Asthma and Pregnancy: A qualitative descriptive study of midwives’ current knowledge about asthma in pregnancy and their perceived role in antenatal asthma management in Australia.

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Statement of Originality

To the best of my knowledge and belief this thesis does not contain material, which has been accepted by any university or tertiary institution for the award of another degree or diploma. Material previously published or written by another person is referenced in the text. Subject to the Copyright Act 1968 the final version of my thesis may be made available worldwide via the University's digital repository.
List of publications and conference presentations.

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Synopsis

Asthma continues to be one of the most common potentially serious conditions that can complicate pregnancy. At least 12% of pregnant women in Australia are affected by asthma. Many studies have examined the link between poorly controlled asthma and increased exacerbations during pregnancy with increased foetal and maternal morbidity. Despite asthma management guidelines advocating a collaborative approach to antenatal asthma management among health professionals, the role of the midwife in antenatal asthma management has not previously been examined.

This study set out to explore what midwives currently know about asthma in pregnancy and their perceived role in antenatal asthma management. A qualitative descriptive design was used and data were collected via face-to-face interviews with 13 midwives who consented to participate in the study. Data collected from these interviews were digitally recorded, transcribed and analysed using qualitative content analysis.

The findings from these data are as follows: that midwives’ current knowledge about asthma in pregnancy varies among the sample group with some participants having an awareness of possible changes in asthma symptoms during pregnancy but few participants knowing the range of potential consequences of poor asthma management for both mother and baby. The perceived role of midwives in antenatal asthma management also varies with some midwives stating that they feel their role is to educate women regarding their asthma and others stating that their role is to refer women to other health professionals. Barriers to providing antenatal asthma management were also identified by the midwives. Participants also offered suggested solutions to the barriers that were identified.

Overall, there was found to be no uniform approach to the antenatal asthma management being undertaken in the facility in which this study took place. The development of an antenatal asthma clinical pathway could help to change current clinical practice regarding asthma management of pregnant women, and make that process more uniform. Increasing opportunities for asthma education for those who provide antenatal asthma management could also help determine the role of the midwife when caring for a pregnant woman with asthma. The findings of this study also have implications for further research into the role of the midwives working with women who have complex needs during the antenatal period.
Chapter 1 Introduction and background

Asthma in pregnancy is a significant primary health care problem in Australia and affects approximately 12.7% of the pregnant population (Sawicki et al., 2011). Evidence emerging in the relevant literature demonstrates that if asthma is well managed throughout pregnancy, adverse maternal and foetal outcomes such as maternal hypertension, pre-term birth and low infant birth weight can be reduced. Midwives in Australia play a significant role in providing antenatal care to pregnant women and therefore may be in an ideal position to provide or facilitate effective asthma management. This qualitative descriptive study aims to explore Australian midwives’ knowledge about asthma in pregnancy as well as their perceived role in antenatal asthma management. Midwives working in a large tertiary referral hospital in regional NSW Australia were given the opportunity through interviews and a focus group, to express their views regarding antenatal asthma management and their perceived role in this area of clinical practice. The midwives were invited to share their current knowledge of this aspect of antenatal care and to identify any opportunities, including those relating to building or changing their role, in order to support women with asthma during the antenatal period. The information gained from this study may contribute to the development of educational programs and clinical referral pathways, which may in turn increase midwives’ knowledge of asthma in pregnancy, and acknowledge or clarify their role in the provision of antenatal asthma management.

1.1 What led to this study?

As a midwife with 18 years of clinical experience working in a large tertiary referral hospital in a regional area of New South Wales, Australia, I have worked with many women; providing antenatal, intrapartum and postnatal care; facilitating birth and parenting classes; and working as a group practice midwife in a continuity of carer model of midwifery practice. I currently provide antenatal, intrapartum and postnatal care as both a clinical midwife and educator.

Recently (2007-2010), I was employed as a clinical research officer working on the Managing Asthma in Pregnancy (MAP) study. This research project was a randomised controlled trial which examined whether an improved care model for pregnant women with asthma could
lead to better outcomes for mothers and babies by reducing asthma exacerbations (Powell et al., 2011a). During the MAP study, midwives in the antenatal clinic of the hospital, where the research was conducted, referred women with asthma who presented to the clinic to participate in the study. The women who participated in the study were randomised into one of two groups. Both randomised groups received current best practice asthma management. However, in one group treatment changes were based primarily on symptoms (such as wheezing and coughing) and lung function whereas in the second group treatment changes were guided by measured levels of exhaled nitric oxide (ENO), an objective marker of airway inflammation, as well as symptoms. The women were seen on a monthly basis by the clinical research officer or a respiratory nurse employed by the MAP study, the woman’s asthma status and medications were reviewed and education was provided. This study concluded that the use of ENO levels to guide treatment changes in pregnant women was valid, and that receiving asthma education during pregnancy improves women’s adherence to medication regimes and improves their quality of life by reducing asthma exacerbations (Powell et al., 2011b).

I received asthma management training as a part of this role and was therefore able to provide education to the women involved in the study. This training is not routinely offered to midwives. My research officer role gave me insight into the needs of pregnant women with asthma, which includes the ongoing assessment of asthma symptoms and continued education regarding the management of symptoms associated with asthma. The role also reinforced the importance of good asthma management throughout a woman’s pregnancy to help reduce the risk of complications such as pre-term birth and low birth weight babies. During that time, I was able to gain some insight into the role of the midwives working in the antenatal clinic and how they managed pregnant women with asthma.

Prior to my work on the MAP study, I knew very little about asthma in pregnancy and, as a midwife working in the antenatal clinic, I would take a medical history as required and simply note that the woman had asthma. Unless the woman was having symptoms at the time of her visit or made specific reference to her asthma, no further action was taken. Informal discussion with some of the midwives working in the clinic revealed this was common practice. Some midwives working in the clinic expressed that they were pleased to have the MAP study take place in the clinic as they were unsure as to what women with asthma required during their pregnancy and the MAP study gave them the option to refer these
women for expert management. Some midwives stated that they would like to have more information about this area of antenatal care, whereas others stated that they just wanted a referral option so the women could receive appropriate asthma management.

Once the study was completed, the removal of the MAP study staff (a midwife and a respiratory nurse) from the antenatal clinic resulted in a deficit of antenatal asthma management that was apparent to the midwives still working in the clinic. Some midwives in the antenatal clinic expressed the view that better management was required for pregnant women with asthma, and felt that they did not have adequate resources such as up-to-date knowledge about asthma management, printed information or referral pathways for women with asthma. However, because of the presence of asthma research in the antenatal clinic over more than a decade (Forbes, Gibson, Murphy, & Wark 2011; Murphy et.al, 2003; Murphy, Clifton, & Gibson, 2010; Murphy & Gibson, 2010; Murphy, Gibson, Talbot, & Clifton, 2005; Murphy, Gibson, Talbot, Kessell, & Clifton, 2005; Powell et al., 2011a; Vanders, Gibson, Wark, & Murphy, 2013), there appeared to be some awareness among midwives of asthma being a problem in pregnancy and that it should be adequately addressed. However, the midwives currently working in the clinic did not appear to be prepared to take ownership of this identified clinical deficit and were pleased that someone was willing to attempt to identify this problem more clearly and potentially bring about clinical change as a result of a research study.

The researcher’s assumption prior to the commencement of this study was that the midwives providing antenatal care to women with asthma were not providing adequate antenatal asthma management. Reflecting on comments made to the researcher by the staff of the antenatal clinic, it appeared that midwives were uncertain of the effect of asthma on women and babies during pregnancy. The researcher held the assumption that midwives working in this unit were unsure about what information to give women regarding their antenatal asthma management or where to send women for adequate antenatal asthma care.

1.2 Background to the problem

The global prevalence, morbidity, mortality and economic burden associated with asthma in the general population has increased sharply over the last 40 years, with approximately 300
million people worldwide currently diagnosed with asthma, and a 50% prevalence increase every decade (Braman, 2006).

In 2003, asthma was the eleventh-leading contributor to the overall burden of disease in Australia (Begg et al., 2007). Asthma is therefore a significant health problem in Australia, affecting at least 10% of the population (Australian Centre for Asthma Monitoring [ACAM], 2008). It is predicted that over the next two decades asthma will continue to be one of the major causes of disease burden in Australia and that women particularly will be affected (Begg et al., 2007). Akinbami (2006 as cited in Benninger & McCallister, 2010), states that women have a 40% higher asthma prevalence rate than men after the age of 17. Considering the higher proportion of women affected by asthma, an examination of the consequences and management of this disease during pregnancy is particularly important.

1.2.1 The problem of asthma in pregnancy:

Asthma continues to be one of the most common potentially serious conditions that can cause complications in pregnancy (Prasad & Samuels, 2008). At least 12% of pregnant women in Australia are affected by asthma (Clifton et al., 2009; Kurinczuk, Paesons, Dawes, & Burton, 1999) and several studies have examined the link between poorly managed asthma and increased exacerbations during pregnancy with increased foetal and maternal morbidity (Bracken et al., 2003; Clifton et al., 2009).

A meta-analysis by Murphy et al. (2011) demonstrate a significantly increased risk for low birth weight, pre-term labour, pre-term delivery and pre-eclampsia among pregnant women with asthma. The influence of potential confounding factors and the extent of heterogeneity was considered in this meta-analysis, and despite some heterogeneity, an increased risk of complications in pregnancies affected by asthma was demonstrated. Murphy et al. (2011) suggests that, as a result, careful medical and obstetric monitoring of pregnant women with asthma and their babies is warranted. Schatz and Dombrowski (2009) suggest that appropriate management and treatment to minimise acute exacerbations may improve maternal and foetal outcomes. In addition, they suggest that pregnant women may benefit from a multidisciplinary approach to care, with input from obstetricians, midwives and respiratory specialists. However, there appears to be no literature to date which examines midwives’
knowledge about asthma in pregnancy or their perceived role in asthma management during the antenatal period.

1.2.2 The possible effects of asthma on pregnant women and their babies:

Changes in women’s asthma status during pregnancy varies from woman to woman and pregnancy to pregnancy, with at least one third of pregnant women experiencing a worsening of their symptoms (Kircher, Schatz, & Long, 2002; Schatz et al., 1988). Over the last two decades, many studies have been undertaken to determine the effect of asthma during pregnancy on maternal and infant outcomes. Various aspects of asthma management have been explored. These studies have attempted to examine the link between asthma status during pregnancy and poor maternal or perinatal outcomes such as pre-term labour, pre-term delivery, intrauterine growth restriction (IUGR), low birth weight, pre-eclampsia, congenital malformations and foetal or neonatal death, (Bracken et al., 2003; Breton et al., 2008; Clifton et al., 2009; Enriquez & Griffin, 2007; Lao & Huensburg 1990; Narayan, 1995; Schatz, 1995; Stenius-Aarniala, 1996). The general conclusion was that, if asthma is well managed during pregnancy, the maternal and perinatal outcomes will not be significantly different to those of the non-asthmatic controls (Murphy et al., 2011; Schatz, 1995).

Exacerbations of asthma during pregnancy have been shown to represent a significant clinical problem. Any reduction in the number and severity of exacerbations experienced by women during their pregnancy is, therefore, a key goal of antenatal asthma management. A systematic review revealed a significantly increased risk of having a low birth weight baby if the woman had a severe exacerbation of her asthma during pregnancy (Murphy, Clifton, & Gibson, 2006). However, a significant correlation between exacerbations during pregnancy and pre-term birth or pre-eclampsia was not identified by this review.

A prospective cohort study by Murphy et al.,(2005) showed that in Australia 36% of women had a severe exacerbation of their asthma during pregnancy which required medical intervention, and 19% of pregnant women experienced a mild exacerbation of their asthma which was characterised by increased symptoms. Optimal management of asthma in the antenatal period has the potential to reduce the risk of poor maternal and perinatal outcomes such as maternal hospitalisation for exacerbation, low birth weight or pre-term delivery. It is
suggested that midwives, who are pivotal in the provision of antenatal care, be the key contributors to this management process because of the opportunity they have to inform and build knowledge about asthma management for the women for whom they provide antenatal care (Henley-Einion, 2008).

1.2.3 Role of the midwife:

The role of the midwife in the care of pregnant women varies depending on the country in which the midwife works and the model of antenatal care provided. In Australia, some midwives provide care for pregnant women in an antenatal clinic setting. Women commence this model of care following a referral by their general practitioner (GP).

The philosophy and practice of midwifery is shaped by the meaning of the word midwife, which is defined in *The American Heritage Dictionary of the English Language* (2009) as meaning, ‘with woman’. Until the 1900’s a woman who had learned midwifery from an experienced midwife was referred to as a midwife or in some instances an empirical or vocational midwife (Fahy, 2006). The rise of obstetrics in Europe and the United Kingdom in the 18th and 19th centuries saw the subordination of midwifery by the medical and nursing professions. This subordination reached Australia in the 1880s, almost a century after white settlement. The ‘untrained’, empirical or vocational midwives were being dominated by obstetricians and hospital trained nurses who received extra training in the specialty of midwifery. Independent midwives were no longer viewed as safe practitioners, so midwives were trained under a medical model of care.

The role of the midwife had, therefore, changed dramatically in Australia from a continuity of carer, holistic model to the institutionalised, medical, prevention of further harm model of care. Over time in Australia, a shortage of obstetricians and GP obstetricians has led to a return of midwifery-led care, with governments providing maternity services in the community, increased midwifery models of care, free-standing birth centres and publically funded homebirths. However, currently 97% of women in Australia continue to birth in hospital under medicalised models of care (Australian Nursing Midwifery Council, 2010). The education of midwives has also evolved with Bachelor of Midwifery degrees now available, meaning that it is no longer compulsory to be a registered nurse prior to being a midwife. The introduction of the Bachelor of Midwifery was a professional and political
strategy to re-establish midwifery education that is underpinned by the philosophical beliefs of midwifery; woman-centredness, partnership and the concept that birth is a normal, physiological event in a woman’s life.

The Australian College of Midwives [ACM] (2005) identifies that midwives must recognise and respect every woman’s right to make decisions for herself. The ACM highlights that it is the midwife’s responsibility to inform pregnant women of relevant evidence and guidelines that may assist them to make informed decisions regarding their health. The ACM notes that the midwife is accountable for disseminating unbiased and current information to promote informed choice by women. The midwife is, therefore, in an ideal position to help address the issue of asthma in pregnancy and work with pregnant women to optimise their care. This may include education relating to self-care and referral; thereby minimising, as far as possible, the effect asthma in the antenatal period may have on their baby and themselves.

The asthma care guidelines (National Heart, Lung and Blood Institute, 2007) clearly state the need for collaborative care for pregnant women with asthma. In Australia, the National Health and Medical Research Council [NHMRC] developed the National Guidance on Collaborative Maternity Care (the guidance) (NHMRC, 2010), which defines collaboration as a dynamic process of facilitating communication, trust and pathways that enable health professionals to provide safe, woman-centred care (p.1).

Collaborative maternity care aims to enable women to be active participants in their care and should include clearly defined roles and responsibilities for those involved in a woman’s care. The principles of collaborative care are clearly outlined in the document (NHMRC, 2010) and include:

- Placing the woman at the centre of her own care,
- Enabling the woman to choose the care that is appropriate for her and her environment whilst also being based on best evidence,
- Ensuring women are given information about all their options,
- The establishment of a clearly defined and inclusive reciprocal communication strategy between all collaborating professionals,
- Monitoring health outcomes for mother and baby to ensure safety and quality of care,
• Respecting and the valuing of roles among collaborating professionals, and the provision of education to meet each other’s needs,
• Ensuring consistency by having joint education and training and agreed care plans,
• Maximising continuity of carer throughout pregnancy, birth and postnatal period,
• The provision of a clear description of the roles and responsibilities of the woman’s maternity care coordinator.

Determining the role of the midwife in antenatal asthma management is therefore important in order to enable the midwife to provide appropriate care for the pregnant woman with asthma, and for the woman to receive the care she requires to optimise health for her and her baby.

1.3 Significance of this study

As outlined previously, asthma continues to be a significant health problem for pregnant women and is a risk factor for poor maternal and foetal outcomes (Murphy et al., 2011; Murphy, Powell, Wark, & Gibson 2013). Appropriate asthma management and the achievement of good asthma control are the key factors in minimising the effects of this chronic condition during pregnancy.

From personal observation, as a practising midwife and clinical research officer, it appeared that evidence-based asthma management was not currently being implemented in routine antenatal clinics. An initial literature review did not identify any literature pertaining to midwifery involvement in antenatal asthma management or the application of guidelines for asthma management in an antenatal setting by midwives. There appeared to be a dearth of literature regarding midwives’ knowledge about asthma management for pregnant women and their perceived role in the antenatal care of women with asthma. This provided an indication of the need for further research into midwives’ knowledge of asthma management in pregnant women and their role in the management of antenatal asthma.

Determining midwives’ perception of their role in asthma management for pregnant women, and their knowledge of this management process may identify opportunities and barriers to maximising the care of women with asthma during the antenatal period. Midwives participating in the study may also benefit from having the opportunity to discuss, share and/or build on their knowledge regarding asthma in pregnancy, related clinical guidelines and
their role in asthma management for pregnant women. The participating midwives’ knowledge about the significance of asthma in pregnancy may be improved allowing them to add to their professional knowledge base and enabling them to pass this knowledge on to other staff working in clinical areas, such as student midwives, medical staff and other registered midwives. In addition, midwives may use their participation in this study to share their experiences of providing asthma management for pregnant women and suggest ways of overcoming barriers to effective asthma management if they arise, potentially leading to clinical practice changes. This study aims to examine midwives’ knowledge about asthma in pregnancy and their perceived role in antenatal asthma management and may lead to further research into asthma management by midwives, and also potentially lead to the development of clinical management pathways and education resources which could be shared with other health facilities.

1.4 Structure of this thesis

This thesis consists of five chapters. Chapter 1 is the introduction in which the background and motivations for undertaking this study are presented. The researcher’s interest in identifying a possible gap in the antenatal management of women with asthma by midwives is stated.

Chapter 2 reviews the literature that discusses asthma in pregnancy, the management of asthma in pregnancy and the role of midwives in the antenatal management of women with health issues such as asthma. In addition, the purpose of this study is justified and recommendations for further research are suggested.

Chapter 3 outlines the research design and the research process used in this study. A clear audit trail is presented in this chapter, which enables the reader to identify the credibility, dependability, confirmability and transferability of the data and establishes the rigour and trustworthiness of the data and subsequent findings of this study.

Chapter 4 presents the findings of this study and, with the aid of the participants own words, the four emergent categories and twelve sub-categories from the data are described.
These findings are further discussed in Chapter 5 in relation to the current literature on this topic. Similarities and differences between previous and current knowledge are discussed in this chapter, as are recommendations for change in midwifery practice, the education of midwives, policy development and future research in light of this study’s findings.
Chapter 2 Literature Review

2.1 Background to the review

Previous research has concluded that adequate antenatal asthma management reduces the risk of some poor maternal and neonatal outcomes (Bracken et al., 2003; Breton et al., 2008; Clifton et al., 2009; Enriquez & Griffin, 2007; Lao & Huensburg 1990; Murphy et al., 2011; Narayan, 1995; Sawicki et al., 2011; Schatz, 1995; Stenius-Aarniala, 1996). Asthma management guidelines developed in response to this research state that antenatal asthma management should involve a collaborative approach between health professionals caring for pregnant women with asthma and the woman herself (Australian College of Midwives, 2005; National Health and Medical Research Council, 2010; National Heart Lung and Blood Institute, 2007).

The philosophical underpinnings of midwifery and the scope of practice of the midwife in Australia are clearly articulated in the philosophy statement by the Australian College of Midwives (2004), which indicate that the midwife should be practicing woman-centred care. Woman-centred care involves working collaboratively with the pregnant woman, her family and other health professionals involved in her care to ensure an optimal outcome for her and her baby.

The purpose of this literature review is to examine optimal antenatal asthma management and the role midwives have or perceive they should have in providing antenatal asthma management.

2.2 Search strategy

A critical review of contemporary literature related to antenatal asthma management and midwives’ role in the management of asthma in pregnant women was conducted for the period 1990 – 2011 and is reported in this chapter. A systematic search of the literature was conducted using the databases: CINAHL; Medline; Mosby’s Index; MIDIRS; EMBASE; and Cochrane Library.
The key words: asthma; asthma management; pregnancy; antenatal; midwifery, midwives’ role and Australia, with Boolean operators (AND/OR), were used.

Spelling variations for Australian and American English were included. The reference lists of relevant papers were also reviewed manually in order to supplement the search.

The limits applied to the search were:

- 1990-2011
- English only
- Human studies

The inclusion criteria were:

- Research papers that discussed asthma in pregnancy and the management of asthma in pregnancy internationally.
- Papers that discussed the role of the midwife and specifically the midwives’ role in antenatal asthma management.
- Papers that discussed the role of the midwife in managing other health issues during pregnancy.
- Recommended guidelines/consensus statements/systematic reviews of asthma management.
- Examples of models of midwifery care.
- Professional competency standards.

The exclusion criterion was:

- Cohort studies focussed on paediatric cases of asthma.

The papers identified in the initial search were assessed and reviewed using these inclusion criteria. Twenty-five primary research articles and a total of twenty-one guidelines, consensus statements, models of care documents and systematic reviews were included in this literature review.

**2.3 Summary statement**

Studies directly addressing the research question were not found during this review. A dearth of literature linking asthma management to midwifery practice was identified. A substantial body of literature relating to asthma management in pregnancy was located (including recommended guidelines, primary studies, meta-analyses, and national competency standards). The role of the midwife was reported in the literature, focusing on the perceived
role of the midwife from a primary and public health care viewpoint but not specifically on asthma management.

Many of the studies examining the role of the midwife and models of midwifery care came from the United Kingdom and New Zealand. Although this review focused on the Australian context, the role of the midwife in the UK and New Zealand is comparable to that in Australia, thereby making these studies relevant to this review of literature.

Qualitative and quantitative methods were represented among the studies examined. In most instances, data collection was achieved by questionnaires or semi-structured interviews of participants. Purposive sampling was used predominantly in the qualitative studies and convenience sampling was often used in the quantitative studies. The data analysis varied according to the study design. A summary of articles and documents used in this review is provided in Appendix 1.

When considering the research and guidelines relating to the recommended management of asthma during pregnancy, particular attention was paid to literature discussing areas of asthma management which could potentially fall within the midwife’s scope of practice and might therefore be considered to be part of the midwife’s role. This review is therefore presented in two parts, firstly discussing the role of the midwife and secondly discussing recommended approaches to antenatal asthma management.

### 2.4 The role of the midwife

There are many facets to the role and scope of the practice of midwives, and this role is continuing to expand in Australia. This review will examine literature, (including evidence-based literature) that discusses the philosophical underpinnings of midwifery, partnership as a model of midwifery care, the public and primary health care and health education roles of the midwife, and the general perception of a midwife’s role from both women’s and midwives’ perspectives.

#### 2.4.1 Philosophy and practice of midwifery

The Australian College of Midwives [ACM] (2004) states that, “Midwifery is a woman-centred, political, primary health care discipline founded on the relationships between women
and their midwives” (p.1). As such, midwifery focuses on a woman’s aspirations, expectations and health needs and takes into account a woman’s baby and family. The midwifery approach is holistic and recognises each woman’s social, emotional, physical, spiritual and cultural needs. Every woman’s right to self-determination in attaining choice, control, continuity of carer and responsibility to make informed decisions for herself is recognised. Midwifery practice is informed by scientific evidence, experience and intuition and includes collaboration and consultation between health professionals.

The scope of practice of the midwife as defined by the International Confederation of Midwives (ICM) (2011) is that:

The midwife is recognised as a responsible and accountable professional who works in partnership with women to give the necessary support, care and advice during pregnancy, labour and the postpartum period; to conduct births on the midwife’s own responsibility and to provide care for the newborn and the infant. This care includes preventative measures, the promotion of normal birth, the detection of complications in mother and child, the accessing of medical care or other appropriate assistance and the carrying out of emergency measures.

The midwife has an important task in health counselling and education, not only for the woman, but also within the family and the community. This work should involve antenatal education and preparation for parenthood and may extend to women’s health, sexual or reproductive health and child care.

A midwife may practice in any setting including home, community, hospitals, clinics or health units (p.1).

Five key midwifery concepts define the unique role of the midwife. These include: promoting self-care and the health of mothers, infants and families by working in partnership with women; respecting women as persons with full human rights and treating all women with dignity; advocating for women; and ensuring cultural sensitivity and viewing pregnancy as a normal life event whilst focusing on health promotion and disease prevention (ICM, 2011).

Within Australia, woman-centred care forms part of the philosophy of maternity care (ACM, 2004). The fundamental principles of woman-centred care are adaptations of the key midwifery concepts whereby the aim is to: ensure an equal partnership with women when
planning and delivering maternity care; recognise that the woman’s needs and wishes take precedence over those of the health service, managers or staff; allow women to make informed decisions by giving them information on all the options available to them during pregnancy, labour and the postnatal period; and provide continuity of care so that a trusting relationship may be able to form with the caregiver and ensure women have control when making key decisions affecting their care (The Royal College of Midwives, 2008).

### 2.4.2 Midwifery partnership model of care

In order to effectively implement woman-centred care, innovative models of service delivery need to be developed and sustained (The Royal College of Midwives, 2008). One such model is the midwifery partnership model. This model is recognised as international best practice (Australian Nursing Midwifery Accreditation Council, 2010a) and forms the ideology of the maternity service in New Zealand, whereby the partnership model of care is situated in the primary healthcare arena and recognises birth as a normal life event for the majority of women and their families (Hinks, 2011).

In the context of the woman-midwife partnership, the midwife brings to the relationship his/her skills and knowledge both professional and specific, to the woman and her family, and is authorised to provide care appropriate to the woman and her infant. Women and midwives are considered equal in a partnership model and the woman is considered the expert in relation to herself, her body and her baby. Professional input is provided by the midwife and this may assist the woman in aspects of self-care (Australian Nursing Midwifery Accreditation Council, 2010b).

When considering the midwife’s role in the care of women with asthma during pregnancy it is important to consider the midwife’s scope of practice and the model of care in which the midwife is currently working. For example, if the midwife is working in a partnership model of care whereby she is the main carer of the pregnant woman throughout her pregnancy and sees her regularly, the midwife will have more opportunity to be involved in the pregnant woman’s asthma management. However, if the midwife is working in a secondary model of midwifery care, whereby she works as part of a team in a hospital environment and sees the pregnant woman only once during the antenatal period, the midwife may have less opportunity to address issues which may arise regarding asthma management. In this model,
the midwife’s role may be one of referral to other health services such as a respiratory specialist, asthma clinic or GP.

Most of the literature discussing the partnership model of care (Freeman, Timperley, & Adair, 2003; Guilliland & Pairman, 2010) relates this model to the care of low-risk pregnant women. As will be discussed in this review, pregnant women with asthma are not necessarily classed as low-risk, and therefore this model of care may not be applicable to all pregnant women with asthma, but may be relevant for some.

Previously in Australia the standard maternity care offered in public hospitals has been criticised for its lack of continuity of care, the limited ability for women to be involved in decision making and participation in care options, and the lack of choice offered to women (National Health and Medical Research Council, 2010). Currently, various forms of antenatal care delivery exist in the Australian health care system.

Midwives and GPs provide primary antenatal care in some areas in Australia. The midwife or GP may refer women experiencing complications in their pregnancy, or those who have pre-existing conditions which increase their complication risk to a secondary or tertiary level of antenatal care. Secondary or tertiary level antenatal care is provided principally by obstetricians and involves collaboration with the primary care giver, who is the midwife or GP. Collaborative care guidelines for maternity care in Australia are clearly stated in the National Guidance on Collaborative Maternity Care document (National Health and Medical Research Council, 2010). GP obstetricians also exist in some areas and provide primary and secondary care in collaboration with other relevant medical colleagues and midwives (NSW Department of Health, 2008). The NSW Department of Health report on primary maternity services in Australia (NSW Department of Health, 2008) states that the majority of Australian antenatal care is provided in the private sector by obstetricians or GPs, even if the woman has chosen to birth in a public maternity service, and is provided across various levels of pregnancy risk.

Although maternity services reform is underway in Australia, the partnership model of care is not currently the dominant model in Australia, as it is in New Zealand. This may therefore influence how midwives working in Australia perceive their role.
2.4.3 Perceived role of the midwife

Overall, it would appear that the role of the midwife in Australia has not been extensively researched. Two Australian studies that have attempted to address this gap in the literature are those by Boon (2004) and Homer et al. (2007). Both studies used surveys to measure pregnant women’s perceptions of the role of the midwife (Boon, 2004; Homer et al., 2007). Boon (2004) conducted a quantitative study and recruited 108 participants. These participants were women who were pregnant for the first time. The survey questions focused on the women’s perceptions of what midwives do, and what they are qualified to do, using three time-derived categories: Antenatal, Intrapartum and Postnatal. All 108 participants responded to the survey. Ninety three percent (93%) of respondents felt that midwives were qualified to care for women in labour and 88% suggested that midwives were qualified to be involved in uncomplicated births. Giving antenatal advice on childbirth was believed by 92% of participants to be what midwives are trained to do. When questioned about ‘medically oriented’ procedures such as caesarean sections, only 79% of respondents believed that midwives were not qualified to perform this procedure, suggesting that the remaining 21% of respondents thought that performing caesarean section was part of the midwife’s role, despite it being exclusively the responsibility of the obstetrician in Australia. Overall, Boon (2004) concludes that pregnant women perceive midwives to be trained and qualified to provide antenatal, intrapartum and postnatal care, but are not qualified to perform ‘medically orientated’ procedures. It is also suggested in this study (Boon, 2004) that disseminating information to the community regarding the midwife’s role and scope of practice could help create better community awareness of the midwife’s role. Ultimately, an increase in community awareness could help to build a positive relationship between the midwife and the pregnant woman.

The perceptions of the midwife’s role from the perspective of women as consumers was further explored in a study by Homer et al. (2007), which collected qualitative data using a survey distributed to consumers who were members of the Australian College of Midwives and/or the Maternity Coalition. A sample of 28 women responded to the survey. Qualitative data and simple descriptive statistics were collected. The main views extracted from the data were that pregnant women felt that midwives should provide information that is up-to-date and evidence based. Midwives should also provide reassurance, which includes expressing confidence in the woman’s ability and making time to meet and listen to the pregnant woman.
Advice about nutrition and breastfeeding, and information about pregnancy, birth and the postnatal period were the strongest themes noted. This study did not specify whether obtaining information or advice on pre-existing medical conditions such as asthma was seen to be part of a midwife’s role. Continuity of carer, confidence in women’s ability to birth, excellent communication skills, collaboration with other caregivers and a greater visibility in the community were also important aspects of the role of the midwife that were identified by these consumers.

Data pertaining to the perceived role of the midwife from the studies by Boon (2004) and Homer et al. (2007) were complementary, as Boon (2004) collected quantitative data and discussed what consumers felt midwives were qualified to do, and Homer et al., (2007) used qualitative methods to extract descriptive perceptions about the midwife’s role from consumers of midwifery care, thereby providing a comprehensive picture of the consumers’ perceived role of the midwife.

Homer et al. (2007) also examined the midwives’ view of their own role. Thirty-two midwives from around Australia were randomly selected and asked to participate in a telephone interview. Some important components of the role of the midwife identified during these interviews were also identified by the consumers in this study, including aspects of: knowledge - recognising the need for evidence-based and up-to-date information to be given; trust - building a respectful partnership with the woman; flexibility - adjusting to individual’s needs; support - including the ability to undertake effective referral and consultation when required; continuity of carer; and practitioner confidence and effective communication. The midwives participating in this study also identified barriers preventing them from fully carrying out their role. These were: reduced opportunity to practice across the full spectrum of maternity care; medical domination; staff shortages; the institutional system of maternity care and the lack of community awareness of the role of the midwife. Homer et al. (2007) suggests that addressing these barriers would help midwives in Australia to function according to their full scope of practice.

These studies were limited by small sample sizes, and while the study conducted by Boon (2004) surveyed only primiparous women, the study by Homer et al. (2007) does not disclose whether the participants were primiparous or multiparous. The amount of exposure the women had to midwifery care would influence their view of the role of the midwife. The
setting in which the encounter with the midwife took place, that is hospital versus home or community setting could influence the view of the midwives’ role as it could vary significantly between settings. These factors were not reported in these studies.

2.4.4 Midwives’ role in public health care

Asthma in pregnancy is a significant primary health care problem in Australia. Examining the midwife’s role from a primary health, public health and health promotion viewpoint is therefore necessary to help determine the midwife’s potential role in the management of asthma in pregnant women.

The Australian Nursing and Midwifery Council National Competency Standards for the midwife emphasise primary health care in the context of midwifery practice by urging the profession to see itself as a public health strategy (Australian Nursing and Midwifery Accreditation Council, 2010). The concept of midwives working in a public health care model is not a new one. Wood, in her paper, “The role of the Midwife in Public Health” (1957) clearly states that prior to the 1950s the primary aspect of the midwife’s role had been the provision of nursing care to the pregnant woman, however from then on the midwife’s responsibility in health education for women and their families was recognised as significant (cited in Johnson, 2007). Bradley (2010) states that “pregnancy, birth and parenting are influenced by the wider social context in which the mother, family and child lives” (p.3), and that midwives are uniquely placed to influence the health and wellbeing of women and children. Midwives must therefore see their role in the wider public health context, including assessment and referral as required to other professionals, agencies and services for action (Bradley, 2010). Johnson (2007) reported on a series of public health seminars conducted by the Royal College of Midwives in the UK during which midwives expressed their awareness of the need for further public health screening and attention to particular social problems, but also raised the problem of the lack of time and resources with which to effectively address these issues.

Although, from a midwife’s perspective, asthma management in pregnancy appears not to have been researched or reported in the literature, other public health and social problems affecting pregnancy have been examined from the perspective of the midwife’s role. These include: listeria education (Bondarianzadeh, Yeatman, & Condon-Paoloni, 2011); oral health
during pregnancy (George et al., 2011); perinatal mental health (Ross-Davie, Elliott, Sarkar, & Green, 2006); and the examination of the newborn baby (Rogers, Bloomfield, & Townsend, 2003). The majority of studies researching these issues used a qualitative design when examining midwives’ perceptions of changing practice, to accommodate aspects of public health teaching or health promotion (Bondarianzadeh et al., 2011; George et al., 2011; Rogers, Bloomfield, & Townsend, 2003).

Two studies conducted in Australia were those by Bondarianzadeh et al. (2011) who examined midwives’ perceptions of providing listeria education during pregnancy, and another by George et al. (2011) who examined the perceptions of midwives providing oral health assessment and education to women during pregnancy. These qualitative studies used in-depth interviews with midwives to learn their perceptions of the research topic. Themes common to both studies were: midwives felt they needed more up-to-date knowledge on the particular health problem being researched in order to provide effective education; and midwives questioned their role in providing this education. In the findings of the study that examined listeria education (Bondarianzadeh et al., 2011), most of the 10 midwife participants stated that midwives felt that a woman’s GP was better suited to provide this education, rather than the midwife. The reason given for this was that the women are usually seen by a GP to have their pregnancy confirmed, and the provision of education early in pregnancy might be more beneficial than when a midwife sees a woman in the antenatal clinic at 14-20 weeks gestation.

George et al. (2011) interviewed 15 midwife participants about their role in education related to oral health in pregnancy and also questioned their role in addressing this health issue. Some participants (no specific number reported) stated that a dentist would be better suited to assess a woman’s oral health and provide education about this health issue. Common to both studies (Bondarianzadeh et al., 2011; George et al., 2011) was the suggestion that a clear referral pathway be developed so that midwives can know where to send women for treatment or further assessment of these health issues. In addition, in both studies, midwives identified that a barrier to their provision of the relevant health education was lack of time, stating that they do not have enough time during pregnant women’s ‘booking-in’ visits to address all of the relevant health and social issues. The midwives argued that this means they have to prioritise what they feel is the most significant information to give for the particular woman they are seeing. The small sample sizes associated with these studies mean that the findings are not
generalizable to other populations or public health issues. The data collection processes for both studies were similar and the data analysis processes were appropriate to the study design. Both studies addressed rigour by employing research strategies such as: transcript auditing, keeping field notes, keeping a thematic log during interviews and applying peer coding during the data analysis process.

The issues of lack of training, knowledge and confidence in a particular area of health management in pregnancy were shown to be significant to midwives participating in studies in the UK (Rogers et al., 2003; Ross-Davie et al., 2006). A quantitative study examining the midwives readiness to take on an extended public health role in the area of perinatal mental health was conducted (Ross-Davie et al., 2006). This study surveyed 187 midwives and found that 90% agreed that psychological care is an important part of the midwife’s role, with 71% agreeing that midwives are well placed to provide perinatal mental health care to women, but 75% felt that a lack of time, skills and knowledge limited their ability to fulfil their role in this area of care.

The willingness of midwives to extend their role into an area of postnatal care was examined in a UK qualitative study which used face-to-face interviews to explore midwives’ perceptions of and views about extending their role to the examination of the newborn baby (Rogers, Bloomfield, & Townsend, 2003). Interestingly, because the 10 midwives in this study felt that this task fitted well with their perceptions of the core values of midwifery and the provision of holistic and continuity of care they were happy to take it on despite some concern regarding time constraints.

The limitations of the above studies include generalisability of the findings as both studies included relatively small sample sizes. Rogers et al. (2003) acknowledge that the sample size for their study was predetermined prior to data collection and that a stage of saturation may not have been met thereby limiting the reliability of the findings. Ross-Davie et al. (2006) acknowledge that although they had a 100% response rate to their survey, this was due to it being made compulsory for attendees at a mandatory training day. The findings of this study may, therefore, not be applicable to other midwives in the UK working in different settings.
2.5 Asthma management in pregnancy:

This review also seeks to identify midwives’ role in asthma management in the antenatal period. It is therefore important to review literature about the recommended management of asthma in pregnancy. The next part of this review will involve examining literature pertaining to the recommended management of asthma in pregnancy; the significance of asthma severity in pregnancy; and the self-management of asthma in pregnancy.

2.5.1 Guidelines and management:

The recommended management of asthma during pregnancy was outlined in guidelines developed by the National Asthma Education and Prevention Program [NAEPP] (National Heart Lung and Blood Institute, 2004) and revised in 2007 (National Heart Lung and Blood Institute, 2007). The implementation of these guidelines into clinical practice would be ideal because several studies identify that well managed asthma in pregnancy reduces the likelihood of adverse maternal and foetal outcomes (Murphy et al., 2006; Schatz 1995). The ultimate goal of effective asthma management during pregnancy is the prevention of exacerbations, which may cause hypoxic episodes in the mother and in turn reduce oxygenation of the foetus. The unpredictable nature of changes in the clinical course of asthma during pregnancy can make management challenging and variations occur between women and with each pregnancy (Kircher et al., 2002). This variation in the clinical course of asthma is described in a prospective cohort study by Schatz et al. (1988) which found that out of 330 women studied 28% reported improvement in their asthma symptoms, 33% were unchanged and 35% worsened during their pregnancy. These data should be taken into account when midwives assess a pregnant woman’s asthma status and develop a management plan.

2.5.2 Asthma severity and pregnancy:

The relationship between asthma severity during pregnancy and exacerbations was examined by Schatz, Dombrowski, and Wise (2003) with a prospective observational cohort study involving 1739 pregnant women. Each woman’s asthma severity was initially classified as mild, moderate or severe and information on exacerbations was progressively gathered throughout their pregnancy. The pregnant woman was considered to be having an exacerbation if her symptoms were severe enough to require a medical intervention such as
hospitalisation, unscheduled visits to a physician or the emergency department, or to require the prescription of oral corticosteroids where they had not previously been needed. This study found that exacerbations occurred in 12.6% of women initially classified as mild, 25.7% of women initially classified as moderate, and 51.9% of women initially classified as severe. The participant’s asthma severity (based on symptoms, pulmonary function and medication requirements) was concluded to be significantly related to the risk of future asthma exacerbations during pregnancy ($P < .0001$) (Schatz et al., 2003). This pattern was also demonstrated in an Australian prospective cohort study by Murphy et al. (2005a) which involved 146 pregnant women and showed that severe exacerbations occurred in 8% (95% confidence interval [CI] 1.3-14.6%) of women with a classification of mild asthma, 47% (95% CI 30.3-63.8%) of women with moderate asthma and 65% (95% CI 52-78.6%) of women with severe asthma. The significance of asthma exacerbations in pregnancy was further examined by this study, which concluded that exacerbations most commonly occur in the late second trimester of pregnancy and that the major triggers for these are non-adherence to medication such as inhaled corticosteroids (ICS) and self-reported viral infections. The prevention of exacerbations is important because women who have a severe asthma exacerbation during pregnancy are at a greater risk of birthing a baby with low birth weight compared to women without asthma (Relative Risk [RR] 2.54, 95% CI=1.25-4.25) (Murphy et al 2006) especially if they are carrying a male foetus ($P=0.03$) (Murphy et al., 2005a). A retrospective cohort study by MacMullen, Shen and Tymkow (2009) also concluded that the severity of asthma is implicated in adverse maternal/infant outcomes. In this study involving 7777 pregnant women, the differences in maternal outcomes between pregnant women with asthma and pregnant women without asthma were examined. It was concluded that pregnant women with asthma have higher odds of having a preterm labour (Odds Ratio [OR]=1.22, 95% CI=1.06-1.41) and pre-eclampsia (OR=1.50, 95% CI=1.25-1.81). The P values were not reported in this study. MacMullen et al. (2009) also comment about the role nurses play in caring for pregnant women with asthma and suggest that the first step for those working with pregnant women with asthma is to be aware of the relationship between asthma severity/exacerbations and maternal and foetal outcomes. The authors recommend that the caregiver be vigilant in assessing women for risk factors such as respiratory infections, smoking, medication compliance, and other asthma triggers. A thorough medical and physical examination is recommended in order to determine the initial asthma severity, and an antenatal asthma management plan should be implemented. Additionally, patient education on the avoidance of risk factors should be delivered and asthma self-management should be part
of this plan (MacMullen et al., 2009). Although this study examined the nurse’s role rather than the midwife’s role the recommendations are consistent with those outlined in the National Asthma Education and Prevention Program [NAEPP] (National Heart Lung and Blood Institute, 2007).

2.5.3 Antenatal management of asthma

Provision of antenatal care for women with asthma involves a holistic approach thereby giving support during pregnancy and assisting women in managing their condition and becoming aware of any associated risk factors (Henley-Einion, 2008). Australian and international guidelines for asthma management in pregnancy are evidence-based and have comparable content. The document, Standards for Maternity Care in Australia and New Zealand (Royal Australian and New Zealand College of Obstetricians and Gynaecologists [RANZCOG] 2011), states that multidisciplinary care should be available for all women with pre-existing medical conditions. They state that pregnant women with complex medical conditions, including asthma, should be managed by a consultant obstetrician and that clear referral guidelines and pathways should be established to ensure that pregnant women with asthma are cared for by an appropriate specialist. The National Asthma Council Australia [NAC] (2006) also suggests: cooperation between all health professionals caring for the pregnant woman; a regular review of the woman’s asthma every 4-6 weeks, including peak expiratory flow monitoring; pharmacological treatment of asthma during pregnancy, as for the non-pregnant woman; minimal exposure to trigger factors, such as allergens or irritants, by the woman during pregnancy; and the prompt management of any exacerbations of asthma. Depending on the severity of a woman’s asthma, a respiratory specialist may already be involved in her care, and so she may be referred to obstetric-led care for her pregnancy. Those who present to the antenatal clinic stating that their asthma is mild to moderate or who have a history of childhood asthma may continue to receive midwife-led care in some instances, and it is therefore important for midwives to be aware of the potential for a woman’s asthma status to change throughout pregnancy, as reported by Schatz et al. (2003) and Schatz et al. (1988). The model of care in which a pregnant woman with asthma is engaged during the antenatal period may vary considerably from woman to woman, depending on her personal choice, that is: private or public antenatal care; the models of maternity care available within the woman’s local health district; and the initial severity of her asthma. Asthma severity or exacerbation risk can change for some women during their pregnancy, and, hence, their model
of antenatal care may subsequently change. A woman may start by having midwife-led care, but may need to be referred to a medical model of care for closer monitoring or treatment of asthma exacerbations. In some clinics, the primary caregiver, the GP, refers pregnant women who are offered a ‘booking-in’ appointment with a midwife, who is responsible for obtaining a thorough medical history. The midwife then refers the woman to a particular model of care, according to the woman’s co-morbidities, her desired model of antenatal care and the models of care available.

2.5.4 Self-management of asthma in pregnancy

An important component of asthma management is the provision of self-management education. The effectiveness of education programs has been demonstrated in previous studies which concentrated on non-pregnant adults with asthma (Gibson & Powell, 2004; Gibson et al., 2006). When considering pregnant women with asthma, however, it is important to acknowledge that some pregnant women may reduce or cease their uptake of prescribed medication for fear that it will adversely affect their baby. A study by Murphy et al. (2005b) reported that, at the first visit with an asthma educator when the women were approximately 20 weeks pregnant, 40% of the 211 pregnant women participating reported non-adherence to prescribed inhaled corticosteroids (ICS). This non-adherence appeared to be driven by the women’s perceived risk of ICS effects on the baby. In addition to non-adherence, 16% of women were assessed as having inadequate inhaler technique, meaning that they were potentially not receiving adequate drug delivery to their lungs. A written action plan which outlines steps to be taken when asthma worsens was only held by 15% of the women participating in this study and only 3% were performing peak flow monitoring. These are all aspects of recommended self-management of asthma during pregnancy. One hundred and forty nine (149) of the women were assessed subsequently at 33 weeks gestation and improvements in all aspects of asthma self-management were noted following the education given by the asthma educator located in the antenatal clinic. Self-reported non-adherence to ICS decreased to 21%, inadequate inhaler technique decreased to 4%, 35% of the women were conducting peak flow monitoring and 75% possessed a written asthma action plan (Murphy et al., 2005b).

A study by Chambers (2003) conducted in the USA used an online survey method to assess the attitudes among 501 asthmatic women of childbearing age with regard to medication use
and adherence during pregnancy. Findings from this study were that 82% of the 501 respondents were concerned about perceived health risks to their unborn child if they became pregnant. Despite this, 36% stated that they would definitely discontinue ICS use during pregnancy. Interestingly only 19% had discussed with a physician the need to continue taking asthma medication if they become pregnant and approximately 14% who had been pregnant discontinued or reduced their asthma medication during pregnancy without consultation with a physician.

Enriquez et al. (2006) also examined whether pregnant women with asthma altered their use of asthma medications during pregnancy. A cohort study was conducted of 8149 pregnant women with asthma who were enrolled in the Tennessee Medicaid program in the USA between 1995 and 2001. Data were collected from a prescriptions database and any changes in asthma medication use were evaluated using generalised estimating equation analyses. It was found that women with asthma significantly reduced their asthma medication use from 5 to 13 weeks of pregnancy ($p \leq 0.0005$). There was a 23% decline in ICS prescriptions, a 13% decline in short-acting beta-agonist prescriptions and a 54% decline in rescue corticosteroid prescriptions during the first trimester. This study was limited to the Tennessee Medicaid population and therefore may not be generalizable to other populations.

Lim, Stewart, Abramson, and George (2011) used a qualitative study design to examine the experiences, concerns and views of pregnant women with asthma. This study employed in-depth interviews to collect data from 23 purposively selected asthmatic women at various stages of pregnancy and up to 5 weeks postpartum. It was unclear from the study whether the interviews were structured. The themes emerging from this study appeared to concentrate on medication adherence and concluded that women are not well informed about, or supported in asthma management antenatally and that there is poor communication between health professionals and women with asthma. It was found that many participants decreased or discontinued uptake of their asthma medication without consulting their health professional. The reasons given for this non-adherent behaviour included a lack of support and information regarding medication safety during pregnancy, women’s past experiences and some women wanting to have an all-natural pregnancy. This study did not clarify who the health professionals were.
The available literature demonstrates an opportunity for midwives, as health professionals caring for women with asthma, to provide education to pregnant women about their asthma medication and to emphasize that this is an integral component of the management of pregnant women with asthma.

### 2.5.5 Role of the patient in asthma self-management

The measurement and acknowledgement of self-management skills and determining the role the patient wants to play in the management of their asthma are also important aspects of a therapeutic clinician/patient partnership. Caress, Luker, Woodcock, and Weaver (2002) identified this in a qualitative study based in the UK wherein 32 adult asthma patients were interviewed regarding their preferred treatment decision-making roles and the rationales for these. The results of this study were that 14 respondents preferred a passive decisional role in their asthma management, 11 preferred to be collaborative and only 7 stated they wanted to be active participants in their asthma management. The data from this study suggests that most of these adults with asthma wished to contribute to or be involved in their treatment decision-making, but not necessarily control it.

A quantitative study further examined this issue using a cross sectional survey of 230 adult asthma patients receiving care from 10 primary care sites (Caress, Beaver, Luker, Campbell, & Woodcock 2005). The results from this study were that 40% preferred a passive role, 36% a collaborative role and 24% an active role in their treatment, decision-making and asthma management. Interestingly only 33.5% of respondents stated that they were able to attain the role they preferred, with 55% stating that they were less involved than they preferred. The identified barriers which prevented respondents achieving their preferred role included: insufficient consultation time; lack of continuity of carer; the health professionals’ poor interpersonal skills; and lack of patients’ knowledge regarding asthma and its treatment.

### 2.5.6 Triggers or risk factors for asthma in pregnancy

Another aspect of self-management education that midwives have an opportunity to be involved in is the identification and management of individual risk factors or triggers associated with asthma. Limiting adverse environmental exposures during pregnancy is important for controlling asthma. The most common allergens that may trigger asthma include: animal dander, house dust mites, pollens and moulds. If a pregnant woman is not
aware of which allergens trigger a worsening of her asthma symptoms, an IgE blood test or skin prick test could be ordered to help determine the severity of allergy to these. The non-immunologic triggers which may be easier to avoid are: cigarette smoke, strong odours, air pollutants, food additives and certain drugs. Education regarding the importance of avoidance of these triggers could form part of the asthma education provided by the pregnant woman’s caregiver.

Cigarette smoking in pregnancy is a known major public health problem in many countries worldwide. In Australia a recent study showed that 34% of pregnant women with asthma were current smokers and that pregnant women with asthma were more likely to be smokers than those without asthma (Murphy et al., 2010). Within this prospective cohort study 80 pregnant women with asthma and 46 pregnant women without asthma were assessed at antenatal clinic visits. It was found that smoking was significantly associated with higher asthma control score (meaning worse symptoms) during exacerbation (p=0.04) and that in both the asthmatic and control groups, babies’ birth weights were lower among smokers than non-smokers (p=0.023 control, p=0.086 asthma). These results were consistent with another Australian study by Kurinczuk et al. (1999), who found that asthmatics were more likely to smoke during pregnancy than non-asthmatics. The risks to both mother and baby of cigarette smoking during pregnancy are widely recognised and poor outcomes may include: miscarriage, stillbirth, antepartum haemorrhage, pre-term premature rupture of membranes, pre-term birth, low birth weight, foetal growth restriction, sudden infant death syndrome and childhood respiratory and behavioural problems (Flenady, New, & MacPhail, 2005). Since maternal asthma has also been associated with adverse perinatal outcomes, particularly pre-term birth and low birth weight, there may be cumulative effects of asthma, asthma exacerbations and smoking in pregnancy.

Clear guidelines exist identifying the importance of smoking cessation in pregnancy and suggesting ways to address this issue. Publications such as the National Institute for Health and Clinical Excellence (NICE) guidelines UK – * Quitting smoking in pregnancy and following childbirth* (NICE, 2010) outline an approach which could be adapted for use by health professionals in a variety of healthcare settings. The recommended procedure includes the 5As approach, whereby the woman (in the case of antenatal care) would be Asked if she was a smoker; Assessed as to her readiness to change this practice; Advised of the importance of quitting; Assisted by the provision of education and/or referral to services specialising in
smoking cessation and Arrange follow-up to help keep the woman on track if she is keen to quit. Australia has adopted these guidelines and documents exist outlining these guidelines and adapting them to the healthcare system within Australia (Royal Australian College of General Practitioners [RACGP], 2011).

There are few midwifery-based smoking cessation studies in the literature despite it being suggested that midwives are in an excellent position to motivate women smokers because of their access to pregnant women and their individualised, personalised and multidisciplinary approach to care. Bishop, Panjari, Astbury, and Bell (1998) surveyed midwives and doctors in an Australian antenatal clinic in 1993 and in 1996 to monitor the effect of a smoking cessation intervention conducted in the clinic over the period. The findings of this study are that midwives and doctors believe smoking in pregnancy to be an important health risk to both mother and baby. The antenatal clinic staff surveyed acknowledged that quitting smoking is difficult and that counselling is only moderately successful. The staff involved in this study stated that they lacked the skills required to counsel smokers and that time constraints prevented them from doing so (Bishop et al., 1998). This study did not separate the responses of doctors and midwives. Three midwives and 16 doctors participated in the 1993 survey and 10 midwives and 10 doctors participated in the 1996 survey. There is no suggestion in this study that the participants in 1996 were the same or different to the participants in 1993. The data sets from this study were therefore not analysed formally. One study which did examine the midwife’s role in changing smoking behaviour during pregnancy was a qualitative study conducted in New Zealand (McLeod et al., 2003). In this study midwives and women were asked to reflect on their experiences in providing or receiving support and education for smoking cessation. Midwives acknowledged that part of their role as a maternity care provider was asking women about smoking. Many midwives stated it was difficult to ask women about their smoking and to identify women who would be receptive to advice. The 16 midwives who participated were also concerned about how to support women to make changes to their smoking habits, and that their discussion of this topic may make women feel guiltier about their smoking and may, in turn, damage the relationship the midwife is trying to build with the women. Some of the pregnant women involved in this study (N=11), however, expected their midwife to ask them about their smoking and those who wanted to quit found their midwife to be a valuable source of information and support. Acknowledging the woman’s readiness to change and matching that with the type of support and advice provided is an important way of enabling midwives to provide effective education and support for
smoking change during pregnancy, but could be equally important in providing effective education and support for associated health promotion issues in pregnancy such as asthma management.

2.7 Summary statement

Although some of these studies did not focus on pregnant women and the management of their asthma during pregnancy, they identified the requirements of adults with asthma and their barriers to achieving effective asthma management. These barriers are similar to those identified by midwives attempting to provide effective care in other areas of health management for pregnant women. Further examination of pregnant women’s preferred role in their asthma management appears to be an important component of asthma management in the antenatal period and midwives are well placed to respond to these aspects of management.

2.8 Justification and purpose for this study

There is a need to explore the current knowledge and perceived role of midwives caring for pregnant women with asthma because the literature does not address this directly. The significance of asthma as a health issue for pregnant women in Australia is evident and the recommended management of asthma in the antenatal period has been clearly stated in the guideline. The literature demonstrates that Australian midwives espouse a philosophy of holistic care, that is, a model of care recommended for effective management of chronic illness such as asthma. Barriers to midwives fulfilling their role in this model of care have been identified using examples of other health issues affecting pregnant women, but what midwives perceive their role to be in the care of pregnant women with asthma is unclear. Further research examining midwives’ perceived role in antenatal asthma management may help to identify whether barriers exist that currently prevent Australian midwives from providing antenatal asthma management.

Recognising the significance of asthma in pregnancy may also encourage those caring for pregnant women with asthma to examine and follow current recommended guidelines for the care of pregnant women with asthma. This in turn may encourage collaboration between midwives and other health professionals providing antenatal care, in order to provide appropriate antenatal asthma management.
This study will give midwives the opportunity to discuss what they currently know about asthma in pregnancy and what role they feel they play in antenatal asthma management. It will also allow them the opportunity to identify any barriers they feel prevent them from providing optimal antenatal asthma management and to offer some suggested solutions to the identified problems. The inclusion of the midwives in this study is significant, as they may ultimately become the leaders of clinical change in this area.

This study will also contribute to addressing the existing gap in the literature, linking midwifery to the antenatal management of asthma, therefore adding to the midwifery body of knowledge on this topic and to the asthma management body of knowledge. Consequently this study will be designed to determine what knowledge midwives currently have about asthma in pregnancy and how they perceive their role in antenatal asthma management.
Chapter 3 Study design

3.1 Introduction

In Chapter 2, it was determined that there is limited evidence regarding midwives’ knowledge about asthma in pregnancy and their perceived role in antenatal asthma management. This chapter describes a qualitative descriptive study undertaken in an attempt to fill this knowledge gap. The study design, recruitment of participants, data collection methods, data analysis and strategies used to demonstrate rigour in the conduct of the study will be included.

3.1.1 Research question

The research question addressed by this study is: What is midwives’ current knowledge about asthma in pregnancy, and what is their perceived role in antenatal asthma management?

3.1.2 Objectives

1. To describe midwives’ current knowledge about asthma in pregnancy.
2. To identify midwives’ perceived role in antenatal asthma management.
3. To identify any barriers that may exist which prevent midwives from providing evidence-based asthma management.
4. To discuss possible solutions to the barriers identified by the participants.

3.2 Study design

Qualitative research is a form of social inquiry in which the focus of the research is the way people interpret and make sense of their experiences in the world in which they live (Holloway & Wheeler, 2002). The aim of qualitative research is to understand why people act in a certain way and what their thoughts and feelings are about a particular situation (Minichiello, Sullivan, Greenwood, & Axford, 2004). There are six fundamental values of qualitative research as outlined by Welch, Jirojwong, and Johnson (2011), including: believing a situation has multiple realities/perspectives; selecting a research approach that is appropriate to answer the research question; being committed to the viewpoint of the participant and describing truthfully what is important about the participant’s experience; conducting the study with minimal disturbance to the natural setting or context in which the
study is being conducted; acknowledging that the researcher is an integral part of the research; and ensuring that the participant’s experiences are presented in a literary style rich with expression and description.

Given that the focus of this study is exploring and describing midwives’ current knowledge of and perceived role in caring for pregnant women with asthma, a qualitative approach has been used. The specific methodology selected for this study is qualitative description. Sandelowski (2000) states that, in contrast to phenomenological or grounded theory description, qualitative description entails a low-inference kind of interpretation. Sandelowski (2000) suggests this methodology is useful in obtaining straightforward answers to questions which may be relevant to policy makers and practitioners. As a methodology, qualitative description facilitates the researcher obtaining an insider’s view on the ‘who’, ‘what’ and ‘where’ of a phenomenon (Sandelowski, 2000). Neergaard, Olesen, Anderson, and Sondergaard, (2009) also state that qualitative descriptive studies are good for gaining firsthand knowledge of a particular topic from health professionals, and that it is a good method to use if resources and/or time are limited.

An example of a qualitative descriptive study was presented in the literature review when discussing the perceived role of the midwife in relation to smoking cessation and pregnancy (McLeod et al., 2003). Using this methodology enabled the researchers to describe the midwives’ thoughts and feelings as they were presented without attempting to make them fit into a preconceived philosophy or theory. In this study, a qualitative descriptive approach will allow the researcher to present midwives’ knowledge and understanding of asthma and their perception of their role in caring for pregnant women with asthma as they describe this, with minimal interpretation on the part of the researcher. Neergaard et al. (2009) suggest that, unlike other qualitative approaches which attempt to develop concepts or reflect on existing theory when analysing data, qualitative description produces a final product which is, “a description of informants’ experiences in a language similar to the informants’ own language” (p. 53).

Sandelowski (2000, p. 337) states that, “qualitative descriptive studies tend to draw from the general tenets of naturalistic inquiry.” Thus, this form of inquiry focuses on a phenomenon in its natural state without any pre-selection or manipulation of variables and without committing to any particular theory or philosophy. This further emphasises the point that
using qualitative description as the methodology for this study will enable the determination of midwives’ knowledge, understanding and perceived role in antenatal asthma management as it exists in their current working environment.

3.3 The research setting

The research setting for this study was an antenatal clinic situated in a large tertiary referral public hospital in regional NSW, Australia. The antenatal clinic is managed by a midwifery unit manager and a midwifery team leader who co-ordinate the various clinics on a daily basis. The clinic operates from Monday to Friday from 0830 – 1700hrs. Many specialist clinics operate in this antenatal clinic, such as the Maternal Foetal Medicine Unit\textsuperscript{1}, The Early Pregnancy Assessment Unit\textsuperscript{2}, and various other clinics run by midwives or obstetricians depending on the women’s needs. Some specialist clinics include a diabetic clinic to cater for pregnant women with diabetes; a high risk maternity clinic which caters for women with medical or psychological issues which place them or their infant at a high risk of complications during their pregnancy; a VBAC clinic which caters for women who have had a previous caesarean section and are now considering a vaginal birth with a subsequent pregnancy and an indigenous women’s antenatal service which caters for those women, or their partners, who identify as being Aboriginal or Torres Strait Islander.

The clinic accepts referrals for any women residing in the Hunter New England Health District and, as such, women may travel long distances to access publically funded specialist care throughout their pregnancy. Approximately 50 women per day are provided with care in the antenatal clinic at the hospital in which this study took place. Many more are seen in community outreach clinics, which are available to women who live some distance from the facility and require antenatal care in their community.

\textsuperscript{1} A unit staffed by obstetricians, ultrasonographers and midwives, which cares for pregnant women who have a complication of pregnancy which is currently or has the potential to effect the foetus.

\textsuperscript{2} A unit staffed by midwives and obstetricians which cares for women experiencing complications in early pregnancy such as threatened miscarriage.
This setting was chosen as it had a large midwifery workforce and a previously identified prevalence of asthma in pregnancy of 12% (Clifton et al., 2009). The midwives working in this setting have been previously exposed to asthma research and appeared to be curious about the midwife’s role in antenatal asthma management.

### 3.4 Research processes

#### 3.4.1 Preparing for recruitment

Following ethics approval (Appendix 2 and Appendix 3), information about the study was provided to the midwifery manager of the antenatal clinic by the researcher. Permission was gained from the midwifery manager to schedule information sessions and to display flyers (Appendix 4) inviting eligible persons to participate in the study. Appropriate days and times for information sessions were discussed with the midwifery manager, as was the provision of a room for conducting information sessions.

#### 3.4.2 Inclusion criteria

To be eligible to be recruited into this study, participants had to:

- Be a midwife registered to practice in Australia.
- Be providing antenatal care to pregnant women who present to the health facility in which this study took place.

#### 3.4.3 Participant selection and recruitment

A purposive sampling technique was used to recruit potential participants for this study. The aim of purposive sampling in qualitative research is to select participants who can provide rich, in-depth information relevant to the study being proposed (Holloway & Wheeler, 2002; Schneider & Whitehead, 2013). Individuals are selected to participate based on their firsthand experience of the research topic (Johnson & Chang 2011). Given this, a purposive sample of midwives likely to have had first-hand experience of providing antenatal care to women with asthma was recruited for this study. When considering a small sample size, Patton (1990) suggests that heterogeneity can be a problem because individual cases can be different from each other. Maximum variation sampling was used to strengthen this potential weakness by applying the logic that common patterns emerging from a variety of participants in a similar situation can capture the core experiences and aspects that are central or shared within the
group (Patton 1990). For this study, maximum variation sampling meant recruiting midwives with various lengths of midwifery experience and from various practice settings/models of care to participate.

A predetermined sample size is not usually required for a qualitative research proposal for, as Patton (2002) suggests, the basis of the study rationale and purpose should be used to judge the sample size. A common range of participant numbers in qualitative research is 8 to 15 participants (Schneider & Whitehead 2013) but it can vary outside this range.

Participants were recruited using a sequential recruitment strategy. Firstly, a flyer (Appendix 4) inviting midwives to attend an information session about the research project was placed on the staff notice boards. The researcher conducted three information sessions. In these information sessions, the background to the study topic was explained, as was the purpose of the study and the requirements of the participants. An information statement (Appendix 5) and a consent form (Appendix 6) together with a reply paid envelope were placed in a folder and left at the antenatal clinic. Potential participants were encouraged to take a folder at the conclusion of the information session if they were interested in participating in the study. Midwives were asked to sign the consent form and return it in the reply paid envelope. Once the signed consent form was received the researcher then contacted each prospective participant to arrange an appropriate date, time and location for an interview.

### 3.4.4 Data collection

In qualitative research interviews are the most commonly used method of data collection (Welch et al., 2011). Semi-structured individual interviews were conducted during this study. These semi-structured interviews involved asking a series of predetermined open-ended questions about the topic of asthma in pregnancy. An interview schedule was developed (Appendix 7) and reviewed by a panel of three qualitative research experts prior to the initial interviews. The research question and study objectives were used to design the open-ended questions, including prompts to enable all elements of the research question to be addressed. Open ended questions such as ‘Could you tell me about your knowledge of asthma in pregnancy?’ and ‘What do you think the midwives’ role is in antenatal asthma management?’ were asked. These questions acted as a guide for the interview, enhanced consistency in the data collection process and enabled the research topic to be explored systematically. Using a
semi-structured format can help the researcher to stay focused on the topic at hand and not deviate into areas not being investigated at the time (Welch et al., 2011).

Prompts or probes were used to encourage participants to expand on what was being discussed (Welch et al., 2011). For example, when the participants were asked what their asthma knowledge was based on, they may have been prompted to expand as to whether it was based on midwifery experience or personal experience. Following the first interview, the interview schedule was again reviewed and extra questions and prompts were added in order to collect some demographic data from the participants (Appendix 8).

Field-notes were also collected during the interview process. At the conclusion of each interview, the interviewer manually recorded these notes. Morse and Field (1996) suggest that field notes are necessary for a successful qualitative study and may be used to supplement other forms of data collection. Field notes can be a written account of what the researcher observes, experiences, hears or thinks whilst collecting data in the research setting or on reflection. These observations should be recorded as field notes in order to supplement a recorded interview which cannot portray the physical setting or the non-verbal communication happening between the researcher and the participant (Morse & Field, 1996).

The timing and location of these interviews varied among the participants. As stated in Chapter 1.1 of this thesis, the researcher is also a registered midwife who had previously provided antenatal care in the setting where this study was conducted. To satisfy ethical requirements it was agreed that the researcher would not work as a registered midwife in the study setting during the data collection period. As the participants were known to the researcher prior to the commencement of the data collection process, the role of the researcher was clearly specified in the information sessions which were held as part of the recruitment process. Some participants chose to have the interview conducted at their home, some chose to attend the interview at the home of the researcher and others chose to be interviewed at their place of work, in between work commitments.

The duration of the interviews varied from approximately 6 minutes to 20 minutes in length. Only one researcher conducted the interviews to maintain consistency of interview style. After the first interview, the researcher met with the panel of qualitative experts to debrief. Suggestions were made as to how to improve the interview technique. Each interview was
then forwarded to the panel of qualitative experts for comment. The interviews were digitally recorded and transcribed verbatim. Prior to data analysis, the researcher gave each participant a copy of the transcript of their interview to verify that the transcript was an accurate record of the interview. The researcher and participants verified the transcripts as being consistent with the interviews. Further member checking took place in the form of giving participants a copy of the preliminary data summary and inviting them to attend a focus group.

3.4.5 Data analysis

Data were de-identified by allocating a number to each participant. The analysis process applied to the data from this study was the four stage process that Morse and Field (1996) described as comprehending, synthesising, theorising and recontextualising. Therefore, the initial stage of analysis involved comprehending, whereby the researcher, through the process of listening to audio recordings of interviews, reading and re-reading transcriptions, and reflecting on field notes made throughout the interviews, immersed herself in the data. During the initial reading of the transcripts, notes were made of recurrent descriptive words or comments and whether these were recurrent in other transcripts. Comprehension is, according to Morse and Field (1996, p.104), “making sense of the data”, and is complete when the researcher is able to richly describe the data in a coherent, and detailed fashion. The researcher met with the panel of qualitative experts following this stage of analysis to seek advice and comments about the depth of comprehension achieved.

The researcher and the qualitative experts embarked together on the synthesising and theorising stages of analysing the data. Morse and Field (1996) suggest that this is the sifting and sorting phase of this analysis. These stages of data analysis occurred simultaneously as the data were further explored and the recurrent words and comments examined more deeply. Themes began to emerge from the data as patterns and relationships between the comments were noted. The researcher developed categories and sub-categories derived from the data and descriptions including excerpts from the transcripts, were arranged under the appropriate category or sub-category.

The categories and sub-categories were presented as Figure 1 and, together with a summary of the preliminary findings, were provided to the participants with an invitation to attend a focus group. The focus group was planned as part of the member checking process whereby
researchers seek to ensure trustworthiness by having the participants check the categories, and the descriptions that have been derived from the data (Schneider & Whitehead, 2013).

The final stage of this data analysis is recontextualising. Morse and Field (1996) state that this stage of data analysis is where “the real power of qualitative research is recognised” (p.106). The process of recontextualisation allows for any emerging theory or themes to be developed and therefore applied to other settings. The goal of this stage is to place the results in the context of established knowledge and to clearly claim new contributions to the literature or to show clearly the results that support the current literature. The recontextualisation of the data discussing midwives’ knowledge of asthma in pregnancy and their perceived role in antenatal asthma management is presented in Chapter 5 of this thesis.

Throughout the data analysis process, field notes gathered during the interviews were used to add depth and context to the data collected. These notes helped to paint a picture of the situation and environment surrounding the data.

### 3.5 Ensuring the trustworthiness of the data

There would appear to be continued debate among qualitative researchers regarding the process of assessing the quality of research projects such as this (Schneider & Whitehead, 2013). In quantitative research, ‘rigour’ is achieved through the concepts of “reliability” and “validity” but for qualitative researchers the concept of rigour is described as establishing “trustworthiness”, although a unified and common approach to describing the criteria is not yet determined or agreed (Lincoln & Guba, 1985; Schneider & Whitehead, 2013).

Rolfe (2006) suggests that there continues to be three broadly divided positions in the literature on the best way to judge the quality of qualitative research. There are those who support the view that the criteria that apply to quantitative research should be applied to qualitative research; some consider that different criteria are required for qualitative research, and others suggest that any predetermined criteria for assessing the quality of qualitative research may be inappropriate. Additional tools have been developed by authors such as Schou, Holstrup, Lynsgo, Larsen, and Poulsen (2012) in an attempt to further clarify and direct the appraisal of qualitative studies. These authors suggest that a researcher may choose from six broad positions that can be adopted with respect to the criteria of trustworthiness.
(Schou, Holstrup, Lyngso, Larsen, & Poulsen, 2012). Position 1 suggests using the criteria of quantitative research. Position 2 suggests using criteria that have a parallel relationship to those used in quantitative research. Position 3 argues for the use of one list of criteria dependant on the qualitative research approach. For example, Stewart (1998) suggests the application of “veracity”, “objectivity”, and “perspicacity” to evaluate the trustworthiness of an ethnographic report. Position 4 advocates the use of “fresh and universal criteria” (Schneider & Whitehead, 2013, p. 154), which suggests that there are unique but general criteria for evaluating the rigour of all approaches of qualitative research. Position 5 discusses the development by researchers of their own list of criteria for the trustworthiness of a study, and how this choice can be justified on philosophical, ethical and political grounds and the qualitative research approach. Finally, Position 6 suggests that no criteria are necessary based on the beliefs of authors such as Sandelowski and Barroso (2002).

For the purpose of this thesis the criteria for rigour outlined above by Schou et al. (2012) in Position 2 were adopted. Examples of criteria that have a parallel relationship to those used in quantitative research, are described by Guba and Lincoln (1989). The four criteria are: credibility, which parallels with “internal validity”; auditability (also known as dependability), which parallels with “reliability”; fittingness (also known as transferability), which parallels with “external validity” and confirmability, which equates to objectivity in quantitative research.

3.5.1 Credibility

Credibility is argued by Guba and Lincoln (1989) to be one of the most important factors when establishing trustworthiness. Merriam (1998) suggests that credibility deals with the question of congruency of the findings with reality. The main characteristic of this criterion according to Schneider and Whitehead (2013, p 154) is “the truth of findings as judged by participants and others in the discipline.”

Shenton (2004) outlines many strategies which researchers may use to ensure credibility and therefore establish trustworthiness. The strategies used in this study included:

- Adoption of a well-established research method, which will effectively answer the research question being posed. For this study qualitative descriptive was chosen as it is
“the method of choice when straight description of phenomena are desired” (Sandelowski, 2000, p. 334).

- Purposive recruitment of participants to help ensure relevant, in-depth data is collected.
- A consistent interview process for all participants.
- Ensuring honesty in participants’ data contributions by giving participants opportunities to refuse to contribute, thereby ensuring only those who are genuinely willing to take part and prepared to freely offer data are involved.
- Ensuring researcher credibility. In this case, the researcher has many years of experience interviewing and gaining extensive medical histories from pregnant women. She also studied semi-structured interview techniques and debriefed regularly with the qualitative research experts throughout the data collection process.
- A qualified transcriber was employed to transcribe the recorded interviews verbatim. The transcriptions were then audited against the recordings to ensure accuracy. The transcripts were returned to the participants in order for them to confirm the accuracy of the interview transcripts (member checking).
- Guba and Lincoln (1989) suggest that member checking is the single most important element of ensuring credibility in a study. Further member checking was a design component in this study whereby participants were invited to participate in a focus group wherein the preliminary findings were to be presented and participants were to have the opportunity to verify the emerging themes and organisation of the data.
- Scrutiny of this project by peers has also been welcomed through the presentation of findings at the researcher’s tertiary institution, the health facility where the study was conducted and a national Nursing and Midwifery conference in October 2013.

3.5.2 Auditability (dependability)

Auditability or dependability are the terms that are used, rather than reliability, and it is suggested that if study findings are to be dependable they should also be accurate and consistent (Holloway & Wheeler, 2002). There needs to be detailed description of the context of the research and an “audit” or “decision trail” (Carcary, 2009; Sandelowski, 1986) presented whereby decisions regarding design planning, sampling, analysis and data collection methods are clearly recorded. According to Holloway and Wheeler (2002), this helps guide other researchers who want to carry out similar research as they can follow the
path of the current researcher and see how their conclusions were arrived at. The closeness of credibility and auditability is stressed by Guba and Lincoln (1989) as they argue that demonstrating credibility contributes to ensuring auditability.

The strategies employed in this study to meet the criteria of auditability included a clear outline in this chapter of the research design, method and process as well as the provision of a clear audit trail of the research processes. Documentation of the research audit trail for this project is provided as Appendix 9.

3.5.3 Fittingness (transferability)

Shenton (2004) suggests that due to the specificity of a qualitative project to a small number of particular individuals and environments, it may be impossible to show that the conclusions from one study are applicable to other populations or situations. However, others suggest that the possibility of transferability should not be immediately rejected as, although the uniqueness of a specific group is recognised, the acknowledgement of this group as part of a broader group could make way for transferability (Denscombe, 1998; Stake, 1994).

Despite these different opinions, it is suggested by authors such as Guba and Lincoln (1989) that it is the researcher’s responsibility to ensure that sufficient contextual information about the site of the study is provided so as to enable a transfer to be made by a reader. Shenton (2004) claims that additional information regarding the boundaries of the study must be considered by a reader before they attempt transference. Such information includes the number of organisations participating in the study, the number and type of people who contributed data, and the number and length of data collection sessions as well as the data collection methods employed.

The process and context of the study, the cohort and study setting have been described in this thesis. These factors will assist the reader to determine the potential transferability of findings to other antenatal clinics.

3.5.4 Confirmability

Shenton (2004) describes confirmability as inserting steps to help ensure that the findings of the study are not the characteristics and preferences of the researcher but the experiences and
ideas of the participants. The findings must, therefore, reflect implementation of the other factors of rigour, namely: credibility, auditability and fittingness (Schneider & Whitehead, 2013).

In this study, the use of excerpts from interviews provides detail which illustrates that the research findings are grounded in the data. Verifying the accuracy of data from participants and the provision of an audit trail as specified in this chapter also helps to establish confirmability.

### 3.6 Ethical considerations

The Hunter New England Area Health Service Human Research Ethics Committee (HREC) (11/12.14/5.08) and the University of Newcastle HREC (H-2012-0030) granted ethics approval for this research (Appendix 2 and Appendix 3).

An information statement, provided as Appendix 4, was supplied to all potential participants for this study. The information statement clearly defines the purpose of the study and the inclusion criteria for participants. Potential participants were informed that their participation was voluntary and that they could withdraw from the study at any stage without consequence. Potential participants were also advised that choosing not to participate in this study would not disadvantage them in any way.

Anonymity was protected by de-identifying interview data during transcription. Participants were allocated a study number when they were interviewed and were not made aware of their number at any stage of the research process. Throughout the data analysis process, only study numbers were used to identify participants.

As required by the HREC, data were stored securely and password protected for seven years. Only the research team has access to these data and the data will be destroyed as per the disposal of confidential data guidelines at the University of Newcastle.

There was minimal risk associated with participation in this study. It was identified prior to commencement of interviews, however, that a potential psychological risk might have resulted from participants being asked to discuss an unfamiliar area of clinical management.
To accommodate this possible risk, participants were assured that digitally recording the interview was optional and if they did consent to recording the interview they were able to ask for the recording to cease at any time throughout the interview. It was made clear that recording of the interview would not recommence without the consent of the participant. Participants were also offered referral to a counselling service if required.

3.7 Conclusion

The research setting in which this study took place has been described in this chapter. The inclusion and exclusion criteria for participants and the sampling method used, have also been explained. The study design, data collection methods, data analyses and strategies to establish trustworthiness in this study have been described. In addition, a more detailed audit trail to help determine the authenticity and integrity of the study findings for the reader is provided as Appendix 9.

Chapter 4 will present the findings of this study after first introducing the study participants.
Chapter 4 Findings

This chapter will introduce the study participants and present the findings using, where possible, the participants’ own words to describe what this group of midwives knows about asthma in pregnancy and what they perceive to be their role in antenatal asthma management.

4.1 Introducing the study participants

Thirteen midwives consented to participate in this study. The demographic data collected during the interview process included each participant’s number of years of clinical midwifery experience and the midwifery model of care they were currently working in. These data are displayed in Table 1.

The midwives who consented to participate in this study were all female\(^3\) and were providing antenatal care in a large tertiary referral hospital in regional New South Wales. As shown in Table 1 the number of years of midwifery experience varied extensively among the participants. One participant had over 40 years experience as a clinical midwife and midwifery educator, and one participant had just completed her postgraduate midwifery clinical rotation and only had one year of experience working as a midwife. The rest of the midwives were very experienced with years of clinical experience ranging from 6 to 30.

Two of the participants worked as midwifery educators and supervised and supported student midwives in the various areas of the Maternity and Gynaecology department, including the antenatal clinic. These midwives also provided antenatal care to pregnant women in the antenatal clinic. Six participants worked full time in the antenatal clinic and predominately conducted ‘booking in’\(^4\) interviews with pregnant women and some subsequent visits if the

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\(^3\) As all participants identified as being female, the terms ‘she’ and ‘her’ will be used throughout this chapter when referring to participants.

\(^4\) A ‘booking in’ interview involves the midwife taking a full medical/psychosocial history from the pregnant woman and identifying any risk factors she may have, and then referring her onto the appropriate model of care for her pregnancy.
women were determined to be low risk. Midwives working in this role might only meet the woman once during her pregnancy.

Two participants worked in the Maternal Foetal Medicine unit, which is situated in the antenatal clinic. Staff working in this unit comprise specialist obstetricians, ultrasonographers and midwives who care for women identified as being at high risk of having foetal complications during their pregnancy. Midwives working in this unit have the role of providing antenatal care to women who are seen regularly throughout their pregnancy as the women often undergo serial ultrasounds and tests to determine the ongoing health of their baby.

Two participants worked in a continuity of care model of midwifery known as the M3 Team. In this model, women who are identified as having medical or psychological complications in their pregnancy are cared for by a team of midwives and obstetricians who work together to ensure consistency of care and information provision for the woman and her family. The midwives working in this model of care meet the women regularly throughout their pregnancy and have the opportunity to establish a therapeutic relationship with the women and therefore address the women’s needs throughout the duration of the pregnancy.

One participant was working in the birthing suite at the time of data collection. Although she was not working in the antenatal clinic at the time of the interview she had recent experience in this area. At the time of the interview this participant was working in an acute care setting and provided antenatal care to those women who presented to the birthing suite with complications in their pregnancy.

5 According to The Australian College of Midwives Guidelines for Consultation and Referral (2004), a pregnant woman is ‘low risk’ if she is without medical or psychological complications and is considered to fall under category A and therefore allocated to midwifery care for her pregnancy.
6 According to The Australian College of Midwives Guidelines for Consultation and Referral (2004) pregnant women are ‘high risk’ if they are determined to have maternal or foetal risk of complications in their pregnancy, and are therefore categorised as B or C. In this case it is recommended that antenatal care be shared between the midwifery and the medical staff.
Table 1: Demographic data of participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Years of midwifery experience</th>
<th>Area of work at time of interview.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>Birthing Suite</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Antenatal Clinic</td>
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<td>8</td>
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<tr>
<td>5</td>
<td>11</td>
<td>Antenatal Clinic</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>M3Team.</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>Antenatal clinic</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
<td>M3Team.</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>Midwifery clinical Educator/Antenatal clinic</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>Maternal Foetal Medicine Unit</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
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</tr>
<tr>
<td>12</td>
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<td>Maternal Foetal Medicine Unit</td>
</tr>
<tr>
<td>13</td>
<td>42</td>
<td>Midwifery Clinical Educator/Antenatal clinic</td>
</tr>
</tbody>
</table>
4.2 Introduction

Frequently, at the commencement of their interview the participants made it clear that they had only a short amount of time to devote to the interview. A number of participants were also rather dismissive of the topic of asthma in pregnancy, expressing statements such as, “I don’t know much about asthma in pregnancy, but I will talk to you anyway!” (Participant 1). The majority of participants initially indicated that they knew very little about this topic. However, as their interview progressed, a number of participants became more enthusiastic and demonstrated more interest in discussing the topic. The participants also revealed more knowledge about antenatal asthma management than they had first indicated. The use of prompts during the interviews (Appendix 7 and Appendix 8), which included asking midwives to recall a clinical scenario regarding antenatal asthma management, assisted participants to recall their knowledge about asthma in pregnancy.

When asked about their perceived role in antenatal asthma management, responses varied. Some participants displayed feelings of frustration and confusion regarding their perceived role whilst others were able to state quite clearly what they felt their role in antenatal asthma management was.

The demographic data collected at the beginning of the interviews demonstrated a variation in the midwifery contexts of participants. Not all participants who were providing antenatal care, worked in the same clinical area, and they worked in various models of midwifery care. Some midwives provided continuity of care with women they saw antenatally, whereas others saw the pregnant woman only once. In addition, the use of a maximum variation sampling approach in this study has allowed midwives with varying degrees of experience to be involved. A broad midwifery perspective is provided. Interviews were ceased once data saturation was achieved; this is explained further in Stage 1 of data analysis described in detail in the audit trail (Appendix 9).
4.3 Initial categories and sub-categories emerging from participants’ interviews

Analysis of the data as outlined in Chapter 3 of this thesis, led to the establishment of categories and sub-categories in which the data were organised. Where relevant, the categories and sub-categories are illustrated using some of the midwives’ own words from their interview transcripts. Some of the midwives’ quotations may be cited more than once as they may be relevant to more than one category or sub-category. Figure 1 illustrates the initial categories and sub-categories developed during Stage 2 of data analysis (Appendix 9).

Figure 1: Initial categories and sub-categories
Category 1: Midwives’ current knowledge about asthma in pregnancy

Participants were initially asked, “What do you currently know about asthma in pregnancy?” and many of the responses given appeared to be quite negative. Body language such as shrugging shoulders and shaking their head often preceded statements such as, “I know very little” (Participants 1&4), “Probably not as much as I should” (Participant 5), “Not a lot” (Participant 12) and “I don’t know a great deal to be perfectly honest” (Participant 6). Participant 9 commented that, “I don’t know a lot at all…I don’t know what the implications of a pregnancy to a woman’s asthma are…I wouldn’t have a clue.” However, many of these participants then continued to discuss what they did know about asthma in pregnancy. Participant 1 for example, stated, “I know very little, except…sometimes it’s [asthma is] exacerbated in pregnancy and sometimes the opposite.” Participant 4 also demonstrated her evolving thought process when she stated that, “I don’t really know a great deal about asthma in pregnancy…all I know is that there can be a third of pregnant women that do have an exacerbation of their asthma.” Participant 12 who also responded initially by stating that she knew “Not a lot” about asthma in pregnancy then continued to explain that: Asthma can- um- get better, stay the same or get worse. Women shouldn’t just stop taking their medications and they need to see someone who has knowledge about what they should be taking.

Whilst still discussing their current knowledge about asthma in pregnancy, most participants identified that there was the potential for an exacerbation of asthma symptoms during pregnancy. For example, Participant 3 stated that she would, “warn them [the pregnant women] that in pregnancy it [asthma] can get worse”, and Participant 8 was also aware that “some people’s asthma is fine during pregnancy [although], other people’s gets a lot worse.” Participant 13 was able to elaborate on the concept of changing asthma symptoms during pregnancy by explaining that, “asthma can be exacerbated in pregnancy with the compression of the lungs as the baby grows.” Participant 11 also voiced her perception, “that the asthma could actually be exacerbated during pregnancy due to the size of the abdomen and women are normally more short of breath during pregnancy…so I think the symptoms would be more likely to exacerbate during pregnancy than any other time.”

In order to seek clarification from participants about their knowledge regarding possible maternal or foetal complications associated with asthma, prompts such as, “What is your
awareness of the problems that might be associated with asthma in pregnancy?” were used. A small number of participants discussed the possible effect of asthma on pregnancy and in particular foetal wellbeing. Participant 13, for instance, stated that, “asthma improvement in pregnancy and management of that [asthma] is beneficial for the size of the baby and the outcome [of the pregnancy] and the placental circulation etc.” and Participant 3 stated that she would say to pregnant women with asthma that, “If you are not getting air in, your baby isn’t either and you must seek help.” Participant 5 also commented that she knew that, “if women aren’t treated properly and have bad asthma it can affect the placenta and the pregnancy.”

The use of asthma medications during pregnancy was an unprompted area of knowledge some participants chose to raise when speaking about their current knowledge of antenatal asthma management. Participant 2 acknowledged the importance of the women staying on their asthma medication and discussed what she knew about medications when she stated that, “It’s really important that they [the pregnant women] take their medication…a few things I know they can take [are for instance] their Ventolin, but it’s a whole lot better having the preventative stuff.” Participant 5 was more specific about the effect of using asthma medications during pregnancy when she stated, “I know Seretide is safe in pregnancy and Ventolin but I don’t know about all the other preventers.” Generally however, there was not extensive discussion about asthma medication use in pregnancy.

Overall the data showed that the majority of participants had some knowledge about asthma in pregnancy although it varied between participants. In the interview the participants were also asked to reflect on the source of their knowledge about asthma in pregnancy using prompts such as, “your knowledge about asthma...where does that come from?” and “your current knowledge about asthma does that come from your years of experience or have you done any extra education in regards to asthma in pregnancy?” Responses to these prompts gave rise to two sub-categories in Category 1.
Sub-category 1.1 Midwives’ sources of knowledge about asthma in pregnancy

It was established that the midwives participating in this study varied in both their years of clinical midwifery experience and the model of midwifery care they were currently working in (Table 1). When asked to reflect on the source of their knowledge about asthma in pregnancy, the participants’ responses were quite diverse. Some of the participants reflected on previous clinical experiences where they had encountered women with asthma during the antenatal period, how they had dealt with that situation and what they had learnt from it. Participant 1 gave a specific recent example of this when she stated, “Not yesterday, day before I had a lady in delivery suite with quite severe asthma so I – um- regained a little of my knowledge from that.” This same participant went on to say that she felt her knowledge of asthma in pregnancy comes from, “only what I learnt on the coalface.” Participant 5 also commented on her source of knowledge about asthma in pregnancy when she stated that her knowledge comes from, “A little bit of extra reading…probably the majority from working here [the antenatal clinic] and asking either doctors, other midwives or even the asthma people [respiratory team], whether people should stay on Symbicort…because that (sic) was very common that people were being told to get off it.” Participant 5 then illustrated this by recalling a clinical scenario whereby a woman had previously “been on numerous preventers and taking Ventolin about 6 times a day. Her GP told her to stop everything and she was nearly blue in the room and just gasping for air and they [the respiratory specialists] came down straight away and put her back on her medications.” Participant 6 stated her knowledge comes “from looking after women…just following the procedures that have been assigned to them.” The clinical scenario Participant 6 cited in relation to this statement, involved women with severe exacerbations of their asthma symptoms about whom she said, “the more severe ones tend to be admitted…the two severe ones we had on our team were ICU [Intensive Care Unit] admissions.”

Another source of the participants’ knowledge about asthma in pregnancy emerging from the data was research into asthma in pregnancy, which had in the past been conducted in the same hospital and antenatal unit where the current study took place. Various antenatal asthma research projects, including prospective cohort studies and one randomised controlled trial, have been conducted in this facility over a period of 13 years (1997-2010). The majority of
the midwives participating in the current study were working in this clinical setting when some of the asthma in pregnancy studies were being conducted. Many of the participants, therefore, acknowledged the previous asthma in pregnancy research projects as the main source of their current knowledge about asthma in pregnant women. Participant 3 stated that, “My knowledge came from the asthma study and asking lots of questions and getting help from the asthma nurses.” Participant 1 suggested that she “had a little bit to do with the asthma study” and it “made me a little bit more in tune with it [asthma].” Participant 2 also suggests that her knowledge mainly came from “the asthma research that was done [at the facility in which my study was conducted] and hanging around with those guys [the researchers] and asking [them] questions.” Participant 4 commented also that she has “not received any specific training in regards to pregnancy and asthma management…there’s never been any formal education”, but her current knowledge was gained, “mainly when the asthma research nurses were down there [the antenatal clinic where this study was conducted], if I had a question I could go to them [the asthma nurses].” Participant 13, who has over 40 years of clinical midwifery experience, stated that her knowledge of asthma in pregnancy also comes from, “working in an area where there had been research involved in asthma,… and having worked with women whose asthma has been exacerbated in pregnancy, where they’ve been using Ventolin puffers much more frequently…and being lucky enough to talk to the people who did that [asthma in pregnancy] research who were willing to see those women and then noting the difference and improvement in their outcome.”

Participants identified several other sources of their knowledge about asthma in pregnancy. For example, Participant 11, who had only been working in the clinical area in which this current study was being conducted for 12 months prior to the interview, identified a different source of her knowledge about asthma in pregnancy. While first stating that she “knew very little” about asthma in pregnancy, she added that in relation to “asthma itself, I’m well aware of it, as I have asthma myself.” Despite recently completing a postgraduate university qualification to register as a midwife, Participant 11 suggested that any knowledge she had of asthma in pregnancy came from what she read “on my own, in my own time.” Other participants stated that their knowledge came from “initial general training” (Participant 10), which was in this case twenty years prior to the current interview, and “extra reading, some of the research that’s been done and just listening to what the doctors say to them [the women]” (Participant 7). Overall however, it became evident from the data that the majority
of the participants felt they had “not received any specific training in regards to pregnancy asthma and management…there’s never been any formal education” (Participant 4).

Without prompting specifically about the participants’ need for knowledge about asthma in pregnancy, some participants chose to discuss this, and these findings are presented in Sub-category 1.2.

**Sub-category 1.2 Midwives’ varying needs for knowledge about asthma in pregnancy**

Some of the participants chose to discuss their need for further knowledge in the area of asthma in pregnancy. The need for this knowledge varied among participants. Participant 8 expressed some strong views about her need for knowledge about asthma in pregnancy, and her body language and tone were very defensive when she was discussing these during her interview. When asked about her current knowledge about asthma in pregnancy, she stated:

> As far as I know some people’s asthma is fine during pregnancy, other people’s gets a lot worse and – um – I have very little knowledge about it [asthma in pregnancy] partly for two reasons –um- one…I’m a midwife and I deal with midwifery – um- also we have experts that deal with asthma on a daily basis and we have the ability at this hospital to refer those people [pregnant women with asthma] on. And if we actually had the knowledge for every different disease process going on we’d be encyclopaedias and I don’t remember that stuff unless I’m dealing with it every day... and I don’t retain that information. So that’s a bit two fold as to why I don’t have that information...and for me it’s [knowledge about asthma in pregnancy] not something I feel I have to know.

In contrast, Participant 1 stated that she felt that her role was “to educate them [the pregnant women] as much as I know and if not seek knowledge to educate ‘em (sic)”.

Participant 2 provided another viewpoint about the need for knowledge about asthma in pregnancy. She was concerned about asthma not being seen as a priority in women’s antenatal care unless the women were having an exacerbation of asthma symptoms and she stated, “having some extra knowledge about it [asthma] and why it’s so important... what are the outcomes if we don’t look at it [asthma]...What outcomes may we get... that would actually encourage the staff and the antenatal clinic to view it [asthma] more importantly?”
In the above presentation of findings, reference has been made to the role midwives perceive they play in antenatal asthma management. This concept was further explored by asking the participants, “What do you see as your role in antenatal asthma management?” Category 2 was developed from data obtained from this question.

Category 2 Midwives’ perceived role in antenatal asthma management

Some participants found it difficult to state specifically what they felt their role in antenatal asthma was. Participant 9 responded to a prompt inquiring about this by stating, “I don’t think we have one [a role]...I really don’t think we have one...because we don’t know what we need to do.” Participant 12 suggested that, “I don’t think it [our role] is a lot at the moment but I think it should be more, it could be more.” Confusion and frustration regarding the midwives’ perceived role was evident as participants made comments such as, “our role is to educate...it is our role to educate women in regards to all aspects of their pregnancy and asthma being one of those [aspects]” (Participant 4), but then she continued by saying, “I don’t have enough knowledge to educate [regarding asthma]...I would not put myself in that role to even pretend to educate. I would just immediately refer on.” Other participants acknowledged that their role included elements of educating women regarding asthma in pregnancy and referring women to other health professionals as required for further asthma management. Participant 7 demonstrated this when she stated that she would “educate, refer and maintain that they [the women] are doing the right thing.” Participant 5 also felt that her role included, “Educating, hopefully helping them [the women] and referring on if needed.” Participant 13 felt that her role included,

Health promotion, referral and education about their [the woman’s] asthma and their asthma management and ensuring that they’ve had recent reviews of the medications they might be on...and so it would be a referral role for me if I identified someone who seemed to be having exacerbation of their asthma at the time...but other than that, providing information and education and encouragement to sort of go to the GP and have an asthma plan made for their pregnancy.
Another role mentioned by one participant was that of advocacy. Participant 6 stated that,

*My role is to try to make sure that whatever- um-...medication regime she’s [the pregnant woman] on that she’s doing it and if she is, then is it adequate and if it’s not then to seek medical advice to change it or to do whatever to improve her treatment...basically be the advocate for her to just make sure that things are going along as best they can and then getting...more advice if it’s not.*

Despite evidence of some confusion regarding the role of the midwife in antenatal asthma management, two sub-categories ‘2.1 Midwives’ role as educator in asthma management’ and ‘2.2 Midwives’ role as referrer of pregnant women to other health professionals’ were identified and are described below.

**Sub-category 2.1 Midwives’ role as educator in asthma management**

A number of participants mentioned that they perceived their role in antenatal asthma management to be a provider of asthma management education to pregnant women with asthma. Some of these participants’ comments were more definite than others about whether or not midwives had a role as educators about asthma management. Participant 1, for example was emphatic when she stated that, “The role is to educate them [the women] as much as I know and if not, seek knowledge [to enable me] to educate ‘em (sic)”

Another participant seemed less clear about what this role in asthma management was, stating that the midwives’ role was “not a specific one but I think generally if someone identifies [as having] asthma my duty of care is to tell them that...you know, it might be exacerbated by the pregnancy and to make sure they don’t overlook it” (Participant 3). While also stating that midwives have a role as educators about asthma two participants related this particularly to education concerning the use of asthma medications. For example, Participant 5 stated that her current perceived role was to educate; “Hopefully helping them, helping just basically maintain [their current asthma management, if adequate] and educate. Let them know it’s safe to be on medication and it’s better for them [to be on medication if required].” A second participant, when suggesting her role was to ensure that women had a general awareness of the possible significance of asthma during their pregnancy, also connected her comments with the need for women to be discerning about what medication they can take during pregnancy. Thus, Participant 1 stated that she would, “try and make them [the women] aware about
exacerbation of asthma...put ‘em in tune with it...if the exacerbation comes... and what medications they [the women] can take when they’re pregnant and the people they need to be linked in to...so not particularly treating them but being aware of the treatments.”

Although some midwives identified that they had a role as educators about asthma in pregnancy, they also expressed reservations about whether they had enough knowledge to carry out this role. Illustrating this, one midwife, Participant 4, said, “Definitely it is our role to educate women in regards to all aspects of their pregnancy and asthma...I don’t think I have enough knowledge to educate...I would not put myself in that role to even pretend to educate. I would just immediately refer on.” Participant 8 also suggested, “You are just going to refer them on because you don’t want to give them the wrong advice.” Like Participant 8, the majority of participants discussed referring on to other health professionals as a role they perceived they had in antenatal asthma management as described in Sub-category 2.2.

**Sub-category 2.2 Midwives’ role as referrer of pregnant women with asthma to other health professionals**

The description and illustration of Category 2 and Sub-category 2.1 demonstrated how some midwives identified that all or part of their role in the management of pregnant women was to refer them on to another health professional when this management was required. The comments made by these midwives gave rise to Sub-category 2.2 which provides a more comprehensive description of how participants expressed their role as referrers of pregnant women with asthma.

Overwhelmingly the participants stated their role was to refer the women they encountered in the antenatal clinic, who identified as having asthma, on to a medical practitioner or “other people that are cleverer and know far more about it [asthma]” (Participant 8). Lack of knowledge was cited as the main catalyst for the midwives’ referral role in the management of asthma in pregnant women, which was illustrated in one Participant’s comment that:

> I don’t think I’ve had enough asthma education training as a health provider to give out education as far as asthma’s concerned. I would explain to them [the woman] that...you know, the reasons why I’m referring them and talk to them about their asthma and perhaps talk to their GP in regards to a management plan and things like that but as far
as actually initiating anything I don’t think that’s my position (Participant 11).

Other participants simply stated that they would “automatically refer...maybe identify it [asthma] and then refer because I don’t know enough about it [asthma] to manage it” (Participant 4) and “I have to refer ‘em (sic) on” (Participant 9). Participant 4 also commented that she would, “Identify, refer and then go onto the next one [woman]” implying that there may also be a lack of time to deal with women with a potential complication of pregnancy such as asthma.

Participant 12 discussed her perceived role in the management of asthma in pregnant women, to be that of “referral and just picking up those people that have fallen along the wayside [i.e that may not have had adequate asthma management prior to seeing this midwife].” Participant 8 stated, 

I feel my role is to find out how her [the woman’s] asthma is, what her medications are, find out who she actually sees for her asthma, does she have an asthma management plan and if she doesn’t have those things either get her to see a consultant or get her referred onto the respiratory people so they can link her up to have some sort of asthma management plan.

When prompted further in the interview about whether or not the provision of asthma education for staff would influence the midwives’ role, one participant stated that “I still think it’s a referral system for us [the midwife] because it [asthma] does put them [the women] at a high risk for their pregnancy...so they would still need to have a consultation with one of the registrars or a doctor at least” (Participant 11).

Another question discussed was, “Which health professional should midwives refer women to?”’, with some midwives suggesting that confusion existed about the process of referral. This aspect will be further discussed in Category 3. Barriers to asthma management and the Sub-category 3.4 Lack of clear referral pathway.
Category 3 Barriers to asthma management

It became evident throughout the interview process that the participants were identifying, reflecting on and discussing barriers that were preventing some of them from providing the antenatal asthma management they perceived they should be providing.

As has been described, the participants’ knowledge of asthma in pregnancy was varied and some participants suggested that a lack of knowledge of asthma in pregnancy impacted the role they could therefore play in antenatal asthma management. Perceiving this to be a barrier to participants providing antenatal asthma management, it was necessary to find out whether there were other barriers to the provision of this management and, if so, what these were. Participants were asked, “What barriers, if any, do you feel exist that may prevent optimal antenatal asthma management from occurring?” When responding to this question many participants discussed issues such as time constraints and how pregnant women’s knowledge about asthma often made it difficult for the midwives to provide the antenatal asthma management they felt they should be providing. The lack of a clear referral pathway was also identified as a significant problem, especially for those midwives who perceived their main role in antenatal asthma management to be that of referral. Each of these barriers is discussed in the several sub-categories which elaborate on and contribute to Category 3.

Sub-category 3.1 Lack of knowledge about asthma in pregnancy

Many participants reported a general lack of knowledge about asthma in pregnancy. As previously demonstrated, when discussing their knowledge of asthma in pregnancy, participants made comments such as, “I know very little” (Participants 1, 4 and 11) and “I don’t know a lot at all” (Participant 9). Some of the participants who perceived their role in antenatal asthma management to include educating women regarding asthma felt that their level of knowledge about asthma management was lacking and that this prevented them from fulfilling their role as an educator for pregnant women who have asthma. Participant 4 stated, “I don’t know enough about it [asthma] to manage it” and “it’s difficult to educate when you don’t know that you are telling the right thing.” Participant 8 responded to the prompt about barriers to providing antenatal asthma management by stating, “Yeah, a lack of knowledge, yeah!...a lack of knowledge about it [asthma]” and added that due to this lack of knowledge,
“when they [the pregnant women with asthma] do come through [the antenatal clinic] often we [the midwives] send them off to other people that are cleverer and know far more about it [asthma].” Participant 13, who previously demonstrated that she was quite knowledgeable regarding asthma in pregnancy, still noted a lack of knowledge as a barrier to her providing the care she felt she should be providing. She demonstrated this when she stated, “Cos (sic) I have a very limited knowledge of the significance [of asthma in pregnancy]. I have experienced women coming in, in an asthma crisis and felt quite out of my depth to give that immediate treatment…from lack of knowledge.

When questioned “Do you feel that you’re able to give good asthma care?” Participant 9 responded, “No! Because I have to refer ‘em [sic] [the women] on and that’s not the whole idea of midwifery at this moment in time. I mean you want to be keeping it [pregnancy management] with the midwifery care providers and give that continuity and I think you’ve got to be able to do that with asthma as well. It’s a lack of knowledge on my part –um- and you hope to be able to support all women.”

Some participants also mentioned lack of education more generally whilst discussing lack of knowledge as a barrier to providing antenatal asthma management. Participant 10 commented that “I don’t feel that we’re qualified…I think we probably need a bit more education and we could certainly include it [asthma management] into our care.” Participant 4 also commented on a lack of education more generally when she stated, “One of the major problems is –um- education…not only with asthma but with all specific areas…but as with every other type of education it’s having the staff to do it and having the time to do it.” Participant 4 was not the only participant who mentioned time constraints as being a barrier to midwives providing asthma management for pregnant women, and the findings related to this barrier are presented below in sub-category 3.2

**Sub-category 3.2 Time Constraints**

Midwives being time poor was an observation made throughout the data collection for this study. Some of the midwives who consented to participate in the current study then found it difficult to commit to an allocated time to participate in the interview process. Many participants therefore requested that the researcher conduct the interview whilst they were at work and as a result were only able to give the researcher a small amount of their time in
which to conduct the interview. Many of the participants appeared rushed and preoccupied whilst participating in the interview. Some stated prior to the interview commencing, “I only have a few minutes” (Participants 6 and 11).

When discussing barriers to providing antenatal asthma management, many participants mentioned the issue of time. As participants were discussing the need for further education in regard to asthma in pregnancy many commented on the inability to obtain such education due to time constraints. Participant 5 stated, “We are supposed to keep on top of stuff [through education] but when do you get the time and when can you afford to have it?” Participant 4 also stated that, “It is our role to educate women in regards to all aspects of their pregnancy and asthma but as with every other area of education it’s having the staff to do it and having the time to do it.” Participant 9 made a similar comment when she stated, “it’s about having the time to educate yourself...you don’t get much time or money to educate yourself.”

Time is seen as a barrier to the midwives completing a thorough medical history on the women. Participants made comments such as, “time constraints would probably be the biggest issue, we don’t have a lot of time to talk about much, so generally it’s concentrated just on the pregnancy.” (Participant 11) and “we don’t get time to look at that specific area [asthma]” (Participant 10).

When discussing the ability to educate the women regarding their asthma, time also seemed to provide a barrier, as Participant 2 states,

We are so time poor!...we are overwhelmed by just the sheer numbers [of women] and our limited resources in the clinic and unfortunately whatever issue it is, it’s like oh they need antenatal education or we need to get them early so it’s in the antenatal clinic...so everybody wants us to include something else... but we don’t have any more time and we don’t have any more resources and so actually it becomes really difficult.

Time constraints, together with the volume of women presenting to the antenatal clinic was mentioned by Participant 6 as a barrier to women getting the care the midwives feel they should be getting.”Time constraints and the numbers that we have coming through clinics...that’s a problem getting them [the women] into the right sort of clinics and having the time to spend with them...that’s always a problem in a big hospital...time is a major problem I think we have.”
Consequently, time, or a lack thereof, was identified as a barrier to these midwives providing the care they felt they should be providing. Another barrier identified by the participants was the level of some pregnant women’s knowledge about asthma in pregnancy and antenatal asthma management. This will be described in Sub-category 3.3.

**Sub-category 3.3 Pregnant women’s knowledge about asthma in pregnancy**

Without further prompting regarding what the participants identified as barriers to providing antenatal asthma management, many participants offered an opinion that the knowledge the pregnant woman had about her asthma sometimes created a barrier to the provision of care. Some participants felt that some women they encountered were reluctant to give asthma priority in their antenatal care and, as a consequence, would only identify asthma in their health history after being further prompted regarding respiratory health. This was the opinion of Participant 2 when she stated,

> You do a whole hour and a half health history and you don’t get something really vital and important...I say every time you go through the list is there anything you want to say? And is there anything we should know about? Then I go through and ask about asthma...a lot of people don’t like to identify childhood asthma it seems.

Participant 6 also alluded to the fact that asthma is not seen as a priority by some women during their pregnancy:

> The actual pregnancy is the priority for women... not the rest of their bodies. What’s happening to their uterus seems to be what’s...the main focus...’cos [sic] you know, they live with asthma all the time and now there’s something else that they think is more important to them, so I don’t think they think it’s [asthma] a priority.

It was suggested that some women, “take it [asthma] very lightly” (Participant 3). Participant 12 identified that asthma is a chronic illness and suggested that some women, “just think that [asthma symptoms] are normal for them.” Participant 10 stated that some women, “don’t put an emphasis or importance on it [asthma] in their pregnancy...it’s the last thing that they are
thinking about unless they have had a major problem with it in the past.” Participant 3 commented that she felt asthma was a priority but, “the woman has a different idea…it just seems that if you have a chronic illness it’s not regarded as a health affliction and they do survive with it well.”

Some participants identified some women as being complacent or lacking awareness regarding asthma in pregnancy and considered this to be a barrier to midwives providing antenatal asthma management. Participant 6 stated, “No matter what issues women have, some women are proactive and want to do everything they can to help their bodies... and some are complacent...asthmatics who smoke fall into the category of complacent type. They’re hard to manage.” Some participants also discussed the fact that the use of asthma medications in pregnancy was an issue among many of the women they had previously encountered. One participant recounted a woman stating that, “I’ve got a puffer but I don’t take it you know, ‘cos [sic] I’m feeling OK” (Participant 4). Participant 13, when prompted as to whether she thought women considered asthma as an issue in their pregnancy, replied,

Definitely not...Definitely not...they just have a puffer and they take it occasionally and when you [the midwife] enquire how often they take it, and recommend that they would benefit from a preventative they say...‘oh no, it doesn’t bother me I just take my puffer’...and so they don’t have any –um- idea that it may affect the growth of their baby or their outcome for their pregnancy or their health.

Participant 8 discussed this issue also when she stated, “I’m sort of led a bit by how they’re [the women] feeling and their [the woman’s] management of it [asthma]...a lot of those people [women] feel that they don’t need a plan and they do need it, so I think sometimes you need like [sic] a consultant to actually lean on them a bit and say, ‘Well it’s different in pregnancy.’” Participant 8 also felt that some women “hear it [asthma advice] from the midwives and go yeah, yeah, yeah but when the doctor says it, it seems to have a bit more weight behind it.” Participant 7 also commented on women appearing to regard the doctors view over the midwife’s when she stated that, “If the General Practitioner (GP) says you can’t take that, it’s very hard to get them [the women] to listen to what you’re [the midwife] saying.”
The use of asthma medication in pregnancy was another issue participants identified as a concern for pregnant women with asthma. Participant 4 stated, “they [the women] don’t use preventers…they don’t know whether it’s safe.” Participant 5 felt that there is “a lot of misinformation,” surrounding asthma medication use in pregnancy and that in some cases women were being told to cease their medication by their GP. Participants stated that, “Women were being told to go off all their medications by GPs” (Participant 5) and “a lot of GPs tell them [the women] to stop taking the preventative ‘cos [sic] it’s got Prednisolone in it” (Participant 7). It was also stated, however, that the women were in some instances choosing to cease their asthma medications during pregnancy, despite medical advice to the contrary or without seeking medical advice. As Participant 13 stated, “Sometimes they [the women] stop their asthma medication in pregnancy thinking it may be detrimental to their health.”

As participants made reference to other health professionals such as GPs some suggested that another barrier to asthma management was the lack of a clear pathway of referral from one health professional to another. The participants’ comments about a lack of clear referral pathway will be presented in Sub-category 3.4.

**Sub-category 3.4 Lack of clear referral pathway**

Many participants cited the lack of a clear referral pathway as a definite barrier to providing antenatal asthma care. A general sense of frustration and confusion was evident from the participants when discussing this topic. Some participants appeared to have some idea of to whom they would refer women, such as Participant 13 who stated that she would refer women back to their “GP for GP management and have an asthma plan made for their pregnancy.” Participant 12 suggested that she would “get them [the women] to go and see their GP and make it a matter of priority for them.” Other participants stated that they would “get her [the woman] to see a consultant or get her referred onto the respiratory people so they can link her up to have some sort of asthma management plan” (Participant 8) and “get them [the women] to see one of the registrars or obstetricians and then they would refer them on I guess” (Participant 2).

However, other participants stated that there was no clear referral pathway. “No, I don’t think there is a referral pathway…that’s major…a major problem when it comes to asthma and
pregnancy and even just identifying what your next step would be...who do I refer to?...How do I refer to them? (Participant 4). When prompted about the presence of a clear referral pathway, Participant 10 stated, “No, not that I am aware of. I’ve found that a little bit grey at times.” Participant 8 agreed when she stated,

Absolutely not! I know there is a paging number for the people that did the asthma study [in 2010], and you can usually page them and find out how I can find somebody or who [to refer to] ...or if the respiratory clinic’s on we can go over and talk to them and they’re fairly obliging but there’s no actual pathway or developed pathway that I’m aware. It’s a bit like: see who you can find at the time.

Participant 13, previously stated that she would refer women back to their GP, but when questioned about a clear referral pathway stated emphatically,

Definitely not, definitely not...particularly if you see a woman on a Friday –um- because most of our clinic referrals for asthma I would refer back to the GP for GP management. That’s often really challenging and I have had circumstances where I’ve had a woman come into the clinic who was obviously – um – sort of...having an asthma exacerbation and hadn’t had a review ever – um – couldn’t get to her GP, but I felt was unwell enough to come here [to hospital] and when I make a referral to any of the doctors here they’ll say, oh they [the women] should see a medical registrar or resident rather than an obstetric one...so there isn’t a direct pathway that I am aware of.

Participant 12 appeared to agree with Participant 13 when she too stated, “I don’t know what the referral pathway is...I know before with the women like [sic] I’ve said that no one really wants to see them here. So it’s like [sic], you must go and see your GP, can you do that? Blah blah blah[sic]. So I’d sort that out but I’ve always thought, oh really, they should be seeing someone here [at the hospital].”

Participant 9, when discussing the presence of a clear referral pathway and who she would refer women to if they required further asthma assessment stated, “No there isn’t [a clear referral pathway]...and I don’t think the medical staff really know that much because it’s not a passion of theirs...-um- so no there isn’t [a clear referral pathway], which is a shame because I’m sure that a lot of these women are suffering more with their asthma but don’t get
help and advice they need.” Participant 12 also believed that “there’s not actually a consultant interested in asthma”

Following on from the discussion of a lack of a referral pathway, a number of the participants commented on the lack of accessible asthma management equipment and how they felt this was a barrier to them providing adequate antenatal asthma management. Lack of asthma management equipment will be discussed in Sub-category 3.5.

**Sub-category 3.5 Lack of accessible asthma management equipment**

One other barrier identified by two participants was that of a lack of available equipment to treat an exacerbation of asthma. Participant 1 stated that treatment of any exacerbation of asthma, “is very difficult in the delivery suite setting...we don’t have all the equipment to treat the exacerbation of asthma...even down to a spacer.” Participant 3, when recalling a clinical scenario, also commented that, “Delivery suite didn’t have much equipment to deal with asthma: spirometry etc.”

As the participants discussed the barriers they believed prevented them from providing the antenatal asthma management they felt they should be providing, questions such as, “What do you think would help you generally in the area of antenatal asthma management?” and “What would you like to see happen in regard to antenatal asthma management?” were used and responses are discussed in Category 4.

**Category 4 Suggested solutions**

Many participants suggested solutions to the identified barriers to providing antenatal asthma management. Participant 4 covered many of the identified barriers when she suggested that she “would probably like to have the time to manage or have someone there whose specific role was to manage asthma...or to have a pathway or a guideline even.” Participant 9 felt that “there needs to be education with midwifery staff and medical staff. I think there could be clear pathways- um-...to providing women with the care.”

The majority of responses focused on the need for further education and a clear referral pathway. The suggestions regarding Staff education will be discussed in Sub-category 4.1.
Sub-category 4.1 Staff education regarding asthma management

In regard to the issue of education, the participants came up with many suggestions for what information they would like regarding asthma management and in which format they would like it. Participants stated that they felt they would benefit from more information on “the latest developments with asthma, latest protocols, management...refreshing our use on nebulisers and puffers and whether people are on steroids or not so we’re sure we’re giving the current up-to-date information.” (Participant 10). Participant 13 was interested in information about “new management systems...relevant research...outcomes of this...how does it [asthma] affect pregnancy? What’s the outcome going to be?” Participant 8 suggested that she would benefit from “some basic building blocks of information [about asthma in pregnancy]” and Participant 5 stated that she would like, “any form of education on new medication and management [of asthma] so I’m aware.” Participant 1 also commented that she would like “more education, you know instead of having to fly by the seat of your pants when it [an asthma exacerbation] happens...to be more educated.”

Suggestions as to how this education should be provided varied. Participant 1 thought that, “maybe just educating a handful of midwives so that there is a core person to go seek knowledge from” would be helpful. It was suggested by many that “regular in-service” (Participants 3, 12 and 13), would be helpful. Participant 5 suggested that, “any sort of information would be better than none...whether that’s online although it’s better face to face – um – it would be really hard to roll out some sort of education format where you catch everybody.” Participant 5 also commented on the importance of, “The GPs being aware...certainly that would be one hurdle, because if they’re [the GP] saying the wrong thing, women are trusting them [the GP], coming to us and then we’re telling them [the women] something different...so if they’re [the GP] up to speed on everything that would be helpful.” It was also suggested that any in-service be conducted by “an asthma coordinator, an asthma specialist, a CNC [Clinical Nurse Consultant] or CMC [Clinical Midwifery Consultant] or just someone who knows a lot about asthma who’s interested in it [asthma]” (Participant 12).

One participant suggested that a mini-seminar would be a good way to convey asthma management information, “like maybe a half day set aside where you have different speakers to keep the interest and actually have the equipment [asthma puffers etc] there to play
with...like a mini seminar just on the latest developments with asthma, latest protocols, management...refreshing our use of nebulisers and puffers” (Participant 10). Some participants referred to a 5-day course currently being offered which focuses on diabetes and suggested that a similar course focusing on asthma would be of great benefit, “One of the best courses that I’ve done was the diabetic one, which was a 5 week one day a week course...if there was something like that for asthma and respiratory issues it’d be good” (Participant 2). Participant 13 also suggested that the importance of asthma should be highlighted, stating, bringing it [asthma] in line with like diabetes...and hypertension, and other medical illnesses that we are far more informed about outcomes. We’re not [as informed] about asthma and so I guess in-service education and a clear pathway for us for the management of each woman. Perhaps every woman with a history of asthma should be –um-investigated and reviewed and have an asthma plan made.

The apparent non-existence of a clear referral pathway meant that the development of a clear pathway of care was also a dominant feature of the data. The development of a referral pathway for women with asthma will be discussed in Sub-category 4.2.

**Sub-category 4.2 Development of a referral pathway for antenatal asthma management**

Participant 4 suggested that a management plan for a woman with asthma should begin from “the referral process.” Participant 4 expressed that the women identified as having a history of asthma, should be then placed on “a pathway right from that immediate identification of it [asthma] from the GP...even to go onto a health pathway I think would be a great idea.” Participant 4 also states that, I’d like a pathway to go from there [the GP referral] and then I could look at that and say, ok, well, she needs to maybe go on to be seen by an asthma specialist at the beginning of the pregnancy, work out a management plan so that she remains low risk or when they do have

[7] The referral process as it stands is that a referral is faxed to the antenatal clinic by the GP. If the woman has a history of asthma, this should be noted on the referral.

[7]
exacerbating symptoms that they then get referred back to a specialist or back to the doctor’s clinic and then can be put back to midwife care.

As part of this referral pathway it was suggested that it would be good to have “someone available that you can contact and they [the health professional] may not need to come and see us [the midwife and woman], they might just be able to give advice over the phone...and it would be nice to know which particular specialist to refer them [the women] to” (Participant 8). Participant 2 also felt it was important to have, “someone there all the time or at least able to be called...that would really help.”

Participant 9 suggested, “It’d be great if we could have like you know, an asthma clinic day set up.” Participant 10 also suggested that there was a need for “a referral pathway and how to identify what people need and the urgency...and if we’re [midwives] able to just put into place a plan for them [the women] to start with if you think their asthma isn’t under control.” Participant 10 also suggested it would be important to “find someone who’s interested in it [asthma] and who can see the women while they’re here in the clinic before they go away and don’t come back for 4 weeks.”

The poor accessibility to health professionals able to provide antenatal care to women with exacerbations of asthma was compounded according to one participant by the poor accessibility of asthma equipment when required to treat an exacerbation of asthma. This participant’s suggested solution is presented in Sub-category 4.3.

**Sub-category 4.3 Accessible asthma management equipment**

Participant 1 identified not having asthma management equipment “at hand” as a barrier to providing adequate antenatal asthma management. She then suggested that a solution to this could be to have “an asthma kit that has the basic stuff so that we [the midwives] can actually treat someone...go and grab the box and it has everything we need...and that can be in the antenatal clinic, in K3, K2 and the birthing suite.”

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8 K3 is the antenatal ward in the hospital where this study took place.
9 K2 is the postnatal ward in the hospital where this study took place.
4.4 Institutional context

As the researcher progressed through stage three of the data analysis process (Appendix 9), field notes taken throughout the interview process were further examined, together with the interview transcripts. The panel of qualitative experts were consulted about the significance of the observations made by the researcher. The observations suggested a relationship between the data and the context from which they were collected. Institutional constraints such as time and resources became evident as did diminished midwifery confidence due to perceived lack of knowledge and experience. It was agreed that this relationship required further examination.

The observations noted by the researcher included seeing midwives and doctors “rushing in and out of clinic rooms” and midwives “appearing to be quite stressed.” The clinic environment was very noisy and brightly lit. The clinic setting consisted of a large communal waiting room and many individual private consulting rooms. As many clinics were running simultaneously, the waiting room was often full with many pregnant women waiting for their consultation. The interview room was often one of the consulting rooms allocated to the researcher by the midwifery manager on the provision that it be vacated at the request of a midwife or doctor needing to undertake a consultation. Many interviews were, therefore, interrupted by phone calls or other staff entering the room requesting the researcher to vacate it. The majority of these interviews lasted less than 10 minutes.

When interviews took place outside of the institution, it was observed that midwives in these interviews were less rushed and stressed. There were fewer interruptions and most of them lasted more than 10 minutes. Removing institutional contextual factors such as time constraints, by conducting the interview outside the institution, may have influenced the length of interviews, and the quality of the data collected.

The relationship between the institutional context and the categories and sub-categories, presented in Figure 1, is suggested by the researcher and presented in Figure 2.
4.4.1 Previous asthma research

The presence of many previous asthma research projects in the study setting was a unique factor. Many participants suggested (Sub-category 1.1 of this chapter) that previous asthma research projects were viewed as their main source of asthma in pregnancy knowledge, but the availability of resources such as a paging number or staff trained in asthma management was also seen by some as a source of referral. As Participant 2 pointed out, “when I found someone with asthma and they were unwell or something I’d actually send them over to you guys [the previous MAP study staff] and you could actually deal with them on the spot which was really good.” A relationship between this previous research and the participants’ knowledge of asthma in pregnancy and their perceived role in antenatal asthma management is plausible.

The presence of the previous asthma research in this study unit may also have had an influence on women’s knowledge about asthma in pregnancy. If a pregnant woman had been a participant in a previous asthma study, she may have been provided with extra education and resources regarding her asthma from the respiratory educators involved in the study. This prior education may have influenced her asthma self-management in subsequent pregnancies.
and lessened her need for further education from the midwives she encountered, or the need for referral to other health professionals.

**4.4.2 Pregnant woman’s knowledge about asthma in pregnancy**

The knowledge of pregnant women about their own asthma may have also influenced the participants’ role in antenatal asthma management. As suggested in Sub-category 3.3 of this chapter, some midwives perceived that the women demonstrated complacency regarding their asthma during pregnancy and some were reluctant to receive education from the midwife. This may have affected the participants’ ability to correctly identify the asthma status of the pregnant woman and to provide appropriate education. The knowledge of the woman may have also left the participant with no choice but to refer the woman on to other health professionals.

**4.4.3 Models of Care**

The models of midwifery care in which the participants were currently working at the time of data collection and their previous clinical experiences could potentially influence their current knowledge of asthma in pregnancy and their perceived role in antenatal asthma management. Some participants were able to provide some continuity of care for women throughout their pregnancy and were well placed to provide education to these women regarding health concerns such as asthma. Despite this opportunity, however, these participants suggested that they did not have enough knowledge on the topic of asthma in pregnancy to provide adequate education and, therefore, still felt the need to refer women on to other health professionals. Other participants made it quite clear that the model of midwifery care in which they were working resulted in them only seeing the pregnant woman once and that they felt their role was to refer the woman on to other health professionals for asthma management, as the midwife had neither the knowledge nor subsequent opportunities to educate the woman appropriately regarding asthma during pregnancy.

**4.4.4 Clinical experience**

The participants’ previous clinical experience may have influenced their perceived role as an educator or referrer, as some participants identified knowledge gained from dealing with women with asthma in the past or recalling who they had referred women to in the past for asthma management. Some of this information was a little out-dated however, such as the
paging number for the previous asthma study, which concluded in 2010, but was still being used by one of the participants in 2012.

4.4.5 Time constraints

Time constraints appeared to be a significant factor in the institutional context of this study. As noted in Sub-category 3.2 of this chapter, the participants spoke openly about the effect time constraints had on both their knowledge of asthma in pregnancy and their perceived role as educators and referrers in antenatal asthma management. The researcher noted repeatedly in the field notes that the participants appeared rushed and too busy to sit and talk to the interviewer. There was also mention of the volume of women the participants were expected to see in the clinic setting and how this may have affected the midwives’ ability to obtain a thorough medical history from the pregnant woman, which could reveal a health concern such as asthma. Participant 6 demonstrated this when she stated, “You might have 10 minutes to spend with the person and how much information can you get or give in 10 minutes?”

Another concern raised by the participants relating to time constraints was their perceived inability to improve their identified knowledge deficit in the area of asthma in pregnancy or to develop a referral pathway for women with asthma, due to time constraints in the institution.

4.4.6 Lack of knowledge

The linking of the institutional context and participants’ lack of knowledge about asthma in pregnancy may be seen in the participants’ discussion in Sub-category 3.1 of this chapter. Participants identified a perceived lack of knowledge and how this in turn affected their role in antenatal asthma management. Comments such as that made by Participant 4 “One of the major problems is –um- education…not only with asthma but with all specific areas…but as with every other type of education it’s having the staff to do it and having the time to do it….whether it’s management or the establishment we have so much we have to do in a short amount of time”, imply that some participants felt unable to rectify the identified deficit in asthma in pregnancy knowledge due to reduced resources in the institution in which they worked. This, in turn, affected the role the participants felt they could play in antenatal asthma management. The participants made many suggestions about how the institution could address this deficit.
4.4.7 Lack of clear referral pathway

The lack of a clear referral pathway was frequently identified in the data. Field notes confirmed that this was a significant issue the participants were eager to discuss. Many participants became quite animated while discussing this issue and appeared to be quite frustrated with the current situation. The participants identified the need for a clear referral pathway in this institution and some suggestions were made about what this should involve.

4.4.8 Lack of accessible equipment

Two participants also mentioned a lack of accessible asthma management equipment in the clinical areas of the institution in which this study was conducted. This was identified as a barrier to them providing the antenatal asthma management they felt they should be providing. The provision of accessible asthma management equipment was therefore suggested as a solution to this problem.

4.5 Midwifery profession

A relationship between the midwifery profession and midwives’ knowledge of asthma and their perceived role in antenatal asthma management was also evident in the data. Many participants demonstrated frustration in not being able to practise within the philosophical framework of the midwifery profession (Australian College of Midwives, 2004) and provide adequate antenatal asthma management despite recognising it as part of their midwifery role.

Some participants discussed their need for knowledge about asthma in pregnancy and a continuity of carer model of midwifery practice, to allow them to educate the women and provide continuity of care, which is a desired element of the midwifery profession. Participant 9 commented that she would “refer em [sic] [the women] on and that’s not the whole idea of midwifery at this moment in time. I mean you want to be keeping it [pregnancy management] with the midwifery care providers and give that continuity and I think you’ve got to be able to do that with asthma as well. It’s a lack of knowledge on my part –um- and you hope to be able to support all women.”

Other participants acknowledged the consultation and referral guidelines outlined by the midwifery profession (Australian College of Midwives, 2005) and stated that, “I still think it’s a referral system for us [the midwife] because it [asthma] does put them [the women] at a
high risk for their pregnancy...so they would still need to have a consultation with one of the registrars or a doctor at least” (Participant 11).

The importance of maintaining up-to-date knowledge and providing evidence-based best practice forms the basis of the midwifery profession and participants of this study stated regularly that they required more knowledge regarding asthma in pregnancy to have the confidence to provide antenatal asthma management. An example of a common statement was that made by Participant 4 who stated “I don’t know enough about it [asthma] to manage it”…and…“it’s difficult to educate when you don’t know that you are telling the right thing.”

4.6 Summary

This chapter has described the categories and sub-categories which emerged from data gathered from interviews conducted with 13 midwives who participated in this study. The participants’ comments revealed the midwives’ current knowledge about asthma in pregnancy and their perceived role in antenatal asthma management to be varied and inconsistent. These midwives currently provide antenatal care in a large tertiary referral hospital in Australia. Overwhelmingly there was a perception that further knowledge about asthma in pregnancy was required. The participants’ perceptions of their role in antenatal asthma management also varied considerably. There were various opinions about whether the participants’ role was to educate women regarding their asthma during pregnancy or to refer the women on to other health professionals. Participants identified a number of barriers that they felt prevented them from providing the antenatal asthma management they thought they should be providing. Solutions to breaking down these barriers were also suggested by the participants.

The categories and sub-categories that emerged from these data were not discrete. It became evident throughout the data analysis process that varying relationships existed among the categories and sub-categories. The institutional and midwifery context in which the participants worked influenced both the midwives’ knowledge about asthma in pregnancy and their perceived role in antenatal asthma management.

These findings will further be discussed in the following chapter and comparisons between current literature regarding the role of the midwife in antenatal asthma management and the new knowledge this study has generated will be discussed. In addition the implications of this
new knowledge for clinical practice, future research and education in the area of asthma in pregnancy will be described.
Chapter 5 Discussion and conclusion.

This final chapter will position the study in the literature and respond to the question: What is midwives’ current knowledge about asthma in pregnancy and what is their perceived role in antenatal asthma management? Similarities and differences between the current findings and those reported in previous research will be discussed and the new knowledge generated from this study identified. Strengths and limitations of the study will be acknowledged, implications will be discussed and recommendations for clinical practice, education and future research provided. This chapter represents stage 4 of the data analysis process known as recontextualising as shown in Appendix 9.

5.1 Antenatal asthma management

Previous research specifically examining the provision of antenatal asthma management by midwives has not been reported. The National Heart Lung and Blood Institute guidelines (2007), which outline the management of asthma in pregnancy, recommend that pregnant women with asthma be cared for by a collaborative team of health practitioners such as GPs or obstetricians, respiratory specialists and midwives (Henley-Einion 2008; NAEPP 2007). As mentioned in Chapter 2 of this thesis, current Australian guidelines and recommendations for asthma management during pregnancy developed by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists [RANZCOG] (2011) also suggest that women with medical conditions, including asthma, must be managed by a consultant obstetrician. The RANZCOG guidelines (2011) suggest that a multidisciplinary team of health professionals be available for all women with pre-existing medical conditions and that a clear referral pathway be established so that women requiring additional care are treated by the appropriate health professional. Participants in the current study were not specifically asked about their knowledge or application of the current antenatal asthma management guidelines. There was evidence, however, that some attempt was made by participants to provide collaborative care between the midwife and another health professional such as a GP, obstetrician or respiratory specialist when discussing referral of women to other health professionals. However, the lack of a clear referral pathway for pregnant women with asthma prevented true collaboration as the participants were uncertain about who the women should be referred to and how to make a referral. The knowledge about and adherence to antenatal
asthma guidelines by health professionals appears to be inconsistent. A study conducted in Spain by Cimbollek et al. (2012) reports that respiratory specialists, GPs and obstetricians consider antenatal asthma management guidelines to be useful but 64% admit to seldom or never following them. Reasons cited for this lack of compliance with guidelines include a lack of knowledge about the consequences of poorly managed asthma and a lack of equipment such as spirometers to assess asthma severity. Interestingly, this study also stated that “Other health care professionals (i.e. nurses) attending asthmatic pregnant patients should probably be included” (Cimbollek et al., 2012, p. 7), however, nurses and midwives were not involved in this study.

Another study involving GPs and practice nurses in Scotland examined the use of asthma guidelines and self-management plans in adults with asthma (Moffat, Cleland, van der Molen, & Price, 2007). It was reported from this study that guidelines and self-management plans are not used routinely and that the health care professionals participating in the study feel they do not have the communication skills necessary to deal with patients who have asthma control issues, particularly if they involve non-medical issues such as smoking or financial hardship. This study did not look exclusively at pregnant women with asthma, however it suggests that health care professionals find it difficult to discuss psychosocial issues that may affect their patients’ health, which is not a new concept (Moffat et al., 2007).

Some midwives participating in the current study suggested, for instance, that pregnant women with asthma who also smoked were, “hard to manage” (Participant 6). Ebert, van der Riet and Fahy (2009) support these findings, although the authors suggest that midwives are in an ideal position to support women with health issues such as smoking in pregnancy. Ebert et al. (2009) report that midwives release responsibility for the woman’s health behaviours when lifestyle choices are perceived as unhealthy. Furthermore, Flenady, Macphail, New, and Devenish-Meares, (2008) claim that few healthcare professionals, including midwives, provide effective support for smoking cessation. Identified barriers to providing adequate smoking cessation support include lack of training; lack of staff confidence in their ability to counsel or educate; uncertainty about their role in smoking cessation education; difficulty prioritising smoking cessation due to organisational constraints; and a lack of institutional policies. The participants in the current study, although it examined asthma management rather than smoking cessation, also identified a lack of training in antenatal asthma management. A lack of confidence in providing education about asthma management in
pregnancy was identified and was related to a perceived lack of knowledge. Confusion regarding the midwife’s role in antenatal asthma management and institutional constraints, such as time and the lack of a clear referral pathway for pregnant women with asthma, were identified as barriers.

Lim et al. (2011) examined the management of asthma antenatally by GPs in Australia. It is reported in this study that GPs have a good understanding of the safety of asthma medications and evidence-based guidelines; however, there appears to be a lack of confidence and/or knowledge about the management of asthma in pregnancy. Comments made by some of the midwives who participated in the current study identified a perceived lack of knowledge or interest in asthma management in pregnancy by GPs and other health professionals, which was consistent with the findings of the studies by Cimbollek et al. (2012) and Lim et al. (2011). The midwives participating in the current study suggested that a solution to providing better antenatal asthma management was to ensure the GPs were “up to speed on everything [regarding asthma], that would be helpful.” (Participant 5). Furthermore, midwives referring women on to other health professionals for antenatal asthma management lacked confidence in their medical colleagues, as shown in the following statement: “I don’t think the medical staff know that much [about asthma in pregnancy] because it is not a passion of theirs” (Participant 9) and “there’s not actually a consultant interested in asthma” (Participant 12). Therefore although the guidelines recommend a collaborative approach to antenatal asthma management, it would appear that a lack of knowledge and confidence, and the current models of care are barriers which prevent this from happening. Lack of confidence and collaborative care could potentially lead to pregnant women with asthma not receiving adequate antenatal asthma management. These studies demonstrate the potential for the scenario that no health professional adopts responsibility for asthma management during pregnancy.

Recently, there has been a randomised controlled trial which tested a multidisciplinary approach to the management of maternal asthma in Australia (Lim, Stewart, Abramson, Walker, & George, 2014). Their approach involved the education and monitoring of pregnant women with asthma and focused on a collaborative approach, which included the women, their GPs, pharmacists and asthma educators. Although there is no mention of midwives being involved in the women’s care, there was an emphasis on the provision of education and close monitoring of pregnant women with asthma. Lim et al. (2014) conclude that maternal
asthma outcomes could potentially be improved by the use of a multidisciplinary model of asthma management and that this could be widely implemented in clinical practice.

The study protocol for another randomised controlled trial has been released by Grzeskowiak et al. (2014) and is aimed at assessing the clinical and cost effectiveness of a nurse-led antenatal asthma management service in South Australia. Within this study, pregnant women with asthma will be randomised to receive either standard care which involves women self-managing their asthma during their pregnancy and seeking guidance from their midwife, obstetrician, GP or respiratory specialist if required, or the women being placed in an intervention group which includes a full assessment of their asthma by a respiratory nurse at regular intervals during their pregnancy. This study hopes to demonstrate an improvement in the self-management of asthma by pregnant women, a reduction in asthma exacerbations and consequently improved perinatal health outcomes. Again, the use of midwives as asthma educators has not been suggested in this study.

5.2 Knowledge of asthma in pregnancy

Much is now known about asthma in pregnancy. The importance of adequate antenatal management of asthma is widely recognised and a meta-analysis of adverse perinatal outcomes in women with asthma conducted by Murphy et al. (2011) demonstrates that the provision of active asthma management is associated with a reduced risk of premature labour and premature birth to a non-significant level as for non-asthmatic pregnant women. The unpredictability of asthma in pregnancy for women is discussed by Kircher et al. (2002) and Schatz et al. (1988) who conclude that approximately one third of women have a worsening of their asthma symptoms during pregnancy, one third experience an improvement in their asthma status and one third have no change in their asthma during pregnancy. Some of the midwives who participated in the current study, when discussing their knowledge of asthma in pregnancy, recognised that the severity of some women’s asthma may change during their pregnancy. Some were aware of this “one third” hypothesis. There was also some acknowledgement of possible consequences of poorly managed asthma on the foetus and a small number of participants made the connection between poorly controlled asthma and low birth weight babies.
Some participants demonstrated knowledge about asthma medications during pregnancy by stating that pregnant women should remain on preventative asthma medications throughout their pregnancy. Other participants commented on the pregnant woman’s knowledge of asthma medications in pregnancy and that a reduction or cessation of asthma medication often occurs in pregnancy for fear of adverse effects on the baby. The reduction of asthma medication use by pregnant women is well documented in previous studies by Murphy et al. (2005b) and Enriquez et al. (2006) which demonstrates that the level of appropriate self-management of asthma by pregnant women, including the use of prescribed asthma medications, is initially poor, and that pregnant women are likely to cease or reduce their asthma medication use in the first trimester (Enriquez et al., 2006). Murphy et al. (2005b) show that there is improvement in medication adherence following education gained during the antenatal period.

Many participants in this current study began their interview by stating that they knew “very little” about asthma in pregnancy; however, it became evident that some of the participants had some knowledge, especially relating to the need for pregnant women to continue asthma medications as prescribed. Nevertheless the level of asthma in pregnancy knowledge was not consistent among participants and, in some cases, not correct or up-to-date with current guidelines. Discussion regarding the participants’ knowledge about asthma in pregnancy included the source of their knowledge. Some participants recalled their previous clinical experiences and the management of particular women with asthma during the antenatal period. Others mentioned previous asthma research which was conducted in the antenatal clinic setting as the source of their knowledge about asthma in pregnancy.

Specifically, the Managing Asthma in Pregnancy (MAP) Study (Powell et al., 2011), which examined the management of pregnant women with asthma based on clinical symptoms versus the measurement of exhaled nitric oxide, was a source of knowledge and referral for some midwife participants of the current research. The MAP study was conducted over a four year period (2007-2010) and involved the daily presence of a nurse and a midwife, who had asthma management training, in the antenatal clinic. There was also a paging number that antenatal staff could call in order to refer appropriate pregnant women to the study. Regular in-services were conducted for the staff working in the antenatal clinic by the clinical research staff regarding the objectives of the study, the ongoing progress of the study and, ultimately,
the conclusions of the study. A small amount of background information regarding the significance of asthma in pregnancy was also provided during this in-service process.

Not all midwives participating in the current study were working in the clinic at the time of the MAP study. Those who were (n=9), suggested that they had not necessarily gained sufficient knowledge about asthma in pregnancy from this study to manage antenatal asthma effectively. However, their awareness of the significance of asthma in pregnancy may have been slightly improved. This was demonstrated by their willingness to recruit women to the study. The participants also mentioned the use of the MAP study as a referral source. Some participants stated that, as midwives, they did not require in-depth knowledge of asthma in pregnancy as they had a resource such as the MAP study to which they referred women. It should be noted, however, that there were inclusion and exclusion criteria for participation in the MAP study (including being <22 weeks gestation at randomisation), which meant that not all women with asthma could be referred to this study for the management of their asthma. The conclusion of the MAP study and the subsequent withdrawal of the respiratory staff from the antenatal clinic resulted in a deficit in the current referral process for pregnant women with asthma.

The participants’ perceived need for asthma in pregnancy knowledge also varied, with some participants suggesting that they did not require extensive knowledge about medical issues such as asthma, as they felt their role was to refer and that they could send the pregnant woman to someone who specialised in this condition. These views were consistent with findings from Gharaibeh, Oweis and Hamad, (2010), demonstrating that the midwives felt it was not part of their role to provide genetic counselling and education to pregnant woman, but they would refer women to a health professional who specialised in this area.

Other participants felt that having a chronic condition such as asthma put the pregnant woman into a risk category which did not enable them to have midwifery-led care and the midwife was therefore required to consult with and possibly hand over care to medical colleagues. Recent studies have examined midwifery-led care for women of mixed-risk in their pregnancy (Sandall, Soltani, Gates, Shennan, & Devane, 2013; Tracy et al., 2011). The model

10 The associated pregnancy risk from medical or psychosocial issues varies from low to high and therefore encompasses all pregnant women.
of care represented in these studies was midwifery-led, whereby the pregnant woman was allocated a primary midwife and referrals were made to other health professionals as required throughout the pregnancy. These studies conclude that although this model of care does not significantly improve all maternal and foetal outcomes, such as the rate of caesarean section, it does improve maternal satisfaction. Sandall et al. (2013) find that midwifery-led models of care also reduce the incidence of pre-term birth (average RR 0.77, 95% CI 0.62 to 0.94) and foetal loss before 24 weeks gestation (average RR 0.81, 95% CI 0.66 to 0.99). It is, therefore, recommended that all women be offered midwife-led continuity of care, but that caution should be exercised when the woman is identified as having a substantial medical or obstetric complication during her pregnancy. Midwives need to recognise asthma as a potentially substantial medical complication during pregnancy in order for the woman to be offered the appropriate model of care for her pregnancy. Midwifery-led models of care, which accept and provide services for women of mixed-risk, would need to be available as a referral option.

Conversely, the need for further knowledge about asthma in pregnancy was acknowledged by other participants. These midwives felt their role included educating women about their asthma and providing appropriate management of asthma during the antenatal period but stated that they felt unable to do this due to a lack of knowledge. Previous studies have also reported that midwives who acknowledged they had an educational role antenatally when dealing with public health issues such as listeria in pregnancy and oral health in pregnancy, still felt that they were unable to provide this education due to a lack of knowledge on the subject (Bondarianzadeh et al., 2011; George et al., 2011).

5.3 Midwives’ role in antenatal asthma management

The philosophical underpinnings and definition of the midwives’ role is clearly stated by the profession (Australian College of Midwives, 2004; International Confederation of Midwives, 2005; The Royal College of Midwives, 2001). National competency standards, codes of professional conduct and ethics and various position statements and guidelines are also published for midwives in Australia and these documents form the framework for assessing competence and practice of the midwife (Australian Nursing and Midwifery Accreditation Council, 2010).

The midwife is recognised as a health professional who, “works in partnership with women and their families to give the necessary support, care and advice during pregnancy”
Scientific evidence, experience and intuition form the basis of midwifery and collaboration and consultation between health professionals is considered to be part of the midwife’s role.

The extension and enhancement of the provision of primary care in Australia is being examined due to research showing that women are requesting more choices in primary care and this includes continuity of carer and an individual approach to care (Lumley, 2000). There is also evidence that midwifery-led continuity of care models are cost effective and safe options for women of all-risk during pregnancy (Sandall et al., 2013). Higher levels of the professionalisation of the midwifery workforce that allow midwives to work autonomously and critical workforce shortages which demand the efficient utilisation of skilled maternity care providers whilst matching the needs of the women and families requiring antenatal care are also leading to an expansion of the midwife’s role (Australian Health Ministers' Advisory Council, 2008).

In the Australian Nursing and Midwifery Accreditation Council, National Competency Standards for the Midwife (2010), there is an emphasis on primary health care as part of the midwifery context and consequently it is necessary for midwifery as a profession to view itself as a public health strategy. Bradley (2010) states that midwives are well placed to influence the health and wellbeing of women and children and should therefore see their role in the context of public health in the UK. Biro (2011) also states that midwives regularly provide public health interventions and health promotion messages to pregnant women. Johnson (2007) reports that midwives in the UK are aware of the need for further public health screening and attention to particular social problems, but identify barriers such as the lack of time and resources available to midwives in order for them to effectively address these issues.

The midwives participating in the current study also indicated an awareness of the philosophy underpinning their professional practice and the need to maintain an up-to-date knowledge base on all aspects of pregnancy and birth and factors that may influence women and their families. Some participants expressed the need for continuity of carer to facilitate a more holistic approach to the women’s antenatal care. There appeared, however, to be internal conflict for some midwives when discussing the role midwives should play in the care of women antenatally. The conflict involved the midwives having the perception that their...
The role of the midwife was further discussed in the literature (Brodie 2002; Homer et al., 2007), where midwives in Australia recognised the need for evidence-based and up-to-date information to be given to women in the antenatal period. It was stated that the midwifery role included building a respectful relationship with the woman and her family, providing continuity of carer and also undertaking effective referral and consultation when required. Barriers preventing midwives from carrying out their perceived role were also identified (Homer et al., 2007) and these included the institutional system of maternity care and the subsequent reduced opportunity for midwives to practice across the full spectrum of midwifery practice; medical domination; staff shortages and a lack of community awareness of the role of the midwife. These barriers were consistent with those identified in the current study.

5.4 Institutional context and barriers to providing antenatal asthma management

Cooper and Lavender (2013), suggest that midwives work differently depending on the environment in which they are practicing, and this in turn affects their beliefs about their role and the way in which they work. The environment the midwife works in may also influence the pregnant woman’s perception of the role of the midwife. Midwives who work in the community and provide midwifery-led continuity of care are seen by the women they care for, to be working ‘with women’ and are able to work in the full scope of midwifery practice. Midwives working in the hospital are considered to be ‘with institution’ midwives and the institution affects their scope of practice because they are often not providing continuity of care and must work in the constraints of a hospital system. The role of the midwives working in the institution was determined by women to be more of a handmaiden to the doctor and not as a primary health care role (Hunter, 2005). This is an important concept when discussing
issues such as health promotion and antenatal asthma management, because in the current study some midwives felt the women they were attempting to care for, did not appear open to receive advice or education about their asthma from the midwife. Some participants commented that some women with asthma would take advice from their GP or obstetrician regarding their asthma management but would not listen to or agree with advice from the midwife. This may be a result of women not expecting midwives to be knowledgeable about medical conditions such as asthma, or it may be consistent with a lack of confidence displayed by midwives. The fact that conflicting advice may be offered by different health professionals, particularly regarding the use of asthma medications in pregnancy may also be a factor.

Homer et al. (2007) and Cooper and Lavender (2013), when examining the perceived role of the midwife from the woman’s perspective found that women expected midwives to provide information on nutrition, breastfeeding, pregnancy, birth and the postnatal period. However when discussing midwives working in an institutional consultant-led model of care it may be reasonable to assume that the pregnant women are not seeing the midwife as their primary carer and are relying on the advice from all those involved in her care, that is the midwife, obstetrician/GP and possibly a respiratory specialist. Brodie (2002) also states that midwives working in models of medicalised midwifery care feel unable to practice midwifery and subsequently lose confidence, which then leads to a defensive mode of practice.

5.4.1 Models of care

The model of care the midwife is working in may have an effect on how she/he works and how the woman perceives the midwives’ role, which could lead to barriers to midwives providing adequate antenatal asthma management. The variation in models of midwifery care was evident in the current study, as in this relatively small cohort of midwives working in the same institution there were a number of models of care represented. As discussed previously the ideal model of midwifery care is a partnership model which is midwifery-led and offers continuity of carer with consultation with other health professionals as required, but where the woman and her family are involved in the decision making process of her care throughout her pregnancy, labour and birth (Tracy et al., 2011). This model has also been shown to be safe for women who have any level of risk factors throughout their pregnancy (Sandall et al., 2013).
**M3 Team**

The model of care two current study participants worked in, which most closely represented a continuity of care model was that of the M3 Team. The M3 Team involved a small team of midwives working in a group practice collaborative model of care, which was essentially neither midwife-led nor obstetrician-led. The women eligible to be cared for in this model were those placed in a high-risk category during their pregnancy due to medical or psychological co-morbidities. A woman presenting antenatally with severe asthma would be eligible to be part of this model of care. Due to the women being categorised as high-risk, the midwives in this team worked collaboratively with obstetricians and allied health professionals to ensure consistent care and information was given. Although the women met only a small number of midwives throughout their pregnancy they were not allocated a primary midwife. Rather, they were allocated a primary obstetrician and the midwives would work as part of the care coordination team, being on call to provide antenatal and intrapartum care to the women to whom they were allocated. Interestingly, when questioned about the role of the midwife in antenatal asthma management, the midwife participants who worked in this model stated that they considered their main role was to refer women on to other health professionals who had expertise in the area of asthma management. Both participants working in this model stated that they did not feel that they had enough knowledge to educate the women regarding their asthma and that they did not require this knowledge as they had the ability to collaborate with other health professionals whilst still being involved in the woman’s care. These midwives also mentioned that although they felt their role was to collaborate with other health professionals to ensure best care for women with asthma during pregnancy, an unclear referral pathway made this difficult.

**Booking In model of care**

The majority of the current study participants (n=8) worked in a model of midwifery care that did not allow the midwife to provide continuity of care throughout the antenatal period. In this model, the midwife would meet the woman on her initial visit to the antenatal clinic and conduct a ‘booking in’ visit whereby a medical and psychosocial history would be taken. The woman would then be referred to another model of care which was suitable for her based on the woman’s level of risk for this pregnancy or the woman’s choice of antenatal care. Some of the models of care to which the women were referred involved a level of continuity of carer, such as a low-risk midwifery–led group practice, the M3Team or GP shared care, but the
The midwife conducting the booking in visit would not necessarily provide any follow up antenatal care to that particular pregnant woman. The participants working in this model of care, therefore expressed confusion and frustration regarding their role in antenatal asthma management as they felt they did not have the opportunity to provide true woman-centred or continuity of care.

Some of the participants acknowledged their health promotion role in antenatal care as suggested in the literature (Biro, 2011), but felt that they did not have the knowledge or the time to provide health promotion information regarding asthma in pregnancy. The perception that some midwives who conduct ‘booking in’ visits have a ‘tick box’ mentality is unfortunately reported in the literature. Robinson (2005) states that the growing demand for information to satisfy antenatal care guidelines, risk management and the computer database, plus an increased demand on staff, as well as the limited time available to conduct booking in visits, has led to midwives and women not being satisfied with the care provided at the booking in visit, as it does not reflect woman-centred care. Robinson (2005) suggests that management should be reminded that midwifery means being “with women” and not “with computer” (p. 171). Midwives participating in the current study made comments regarding their inability to conduct an adequate booking in visit due to time constraints and the requirement to ask about so many different aspects of pregnancy care. Therefore, unless the woman was having obvious respiratory problems at the visit or initiated a discussion regarding her asthma status, asthma was ticked as ‘yes’ or ‘no’ and then the midwife would move onto the next health issue on the checklist. Studies of the provision of listeria and oral health education in the antenatal period concluded that midwives felt they did not have time to conduct a thorough booking in visit and that they were expected to cover too many topics in a short period of time (Bondarianzadeh et al., 2011; George et al., 2011). The midwives involved in these studies felt they had to prioritise which health topics were more relevant to the woman or focus on those that the midwife was confident in providing education about.

The model of care the midwife is working in also affects the time the midwife has to spend with the woman. Those working in the ‘booking in’ model of care have only 60-90 minutes in which to obtain a thorough medical and psychosocial history from the woman, to determine her level of risk for this pregnancy and to refer her on to the appropriate model of care for the remainder of her pregnancy. The midwife involved in the booking in visit is not likely to attend subsequent antenatal visits with the woman again during her pregnancy so feels she
needs to address all she can during this single visit. Midwives working in a continuity of carer model, however, have many more antenatal visits in which to identify and discuss various health issues pertaining to the woman’s pregnancy. Health issues can therefore be prioritised and discussed at a time that meets the woman’s need for information throughout her childbirth continuum with the aim that the woman does not feel she is being overwhelmed with information at her first visit to the midwife. The issue of time was quite dominant when discussing midwives’ ability to provide adequate antenatal asthma management.

5.4.2 Time

Time constraints were reported by all current study participants to be a major barrier to the provision of adequate antenatal asthma care. Participants stated that they did not have time to obtain an adequate health history initially, and they did not have time to educate themselves when a deficit was noted such as a lack of knowledge about asthma in pregnancy. They felt that staff shortages and an increase in the number of women the midwives were seeing on a daily basis contributed to the time constraints. Time constraints are noted as a barrier in many other studies which examined other health issues being addressed in the antenatal period. Bondarianzadeh et al., (2011) and George et al. (2011) all identified time as a major factor in midwives’ inability to provide health education on issues such as listeria and oral health. Johnson (2007) stated that midwives in the UK were aware of the need for further public health screening and consultation but that time constraints and lack of resources prevented them from effectively addressing these issues. Jones, Creedy, and Gamble (2012) also discuss how systemic issues such as time constraints are perceived by midwives to be the major barrier against providing effective emotional care to women antenatally and detecting issues such as antenatal depression.

Also mentioned in these studies is the midwives’ perceived need for further training for the health issues about which they were expected to be providing education. A lack of knowledge was, therefore, also identified as a barrier to the provision of health promotion and health issue education.

5.4.3 Lack of knowledge

The participants of the current study who felt the provision of education and health promotion was part of their role in antenatal asthma management stated clearly that they felt unable to provide this information due to a lack of up-to-date knowledge about asthma in pregnancy.
Other studies also found that midwives identified a knowledge deficit when asked to provide education on issues that are important during pregnancy, such as oral health, listeria education, smoking cessation, genetic counselling and antenatal depression (Bondarianzadeh et al., 2011; George et al., 2011; Gharibeh et al., 2010; McLeod et al., 2003; Ross-Davie et al., 2006). Brodie (2002) commented on the inability of midwives to access ongoing education, especially in rural and remote areas due to geographical isolation and limited access to funded support. This lack of knowledge, therefore, influenced the role the midwife felt she could play in the antenatal management of health issues such as asthma as it affected her confidence in providing safe and appropriate care. It became obvious that the midwives felt they had to refer women on to other health professionals who had the knowledge or expertise about the health issue affecting the woman, because the midwife did not have the time or resources to gain the education or training required to provide up-to-date evidence-based knowledge on the health issue.

5.4.4 Lack of referral pathway

The lack of a clear referral pathway was identified by the majority of participants in the current study as a barrier to the provision of adequate antenatal asthma management, as shown in Figures 1 and 2. If a pregnant woman was identified as having asthma and requiring further asthma management, midwives were unsure to whom they should refer the woman. There appeared to be a general lack of confidence in the referral system and no clear pathway for referral. Participants in the current study identified that the completion of the MAP study (Powell et al., 2011a) left a deficit in the referral process in the antenatal unit where this study was conducted. It is important to note again that the MAP study did not provide antenatal asthma management for all women presenting to antenatal clinic with a diagnosis of asthma, as not all were eligible to participate in the study. This indicates that the lack of a clear referral pathway in this hospital’s antenatal clinic dates back many years, and not just since the completion of the MAP study. Midwives expressed uncertainty about whether women with asthma should be referred to their GP, a respiratory specialist or the obstetrician. Studies by Bondarianzadeh et al. (2011) and George et al. (2011), also report that midwives question which health professional would be appropriate for the health issue being identified and request a clear referral pathway. As mentioned previously, there is also a lack of confidence expressed by some of the midwives about the benefit to the woman of being referred on to another health professional.
5.5 Implications and recommendations

The findings of this study, when examined in relation to previous literature, identified variations in midwives’ knowledge of health issues affecting pregnancy, such as asthma, and midwives’ perception of their role in providing health promotion education on such topics. The positive effect of antenatal asthma education in general has been previously demonstrated (Murphy et al., 2005; Powell et al., 2011) suggesting that this is an area which could be further examined in relation to midwifery practice.

5.5.1 Education of midwives

The findings of the current study may, therefore, have ongoing implications for the education of midwives currently providing antenatal care to women with asthma. Many participants identified the need for more formal education on this health issue. The participants suggested different formats by which they would like to receive asthma education, including online learning modules, in-service programs and workshops/seminars presented by respiratory educators. The development and implementation of such education programs would be of benefit not only to the midwives providing antenatal care, but also to undergraduate midwives and other health professionals involved in antenatal care. McNeill, Doran, Lynn, Anderson, and Alderdice, (2012) examined the need for further development of education for midwives and midwifery students in areas of public health. Although asthma was not mentioned in this study, many other topics such as smoking and general health promotion were, and this shows that midwifery education needs to be reviewed to develop the public health role of the midwife. The development of an education program that could be delivered from an interprofessional perspective and could benefit clinicians in all stages of their clinical development is therefore recommended.

Examining the content of undergraduate midwifery programs such as the Bachelor of Midwifery would also be important in ensuring that student midwives acknowledge public health care as part of their role and that specific health topics such as asthma in pregnancy are being addressed in the curriculum. The inclusion of an education program involving woman-centred care should be developed to ensure that women with asthma and their family are empowered to make decisions regarding the management of their asthma during pregnancy. The use of currently available resources, such as information sheets produced by the Asthma
Foundation of New South Wales (2006), can help midwives to access up-to-date knowledge on asthma in pregnancy and feel that they are ‘doing something’ by discussing asthma in pregnancy with the woman and giving them an information sheet to support what was said, as well as a resource for further information and support on the topic. These information sheets were produced in consultation with researchers and clinicians at the institution where the current study took place and have been available for both pregnant women with asthma and health professionals. It is interesting that these information sheets were not mentioned by any of the midwife participants in the current study.

Another resource that has recently become available to midwives is the Australian Asthma Handbook produced by the National Asthma Council [NAC] (2014). This handbook (available on-line) outlines recommended advice to be given to pregnant women with asthma which includes:

- Offering regular asthma review and advice about asthma control during pregnancy
- Arranging vaccinations (influenza, pertussis) according to current national recommendations for pregnant women
- Advising women who smoke to quit, and offer support
- Providing an individualised written asthma action plan
- Advising pregnant women that:
  - asthma control and severity can change during pregnancy
  - good asthma control during pregnancy is a high priority
  - treatment may need to change from time to time to maintain good asthma control
- Encouraging women to remain on prescribed asthma medications
- Providing reliable information about asthma and health during pregnancy
- Reassuring women that acute asthma rarely occurs during labour and delivery

The Australian Asthma Handbook also contains information on managing asthma during pregnancy. This information includes avoiding flare-ups by close monitoring of asthma symptoms and an adjustment of asthma medications as required. It also includes how to manage a flare-up of asthma symptoms. Although this information may be of most benefit to GPs or other medical professionals managing pregnant women with asthma it will be useful to midwives practicing independently who are able to prescribe medications as well as those with a purely educational role.
The recommendations made by the National Asthma Council (2014) regarding advice to be given about asthma control during pregnancy, are strategies midwives can use at a first or ‘booking in’ visit with a pregnant woman if the midwife had the knowledge to do so. Increasing midwives’ knowledge about asthma in pregnancy or ensuring they know where to access this information about antenatal asthma management may increase their confidence in providing the above recommendations.

5.5.2 Midwifery practice

The need for the development of a clear referral pathway for women with asthma in pregnancy was identified in the current study. A referral pathway should be developed in consultation with all stakeholders associated with pregnant women’s care. This would include involving the pregnant woman, midwife, GP, obstetrician, respiratory specialist and management teams in the institution where the pathway was to be implemented. Developing and implementing a referral pathway for antenatal asthma management may result in significant clinical practice change. Consequently, midwives may experience less confusion about to who or where they should refer women with asthma and experience more confidence in the referral process and their ability to provide adequate care to the woman with asthma.

A clear referral pathway for pregnant women with asthma may also have significant implications for the woman and her family as they would potentially experience a more organised and uniform approach to their antenatal asthma management whilst still being offered care based on their individual needs. This in turn could lead to less women ‘falling through the cracks’ that appear to be present in the management of antenatal asthma and, therefore, potentially improve maternal and neonatal outcomes due to adequate antenatal asthma management and the reduction in asthma exacerbations for women during pregnancy. The development of more midwifery-led continuity of carer models of care would also help to close the gap that currently exists between the midwife’s expectation of providing woman-centred continuity of care and current obstetric-led care happening in the institution where the current study was conducted.
5.5.3 Policy

Institutional clinical guidelines and policy regarding the management of asthma during the antenatal period could also be revised as a result of this research. It would be necessary to update current guidelines and policies to coincide with the implementation of a clinical referral pathway. These guidelines would be based on the current midwifery scope of practice and competency standards documents (Nursing and Midwifery Accreditation Board of Australia, 2010) and Australian Asthma Handbook (NAC 2014) and would help define the role of the midwife in antenatal asthma management.

5.5.4 Future research

To confirm the current findings about midwives’ knowledge about asthma in pregnancy and their perceived role in antenatal asthma management further qualitative studies in different settings are required. Mixed method research designs could be employed to further investigate asthma in pregnancy knowledge of other health professionals involved in antenatal care and the women receiving antenatal care.

Midwives’ knowledge about asthma in pregnancy and their perceived role in antenatal asthma management may have been influenced by the institutional context in which this study was conducted. Further research needs to be undertaken in different institutions and involve different models of midwifery care in order to identify the possible influence of institutional context on the question posed.

Comparing the antenatal asthma care provided by midwives working in an institution such as a tertiary referral hospital and those working in midwifery-led birthing units would be an interesting study, which could potentially identify different barriers to providing optimal antenatal asthma management. This research could also explore the role of the midwife in antenatal care in Australia and how this varies between institutions and models of care.

Further research examining the antenatal asthma management needs of the pregnant woman from the pregnant woman’s perspective could provide a better understanding of what pregnant women expect from their caregivers regarding antenatal asthma management and what role the women feel the midwife plays in antenatal asthma management.
An effective education program and clinical referral pathway which could be implemented into various institutions and models of care to improve antenatal asthma management needs to be developed. Evaluation of the implementation of such interventions would add to the body of evidence which currently examines the impact of interventions associated with health issues such as asthma in pregnancy, on maternal and foetal wellbeing. Future research in these areas could add to the knowledge base currently collected in Australia by the Australian Institute of Health and Welfare which incorporates the Australian Centre for Asthma Monitoring.

5.6 Study strengths and limitations

5.6.1 Strengths

The strengths of the study were that new information regarding midwives’ perceived role in antenatal asthma management and their knowledge about asthma in pregnancy was identified. Many barriers were also identified which could be addressed by conducting further research in this area and by developing and implementing education and referral resources into the clinical setting. A maximum variation sampling approach was used to ensure all midwives providing antenatal care were recruited from various practice settings/models of care to participate in the study. Rigour was maintained throughout this study and strategies such as member checking and peer review were included, as outlined in the audit trail (Appendix 9), to ensure trustworthiness of the analyses of these data.

5.6.2 Limitations

The sample size for this study was small and was recruited from a cohort of midwives working in one particular healthcare facility. This may not be a true representation of the midwifery population providing antenatal care in Australia and, consequently, the results of this study may not be transferable beyond this group. The findings may be transferable among the cohort studied, however, and possibly transferable to cohorts in similar clinical settings. Unique to this setting, however, was the presence of asthma in pregnancy research over the last decade, which may have influenced the findings of this current study.
Although maximum variation sampling was adopted, it did not extend to midwives working outside the institution or to other health professionals providing antenatal care such as GPs, obstetricians or respiratory specialists. Adopting a broader maximum variation sampling approach to include the other health professionals and those midwives working in a different model of care could have strengthened this present research design. Exploring how pregnant women perceived the midwives’ role in antenatal asthma management would have also strengthened this research project. This project was for the purpose of a Master of Philosophy project and was conducted within scholarly time constraints that prevented conduct of a study with a broader scope.

The data collection process for this study was hindered by institutional time constraints and the participants’ reluctance to participate in interviews outside work hours. Consequently, many interviews were of short duration and often interrupted, which may have affected the quality of the interview and the data obtained. The interviewing skills of the researcher also developed over the course of the data collection process and may have affected the depth of information gathered in the later interviews compared to those at the beginning of the process.

5.7 Conclusion

Midwives participating in this study showed that they have some knowledge about asthma in pregnancy, but this knowledge varied between participants. The participants did not feel they had enough knowledge to confidently educate women regarding their asthma during pregnancy and some participants felt a working knowledge of asthma in pregnancy was not required due to their identified role of referring women to other health professionals for antenatal asthma management.

The role of the midwife in antenatal asthma management was not well defined by participants and a level of confusion and frustration was apparent when discussing what they should be doing for women with asthma in pregnancy. Some midwives felt they should be taking on an educational role whilst others felt their role was to refer women on to other health professionals who could better manage antenatal asthma better.

Barriers to providing optimal antenatal asthma management such as time constraints, lack of knowledge and the lack of an up-to-date referral pathway were identified by participants.
These barriers were consistent with previous research which examined the midwives’ role in providing health promotion on other health topics relevant to pregnancy (Gharaibeh et al., 2010; Rogers et al., 2003; Ross-Davie et al., 2006). To address these identified barriers, education programs that stress asthma as a significant public health issue and one that can potentially increase poor maternal and foetal outcomes need to be developed. These education programs need to be directed towards all health professionals involved in antenatal asthma management but particularly tailored for midwives and student midwives. Concentrating on midwifery education would maximise the potential contribution midwifery can make to addressing public health issues such as asthma, and ensure a better understanding of the midwifery public health role, thereby enabling this role to become more visible in the community.

Previous studies have examined optimal antenatal asthma management and suggested that midwives could be a part of the collaborative care required to provide optimal antenatal asthma care. The perceived role of the midwife from the perspective of the midwife and the pregnant woman has also been examined in the literature. Research has not however, previously linked the midwife to antenatal asthma management or examined whether midwives feel they have a role to play in antenatal asthma management. This study has provided new knowledge on the topic of antenatal asthma management from the midwives’ perspective.

Prior to this study the researcher’s assumptions were that midwives had limited knowledge about asthma in pregnancy, they were uncertain of appropriate antenatal asthma management and unclear of the role they were expected to play in the management of pregnant women with asthma. These assumptions have been supported by the data collected in this study.

This study found that midwives are currently not able or willing to provide adequate antenatal asthma management due to lack of knowledge about asthma in pregnancy, time constraints and an unclear referral pathway for women with asthma. The role of the midwife in Australia, in providing public health education on issues such as asthma in pregnancy is well defined in the philosophy of midwifery and the scope of practice and competency standards documents, which govern the profession. Midwives working to their full scope of practice and engaging in health promotion relating to asthma in pregnancy were not observed in this study setting. Changes to clinical practice in the form of education programs for midwives and student
midwives that focus on public health issues such as asthma in pregnancy need to be developed based on current evidence and recommendations (NAC 2014). A clear referral pathway for women with asthma is also required and, ideally, should include midwifery-led care in consultation with other health professionals.
References


Neergaard, M. A., Olesen, F., Andersen, R. S., & Sondergaard, J. (2009). Qualitative Description - the poor cousin of health research? BMC Medical Research Methodology, 9 (52), 52-56.


Powell, H., McCaffery, K., Murphy, V., Hensley, M., Clifton, V., Giles, W. & Gibson, P.G. (2011a). Psychosocial outcomes are related to asthma control and quality of life in pregnant women with asthma. *Journal of Asthma*, 48 (10), 1032-1040.


Sandelowski, M., & Barroso, J. (2002). Classifying the findings in qualitative research. Qualitative Health Research, 13, 905-23.


## Appendices

### Appendix 1: Summary of references in literature review

**Summary of studies in literature review**

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Short Title</th>
<th>Country</th>
<th>Sampling Method (n=) Participants</th>
<th>Data Collection</th>
<th>Methodology/Study Design</th>
<th>Results/Findings</th>
<th>Further comment</th>
</tr>
</thead>
</table>
• Quitting smoking was considered by staff to be difficult and counseling only moderately successful.  
• Staff felt they lacked the skills and time to effectively implement intervention. | Not same midwives and doctors involved in pre and post intervention survey. |
<table>
<thead>
<tr>
<th>Study Reference</th>
<th>Objective</th>
<th>Study Setting</th>
<th>Sample Size</th>
<th>Research Design</th>
<th>Methodology</th>
<th>Findings</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Boon (2004)</td>
<td>Primigravidas’ perception of the role of the midwife.</td>
<td>Australia</td>
<td>N=108 Convenience sample</td>
<td>Survey Semi-structured questionnaire</td>
<td>Cross sectional</td>
<td>Some confusion regarding midwives role. Poor community awareness of midwives role. 93% stated midwives qualified to care for women in labour. 88% felt midwives involved in uncomplicated births. 92% felt midwives should give antenatal advice.</td>
<td>Primiparous women only included. 92.3% response rate. Results cannot be generalized.</td>
</tr>
<tr>
<td>4. Caress, Beaver, Luker, Campbell, and Woodcock (2005)</td>
<td>Involvement in treatment decisions.</td>
<td>UK</td>
<td>N= 230 Adults diagnosed with asthma</td>
<td>Survey</td>
<td>Cross-sectional</td>
<td>Majority preferred passive role (40.4%). Need for further education for health professionals and patients.</td>
<td>Pregnancy status not noted. Low response rate of 30.2%.</td>
</tr>
<tr>
<td>5. Caress, Luker, Woodcock, and Beaver (2002)</td>
<td>Treatment decision-making role preference in adult asthma patients. UK</td>
<td>N=32 Adult asthma patients Purposive sampling</td>
<td>Focused conversational interviews</td>
<td>Qualitative</td>
<td>• Participants divided between Active, Collaborative and Passive role preferences. • Barriers identified included time constraints and lack of knowledge of asthma by patient and health professional. • Poor communication.</td>
<td>Limited transferability Small sample size. Pregnancy status not noted.</td>
<td></td>
</tr>
</tbody>
</table>

| 6. Chambers (2003) | Asthma education and Outcomes for Women of Childbearing Age USA | N=501 Women of childbearing age: 18-44. With diagnosis of asthma and under managed care. | On-line Survey Asking about attitudes to medication use during pregnancy. | Survey | • 82% concerned about taking prescribed medications when contemplating pregnancy. • 36% would discontinue ICS use. • 19% would discuss with a physician need to continue on medication. • 14% discontinued or reduced asthma medication without medical consultation. | * Participants not necessarily pregnant. *Did not define if some pregnant at the time of the questionnaire. *No mention of response rate. *Very specific group (members of the Harris Interactive Chronic Illness Panel). |
| 7. Clifton et al.  
| --- | --- | --- | --- | --- | --- |
| | | | | | • Presence of maternal asthma in pregnancy increases risk of stillbirth for male fetus.  
• 34% pregnant women with asthma current smokers.  
• Pregnant women with asthma likely to be heavier smokers than non-asthmatic pregnant women. |
| 8. Enriquez et al,  
(2006) | Cessation of asthma medication in early pregnancy | USA | N=8149 Pregnant women with asthma | Prescription Database review | Retrospective cohort |
| | | | | | • Significant decrease in asthma medication use during first trimester of pregnancy (p ≤ 0.0005)  
• 23% decline in ICS prescriptions, 13% decline in short-acting beta-agonist prescriptions, 54% decline in rescue corticosteroid prescriptions. |
| 9. Flenady,  
Macphail, New,  
Devenish-Meares | Implementation of a clinical practice | Australia | N=559 pregnant women pre- | Questionnaire | Prospective before and after study design. |
<p>| | | | | | • An increase in evidence-based practice with some 91% response rate pre-implementation |
| | | | | | *No data collected on maternal asthma severity or treatment. |
| | | | | | Study limited to Tennessee Medicaid population. Not generalizable to other populations. |</p>
<table>
<thead>
<tr>
<th>Study Ref.</th>
<th>Study Title</th>
<th>Country</th>
<th>Sample Size</th>
<th>Methodology</th>
<th>Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Freeman, Timperley and Adair (2003)</td>
<td>Partnership in midwifery care in New Zealand</td>
<td>New Zealand</td>
<td>N=41 Midwives N=37 Nulliparous women</td>
<td>Interview, questionnaires and thinking aloud tape recordings.</td>
<td>Cross-sectional • Majority of midwives and women believed they had achieved a midwifery partnership. • Little emphasis placed on need for equality in decision making.</td>
</tr>
<tr>
<td>11. George et al. (2011)</td>
<td>Maintaining oral health during pregnancy: Perceptions of midwives.</td>
<td>Australia</td>
<td>N=15 Midwives</td>
<td>Focus Group conversational</td>
<td>Qualitative descriptive • Lack of knowledge • Not midwives role</td>
</tr>
<tr>
<td>12. Homer et al. (2007)</td>
<td>The role of the midwife in Australia</td>
<td>Australia</td>
<td>Survey n=28 Interview n=32</td>
<td>Survey and interview</td>
<td>Mixed Method • Elements of midwifery identified by midwives and women. • Barriers to achieving full role identified • Poor community awareness of midwifery.</td>
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<tr>
<td>Reference</td>
<td>Title</td>
<td>Country</td>
<td>Methodology</td>
<td>Country</td>
<td>Sample Size</td>
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<tr>
<td>13. Kurinczuk, Paesons, Dawes and Burton (1999)</td>
<td>The relationship between asthma and smoking during pregnancy</td>
<td>Australia</td>
<td>Self-select</td>
<td>Australia</td>
<td>N= 635</td>
</tr>
<tr>
<td>14. Kircher, Schatz and Long (2002)</td>
<td>Variables affecting asthma course during pregnancy</td>
<td>USA</td>
<td>N=558</td>
<td>Medical chart review</td>
<td>Secondary analysis of previous prospective study</td>
</tr>
<tr>
<td>15. Lim, Stewart, Abramson, Ryan and George (2011)</td>
<td>Asthma during Pregnancy</td>
<td>Australia</td>
<td>N=23</td>
<td>Purposive sample</td>
<td>Interviews Face-face and telephone.</td>
</tr>
<tr>
<td>Reference</td>
<td>Title</td>
<td>Methodology</td>
<td>Country</td>
<td>Sample Size</td>
<td>Findings</td>
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<tr>
<td>16. MacMullen, Shen and Tymkow (2009)</td>
<td>Adverse maternal outcomes in women with asthma vs women without asthma</td>
<td>Retrospective Cohort</td>
<td>USA</td>
<td>N=7777 pregnant women, N=31108 non-pregnant women</td>
<td>Adverse maternal outcomes. 12 maternal outcome measures. Data collected from database.</td>
</tr>
<tr>
<td>17. McLeod et al. (2003)</td>
<td>The midwife's role in facilitating smoking behavior change during pregnancy.</td>
<td>Qualitative</td>
<td>New Zealand</td>
<td>N=16 Midwives N= 11 pregnant women</td>
<td>Face-to-face interviews</td>
</tr>
<tr>
<td>18. Murphy, Clifton and Gibson (2005a)</td>
<td>Severe asthma exacerbations during pregnancy.</td>
<td>Australia</td>
<td>N=146 Volunteer sampling Pregnant women with asthma</td>
<td>FEV₁, asthma symptoms and medication use. Exacerbation occurrence</td>
<td>Prospective cohort study</td>
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<tr>
<td>Exacerbations worsen with asthma severity.</td>
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<td>Non-adherence to medications and viral infection common cause of exacerbations.</td>
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<tr>
<td>Babies birth weight lower when mothers had exacerbations in pregnancy (RR 2.54, 95% CI = 1.25-4.25). (P=0.03) if woman carrying male fetus.</td>
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<tr>
<td>Severe exacerbations in: 8% (95% CI 1.3-14.6%) of women with mild asthma; 47% (95% CI 30.3-63.8%) of women with moderate asthma and 65% (95% CI 52-78.6%) of women with severe asthma.</td>
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</table>

Exacerbations examined retrospectively from notes and some women only attended 2 study visits during the pregnancy limiting the information available to assess exacerbations.
| 19. Murphy, Clifton and Gibson (2010) | Effect of cigarette smoking on asthma control during exacerbations in pregnant women. | Australia | N=80 Asthmatic pregnant women  
N=46 non-asthmatic pregnant women.  
Consecutive Recruitment | Clinic visit at 18, 30 & 36 weeks gestation | Quantitative | • Smoking associated with higher asthma control scores during exacerbation (p=0.04)  
• Babies’ birth weight significantly lower among smokers (p=0.023 control; p=0.086 asthma)  
Smoking not confirmed with urinary cotinine (collected as self-report and ECO measurement which may not detect light smoking) |
|---|---|---|---|---|---|---|
| 20. Murphy, Gibson, Talbot, Kessell, and Clifton (2005b) | Asthma self-management skills and the use of asthma education during pregnancy. | Australia | N= 211 Volunteer sampling  
Pregnant women with asthma 20 weeks gestation. | Asthma history  
Asthma management skills assessment: - Medication adherence  
- Knowledge  
- Inhaler technique  
- possession of written action plan  
-Self-monitoring. Assessment by asthma educator at 20 wks and 33 wks gestation. | Prospective cohort | • Poor self-management among pregnant women with asthma.  
• Improvement in all areas of self-management after education.  
• Self-reported non-adherence to ICS decreased from 40% to 21%.  
• Inadequate inhaler technique decreased from 16% to 4%.  
• Peak flow monitoring improved from 3% to 35%.  
No comparison group of pregnant women with asthma who did not receive education.  
Before and after study design. |
<table>
<thead>
<tr>
<th>Study</th>
<th>Title</th>
<th>Countries</th>
<th>Methodology</th>
<th>Data Collection</th>
<th>Data Analysis</th>
<th>Key Findings</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Rogers, Bloomfield and Townsend (2003)</td>
<td>Midwives' perceptions and views of extending their role to the examination of the newborn baby</td>
<td>UK</td>
<td>N=10 Midwives Purposive sampling</td>
<td>Semi-structured interviews</td>
<td>Qualitative Colaizzi’s framework for data analysis</td>
<td>- 75% possessed a written action plan compared to 15% at beginning of study.</td>
<td>Sample size predetermined Limited transferability</td>
</tr>
<tr>
<td>22. Ross-Davie et al. (2006)</td>
<td>A public health role in perinatal mental health: Are midwives ready?</td>
<td>UK</td>
<td>N=187 Non-randomized</td>
<td>Questionnaire</td>
<td>Cross-sectional</td>
<td>- Midwives not confident in this area - 90% of midwives agreed that psychological care is important part of midwife's role. - 71% agreed midwives well placed to provide care. - 75% felt lack of time and training prevented them from performing this role.</td>
<td>Specific only to one group of midwives attending a study day on perinatal mental health. 100% response rate as survey compulsory.</td>
</tr>
<tr>
<td>23. Schatz, Dombrowski, Wise et al.</td>
<td>Asthma morbidity during pregnancy can be</td>
<td>USA</td>
<td>N=1739 Volunteer Sampling</td>
<td>FEV1, asthma symptoms and medication use.</td>
<td>Prospective cohort study</td>
<td>- Initial asthma classification related to asthma morbidity</td>
<td>Enrolled population mainly African-</td>
</tr>
<tr>
<td>(2003)</td>
<td>predicted by severity classification</td>
<td>Pregnant women less than 26 weeks pregnant with asthma</td>
<td>Exacerbation occurrence.</td>
<td>during pregnancy.</td>
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<td></td>
<td>• Exacerbations worsened with asthma severity (p&lt;0.001)</td>
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<td></td>
<td>• Exacerbations occurred in 12.6% of women with mild asthma; 25.7% of women with moderate asthma and 51.9% with severe asthma classification.</td>
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</table>

<table>
<thead>
<tr>
<th>24. Schatz (1995)</th>
<th>Perinatal outcomes in the pregnancies of asthmatic women</th>
<th>Volunteer sample N=486 pregnant asthmatic women N=486 pregnant non-asthmatic women.</th>
<th>Clinic visit at 28, 34wks gest and 6-12 weeks postpartum. Questionnaire and pulmonary function testing.</th>
<th>Prospective controlled inception cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Well-controlled asthma during pregnancy results in maternal and foetal morbidity being comparable with non-asthmatic women.</td>
<td>Asthma was actively managed which may explain the lack of difference in perinatal outcomes between asthmatic and non-asthmatic women.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>• No significant differences in maternal and foetal outcomes.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Trends observed between more severe asthma during pregnancy and incidence of pre-eclampsia and low birth weight babies.</td>
<td></td>
</tr>
<tr>
<td>Author/ Date</td>
<td>Document type/Title</td>
<td>Country</td>
<td>Summary of Key Points</td>
<td></td>
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</tr>
<tr>
<td>National Health and Medical Research Council (NHMRC) (1996)</td>
<td>Report Options for effective care in childbirth</td>
<td>Australia</td>
<td>• 15 recommendations aimed at improving continuity of care within maternity services and increased options of care for pregnant women.</td>
<td></td>
</tr>
<tr>
<td>Royal college of Midwives (2008)</td>
<td>Position Paper Woman-centred care</td>
<td>UK</td>
<td>• Outlines the principles of woman-centred care</td>
<td></td>
</tr>
<tr>
<td>Australian College of Midwives (2004)</td>
<td>Statement Philosophy Statement</td>
<td>Australia</td>
<td>• Midwife means “with woman” and this shapes midwifery’s philosophy, work and relationships.</td>
<td></td>
</tr>
<tr>
<td>National Heart Lung and Blood Institute [NHLBI] (2004)</td>
<td>National Asthma Education and Prevention Program (NAEPP) expert panel report.</td>
<td>USA</td>
<td>• Treatment goal is to provide optimal therapy to maintain asthma</td>
<td></td>
</tr>
</tbody>
</table>

25. Schatz, Harden & Forsythe (1988) The course of asthma during pregnancy N=330 Volunteer sampling Pregnant women with asthma Symptom and medication diary/ auscultation and spirometry Prospective cohort • 28% women have improvement of asthma symptoms • 33% women symptoms stay the same. • 35% women symptoms worsen. No non-pregnant controls Subjective assessment of changes in asthma.

- Safer for pregnant women with asthma to be treated with medication than have exacerbations.
- Obstetric care provider should be involved in asthma care.

<table>
<thead>
<tr>
<th>International Confederation of Midwives [ICM] (2005)</th>
<th>Core Document</th>
<th>Netherlands</th>
<th>Person who has successfully completed a midwifery education programme that is based on ICM competencies for midwifery practice and Global standards for midwifery education.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICM International Definition of the Midwife.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>The National Asthma Council of Australia (2006)</th>
<th>Handbook</th>
<th>Australia</th>
<th>Advising pregnant women about good asthma control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma management handbook:</td>
<td></td>
<td></td>
<td>Managing asthma actively during pregnancy</td>
</tr>
<tr>
<td>Managing asthma during pregnancy</td>
<td></td>
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<td>Managing flare-ups aggressively during pregnancy.</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>Guidelines for the Diagnosis and</td>
<td></td>
<td></td>
<td>Partnership in asthma care</td>
</tr>
<tr>
<td>Source</td>
<td>Type</td>
<td>Location</td>
<td>Key Points</td>
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<tr>
<td>-----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Johnson (2007)</td>
<td>Discussion Paper</td>
<td>UK</td>
<td>Work in partnership with women, Know your local population and their needs,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Define public health and the midwife’s role.</td>
</tr>
<tr>
<td>Henley-Einion (2008)</td>
<td>Discussion Paper</td>
<td>Australia</td>
<td>Targeted at midwifery students, Aims to raise awareness of the needs of</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>women with respiratory disorders during pregnancy, Suggests midwives role</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>in caring for pregnant woman with asthma.</td>
</tr>
<tr>
<td>NSW Department of Health (2008)</td>
<td>Handbook</td>
<td>Australia</td>
<td>Primary care may be provided in the community, birth centres, public maternity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>units, and private hospitals or a combination of these settings.</td>
</tr>
<tr>
<td>Author/Institution</td>
<td>Type</td>
<td>Location</td>
<td>Key Points</td>
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<tr>
<td>Midwifery Council of New Zealand (2010)</td>
<td>Statement</td>
<td>New Zealand</td>
<td>Midwifery partnership is a relationship between a woman and her midwife.</td>
</tr>
<tr>
<td>Midwifery Council of New Zealand (2010)</td>
<td>Midwifery Scope of Practice</td>
<td>New Zealand</td>
<td>Midwives have an important role in health and wellness promotion.</td>
</tr>
<tr>
<td>Australian Nursing and Midwifery Accreditation Council (2010)</td>
<td>Statement</td>
<td>Australia</td>
<td>Core competency standards by which midwives performance is assessed to obtain and retain registration as a midwife in Australia.</td>
</tr>
<tr>
<td>Australian Nursing and Midwifery Accreditation Council (2010)</td>
<td>National Competency Standards for the Midwife</td>
<td>Australia</td>
<td>Core competency standards by which midwives performance is assessed to obtain and retain registration as a midwife in Australia.</td>
</tr>
<tr>
<td>Source</td>
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<td>Location</td>
<td>Key Points</td>
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<td></td>
<td>- Follow-up referral</td>
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<td>- Provide ongoing support</td>
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<td>- Consider use of NRT</td>
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<td></td>
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<td>- Engage partners and others in household who smoke.</td>
</tr>
<tr>
<td></td>
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<td>- Training of health professionals</td>
</tr>
<tr>
<td>The Royal Australian College of General Practitioners (2011)</td>
<td>Guideline</td>
<td>Australia</td>
<td>- The 5A's structure for smoking cessation</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Role of the health professionals</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>- Pharmacotherapy for smoking cessation.</td>
</tr>
<tr>
<td>Royal Australian and New Zealand College of Obstetricians and</td>
<td>Document</td>
<td>Australia</td>
<td>- Organisation of maternity care</td>
</tr>
<tr>
<td>Gynaecologists [RANZCOG] (2011)</td>
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- Self-management education compared with usual care in 22 studies.  
- Self-management education reduced hospitalisations (OR=0.57, 95% CI 0.38-0.88). Emergency room visits reduced, (OR=0.71, 95% CI 0.57-0.90). Unscheduled Drs visits reduced, (OR=0.57, 95% CI 0.40 to 0.82)  
- Health outcomes improved for adults with asthma who were provided with asthma self-management training. |
| Murphy, Clifton and Gibson. (2006) | Systematic review       | Australia | - Four studies with a control group (no asthma) and two groups of women with asthma (exacerbation, no exacerbation) included in met-analyses.  
- 20% of pregnant women with asthma have exacerbations which require medical intervention. |
- 6% of pregnant women with asthma were admitted to hospital.
- Women who have a severe exacerbation during pregnancy are at higher risk of having low birth weight baby.
- No significant associations between exacerbations during pregnancy and preterm delivery or pre-eclampsia.
Appendix 2: Hunter New England ethics approval letter

13 December 2011

Professor D Keatinge
School of Nursing & Midwifery
Faculty of Health
University of Newcastle

Dear Professor Keatinge,

Re: Midwives’ knowledge, understanding and perceived role in antenatal asthma management (11/12/14/5.08)

HNEHREC Reference No: 11/12/14/5.08
NSW HREC Reference No: LNR/11/HNE/469
NSW SSA Reference No: LNRSSA/11/HNE/470

Thank you for submitting the above protocol for single ethical review. This project was considered to be eligible to be reviewed as Low and Negligible risk research and so was reviewed under the by the Hunter New England Human Research Ethics Committee expedited process at an executive meeting held on **13 December 2011**. This Human Research Ethics Committee is constituted and operates in accordance with the National Health and Medical Research Council’s *National Statement on Ethical Conduct in Human Research* (2007) (National Statement) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*. Further, this Committee has been accredited by the NSW Department of Health as a lead HREC under the model for single ethical and scientific review. The Committee’s Terms of Reference are available from the Hunter New England Local Health District website: http://www.hnehealth.nsw.gov.au/Human_Research_Ethics.

The Hunter New England Human Research Ethics Committee has granted ethical approval of the above project.

The following documentation has been reviewed and approved by the Hunter New England Human Research Ethics Committee:

- For the Information Statement (Version 4 dated 12 December 2011);
- For the Consent Form (Version 2 dated 10 November 2011);
- For the Study Flyer; and
- For the Interview Prompts for Midwives (Version 3 dated 21 November 2011).

For the protocol: **Midwives’ knowledge, understanding and perceived role in antenatal asthma management**

Approval from the Hunter New England Human Research Ethics Committee for the above protocol is given for a maximum of 3 years from the date of this letter, after which a renewal application will be required if the protocol has not been completed.

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Hunter New England Research Ethics & Governance Unit
Locked Bag No 1
New Lambton NSW 2305
Telephone (02) 49214 950 Facsimile (02) 49214 818
Email: hnehrec@hnehealth.nsw.gov.au
13 December 2011

Professor D Keatinge
School of Nursing & Midwifery
Faculty of Health
University of Newcastle

Dear Professor Keatinge,

Re: Midwives’ knowledge, understanding and perceived role in antenatal asthma management (11/12/14/5.08)

HNEHREC Reference No: 11/12/14/5.08
NSW HREC Reference No: LNR/R/11/HNE/469
NSW SSA Reference No: LNRSSA/11/HNE/470

Thank you for submitting an application for authorisation of this project. I am pleased to inform you that authorisation has been granted for this study to take place at the following sites:

- John Hunter Hospital

The following conditions apply to this research project. These are additional to those conditions imposed by the Human Research Ethics Committee that granted ethical approval:

1. Proposed amendments to the research protocol or conduct of the research which may affect the ethical acceptability of the project, and which are submitted to the lead HREC for review, are copied to the research governance officer;
2. Proposed amendments to the research protocol or conduct of the research which may affect the ongoing site acceptability of the project, are to be submitted to the research governance officer.

Yours faithfully

Dr Nicole Gerrand
Research Governance Officer
Hunter New England Local Health District

Hunter New England Research Ethics & Governance Unit
(Locked Bag No 1)
(New Lambton NSW 2305)
Telephone (02) 49214 800 Facsimile (02) 49214 818
Email: hnehrec@hnehealth.nsw.gov.au

Appendix 3: University of Newcastle ethics approval letter

HUMAN RESEARCH ETHICS COMMITTEE

Notification of Expedited Approval

To Chief Investigator or Project Supervisor:  Professor Diana Keatinge
Cc Co-investigators / Research Students:  Doctor Vanessa Murphy
                                           Ms Lyn Ebert
                                           Mrs Karen McLaughlin
Re Protocol:  Midwives' knowledge, understanding and perceived role in antenatal asthma management
Date:  08-Mar-2012
HREC Reference No:  H-2012-0030
External HREC Reference No:  11/12/14/5.08
Date of Initial Approval:  29-Feb-2012

Thank you for your Initial Application submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under Expedited Review of External Approval review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is External HREC Approval Noted effective 29-Feb-2012.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

As the approval of an External HREC has been "noted" the approval period is as determined by that HREC.

The full Committee will be asked to note this decision at its next scheduled meeting. A formal Certificate of Approval will be available upon request. Your approval number is H-2012-0030.

PLEASE NOTE:

https://groupwise-web.newcastle.edu.au/webaccess/websec/coh8834fZb...or.context=coh8834fZb&v=en&mc9996&item.dura=90212160&item.ChildId=  Page 1 of 2

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ANTENATAL ASTHMA MANAGEMENT.

What role do midwives’ play?

Midwives’, would you like to share your knowledge and understanding of caring for pregnant women with asthma? Would you like to discuss your role in antenatal asthma management?

You are invited to have a say. Come along to an information session being conducted by researcher Karen McLaughlin and find out more about the significance of antenatal asthma management and how you might contribute to future developments in this area.

When? Wednesday 8th February
Where? Antenatal Clinic Tea Room
Time? 0830 am
Appendix 5: Information letter

Professor Diana Keatinge  
Chair  
School of Nursing and Midwifery  
Faculty of Health  
University of Newcastle  
Office RW2-18 Richardson Wing  
University Drive  
Callaghan NSW 2308  
(02) 49216010  
(02) 49216301 (fax)

Information Statement for the Research Project: 
Midwives’ knowledge and understanding of caring for pregnant women with asthma and their perceived role in antenatal asthma management: A descriptive qualitative study.  

You are invited to participate in the research project identified above which is being conducted by Professor Diana Keatinge and Ms Lyn Ebert from the School of Nursing and Midwifery and Dr Vanessa Murphy from the School of Medicine and Public Health, the University of Newcastle. The research is part of Karen McLaughlin’s Masters of Philosophy studies at the University of Newcastle, supervised by Professor Diana Keatinge, Dr Vanessa Murphy and Ms Lyn Ebert.  

Why is the research being done?
The purpose of the research is to describe midwives’ current knowledge and understanding of caring for pregnant women with asthma and to explore the midwives’ perceived role in antenatal asthma management. Research has shown that effective antenatal asthma management is vital to improving maternal and infant health and that midwives are well placed to provide effective antenatal care. However, the extent of midwives’ knowledge and understanding about asthma management in the antenatal period appears not to have been studied, nor is it known whether or not midwives perceive asthma management in the antenatal period to be part of their role. This research is being conducted to help to fill this gap in the research evidence.

Who can participate in the research?

Registered midwives currently employed in the antenatal clinic at the John Hunter Hospital, Newcastle, NSW are invited to participate in this study.

What choice do you have?

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you in any way.

If you do decide to participate you may withdraw from the project at any time without giving a reason and have the option of withdrawing your interview data provided your request to do this is received prior to commencement of data analysis.

What would you be asked to do?

If you agree to participate, you will be asked to:

* Participate in one face-to-face interview conducted by the student researcher Karen McLaughlin. Interviews will be conducted at a time and place convenient to you and, with your permission, will be audiotaped. The audiotape can be stopped at any time during the interview and will only recommence with your permission. If you choose not to have your interview audiotaped the interviewer will take notes during the discussion. If any part of the discussion during the interview causes you distress the audiotape will be switched off and you
will be offered the support of Employee Assistance Psychology (EAP) phone: 49853289. On completion of the interview you will be offered the opportunity to review the transcript of your interview and to delete or edit any part of this.

During the interview you will be asked about your knowledge and experience of asthma management for pregnant women; whether you have had and/or currently have a role in asthma management, particularly during the antenatal period; what you perceive this role to be and what barriers you perceive there are to conducting it?

* Participate in one focus group. With participants’ permission the focus group will be audiotaped however if participants do not agree to this written notes will be taken of the discussion. The focus group will be convened following the analysis of participants’ interviews and will provide the opportunity for Karen McLaughlin to check whether the themes she has identified as emerging from participants’ interviews reflect your experiences and to listen to any comments you have about this or the research topic more generally.

* Your participation in one or both of these activities is completely voluntary. If you consent to be interviewed you are not obligated to participate in the focus group. To be eligible to participate in the focus group you must first have completed the interview process however.

**How much time will it take?**

- The interview should take 45-90 minutes to complete.
- The focus group will take up to a maximum of 2 hours.
- If you choose to review your interview transcript this will take approximately 30 minutes.

**What are the risks and benefits of participating?**

Beyond the opportunity to discuss your current knowledge and understanding of providing asthma management for pregnant women during the antenatal period, what role you perceive you have or could have in this and your current experience of it, there is no direct benefit to you as an individual of participating in this research. However, at a professional level it is anticipated that this research will contribute to ensuring best-practice in asthma management for pregnant women during the antenatal period. It may
also result in changes in midwives’ clinical practice that provide them with a more satisfying role as well as benefitting pregnant women.

There are no obvious risks to participants in this research beyond possible embarrassment at a lack of knowledge about antenatal asthma management. If participants experience any emotional distress as a result of participating in this study then a referral to the Employees Assistance program would be made.

How will your privacy be protected?
The information collected from you via the interview process, will be de-identified so that your privacy is maintained. This will be achieved by replacing names with pseudonyms. With the permission of participants the data will be collected in the form of digital recordings and alternatively, written notes. This data will be stored securely on a USB flash drive and external hard drive and written transcripts will be stored in a locked filing cabinet accessible only to the researcher. Focus group discussions will be conducted after group rules such as: maintenance of confidentiality of the group discussion and not divulging specific content to outside parties has been agreed upon.

How will the information collected be used?
Findings from the study will be presented as a Masters of Philosophy Thesis by the researcher Karen McLaughlin. It may also be presented in publications in scientific, nursing or midwifery journals or as a presentation at conferences relating to the topic. Confidentiality of participants will be maintained by the use of pseudonyms in place of participants names in the thesis resulting from this study and in any publication or presentation arising from it. Participants will be offered a summary of the results at the completion of the project.

What do you need to do to participate?
Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact the researcher.
If you would like to participate, please complete the attached consent form and return it the envelope provided. You will be contacted by the researcher, and a date, time and place that is convenient to you will be arranged in order to conduct the interview.

**Further information**

If you would like further information please contact:

Prof Diana Keatinge  
Diana.Keatinge@newcastle.edu.au  
(02) 49216010  
Karen McLaughlin  
Karen.McLaughlin@newcastle.edu.au  
Ph: 0425277200

Thank you for considering this invitation.

[Signature]

Professor Diana Keatinge  
Chair  
School of Nursing and Midwifery  
University of Newcastle

Karen McLaughlin  
Research Student  
School of Nursing and Midwifery  
University of Newcastle

*Complaints about this research*
This project has been approved by the Hunter New England Human Research Ethics Committee of Hunter New England Local Health District Ref. Number 11/12/14/5.08

Should you have any concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to Dr Nicole Gerrand, Manager Research Ethics and Governance, Hunter New England local Health District, Locked Bag 1, New Lambton NSW 2305, telephone (02) 49214950, email Hnehrec@hnehealth.nsw.gov.au
Appendix 6: Consent Form

Consent Form for the Research Project:

Midwives’ knowledge and understanding of caring for pregnant women with asthma and their perceived role in antenatal asthma management: A descriptive qualitative study.


I agree to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Information Statement, a copy of which I have retained.

I understand I can withdraw from the project at any time and do not have to give any reason for withdrawing.
I consent to:

- Participating in one audiotaped interview conducted by Karen McLaughlin. Yes/No

- Participating in one audiotaped focus group facilitated by Karen McLaughlin. Yes/No

Participation in one interview is essential in this study however, participation in the focus group while of assistance in this research is not essential.

I understand that my personal information will remain confidential to the researchers.

I have had the opportunity to have questions answered to my satisfaction.

Print: ____________________________________________  Name: ____________________________________________

Telephone: ____________________________________________  No: ________________________

Signature: ____________________________________________  Date: ________________________

__________________________________
Appendix 7: Interview Schedule 1.

Interview Questions for Midwives

Version 1

Midwives’ knowledge about asthma in pregnancy and their perceived role in antenatal asthma management: A Qualitative Descriptive Study.

Professor Diana Keatinge, Dr Vanessa Murphy, Ms Lyn Ebert and MPhil Student Karen McLaughlin.

This interview will be conducted in a conversation style. Prompts will be used to encourage participants to discuss the topic at hand.

- Thank you for agreeing to talk to me today!

- What do you currently know about asthma in pregnancy?
  - Problems that might be associated with asthma in pregnancy?

- What is this knowledge based on?
  - Experience as a midwife / clinical experience?
  - Personal Experience?

- What do you see as your role in antenatal asthma management?
  - How long have you been undertaking this role?

- Have you had or are you currently undertaking any education in antenatal asthma management? And can you describe this?
  - When and type (pre-registration, postgraduate, in-service, self-directed)
• What do you think the midwives’ role is in antenatal asthma management?

• Could you discuss your personal experience of caring for pregnant women with asthma in the antenatal period?

• Do you feel that you are able to give good asthma care?

• What barriers if any, do you feel exist that prevent optimal antenatal asthma management from occurring?

• Do you have any suggestions as to what might improve antenatal asthma management for the women?

• Do you have any suggestions as to what might support midwives in the provision of antenatal asthma management?
Appendix 8: Interview Schedule 2.

**Interview Questions for Midwives**

**Version 2.**

Midwives’ knowledge about asthma in pregnancy and their perceived role in antenatal asthma management: A Qualitative Descriptive Study.

Professor Diana Keatinge, Dr Vanessa Murphy, Ms Lyn Ebert and MPhil Student Karen McLaughlin.

This interview will be conducted in a conversation style. Prompts will be used to encourage participants to discuss the topic at hand.

- Thank you for agreeing to talk to me today!

- Could you tell me which model of midwifery care you are working in and how long you have worked as a midwife?

- What do you currently know about asthma in pregnancy?
  - Problems that might be associated with asthma in pregnancy?

- What is this knowledge based on?
  - Experience as a midwife / clinical experience?
  - Personal Experience?

- What do you see as your role in antenatal asthma management?
  - How long have you been undertaking this role?
• Have you had or are you currently undertaking any education in antenatal asthma management? And can you describe this?
  o When and type (pre-registration, postgraduate, in-service, self-directed)

• What do you think the midwives’ role is in antenatal asthma management?

• Could you discuss your personal experience of caring for pregnant women with asthma in the antenatal period?

• Do you feel that you are able to give good asthma care?

• What barriers if any, do you feel exist that prevent optimal antenatal asthma management from occurring?

• Do you have any suggestions as to what might improve antenatal asthma management for the women?

• Do you have any suggestions as to what might support midwives in the provision of antenatal asthma management?
Appendix 9: Research Audit Trail

RESEARCH AUDIT TRAIL

Research Question:
The question developed for this study was: What knowledge do midwives currently have about asthma in pregnancy and what do they perceive their role to be in antenatal asthma management? This question was developed following the researchers experience as a clinical research officer working on a randomised controlled trial examining optimal antenatal asthma management. The researcher perceived a possible clinical deficit in the management of pregnant women with asthma by midwives and sought to clarify or refute this assumption.

Researcher Bias/Assumptions:
At the commencement of the project, the researcher was employed as a clinical midwife working in the study setting. Prior to commencement of the study, the researcher reflected upon the potential for bias and existing assumptions. The researcher’s assumptions included a view that midwives lacked knowledge regarding asthma in pregnancy and were confused regarding the midwives’ role in antenatal asthma management. In order to maintain the integrity of the study the role of the researcher was clearly defined in the information statement offered to potential study participants and a decision was made that the researcher would not work as a clinical midwife in the study setting during the data collection period.

Research Process:
The researcher’s intention was to describe midwives’ current knowledge about asthma in pregnancy and to identify midwives’ perceived role in antenatal asthma management. In order for the researcher to obtain the insiders view of the “who”, “what” and “where” of this phenomenon with minimal influence or interpretation by the researcher, a qualitative descriptive methodology was employed (Sandelowski, 2000).

Appropriate sampling method:
The purposive sampling technique was used to select potential participants for this study. All registered midwives currently providing antenatal care at the study site were eligible for
inclusion in the study. As suggested by Johnson and Chang (2011), individuals were selected to participate based on their firsthand experience of the research topic. In order to gain a wide variety of experiences it was decided to use maximum variation sampling which then allowed the inclusion of midwives with various years of clinical experience and who were working in various models of midwifery care and/or practice settings.

**Data Collection:**

**Interview schedule:**
The questions in the semi-structured interview schedule were developed from the research question following a review of the literature. The participants were asked to discuss their current knowledge about asthma in pregnancy; their previous experience of caring for women with asthma in the antenatal period; their perceived role in antenatal asthma management; to identify any barriers to antenatal asthma management and to suggest solutions to identified barriers.

On completion of the first interview, the recording was reviewed by a panel of qualitative experts and discussion took place regarding the inclusion of more specific demographic data in the interview schedule. Demographic data items, specifically, *How long have you worked as a clinical midwife*? and *How long have you worked in this particular area of midwifery*? were included in the interview schedule.

**Place and time of interview:**
Participants were initially given several options for the date, time and location for the interview to take place. Some participants, n=3, who were well known to the researcher chose to have the interview conducted in their own home or that of the researcher. It became apparent however that the majority of participants were reluctant to commit to an interview time outside work hours or away from the facility in which they worked. A decision was made therefore to arrange a room in the antenatal clinic setting and invite those participants who had consented to participate in the study to attend an interview on an opportunistic basis, i.e during their lunch break. A further 10 interviews were conducted in this manner. The negative aspect of this decision was that the interviews conducted in the antenatal clinic setting were often interrupted and the participants appeared rushed. This sometimes resulted in a short amount of time in which to conduct the interview.

**Interview data collection:**
The interviews were digitally recorded following the consent of the participants and the researcher took field notes. The interviews were professionally transcribed. The transcripts
were checked against the recorded interview by the researcher. A copy of the transcript of one interview and the digital recording was sent to one of the qualitative research experts to confirm the accuracy of the transcript and was deemed to be accurate. Further member checking was conducted by sending copies of the interview transcript to the individual participants to ensure their accuracy. No comments were made by the participants about the accuracy of the transcripts, and they were deemed as being an accurate record of the interview.

**Data Analysis Process:**
A four stage process of data analysis suggested by Morse and Field (1996), was applied to the data from this study. The concepts of the four stages were, *comprehending, synthesising, theorising* and *recontextualising.*

**Stage One: Comprehending**
The comprehending stage of data analysis involved the researcher being immersed in the data. This was achieved by the researcher reading and re-reading the transcripts and listening to the recordings repeatedly. Field notes taken during the interview process, which acknowledged the surroundings, body language of the participants and other elements such as interruptions, were also studied concurrently with the transcripts and recordings. The researcher then began to sort the data by coding comments or statements, which were similar in their content or suggestion.

It became evident to the researcher and the panel of qualitative experts, who were reviewing the recordings of the interviews after they occurred, that no new concepts were emerging from the interviews and it was therefore determined after 13 interviews that data saturation had been achieved. Stage one of the data analysis was therefore complete.

**Stage Two: Synthesising**
During this stage of the data analysis process the researcher sifted more thoroughly through the data and compared the transcripts and field notes to organise similar data under categories and sub-categories. The initial categories reflected the questions posed in the semi-structured interview schedule. These themes were:

- Midwives’ current knowledge of asthma in pregnancy
- Midwives’ perceived role in antenatal asthma management
- Barriers to antenatal asthma management
- Suggested solutions
The similarity of these themes to the research question was discussed at length with the panel of qualitative research experts and it was decided that due to the qualitative descriptive methodology and the use of a semi-structured interview schedule these categories were inevitable and reasonable. During the discussion regarding the categories and sub-categories emerging from the data other suggestions were also made. It was suggested by the researcher that *frustration* was apparent in many of the participant responses and although the panel of qualitative experts agreed that elements of frustration did appear evident in some of the participant’s statements the evidence was not strong enough to declare this as a main theme or category. In an attempt to separate the categories and sub-categories from the interview questions, specific categories and sub-categories were derived and presented as Appendix Figure 1.

The suggestion of midwives’ frustration was thought to be embedded in the categories of Lack of Knowledge and Role Confusion.

### Appendix Figure 1 Preliminary categories

Again after much discussion with the panel of qualitative research experts a decision was made to include *Barriers to asthma management* as a category and include some of the main categories listed above as sub-categories. Finally, 4 categories and 12 sub-categories were agreed on by the researcher and the panel of qualitative research experts and these are shown as Appendix Figure 2.
Appendix Figure 2 Initial categories and sub-categories

Once these preliminary categories and sub-categories were agreed on by the researcher and peer reviewers, further member checking took place. A summary of the preliminary findings and an invitation to attend a focus group to discuss the preliminary findings was sent to each of the participants. No changes were made to the data as a result of this process because no participants accepted the invitation to the focus group and no comments were made by the participants in any other form.
Stage Three: Theorising

Theorising was the next stage in this data analysis process. Unlike other forms of qualitative research, during qualitative descriptive data analysis “no theoretical strings are attached” (Neergaard, Olesen, Andersen & Sondergaard, 2009, p.3.), so in this instance the data is further sorted. The analysis stays close to the data. The researcher’s perceptions and sensitivities may also be evident in this stage of analysis (Neergaard et al., 2009). Involving the panel of qualitative research experts in further examination of the data reduced the subjective nature of this analysis process. During this stage of the process the context in which this data existed was discussed. The midwifery context was examined and the clinical midwifery role the participants were undertaking at the time of data collection was considered. Two questions were asked of the data:

1. How did the midwives current clinical role affect the midwives perceived role in antenatal asthma management?

2. What was the influence of the institutional context on the knowledge the participants had of asthma in pregnancy and the role they felt they were able to play in antenatal asthma management.
A diagrammatic expression of the relationship between the categories, sub-categories and the institutional and midwifery context is shown as Appendix Figure 3.

Appendix Figure 3 Relationship of institutional context and midwifery profession to midwives’ knowledge and perceived role in antenatal asthma management.

Stage Four: Recontextualising

During the process of recontextualisation the data were examined in the context of established literature/evidence. The concept of potential transferability of the findings of this study into other settings was considered. The uniqueness of the study setting regarding the presence of previous asthma research may limit transferability to similar settings. The researcher also reflected on her previous assumptions regarding the research topic, which included the view that midwives currently lacked knowledge about asthma in pregnancy, and were uncertain regarding their role in antenatal asthma management. These assumptions were shown to be consistent with the study findings and are discussed further in the discussion chapter of the thesis.

Trustworthiness:

The criteria for rigour adopted for this study are those outlined by Guba and Lincoln (1989). The four criteria are: Credibility; Dependability; Transferability and Confirmability.
Credibility

The provisions made to ensure credibility included:

- Adoption of a well established research method, which would effectively answer the research question being posed. For this study qualitative descriptive was chosen as it is “the method of choice when straight description of phenomena is desired” (Sandelowski, 2000, p. 334). This study design was defended when presented as part of the confirmation process required by the researcher’s tertiary institution.
- Purposeful recruitment of participants to help ensure relevant, in-depth data are collected.
- Consistent interview process for all participants.
- Ensuring honesty in participants’ data contributions by giving participants opportunities to refuse to contribute thereby ensuring only those who are genuinely willing to take part and prepared to offer data freely are involved.
- Ensuring researcher credibility; in this case the researcher has many years experience interviewing and gaining extensive medical histories from pregnant women. She also studied semi-structured interview techniques and debriefed regularly with the qualitative research experts throughout the interview process.
- A qualified transcriber was employed to transcribe the recorded interviews verbatim. The transcriptions were then audited against the recordings to ensure accuracy. The transcripts were returned to the participants in order for them to validate the accuracy of the interview representation.
- Guba and Lincoln (1989) suggest that member checking is the single most important element of ensuring credibility in a study. Further member checking was a design component in this study when participants were invited to participate in a focus group whereby the preliminary findings were to be presented and participants had the opportunity to verify the emerging themes and organisation of the data.
- Scrutiny of this project by peers has also been welcomed through the presentation of findings at the researcher’s tertiary institution, the health facility where the study took place and a national nursing and midwifery conference in October 2013.

Dependability

Dependability has been assured by providing a clear outline of the research design, method and process and by documenting this research audit trail for the current study.
**Transferability**

Transferability has been discussed in this thesis and this audit trail. The uniqueness of the study setting has been highlighted. The possibility of a link between the previous asthma research projects conducted in the study setting and the current knowledge and perceived role of the midwives working in that setting, is considered to have resulted in limited transferability of the findings.

**Confirmability**

The use of direct quotes from the interviews illustrated that the findings are grounded in the data. Implementation of credibility, dependability and transferability are also shown and this together with the presentation of this audit trail establishes confirmability of this project.
Audit Trail Flowchart

**WHAT KNOWLEDGE DO MIDWIVES CURRENTLY HAVE ABOUT ASTHMA IN PREGNANCY AND WHAT DO THEY PERCEIVE THEIR ROLE TO BE IN ANTENATAL ASTHMA MANAGEMENT**

**RESEARCHER**
- Researcher currently employed as clinical midwife in study setting
  - Maintain study integrity by reflecting on possible researcher bias/assumptions and dual role as clinician and researcher
  - Clearly define researcher role in participant information statement
  - Researcher did not work as clinical midwife in study setting during data collection

**PROCESS**
- Determine appropriate research method
  - Aims and objectives of study clearly stated
  - Description of phenomenon is desired

- Determine appropriate sampling method
  - Purposeful sampling
  - Maximum Variation Sampling

- Midwives with varied years of experience included

**Data Collection**
- Interview Schedule
  - Questions derived from research question and literature
  - Participants given option of time and place of interview
  - Many participants not wanting interview outside work hours

- Place and time of interview
  - Interviews digitally recorded and field notes taken
  - Interviews professionally transcribed
  - Copy of transcript sent to participants to verify accuracy

**Qualitative Descriptive Methodology**
- *Current knowledge*
  - Clinical exp. of asthma management
  - Perceived role in antenatal asthma management
  - Potential barriers
  - Suggested solutions

- Some interviews conducted in clinic
  - Peer review by panel of qualitative research experts

- Inclusion of demographic data in interview schedule
  - Transcripts deemed accurate
WHAT KNOWLEDGE DO MIDWIVES CURRENTLY HAVE ABOUT ASTHMA IN PREGNANCY AND WHAT DO THEY PERCIEVE THEIR ROLE TO BE IN ANTENATAL ASTHMA MANAGEMENT

DATA ANALYSIS

COMPREHENDING

- Researcher immersed in the data
- Sorting data by coding similar comments or statements
- Discussion with panel of qualitative experts
- No new concepts emerging after 13 interviews
- Data Saturation achieved

SYNTHESISING

- Researcher sifted more thoroughly through data
- Commonalities placed under categories and sub-categories
- Initial categories reflected interview questions.
- Three Categories and eight sub-categories derived and presented as Figure 1a
- Data Saturation achieved

- Suggested inclusion of frustration and guilt as themes
- Evidence not strong enough to declare them as main themes
- More specific categories and sub-categories derived
- Attempt to separate categories from interview questions

- *Current knowledge of asthma in pregnancy
- *Perceived role in antenatal asthma management
- *Barriers to antenatal asthma management
- *Suggested solutions

- *Guilt embedded in Lack of knowledge
- *Frustration a sub-concept in Role Confusion

- Further discussion with qualitative research experts
- Barriers to asthma management included as category
- Further discussion with qualitative research experts

- No changes to data
- Focus group to discuss findings
- Member Checking

Four Categories and twelve sub-categories agreed on and shown as Figure 1b
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DATA ANALYSIS

THEORISING

Further sorting of the data

Discussed the context in which data exists

1. How did current midwifery model affect midwives perceived role in antenatal asthma management?
2. What was the influence of the institutional context on current knowledge of asthma in pregnancy and perceived midwifery role in antenatal asthma management?

RE-CONTEXTUALISING

Concept of potential transferability of study discussed

Uniqueness of study setting, due to many previous asthma research projects on site, identified.

Researchers previous assumptions revisited

Researcher assumed midwives did lack knowledge about asthma in pregnancy and were confused regarding their role in antenatal asthma management.

Study findings showed that midwives did have a lack of knowledge about asthma in pregnancy and some were confused regarding their role in antenatal asthma management.

Researchers assumptions consistent with study findings

Diagrammatic expression of the relationship between categories, subcategories and institutional context, shown as Figure 2