and medical practitioners' views on collaboration in primary health care – an integrative review.* Paper presented at the Primary Health Care Research Conference, Sydney, Australia; p.138

Schadewaldt, V. (12/2012) *Characteristics of collaboration between nurse practitioners and medical practitioners in the primary health care setting – a mixed methods multiple case study,* Presentation at the Faculty of Health Sciences HDR Seminar: Australian Catholic University Melbourne

Schadewaldt, V. (07/2012), *Data cleaning with Excel and SPSS – How to prepare data for data analysis,* Workshop at Work Presentation, St Vincent's Centre for Nursing Research, Melbourne

Schadewaldt, V. (06/2012) *"Characteristics of collaboration between nurse practitioners and medical practitioners in the primary health care setting – a mixed methods multiple case study* ", Confirmation seminar, Australian Catholic University

Schadewaldt, V. (06/2012) *"Characteristics of collaboration between nurse practitioners and medical practitioners in the primary health care setting – a mixed methods multiple case study "*, Three Minute thesis presentation, Australian Catholic University

Schadewaldt, V. (10/2011), *Systematic reviews – the Joanna Briggs Institute approach*, Invited speaker, Research Conversation Seminar, Australian Catholic University Melbourne