

Title:

Investigating characteristics of collaboration between nurse practitioners and medical practitioners in primary health care: A mixed methods multiple case study protocol

Author details:

Corresponding author

Verena SCHADEWALDT

MHSc, RN

PhD candidate

Australian Catholic University

115 Victoria Parade

Fitzroy VIC 3065

Email: vvscha001@myacu.edu.au

Elizabeth MCINNES

MPH PhD

Associate Professor & Deputy Director, Nursing Research Institute

Australian Catholic University

Janet E. HILLER

PhD MPH FPHAA

Associate Dean of Health Sciences (Research) & Professor of Public Health

Australian Catholic University,

Adjunct Professor, School of Population Health, University of Adelaide

Anne GARDNER

PhD MPH RN

Professor of Nursing

Australian Catholic University

Adjunct Professor, James Cook University

Acknowledgements

Thanks to colleagues who have given feedback on earlier versions of the study outline at a seminar presentation.

Conflict of interest

No conflict of interest has been declared by the authors

Funding statement

The research project is funded by the Victorian Government and the Australian Catholic University with a Victorian International Research Scholarship for a period of three years.

Abstract

AIM: To investigate characteristics of collaboration between nurse practitioners and medical practitioners in the primary health care 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 socialisation processes of the two professions and legislative requirements influence collaborative practice. The way these two professions overcome traditional boundaries and realise collaborative practice in the primary health care setting, need 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.

Ethics approval: August 2012. **Funding:** Victorian Research Scholarship Program, Victorian Government and Australian Catholic University

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, cooperative behaviour, collaborative practice, interdisciplinary care, nurse practitioner, primary health care

Summary statement

Why is this research needed?

- A lack of empirical research on how collaboration is understood and experienced by primary health care 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 needs 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. NPs were authorised 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 health care 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 health care 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 health care 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 health care reforms globally since it is seen as a response to workforce shortages and an ageing

population (Department of Health and 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 health care 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 health care 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 health care 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, summarising 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 also 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 collaborative 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 a NP. That 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 realise 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 realise 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 is 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 health care 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 collaboration between NPs and MPs in primary health care and how do NPs and MPs perceive collaborative practice?

Methodology

This research will undertake multiple case studies employing mixed methods (Creswell 2007, 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 multi-faceted understanding of collaborative practice (Creswell 2007, 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, D'Amour *et al.* 2004, D'Amour *et al.* 2005, D'Amour *et al.* 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) while the 'Structuration Model of Collaboration' covers organisational 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.

Participants

Eligible NPs and MPs are those who work together in a primary health care setting with experience of working together for at least 6 months. In addition, both NPs and MPs have to be authorised 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 organisations. 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 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.

Since there are 22,555 MPs working in primary health care (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 health care/general practice (Australian College of Nurse Practitioners 2011). Assuming that a maximum of 13% of the 590 NPs (Nursing and Midwifery Board of Australia 2012) work in a primary health care 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 is 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 health care 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 emphasised in qualitative inquiry, the observer will use an observation guideline with operationalised dimensions to organise 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 minimise 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-items 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 health care 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 6 instead of 7 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 6 instead of 7 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 categorised 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 categorised (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 generalisability 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 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 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 and 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 generalise (Stake 1995), transferability (Lincoln & Guba 1985) can be established in multiple case study research when findings are generalised 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 generalised if they occur regularly during the study. Stake (1995) states that case studies can ‘increase the confidence’ (p. 8) someone has about a generalisation.

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, organisational 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 Australian primary health care 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 size of Australian NP and MPs in the primary health care setting. The sample size is restricted by funding and logistical issues. Therefore, generalisation 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 health care 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 health care setting. This will fill knowledge gaps on how collaborative arrangements are realised 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.

REFERENCES

- Allnutt J, Allnutt N, McMaster R, O'Connell J, Middleton S, Hillege S, Della PR, Gardner GE & Gardner A (2010) Clients' Understanding of the Role of Nurse Practitioners. *Australian Health Review* 34, 59-65.
- Australian College of Nurse Practitioners (2010) Australian College of Nurse Practitioners Potted History. ACNP, Available at: <http://www.acnp.org.au/australian-college-of-nurse-practitioners-potted-history.html> (accessed 30/11/2011).
- Australian College of Nurse Practitioners (2011) Results of the 2011 National Acnp Membership Survey. ACNP, 1-23.
- Australian Health Ministers' Conference (2004) National Health Workforce Strategic Framework. Sydney, 1-46.
- Australian Health Practitioner Regulation Agency (2011) Annual Report 2010-2011. AHPRA, Brisbane, 1-160.
- Bailey P, Jones L & Way D (2006) Family Physician/Nurse Practitioner: Stories of Collaboration. *Journal of Advanced Nursing* 53, 381-391.
- Bartlett R (2011) Health Insurance (Midwife and Nurse Practitioner) Determination 2011. Australian Government ComLaw, Commonwealth of Australia.
- Barton TD (2006) Clinical Mentoring of Nurse Practitioners: The Doctors' Experience. *British Journal of Nursing* 15, 820-824.
- Beauchamp TL & Childress JF (2008) *Principles of Biomedical Ethics*, Oxford University Press, New York.
- Bosque E (2011) A Model of Collaboration and Efficiency between Neonatal Nurse Practitioner and Neonatologist: Application of Collaboration Theory. *Advances in Neonatal Care* 11, 108-113.
- Braun V & Clarke V (2006) Using Thematic Analysis in Psychology. *Qualitative Research in Psychology* 3, 77-101.
- Burgess J & Purkis ME (2010) The Power and Politics of Collaboration in Nurse Practitioner Role Development. *Nursing Inquiry* 17, 297-308.

- Carr J, Armstrong S, Hancock B & Bethea J (2002) Gps' Perceptions of the Nurse Practitioner Role in Primary Care. *British Journal of Community Nursing* 7, 408-413.
- Carter AJE & Chochinov AH (2007) A Systematic Review of the Impact of Nurse Practitioners on Cost, Quality of Care, Satisfaction and Wait Times in the Emergency Department. *Canadian Journal of Emergency Medicine* 9, 286-295.
- Clarín OA (2007) Strategies to Overcome Barriers to Effective Nurse Practitioner and Physician Collaboration. *The Journal for Nurse Practitioners* 3, 538-548.
- Corser WD (1998) A Conceptual Model of Collaborative Nurse-Physician Interactions: The Management of Traditional Influences and Personal Tendencies. *Scholarly Inquiry for Nursing Practice* 12, 325-341.
- Creswell JW & Plano Clark VL (2011) *Designing and Conducting Mixed Methods Research*, SAGE, Thousand Oaks, CA.
- Creswell JW, Plano Clark, V. (2007) *Designing and Conducting Mixed Methods Research*, SAGE, Thousand Oaks, CA.
- D'Amour D, Ferrada-Videla M, San Martín Rodríguez L & Beaulieu MD (2005) The Conceptual Basis for Interprofessional Collaboration: Core Concepts and Theoretical Frameworks. *Journal of Interprofessional Care* 19 Suppl 1, 116-131.
- D'Amour D, Goulet L, Labadie JF, Martin-Rodriguez LS & Pineault R (2008) A Model and Typology of Collaboration between Professionals in Healthcare Organizations. *BMC Health Services Research* 8, 188-202.
- D'Amour D, Goulet L, Pineault R, Labadie J-F & Remondin M (2004) Comparative Study of Interorganizational Collaboration in Four Health Regions and Its Effects: The Case of Perinatal Services. University of Montreal, Montreal.
- D'Amour D, Sicotte C & Levy R (1999) The Collective Action within Interprofessional Equipments in the Health Services, Original Title in French: L'action Collective Au Sein D'équipes Interprofessionnelles Dans Les Services De Santé. *Sciences Sociales et Santé* 17, 67-94.
- Denzin NK (2009) *The Research Act: A Theoretical Introduction to Sociological Methods*, Aldine Transaction, New Brunswick, US.
- Department of Health and Ageing (2009) Primary Health Care Reform in Australia, Report to Support Australia's First National Primary Health Care Strategy. Australian Government - Department of Health and Ageing, Canberra, 1-184.

- Desborough J (2012) How Nurse Practitioners Implement Their Roles. *Australian Health Review* 1, 22-26.
- Donald F, Mohide EA, DiCenso A, Brazil K, Stephenson M & Akhtar-Danesh N (2009) Nurse Practitioner and Physician Collaboration in Long-Term Care Homes: Survey Results. *Canadian Journal on Aging* 28, 77-87.
- Drummond N, Abbott K, Williamson T & Somji B (2012) Interprofessional Primary Care in Academic Family Medicine Clinics: Implications for Education and Training. *Canadian Family Physician* 58, e450-8.
- Eisenhardt KM & Graebner ME (2007) Theory Building from Cases: Opportunities and Challenges. *The Academy of Management Journal Archive* 50, 25-32.
- Fewster-Thuente L & Velsor-Friedrich B (2008) Interdisciplinary Collaboration for Healthcare Professionals. *Nursing Administration Quarterly* 32, 40-48.
- Fry M, Fong J, Asha S & Arendts G (2011) A 12-Month Evaluation of the Impact of Transitional Emergency Nurse Practitioners in One Metropolitan Emergency Department. *Australasian Emergency Nursing Journal* 14, 4-8.
- Gardner A & Gardner G (2005) A Trial of Nurse Practitioner Scope of Practice. *Journal of Advanced Nursing* 49, 135-145.
- Gardner DB (2005) Ten Lessons in Collaboration. *The Online Journal of Issues in Nursing* 10, 1-11.
- Gillham B (2005) *Research Interviewing - the Range of Techniques*, Open University Press, New York.
- Hallas DM, Butz A & Gitterman B (2004) Attitudes and Beliefs for Effective Pediatric Nurse Practitioner and Physician Collaboration. *Journal of Pediatric Health Care* 18, 77-86.
- Heatley M & Kruske S (2011) Defining Collaboration in Australian Maternity Care. *Women Birth* 24, 53-57.
- Herrmann LL & Zabramski JM (2005) Tandem Practice Model: A Model for Physician-Nurse Practitioner Collaboration in a Specialty Practice, Neurosurgery. *Journal of the American Academy of Nurse Practitioners* 17, 213-218.

- Hojat M, Gonnella JS, Nasca TJ, Fields SK, Cicchetti A, Scalzo AL, Taroni F, Amicosante AMV, Macinati M, Tangucci M, Liva C, Ricciardi G, Eidelman S, Admi H, Geva H, Mashiach T, Alroy G, Alcorta-Gonzalez A, Ibarra D & Torres-Ruiz A (2003) Comparisons of American, Israeli, Italian and Mexican Physicians and Nurses on the Total and Factor Scores of the Jefferson Scale of Attitudes toward Physician–Nurse Collaborative Relationships. *International Journal of Nursing Studies* 40, 427-435.
- Holloway I & Wheeler S (2010) *Qualitative Research in Nursing and Healthcare*, Wiley-Blackwell, Chichester, UK.; Ames, Iowa.
- ICN Nurse Practitioner/Advanced Practice Nursing Network (2013) Definition and Characteristics of the Role. ICN, Available at: <http://international.aanp.org/DefinitionAndCharacteristicsOfTheRole.htm> (accessed 21/07/2013).
- Institute of Medicine (2011) *The Future of Nursing: Leading Change, Advancing Health*, The National Academic Press, Washington, DC.
- Keith MK & Askin FD (2008) Effective Collaboration: The Key to Better Healthcare. *Nursing Leadership* 21, 51-61.
- King MB (1990) Clinical Nurse Specialist Collaboration with Physicians. *Clinical Nurse Specialist* 4, 172-177.
- Kvale S & Brinkmann S (2009) *Interviews: Learning the Craft of Qualitative Research Interviewing*, SAGE, Thousand Oaks, CA.
- Lincoln YS & Guba EG (1985) *Naturalistic Inquiry*, SAGE, Newbury Park, CA.
- Liu N & D'Aunno T (2011) The Productivity and Cost-Efficiency of Models for Involving Nurse Practitioners in Primary Care: A Perspective from Queueing Analysis. *Health Services Research* 47, 594-613.
- Lofland J, Snow D, Anderson L & Lofland LH (2006) *Analyzing Social Settings - a Guide to Qualitative Observation and Analysis*, Thomson Wadsworth, Belmont, CA.
- Mable AL, Marriott J & Mable ME (2012) Canadian Primary Healthcare Policy - the Evolving Status of Reform. Canadian Health Services Research Foundation, Ottawa, Canada, 1-45.
- Martin DR, O'Brien JL, Heyworth JA & Meyer NR (2005) The Collaborative Healthcare Team: Tensive Issues Warranting Ongoing Consideration. *Journal of the American Academy of Nurse Practitioners* 17, 325-330.

- McInnes L (2008) Review of Processes for the Implementation of the Role of Nurse Practitioners in South Australia. Report for SA Health, 1-42.
- McKay CA & Crippen L (2008) Collaboration through Clinical Integration. *Nursing Administration Quarterly* 32, 109-116.
- Miller K-L, Reeves S, Zwarenstein M, Beales JD, Kenaszchuk C & Conn LG (2008) Nursing Emotion Work and Interprofessional Collaboration in General Internal Medicine Wards: A Qualitative Study. *Journal of Advanced Nursing* 64, 332-343.
- Moran-Ellis J, Alexander VD, Cronin A, Dickinson M, Fielding J, Sleney J & Thomas H (2006) Triangulation and Integration: Processes, Claims and Implications. *Qualitative Research* 6, 45-59.
- Morse JM & Niehaus L (2009) *Mixed Method Design - Principles and Procedures*, Left Coast Press, Walnut Creek, CA.
- Naccarella L, Southern D, Furler J, Scott A, Prosser L & Young D (2006) Siren Project: Systems Innovation and Reviews of Evidence in Primary Health Care Narrative Review of Innovative Models for Comprehensive Primary Health Care Delivery. Australian Primary Health Care Research Institute (APHCRI), Australian National University; The Department of General Practice & Melbourne Institute of Applied Economics and Social Research, The University of Melbourne, Australia, 1-179.
- National Health and Medical Research Council [NHMRC] (2007) National Statement on Ethical Conduct in Human Research. NHMRC, Canberra, 1-111.
- Norris T & Melby V (2006) The Acute Care Nurse Practitioner: Challenging Existing Boundaries of Emergency Nurses in the United Kingdom. *Journal of Clinical Nursing* 15, 253-263.
- Nursing and Midwifery Board of Australia (2012) Registered Nurse and Enrolled Nurse Data: March 2012. NMBA, Melbourne, 1-5.
- NVivo qualitative data analysis software (2012) Qsr International Pty Ltd.
- O'Brien JL, Martin DR, Heyworth JA & Meyer NR (2009) A Phenomenological Perspective on Advanced Practice Nurse–Physician Collaboration within an Interdisciplinary Healthcare Team. *Journal of the American Academy of Nurse Practitioners* 21, 444-453.
- Patton MQ (2002) *Qualitative Research & Evaluation Methods*, SAGE, Thousand Oaks, CA.
- Petri L (2010) Concept Analysis of Interdisciplinary Collaboration. *Nursing Forum* 45, 73-82.

- Phillips CB, Pearce CM, Dwan KMH, Hall S, Porritt J, Yates R, Kljakovic M & Sibbald B (2008) Charting New Roles for Australian General Practice Nurses: Abridged Report of the Australian General Practice Nurses Study. Australian Primary Health Care Research Institute (APHCRI), Canberra, 1-47.
- Reeves S, Rice K, Conn LG, Miller K, Kenaszchuk C & Zwarenstein M (2009) Interprofessional Interaction, Negotiation and Non-Negotiation on General Internal Medicine Wards. *Journal of Interprofessional Care* 23, 633-645.
- Roxon N (2010) National Health (Collaborative Arrangements for Nurse Practitioners) Determination, 2010. Australian Government ComLaw, Commonwealth of Australia.
- San Martín-Rodríguez L, Beaulieu MD, D'Amour D & Ferrada-Videla M (2005) The Determinants of Successful Collaboration: A Review of Theoretical and Empirical Studies. *Journal of Interprofessional Care* 19 Suppl 1, 132-147.
- Schadewaldt V, McInnes E, Hiller JE & 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, 1-11.
- Sicotte C, D'Amour D & Moreault M-P (2002) Interdisciplinary Collaboration within Quebec Community Health Care Centres. *Social Science and Medicine* 55, 991-1003.
- Simons H (2009) *Case Study Research in Practice*, SAGE, Los Angeles, CA; London, UK.
- Spector N (2010) Interprofessional Collaboration: A Nursing Perspective. In *Collaboration across the Disciplines in Health Care* (Freshman B, Rubino L and Chassiakos Y eds.) Jones and Bartlett, Sudbury, MA, pp. 107-132.
- Spradley JP (1980) *Participant Observation*, Holt, Rinehart and Winston, New York.
- Stake RE (1995) *The Art of Case Study Research*, SAGE, Thousand Oaks, CA.
- Stake RE (2006) *Multiple Case Study Analysis*, The Guildford Press, New York; London.
- Szekendi MK (2007) Communication among Advanced Practice Nurses and Physicians Working in Teams in an Acute Care Setting, Doctoral Thesis, University of Illinois, Chicago
- Thompson SA & Tilden VP (2009) Embracing Quality and Safety Education for the 21st Century: Building Interprofessional Education. *Journal of Nursing Education* 48, 698-701.

- Van Soeren M, Hurlock-Chorostecki C & Reeves S (2011) The Role of Nurse Practitioners in Hospital Settings: Implications for Interprofessional Practice. *Journal of Interprofessional Care* 25, 245-251.
- Vazirani S, Hays RD, Shapiro MF & Cowan M (2005) Effect of a Multidisciplinary Intervention on Communication and Collaboration among Physicians and Nurses. *American Journal of Critical Care* 14, 71-77.
- Way D, Jones L, Baskerville B & Busing N (2001a) Primary Health Care Services Provided by Nurse Practitioners and Family Physicians in Shared Practice. *Canadian Medical Association Journal* 165, 1210-1214.
- Way D, Jones L & Baskerville NB (2001b) Improving the Effectiveness of Primary Health Care through Nurse Practitioner/Family Physician Structured Collaborative Practice - Final Report to the Health Transition Fund. University of Ottawa, Ottawa, 1-158.
- Way D, Jones L & Busing N (2000) Implementation Strategies - Collaboration in Primary Care - Family Physicians and Nurse Practitioners Delivering Shared Care,. Discussion Paper Written for The Ontario College of Family Physicians, Ottawa, 1-10.
- Wilson K, Coulon L, Hillege S & Swann W (2005) Nurse Practitioners' Experiences of Working Collaboratively with General Practitioners and Allied Health Professionals in New South Wales, Australia. *Australian Journal of Advanced Nursing* 23, 22-27.
- Yin RK (2003) *Case Study Research - Design and Methods*, Sage Publications, Thousand Oaks, CA.
- Yin RK (2009) *Case Study Research - Design and Methods*, SAGE, Los Angeles, CA.
- Zwar N, Harris M, Griffiths R, Roland M, Dennis S, Powell DG & Hasan I (2006) A Systematic Review of Chronic Disease Management. Research Centre for Primary Health Care and Equity, School of Public Health and Community Medicine, UNSW, Canberra, 1-66.

FIGURE

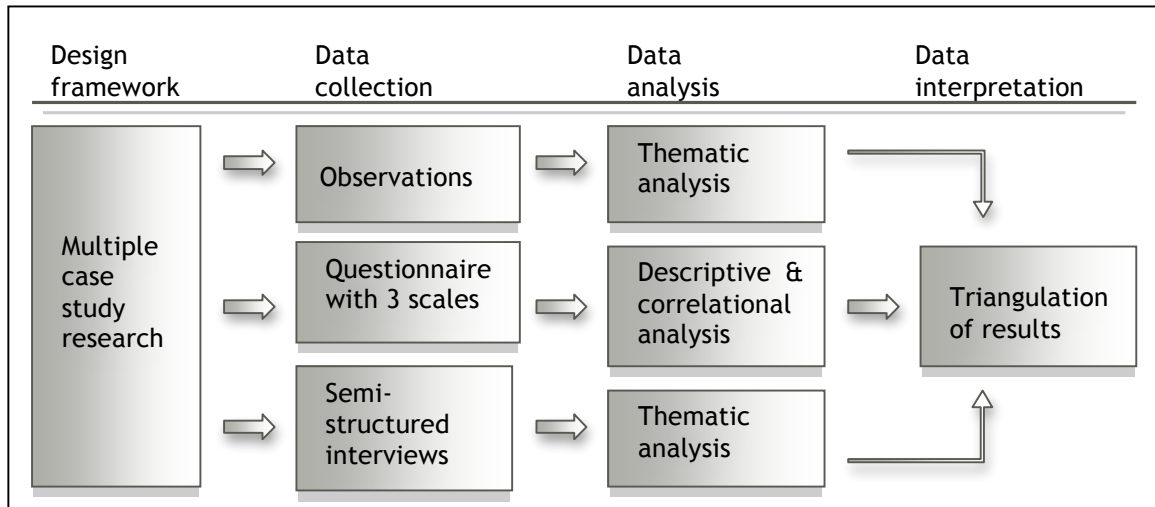


Figure 1 Research process