

# **Access to antenatal care: A systematic Review**

**Report**

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# **Executive Summary**

## **Background**

Both the 1997-99 and the 2000-2 Confidential Enquiry into Maternal Deaths (CEMD) reports identified that around 20% of deaths occurred to women who booked after 20 weeks, had no antenatal care or were poor attenders. However, it was identified by the Confidential Enquiries into Maternal and Child Health (CEMACH) that little is known of the evidential link between inadequate antenatal care and perinatal and maternal outcome. We undertook a structured review to address this issue.

## **Objectives**

This review investigated barriers to access to antenatal care, by investigating the phenomenon of late attendance and non-attendance for care, for women in developed countries.

## **Research Questions**

1. What are the comparisons of outcomes of care for women who access antenatal care early v women who access antenatal care late?
2. What are the differences between women who access care late and have a poor outcome versus women access care late and have a good outcome?
3. What are the outcomes of care of women who do not access any antenatal care?
4. What are the barriers and promoters of uptake for antenatal care in women who are at high risk of adverse maternal outcome?

## **Methods**

The review was conducted into two distinct parts; qualitative and quantitative, to ensure comprehensive understanding of the issues around antenatal access to care. Review of the quantitative literature aimed to answer questions 1 to 3, and review of the qualitative literature aimed to answer question 4. The findings of both parts were discussed in relation to each other, to provide completeness. Details of the methods used are described in the main report.

## **Results**

### **Quantitative**

Following a comprehensive search of the literature we failed to identify any randomised trials to address the posed questions. Five papers were included which compared the outcomes of late versus early attendance for antenatal care (3 UK, 1 France, and 1 USA) and two which addressed the issue of attendance versus non attendance (1 Ireland, 1 USA). We found no papers which compared women who access care late and have a poor outcome and women who access care late and have a good outcome. All papers focussed mainly on perinatal, as opposed to maternal outcomes. Given the heterogeneity of the included papers and some methodological concerns, the combining of data was inappropriate.

*Outcomes of care for women who access antenatal care early versus women who access antenatal care late*

Only one study (Petrou et al 2003) suggested a link between late booking and increased perinatal mortality, and this was limited by its retrospective design.

*Outcomes of care of women who do not access any antenatal care.*

Studies comparing outcomes from unbooked women with booked women suggest that those who are unbooked may have more perinatal morbidity. A more tentative possibility of increased perinatal mortality was also identified. However, no UK studies were found in this search and included studies are compromised by poor design, making conclusions equivocal.

## **Qualitative**

The qualitative element of this study was designed to ascertain why some women in high risk groups do not access antenatal care. Our comprehensive search strategy generated 5707 hits. After screening against our inclusion, exclusion and quality criteria, only one completed UK based study remained for analysis. We are also aware of one on-going study that is likely to be relevant when it reports its findings. The paucity of good quality UK- based qualitative research in this area indicates an important gap in the evidence base.

We included eight studies undertaken in 'UK-like' countries. These were defined as countries with a similar socio-demographic profile to the UK, and which offer general access to antenatal care services. All eight studies were undertaken in North American contexts. Two from Canada, and six from the USA.

The participants across all nine studies in the review included women from low income backgrounds, from marginalised and minority ethnic non-English speaking communities, refugees, homeless women, teenagers, women who had experienced domestic violence, and women who were HIV positive. One study targeted non-attenders. All the other studies included late or irregular attenders. Most studies also included 'early', or regular, attenders.

**First access to antenatal care** appears to be influenced by *Pregnancy rejection/acceptance*, and *personal capacity or incapacity to act*. Barriers included women *not being aware of being pregnant*, or *denying the pregnancy to themselves and/or their social networks*. The reasons for this denial included a fear of the social consequences of pregnancy. Women with *chaotic lifestyles*, and those who perceived that the *clinic offered no clear benefit* to women or to their baby also seemed to be less likely to initiate access to care. Those who did access care were reported as seeing pregnancy (and possibly the automatic access pregnancy gave to associated services) as a *positive opportunity for change*.

After first contact with the antenatal services, **continuing access** for women in high risk and marginalised groups appears to depend on a strategy of '*weighing up and balancing out*' of the perceived gains and losses of attendance to them and to their babies. The elements that appeared to weigh positively in this balance included *personal resources*, and *service provision issues*. The *resource issues* included the economic status of the woman, and the finances available directly to her, to travel to care, and (in a North America context) to pay for it directly. However, they also included the need for clinical and support staff to *value women's time*, by not keeping them waiting for hours, and by recognising what an effort it takes to access care against the odds of poverty, lack of transport, or constraints such as chaotic lifestyles, or partner violence. *Service provision* issues that could maximise continuing service uptake included a perception that there was *caring in the care-giving*; that women, and their knowledge

of themselves and of their particular life styles were *respected*; that they felt *culturally, emotionally, and physically safe*; and that staff were *credible*, and had excellent *communication* and *interpersonal* skills

## **Conclusions**

There is a general lack of both quantitative and qualitative research, based in the UK, which addresses the phenomenon of late antenatal attendance or non attendance.

Although the quantitative findings suggest that perinatal morbidity/mortality may be increased for those women who fail to attend for antenatal care, or attend late, they are limited by the lack of good quality UK papers.

The qualitative review provides some understanding of why some women fail to access antenatal care; *pregnancy rejection/acceptance*, and *personal capacity or incapacity to act being key factors*. Continuing access for women in high risk and marginalised groups appears to depend on a strategy of '*weighing up and balancing out*' of the perceived gains and losses of attendance to them and to their babies. The health belief model may provide a coherent approach to understanding the interrelationships between the elements women appear to utilise in a strategy of weighing up and balancing out whether or not to attend for antenatal care.

This review highlights the complexities associated with this area of inquiry, providing support for a multi-layered approach to further investigation.

## **Recommendations**

Given the heterogeneity between and within groups it is difficult to set measurable standards across the whole pregnant population; different standards may be needed for different populations. Until such standards are agreed, it is unlikely that care can be audited. A national audit of all pregnant women is likely to produce superficial results which may not translate meaningfully into practice. It was out with this project to look at specific groups in detail; however, pursuing work with known disadvantaged groups (as identified in CEMACH report and elsewhere) may be a plausible option. This would enable an exploration of relevant standards and enable a layered approach to the complexities of this topic area.

More work is required to find out what works in improving access for disadvantaged groups and whether that improved access improves outcomes. Prospective, UK based studies are required to address these issues. A series of case studies of sites where the uptake of antenatal care by disadvantaged and marginalised groups is particularly high or low, may be useful to ascertain which of the elements of care identified by this study are likely to maximise care-seeking behaviour; successful innovations that might be transferable; and strategies for improving care provision in sites where high risk women are less likely to seek care.

## **1. Introduction**

### **1.1 Background**

### **1.2 Aim of Review**

### **1.3 Research Questions**

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## **1. Introduction**

### **1.1 Background**

The development of systemised, screening programmes for antenatal care were first introduced in Western Europe at the beginning of the twentieth century. By combining scientific innovations with an organised, preventative approach to health care it was hoped that routine antenatal care would contribute to a reduction in maternal and infant mortality rates. During the following decades a steady decline in the number of pregnancy related maternal and infant deaths in countries offering standardised antenatal care, seemed to validate this approach.

In terms of maternal mortality, recent figures for Northern Europe suggest that the lifetime risk of death as a result of pregnancy and childbirth is approximately 1 in 7000. This compares to a figure of 1 in 23 for women living in parts of Africa where antenatal care is poor or non-existent (Carroli et al, 2001). Despite the introduction of antenatal initiatives aimed at addressing this disparity (WHO 1994), maternal mortality rates remain high in many parts of the developing world (WHO/UNICEF 1996). Even in countries where westernised models of antenatal care have been initiated (Burkina Faso, Ivory Coast, Mozambique, Nigeria), uptake of these services remains modest (WHO, 1994). In these settings, particularly in rural areas, many pregnant women fail to access antenatal care until the second or third trimester (Chapman 2003; Miaffo et al 2004; Larsen et al 2004) or attend early and then fail to return (Myer & Harrison, 2003). Qualitative studies exploring the reasons for delayed or poor attendance reveal a variety of inter-related socio-economic, educational, cultural and personal factors including, cost of transport, late recognition/denial of pregnancy, reliance on traditional/tribal (herbal, spiritual) pregnancy beliefs, lack of perceived benefits, influence of partner and a dissatisfaction with the attitude of staff at antenatal clinics (Abrahams, Jewkes & Mvo, 2001; Chapman 2003; Miaffo et al 2004; Larsen et al 2004; Kabir et al 2005).

While the emphasis in the developing world continues to focus on early and regular attendance at antenatal clinics, the debate in the developed world has moved onto one of evaluation. The consensus appears to be that although conventional programmes of antenatal care are perceived to be beneficial, a correlation between 'inadequate' antenatal care and adverse maternal outcomes has yet to be clearly established. As early as 1972, Archie Cochrane suggested that antenatal screening procedures should be subject to the same critical evaluation as any other type of screening (Cochrane, 1989). To date, few such evaluations have been conducted. The frequency of antenatal visits has also been called into question. A Cochrane reviewed meta-analysis of 7 RCT's (Carroli et al, 2001) showed no difference in maternal mortality rates between women attending fewer antenatal appointments (4-9) compared to those adhering to the standard model of antenatal care (12-14 visits). However, all of the RCT's in Carroli et al's (2001) analysis involved 'low risk' women who might be expected to maintain a normal pregnancy regardless of the number of antenatal visits. These figures, therefore, preclude the small but significant minority of women who are considered to be at 'high risk' of adverse maternal outcomes. According to the most recent CEMACH report (Lewis

and Drife, 2004), 20% of maternal deaths in the UK for the period 2000-2003 included women who received infrequent or late antenatal care. The authors of the report, understandably, list late booking or poor attendance as a risk factor for maternal death.

Reasons for late or poor access at antenatal services in the UK have yet to be fully evaluated but data from elsewhere (North America, Australia and Europe) suggest a number of inter-related socio-demographic factors including, high parity (Delvaux et al, 2001; Erci 2003 ), low income (Essex et al, 1992; Mayer, 1997; Sword 2003), belonging to a minority ethnic group (Miller et al, 1996), low socio-economic status (Dwyer, Cooke & Hort, 2003; McCaw-Binns, La Grenade & Ashley, 1995), low level of education (Buck et al, 1992 ; Erci, 2003) and young maternal age (Buck et al, 1992; Mayer, 1997).

Whether these socio-demographic variables are transferable to the UK is a matter of some debate. While the social inequalities in health care identified by the Black Report (Townsend, Davidson & Whitehead, 1992) precipitated a flurry of antenatal based research in the 1980's, a recent systematic review of some of these studies found, 'little good quality evidence to support social and ethnic inequalities in attendance for antenatal care in the UK' (Rowe & Garcia, 2003 p.113). Notably, however, Rowe and Garcia (2003) emphasise the need for further research in this area as the poor quality and age of many of the studies they identified restricted the reporting of more conclusive findings. They highlight barriers to access, particularly among marginalised minorities, as being of research interest and suggest this topic should be explored from a personal (woman's) viewpoint as well as a professional/service perspective. An emphasis on qualitative research is also proposed.

### **Barriers to Antenatal Care**

Studies from developed countries outside the UK do cover barriers to access and include qualitative accounts from ethnic minorities, marginalised groups and socially deprived populations. For minority ethnic groups, findings suggest that cultural issues relating to language and staff insensitivity are important and deter some women from accessing antenatal care early and regularly (Shaffer, 2002; Tsianakas & Liamputtong, 2002). Conventional systems of antenatal care have changed little over the years and tend to be task focused and culturally homogenous. Easily overlooked details, like the gender of the consulting doctor, can make a big difference to women's perceptions of antenatal services. In a study of Islamic women living in Australia, Tsianakas & Liamputtong, (2002) found that the prospect of being given an ultrasound by a male doctor, rather than a female, caused them to cancel antenatal appointments. Hispanic women living in the US failed to return for antenatal appointments because they felt staff were too rushed or simply unwilling to answer their questions (Tandon, Parillo & Keefer, 2005). These kinds of cultural oversights may be viewed as disrespectful by women from various ethnic groups and generate feelings of frustration and further marginalisation (Gaff-Smith, 2000; Smith et al, 2006).

American studies exploring barriers to antenatal access in socially deprived areas (often including ethnic minorities) reveal an inter-related web of psychosocial and circumstantial issues. Initial recognition of the pregnancy, particularly among younger mothers, often delays antenatal attendance by weeks or even months (Young et al, 1990; Burks, 1992). Being in denial or feeling ambivalent about the pregnancy, and prolonged deliberations about whether to keep the baby or not, also contribute to delayed antenatal attendance (Daniels, Noe & Mayberry, 2006). These factors may be exacerbated by more practical concerns relating to

transportation costs, child care arrangements, location/availability of clinics and medical insurance (Lia-Hoagberg et al, 1990).

For women in particularly vulnerable positions additional barriers can further delay antenatal access. In a study of homeless, pregnant women in Florida, Bloom et al, (2004) found that participants were wary of engaging with any form of centralised healthcare. Fears of what might happen to them or their baby once they accessed 'the system', deterred antenatal attendance, and feelings of being judged by staff did little to encourage repeat visits. Similar themes were discovered by Napravnik et al (2000) in a study of HIV infected women living in socially deprived areas of Atlanta.

### **UK Barriers to Antenatal Care**

There is reason to believe that many of the barriers restricting antenatal access in parts of the developed and developing world may be pertinent to the UK. While organisational features like medical insurance and geographical isolation are unlikely to affect uptake of services in the UK, there are a number of areas where similarities exist. Some of the studies from developing countries highlight a range of cultural and traditional beliefs which may hinder antenatal access among newly arrived immigrants or asylum seekers (Abrahams, Jewkes & Mvo, 2001; Miaffo et al 2004; Larsen et al 2004; Kabir et al 2005) In a multicultural setting with regular and frequent immigrant arrivals language problems pose an immediate barrier. Without either an interpreter or an array of translated information (leaflets, books, DVD's), preferably both, the ability to engage with an individual is significantly reduced (Sure Start, 2005). A lack of knowledge about the availability of antenatal services is also likely to prevent/delay access amongst recently arrived migrant populations (Scheppers et al, 2006). Even when language and knowledge barriers are overcome, the ability to engage with antenatal services may be compromised by organisational weaknesses. For asylum seekers, difficulties in registering at a health centre coupled with a reluctance by some GP's to accept them can lead to delayed access (New, Manero & Truscott, 2006). There may also be a reluctance on the part of asylum seekers to engage with health services in general as they may perceive this form of centralised provision as a threat to their residential status. Several American studies exploring the reasons for poor uptake of antenatal services amongst immigrant Latina populations found this to be a significant factor (Conrad et al, 1998; Fullerton et al, 2004; Zaid et al, 1996).

Whether cultural insensitivity by UK health professionals acts as a barrier to antenatal access is debatable. Few recent studies have explored this area and given the cultural heterogeneity of the UK it would seem unlikely that a handful of studies could lead to any uniform conclusions. However, recent research exploring the cultural awareness of some health professionals would seem to suggest that there are issues. In a relatively small Scottish study exploring the views of nurses, Leishman (2004) not only uncovered an ignorance of other cultures, but also nurse recognition of their failings in this regard. Leishman's recommendations concerning an enhancement of cultural awareness in nursing education curricula is reflected in findings from The House of Commons Health Committee report on Inequalities in Access to Maternity Services (2003). This states that, 'awareness of, and sensitivity to, cultural differences are key elements in the provision of appropriate maternity care for women from minority ethnic communities' (p17). To achieve this aim the report goes on to advocate training in cultural awareness. Studies from America would suggest that this kind of cultural awareness training should be provided to all frontline antenatal staff including receptionists (Shaffer, 2002; Tandon, Parillo & Keefer, 2005; Smith et al, 2006).

Staff sensitivity is also required when addressing the healthcare needs of pregnant women from the margins of society (the homeless, travelling communities or those with drug problems). Blooms (2004) study in Florida highlights a universal human need to be treated with respect, irrespective of personal circumstances. She found that a feeling of being judged by health professionals further undermined the confidence of an already vulnerable group (homeless) and discouraged uptake of antenatal services.

For women in abusive relationships the need for sensitive, confidential and supportive antenatal care is of crucial importance. Figures from CEMACH (2004) suggest that women in 14% of maternal deaths disclosed domestic violence, yet this is thought to be an under report figure (Mirrlees-Black et al 1998). Although NICE (2003) guidelines for antenatal care do advocate 'screening', little guidance is offered about how to do this and what action to take when abuse is suspected/identified. Furthermore, according to American studies, the perception that health professionals lack the time, skills and interest in discussing domestic abuse deters some women from accessing antenatal care (Limandri & Tilden, 1996; Rodriguez et al, 2001).

Efforts to address 'antenatal barriers' are called for in the National Service Framework for Maternity Services (2004), which encourages Trusts to take the initiative 'by actively designing services to overcome barriers to care' (p12). This need has been further reinforced in the recently published Department of Health Report, *Making it Better: For Mother and Baby* (Shribman 2007). Attempts to contact women from some socially disadvantaged groups have been successfully mediated by third party voluntary organisations who have already established links with individuals and communities most at risk (Dartnall, Ganguly & Baterham, 2005; New, Manero & Truscott, 2006). Reports from these studies indicate that women require flexible, individualised antenatal services with continuity of care, presented in an accessible format they can understand. Early indications also support some of the culturally competent findings highlighted in the American studies. New, Manero & Truscott (2006) discovered staff attitudes at some clinics in South East London were discriminatory and stigmatising. Opportunities for staff to develop their cultural awareness skills are encouraged. From an organisational perspective, closer collaboration between different health related services and with relevant voluntary organisations is advocated. This issue is highlighted in a recent Sure Start evaluation report (2005) which found that midwives working in local Sure Start programmes facilitated multi-agency working. Many 'at risk' women benefited from this approach, particularly expectant mothers with concomitant mental health problems.

In summary, the correlation between infrequent or delayed antenatal care attendance and adverse maternal outcomes is indistinct. Any direct relationship is compromised by a variety of socio-demographic, economic, cultural and personal factors in isolation or in combination. In the UK, a number of different social groups have been shown to be 'at risk' of maternal mortality. These include minority ethnic groups, poor and socially deprived communities, substance abusers, domestically abused women and, significantly, under users of antenatal services. Since antenatal care offers, at the very least, a competent programme of care and, at best, sensitive, individualised attention, the potential to address the needs of women from these vulnerable groups is greatly enhanced when antenatal care is utilised early and regularly.

Studies from other countries, notably the USA, indicate there are a number of barriers which prevent or restrict uptake of antenatal services amongst 'at risk' women. Barriers may be personal, staff related or system related. Although there are structural and financial differences between the American care system and the NHS, there is evidence to suggest that many of the

barriers experienced by American women may be transferable to the UK. Recent initiatives to identify and overcome these barriers have highlighted the training of sensitive, culturally competent staff, multi-agency working, and an expansion of Sure Start services, flexible, individualised care and the provision of accessible, understandable information.

## **1.2 Aim of Review**

In this review we aimed to investigate barriers to access to antenatal care, by investigating the phenomenon of late attendance and non-attendance for care.

## **1.3 Research Questions**

Four research questions have been investigated in this review

1. What are the comparisons of outcomes of care for women who access antenatal care early v women who access antenatal care late?
2. What are the differences between women who access care late and have a poor outcome vs women access care late and have a good outcome?
3. What are the outcomes of care of women who do not access any antenatal care?
4. What are the barriers and promoters of uptake for antenatal care in women who are at high risk of adverse maternal outcome?

## **2. Quantitative Review**

### 2.1 Methods

#### 2.1.1 Search strategy

#### 2.1.2 Review inclusion criteria

#### 2.1.3 Data extraction and synthesis

### 2.2 Results

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## **2.1 Methods**

### 2.1.1 Search Strategy

A review of relevant literature was undertaken , involving databases (British Nursing Index, CINAHL, DH-DATA, EMBASE, King's Fund, MEDLINE, PsycINFO, Social Sci Search, Cochrane Controlled Trials Register, Cochrane Library, National Research Register, ASSIA, Midirs) using thesaurus terms and free text, as appropriate. Additional details of the search strategy are given in appendix 1. Titles and abstracts were initially screened by one of the team (DW) against a set criteria (see following section), and where they met these criteria, full copies were obtained. In addition, cited references were obtained as were other papers identified through contact with other researchers. All of the obtained papers were then read independently by two members of the research team (DW, TL) and relevant information extracted.

### 2.1.2 Review inclusion criteria

#### **Inclusion Criteria**

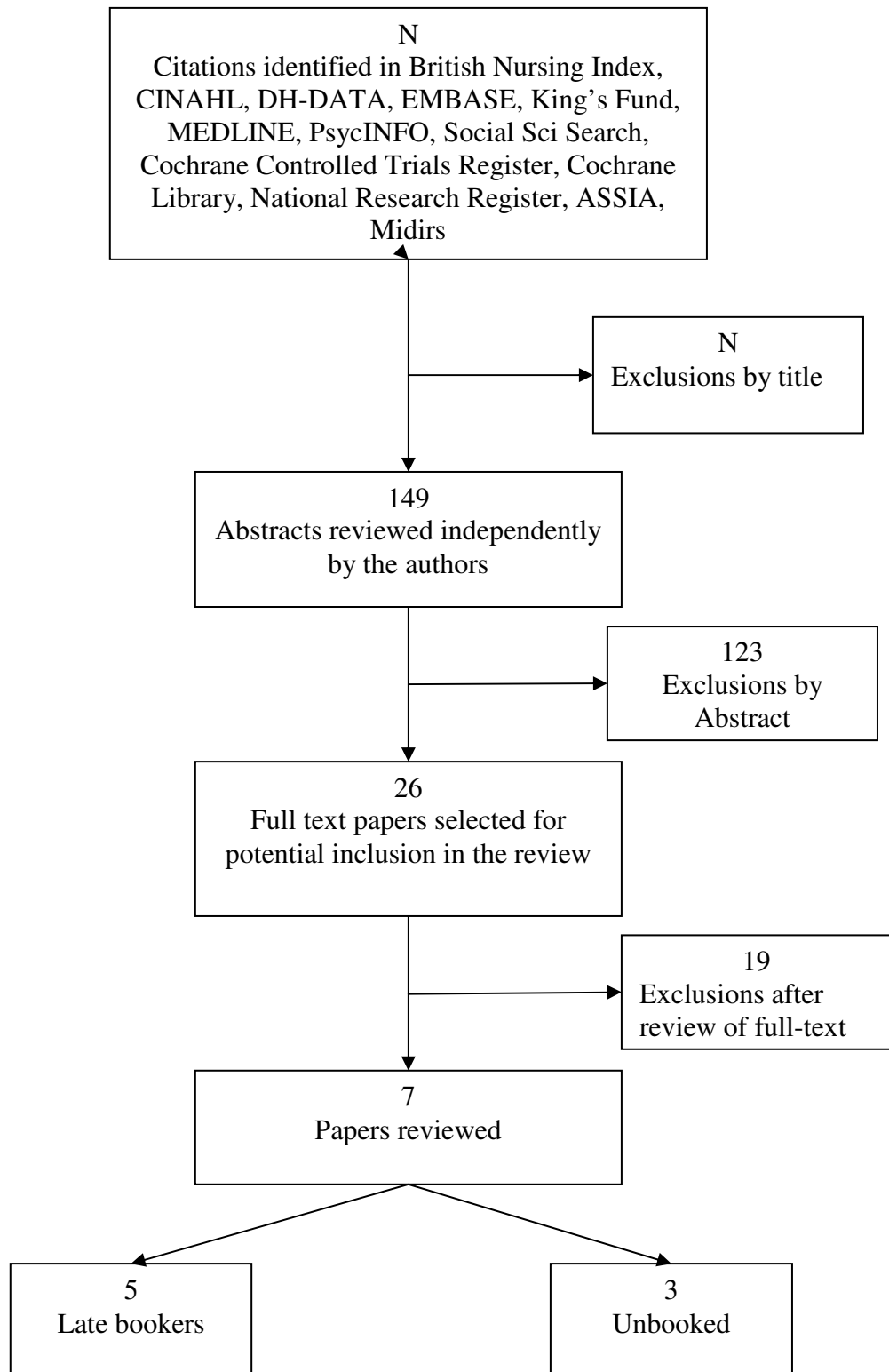
Quantitative research papers with direct relevance to antenatal care were considered for this review, regardless of design. Papers comparing pregnancy and birth outcomes between early and late antenatal care attenders and booked and unbooked women were included. Qualitative and opinion papers were excluded from this part of the review. It was decided that included papers would be those reported in English language only. The findings of papers in other languages were considered unlikely to be relevant to our population and would have been costly to translate. However, papers from other developed countries were considered, if context could be applied. Given that findings were to be applied to maternity care today, a decision was made to include papers from the 1980's only. Findings from papers earlier than this were unlikely to be transferable.

We adopted the CASP (Critical Appraisal Skills Programme) criteria for judging the quality of studies initially. Figure 1 outlines the study eligibility and paper selection.

### 2.1.3 Data extraction and synthesis

For each of the research questions, the evidence was summarised and the implications were discussed with the research team. Where evidence was lacking, indirect evidence was used to develop recommendations that will enable future researchers to formulate appropriate questions.

**Figure 1. Study Eligibility Flow Diagram**



## 2.2. Results

As we expected there were no randomised controlled trials comparing a reduced regime of visits for antenatal care or no antenatal care for high risk groups. Sikorsky et al (1993) published a randomised controlled trial comparing a traditional 12 or 13 visit regime with a reduced programme of 8 or 9 visits and found no significant differences in clinical outcomes, though women were less satisfied. The trial consisted only of low risk women and was never intended to target women at higher obstetric risk.

Three UK papers (Petrou et al, 2003; Strachan, 1978; Thomas et al, 1991), one French paper (Blondel & Marshall, 1998) and one USA paper (Amini et al, 1996) were found that addressed Questions 1. No papers were found on Question 2 and three papers; two from the USA (Herbst et al, 2003; Kaunitz et al, 1984) and one from Ireland (Treacy et al, 2002) were found addressing Question 3. In addition, there were papers in this category from the developing world but these were excluded because they were too contextually different from the UK.

### **Outcomes of care for women who access antenatal care early v women who access antenatal care late**

The five papers focused on question 1 (Table 1) were anomalous regarding definitions of what constituted late or early access. The first UK paper analysed outcomes in relation to increasing numbers of antenatal visits. The second UK paper used 17 weeks to differentiate early from late booking. The third UK, the French and the USA papers adopted after 28 weeks or less than 4 visits to define late attenders. The third USA paper used 2 or less antenatal visits.

Petrou and colleagues (2003) explored the relationship between the number of antenatal visits and adverse perinatal outcomes: caesarean section, admission to NNU, low birth weight (<2500g), and perinatal death. It collected retrospectively data from 9 English and Welsh maternity units of 20,771 women who gave birth between August 1994 and July 1995. After controlling for confounders, they found an inverse relationship between the number of antenatal visits and perinatal outcomes. The caesarean section rates increased as the number of antenatal visits, particularly after 14 visits, increased. The authors discuss the limitations of the study and conclude that experimental studies are needed now to test the possible link between the number of visits and adverse outcome. This is an excellent paper and the best evidence we have in this area.

Thomas et al (1991), in the second UK paper, retrospectively analysed the medical records of over 13,000 women who gave birth across the UK in one week in April in 1970 to assess whether delayed attendance, defined as not attending prior to 28 weeks, was associated with adverse outcome of pregnancy. This is a retrospective cohort study. After controlling for a variety of demographic and obstetric history variables, they found no association between late attendance and severe pre-eclampsia, perinatal mortality, pre-term delivery and birth weight. Their justification for using 28 weeks was to 'eliminate the potential bias brought about by women delivering preterm, having a higher perinatal mortality rate and lower birth weights for their babies than women delivering at term, but because they delivered early had less opportunity to attend antenatal care'. We are not convinced this rationale stands up to scrutiny because, in effect, these women could be classed as unbooked. It would be more instructive to compare women who remained unbooked until presenting in labour after this time, rather than examining outcomes for women who delay access to antenatal care until 28 weeks but who then may go on to have regular contact. The authors give a thorough discussion of the

limitations of their study but argue convincingly for its relevance despite being several decades ago. They conclude that prospective randomised controlled trials are the only definitive way of evaluating components of antenatal care that impact on outcomes, while acknowledging that pragmatically it would be difficult to restrict antenatal care to groups at risk of poor perinatal outcomes.

The third study by Strachan (1987) was a retrospective cohort study of perinatal mortality in Scotland between 1972 and 1982 and its links to the timing of antenatal booking. The study has considerable flaws, acknowledged by the authors, including using dating of last menstrual period to estimate gestational age and using 16 weeks as an arbitrary cut-off point for defining late booking. The 16 week marker is open to criticism for not being a robust marker of late access as these women may still have a considerable number of visits throughout the remainder of their pregnancy. The authors state that sub-analysis of later access within the cohort did not demonstrate a link to deteriorating outcome, except where women remained unbooked until accessing the maternity service with a problem in the last trimester. Though the authors controlled for demographic factors, they state that there could have been other confounders present. These limitations make their conclusions of interest but not definitive in illuminating the area. They could not find a link between late booking and increasing perinatal mortality, though there appeared to be a link between no booking and a higher death rate. They conclude:

'Despite technological advances, antenatal care during the first half of pregnancy is unlikely to have made a substantial contribution to the fall in perinatal mortality.' (p229).

Blondel et al (1998) examined the impact of poor prenatal care, defined as < 4 visits or beginning care after the 6<sup>th</sup> month, in 20 French districts. Adopting a retrospective case control method, they examined three groups of poor attenders matching them with controls in these groups who were good attenders: women <20 years, French women >20 and foreigners >20 years. They found that poor attenders in the groups of French women over 20 years and foreign women over 20 years with health insurance had more preterm births than the controls. However, across all groups of women with poorer outcomes, women were also more likely to be single, have a higher parity, less likely to have health insurance and be younger than the women with good outcomes. The authors remark that they were unable to establish whether poor attendance for antenatal care or socio-economic factors contributed primarily to the greater rates of preterm birth. The rationale for arbitrarily stratifying women by age of 20 is also not convincing. Arguably the definition of late attenders is more robust than the Strachan study. Disappointingly, there is no sub analysis done on unbooked women.

Amini et al (1996) final US paper was a retrospective cohort study of 29,225 women who gave birth over a seven year period (1987-1993) in a USA tertiary medical centre. Women were stratified according to whether they accessed 3 or more antenatal visits (good prenatal care) or 2 or less visits (no prenatal care). Women with no prenatal care, after controlling for confounders, had babies that were 500g lighter, with lower Apgar scores, more likely to be transferred to neonatal units and have longer stays there. However fewer women had caesarean sections in this group. They conclude that that this group had poorer obstetric outcomes, though this would be more accurately represented as poorer neonatal outcomes.

Of the five papers in this category, Petrou et al's (1991) is the most robust and instructive. It is limited by the retrospective design. This was the only study that suggested a link between late booking/poor attendance and increased perinatal mortality (though other studies showed deterioration in outcome if a woman was unbooked) but this needs further prospective trial examination before any conclusions can be made.

**Table 1: Comparative Studies of Early and Late Attenders**

Study	Inclusion Criteria Met	Design/Method	Sample	Outcome Measures	Analysis	Results & Conclusions	Comments
Petrou et al, 2003 UK	Yes	Retrospective cohort study	20,771 women from 9 English and Welsh units who delivered from August 1994 till July 1995	Perinatal mortality, low birth weight (<2500g), caesarean section rate, admission to NNU	Multivariate binominal regression	Inverse association between no of visits and poor outcomes after controlling for confounders; present regardless of risk; link between >visits and C/S. need trials to examine visit pattern and poor outcomes	High quality paper noting limitations. Need further trials
Thomas et al, 1991 UK	Yes	Retrospective cohort study	13,127 women, certain of dates of last period delivered in one week of April 1970	Severe pre-eclampsia, preterm birth, low birth weight, perinatal mortality stratified according to accessing antenatal care before or after 28 weeks	Chi-squared test, logistic regression methods Comprehensively described	No association between late booking and obstetric outcome	Authors describe fully weaknesses and possible confounders. Robust study given design limitations.
Strachan (1987) Scotland	Yes	Retrospective cohort study	All births in Scotland from 1972-1982	Perinatal deaths stratified by booking before or after 17 weeks	Statistical test not identified	There was no trend between delayed booking and poor perinatal outcome. Antenatal care during the first half of pregnancy is unlikely to have any effect on perinatal outcome.	Flawed because of retrospective design and arbitrariness of 17 week access benchmark
Blondel & Marshall (1998) French	No (not UK based)	Retrospective case control	848 poor attenders, 759 good attenders drawn from 20 French districts from Jan to June 1993; subjects stratified as <20years, French >20 years, foreign >20 years	Preterm birth and low birth weight babies stratified according poor or good attenders (poor: fewer than 4 antenatal visits or booked after 6 months; good: more than 4 antenatal visits or booked before 6 months)	$\chi^2$ test, SAS stats package for univariate analyses & BMDP stats package for logistic regressions	Preterm birth was worse for poor attenders in the following groups: French women over 20 years; foreign women over 20 years with health insurance. Poor antenatal care is an important risk factor for adverse pregnancy outcome.	Retrospective design may not eliminate all confounding variables. Inadequate rationale for age bandings. Unable to distinguish between poor antenatal care or socio-economic differences in explaining more preterm births
Amini et al, 1996 USA	No, not UK based	Retrospective cohort study	29,225 consecutive deliveries over 7 years (1978-1993) of USA tertiary medical centre	Gestational age at birth, birth weights, neonatal hospital stays, Caesarean sections rates, Apgar scores, admission to neonatal units stratified according to 3 or more antenatal visits	Mann-Whitney, chi-square, analysis of covariance, multiple linear & gamma regression models	No care women (2 or fewer antenatal visits) had babies 550g lighter, lower Apgar scores, more transfers to neonatal unit, longer neonatal stays, fewer caesarean sections. No care women had poorer obstetric outcomes	No discussion of limitations but various secondary analysis techniques used to address potential confounders. Worse perinatal morbidity with no care

## **Outcomes of care of women who do not access any antenatal care**

Three papers, one from Ireland and two from the USA, were found specifically examining the outcomes from unbooked women compared with booked women (Table 2). Treacy et al (2002) may be the most relevant as it is both the most recent and geographically closest to the UK. Using retrospective case control methods, they examined the outcomes of 101 unbooked cases at the Rotunda Hospital in Dublin from January 1998 to January 2000. They found unbooked women had a significantly worse perinatal outcome. They were more likely to deliver preterm, have growth retarded babies and were at greater risk of a stillbirth or neonatal death. They also found that these women were more likely to be young, multiparous, unemployed and unmarried.

Herbst et al (2003) examined the perinatal outcomes between women who gave birth to low birth weight babies (<2,500g) who had not accessed prenatal care with those that did. This was a secondary analysis of a prospective, cohort study evaluating perinatal outcomes related to preterm birth in six hospitals in Tennessee. From July 1997 to February 1998, every women who presented in labour was included in the study. Eight thousand and sixty five maternal-infant pairs were available for secondary analysis of whom 998 had low birth weight babies and 409 received no prenatal care. They found that not having any prenatal care increased the rate of preterm birth and low birth weight babies. This translated into more morbidity for the women and their babies. Unbooked women had more caesarean sections for fetal distress and their babies more respiratory distress syndrome, intraventricular haemorrhage and deaths before discharge. In common with demographic characteristics found in women having no or less antenatal care in other studies, Herbst et al's sample were more likely to be multiparous, be Afro-American and be uninsured. They undertook analysis of variance to control for confounding variables. In conclusion, the authors state that they have not proved a causal link between no prenatal care and poor outcome but, of all the papers reviewed here, this is the most robust. Racial and demographic differences between the southern states of America and the UK diminish its applicability to us.

Earlier, Kaunitz et al, (1984) had undertaken a retrospective, observational study of a religious group who received no antenatal care and birthed at home without trained attendants by choice. Both maternal and perinatal mortality were increased, but the study was excluded because it was contextually so different to the UK and was not comparable.

These studies of outcomes from unbooked women suggest that they may have more perinatal morbidity with a more tentative possibility of increased perinatal mortality. However, there were no UK studies. These are urgently needed. Most of these studies are compromised by poor design, making conclusions equivocal. This probably contributes to a healthy debate in the literature as to the efficacy of prenatal care, especially its impact on maternal and perinatal mortality rates. Kinsella's (1995) critical review of observational and experimental research over a 28 year period concluded that 'prenatal care has not been demonstrated to improve birth outcomes conclusively' (p468). Strong (2000) is even more strident in his criticism of prenatal services in the USA, saying their efficacy has never been demonstrated and that they contribute to unnecessary medicalisation of intrapartum care.

In the developing world, research has been done on the link between antenatal care and pregnancy outcome but arguably these papers describe settings that are so contextually different to the UK that their applicability is highly questionable. There were papers from Nigeria (Ekwempu. 1988), Papua New Guinea (Failing et al, 2004) and Pakistan (Naqvi, 2003). All papers found early and regular antenatal care reduced perinatal and maternal mortality rates, though their underlying rates were much higher than the UK.

**Table 2: Comparative Studies of Unbooked versus Booked Women**

Study	Inclusion Criteria Met	Design/Method	Sample	Outcome Measures	Analysis	Results & Conclusions	Comments
Treacy et al, 2002 Ireland	Yes	Retrospective case control study	101 unbooked matched to 101 booked (before 20 weeks) women who presented at a Dublin hospital between Jan 1998 and Jan 2000	Preterm birth, growth retarded babies, neonatal unit admissions, stillbirth and neonatal death, caesarean section rate	Chi-square test	More preterm birth, growth retarded babies, neonatal admissions, perinatal deaths, fewer caesarean sections. Outcomes from unbooked women in this study were worse than for booked women.	Retrospective design could have missed confounders
Herbst et al, 2003 USA	Yes	Prospective cohort study	998 women with low birth weight babies, born in 6 USA hospitals from July 1997 to Feb 1998	Preterm birth, low birth weight, respiratory distress syndrome, intraventricular haemorrhage, neonatal deaths, caesarean sections for fetal distress compared between women with no prenatal care and those who had prenatal care	Univariate analysis using Fisher exact, unpaired t tests; multivariate analysis, p values	No prenatal care women was associated with more preterm birth, lower birth weight, more neonatal morbidity and mortality, more caesarean sections for fetal distress after controlling for confounders	Well conducted study, generalisability to the UK limited by racial and demographic differences

## Summary

In summary, there were no randomised controlled trials that addressed any of the research questions. There were no papers which addressed question 2. There was only one prospective study identified (Herbst et al, 2003). This remains the best available evidence but it is specific to the USA context. The findings from the small number of retrospective studies are of interest, but point to urgent need for prospective studies in the UK in particular. Studies examining unbooked women showed the most consistent differences in outcomes with women who had at least 3 antenatal visits or booked before 28 weeks. This group are clearly demarcated from women who do receive regular antenatal care. Studies that attempt comparisons between reduced or late attenders for antenatal care and early or regular attenders choose arbitrary distinctions between the two groups, hampering both between study comparisons and within study differentials.

Before drawing a more definitive conclusion to this review of quantitative studies, issues of general access for particular groups and possible links between specific at risk groups and the benefit of antenatal care will be discussed.

## Studies that are related to the questions

The other studies identified in the literature review that have some relevance to the topic are those that identify 'at risk' groups for poorer pregnancy outcomes who may or may not be attend for antenatal care and, studies that examine accessibility of services and which groups have problems with access.

The first group include research from:

UK: homeless women, women who have babies unassisted out of hospital and women with type 2 diabetes.

Ireland: migrant women.

Australia: urban aboriginal, women with a history of alcohol or drug abuse.

USA: women with low birth weight babies.

Singapore: women with anaemia, who have a stillbirth or who have diabetes.

Africa: women with anaemia, diabetes mellitus, PET, maternal deaths, women with low birth weight babies or who experience prematurity or perinatal death

India: maternal mortality, women with uterine rupture.

Saudi Arabia: women who have babies with congenital abnormalities

The research on antenatal access was restricted to papers from the UK as many other developed world maternity care services have significant private as well as public provision, unlike the UK. Rowe & Garcia's (2003) paper was a systematic review that included the other paper (Kupek et al, 2002) so the latter was discarded. Their review included nine papers that addressed the question of whether there were social or ethnic inequalities in attendance for antenatal care in the UK. The papers seemed to some suggest that women from manual classes and women of Asian origin were more likely to book late for antenatal care. However, the authors conclude that, because of the poor quality of the papers, 'there is little good evidence on social and ethnic inequalities in attendance for antenatal care'.

### 3. Qualitative Review

#### 3.1 Methods

##### 3.1.1 Search strategy

##### 3.1.2 Review inclusion criteria

##### 3.1.3 Data extraction and synthesis

#### 3.2 Results

### 3.1 Methods

Given the finding in the 2000-2002 CEMACH report that 20% (50) of the women who died from direct or indirect causes booked for maternity care after 22 weeks of gestation or had missed over four routine antenatal visits, we were commissioned to try to establish what lies behind this phenomenon.

The general risk factors for maternal deaths set out in the 2000-2002 CEMACH report indicate that social disadvantage and exclusion, living in a poor community, belonging to a minority ethnic group, attending late and/or irregularly for antenatal care, obesity, domestic violence, substance abuse, suboptimal care, and lack of inter-professional and interagency communications all contributed to maternal mortality. It is unclear how these factors are interrelated, whether attendance at antenatal clinic is an independent factor, and whether attendance for prenatal care would have prevented any of the maternal deaths that did occur. In order to try to understand some of these issues, we sought first to answer the following three questions:

**Question one: What were the characteristics of the women who died after not accessing antenatal care fully?**

The predominant characteristics of women who failed to access antenatal care fully are shown below:-

**Table 1.14** Analysis of women who were late bookers (more than 22 weeks of gestation) or poor or non-attenders by predominant characteristics\*; United Kingdom 2000–02

Predominant characteristics	Direct	Indirect	Coincidental	Late	All	Total number of women in this group	Characteristic for all women in this group (%)
Homeless/constant change of address	2	2		1	5	5	100
Children in care	2	3	1	1	7	8	88
Refugee/asylum seeker	5	4		2	11	14	79
Known to social services	4	5	2	3	14	19	74
Domestic violence	12	9	11	7	39	55	71
Little/no English	4	5			9	15	60
Substance misuse	4	5	2	3	14	32	45
Extreme poverty	4	5		2	11	25	44
Past or ongoing severe psychiatric illness	3	6		3	12	60	20
<i>Ethnic Group (for England only see later section)</i>							
Indian/Pakistani	4	5		1	10	17	59
Black African	7	6		1	17	30	57
Black Caribbean		4	1	1	6	13	46
Asian/other		1			1	4	25
White	10	10	6	4	30	151	20

\* many had more than one characteristic

Why Mothers Die (2000-2002) Report on confidential enquiries into maternal deaths in the United Kingdom (CEMACH, 2004)

**Question two: What is the underlying theory/mechanism of antenatal care provision that is likely/intended to minimise maternal death/severe morbidity in women with these characteristics?**

A partial answer to question two is given in the NICE Antenatal care guidelines (2003). It is of interest that the focus of the scheme of care outlined in the guidelines appears to be the fetus. However, the guidance does also recommend assessment of the following aspects that might affect maternal mortality/severe morbidity:

- domestic violence
- sexual abuse
- mental health
- obesity/severe underweight
- Anaemia
- HIV/AIDS.
- Pre-eclampsia
- Mental health.
- Placenta previa

The screening and testing processes advocated to identify/prevent these problems are focused closely on the woman herself. There appears to be little account taken of socio-economic circumstances, family history, or cultural influences. Mention is made of the need for care to be sensitive and respectful, and of the possibility of being advised about financial matters during pregnancy.

**Preliminary theoretical model**

A working theoretical model of UK antenatal care provision based on the NICE guidelines is one of utilitarian surveillance (Arney, 1982) based on a healthism/lifestyleism approach to public health (Donaldson & Donaldson, 2000). There appears to be an underlying assumption that women will uptake antenatal care, that they are health literate, they have personal autonomy, and the capacity/resources to be mobile/available to attend clinical sessions. There is also an underlying assumption that pregnant women will trust care givers and care systems, and that they believe that professionals are competent and caring.

**Question three: What is 'late' or incomplete antenatal care?**

There appears to be little agreement about what constitutes late or incomplete antenatal care, and, specifically, what level of care is the minimum to maximize maternal wellbeing. The definition used by CEMACH is:

*..booked for maternity care after 22 weeks of gestation or had missed over four routine antenatal visits.*

The NICE guidelines state that:

*The exact number of antenatal appointments and how often you have them will depend on your individual situation. If you are expecting your first child, you are likely to have up to ten appointments. If you have had children before, you should have around seven appointments.....Your first appointment should be fairly early in your pregnancy (before 12 weeks)....*

For the purpose of this review, we did not impose a standard. We noted the criteria used by each study, and will comment on the heterogeneity in these criteria in the discussion section of the report.

In order to try to understand why women at risk of maternal mortality may not access antenatal care, we undertook a focused qualitative review framed by question four above. The next section of the report sets out the theoretical and methodological approach we took to answer this question.

### **Primary review question**

What are the barriers and promoters of uptake for antenatal care in women who are at high risk of adverse maternal outcome?

### **Secondary questions**

- Why do high risk women fail to access antenatal care?
- Why do high risk women access antenatal care late, or irregularly?
- What motivates high risk women to access antenatal care early and fully?
- Are there any good examples of services/organizations that promote early access to antenatal care and/or good outcomes?
- Is there any evidence on which to base optimum standards of care related to antenatal access?

This component of the study used a realist review approach, based on the theory that context + mechanism = outcomes (Pawson et al, 2005). The primary method for the review was a meta-synthesis (Jensen & Allen 1996, Sandelowski, 1997, Sherwood, 1999, Walsh & Downe, 2005).

The review process is framed by the question *what works, for who, in what circumstances?* We proceeded by looking for 'line (s) of argument' (Noblit & Hare, 1988) in the included studies, and we tested the findings against the preliminary theoretical/mechanistic framing set out above. The review aimed to provide both 'knowledge support' and 'decision support' (Mayes, Pope & Popay, 2005) for the commissioners.

### **Definitions**

*Antenatal care or services:* clinical and psychosocial care designed to be provided by professional caregivers at regular intervals during pregnancy. It does not include antenatal classes

*Late or irregular attendance:* as defined by the authors of studies in this area.

### **3.1.1 Search strategy**

Studies were identified by searching the following databases: Medline, Journals @Ovid full text, Your journals @Ovid, AMED, International Bibliography of the Social Sciences, Social work abstracts, NASW Clinical Register, Wilson Social Sciences Abstracts, Embase, Cinhal, BNI, PsychInfo, National Research Register, and British Library databases. Reference chasing and back-chaining was undertaken from studies included in the findings. The searches were not limited by date at this stage. Two authors performed the search independently in November 2006 using slightly different keywords in order to maximise the number of articles identified. SD used keywords which covered the domains 'antenatal' and 'care' and 'access' and 'qualitative' while KF used 'antenatal' and 'care' and 'late'. A complete list of keywords is presented in

Appendix 2. Articles from both authors' searches were then compared and cross-referenced in a process of triangulation.

### **3.1.2 Review Inclusion criteria**

The articles had to report on the results of qualitative research and contain information relating to high risk women not accessing ANC, or doing so late, or irregularly. Included studies had to be of reasonable quality, as determined by the quality criteria and summary score given in table two.

Initially we intended to include studies conducted in UK settings only. However, it soon became apparent that a lack of qualitative research in the topic area limited the number of such studies available. Research from non UK settings was subsequently included and a grading system developed to address contextual differences:-

**Level I** – Studies undertaken in the UK

**Level II** – Studies undertaken in countries with similar socio-economic demographics as the UK, and general access to ANC provision (e.g. Europe, U.S.A., Canada, Australia)

**Level III** – Studies undertaken in countries with more deprived socio-economic demographics than the UK, and without general access to ANC provision (e.g. studies from the African and Asian subcontinent)

This paper reports on the studies located at levels one and two. Level III papers were less relevant to the UK context, and did not add significantly to an understanding of UK practices, so we have not included them in the analysis.

#### **Exclusion Criteria**

We excluded opinion based articles, summaries and non-systematic literature reviews. Quantitative research was excluded, but is incorporated elsewhere in this review.

Although the search was not date restricted, the analysis was limited to studies published between the years of 1980-2006, to maximise the utility of the review to provide knowledge & decision support to commissioners. 1980 was chosen as a suitable start point since it coincided with the publication of 'The Black Report', (Townsend, Davidson & Whitehead, 1992) a seminal political document that highlighted inequalities in healthcare including ante-natal care. Studies published prior to this date that resonate with the findings of this review are included in the discussion section.

#### **Quality Assessment**

The full text papers were appraised for quality using an assessment tool incorporating several published quality criteria lists (Walsh & Downe 2006) and a summary quality score (Downe, Simpson & Trafford, 2007). Studies scoring B/C or higher on the summary quality score were included.

### **3.1.3 Data Extraction and Synthesis**

Papers were scrutinised for the identification of themes, metaphors and concepts in accord with Noblit and Hare's (1988) meta-ethnographic approach to the synthesis of qualitative data. The

reviewers discussed and cross referenced the emergent themes and applied reciprocal and refutational analysis techniques to the data. The synthesis of the final 'line of argument' was reached by consensus.

### 3.2 Results

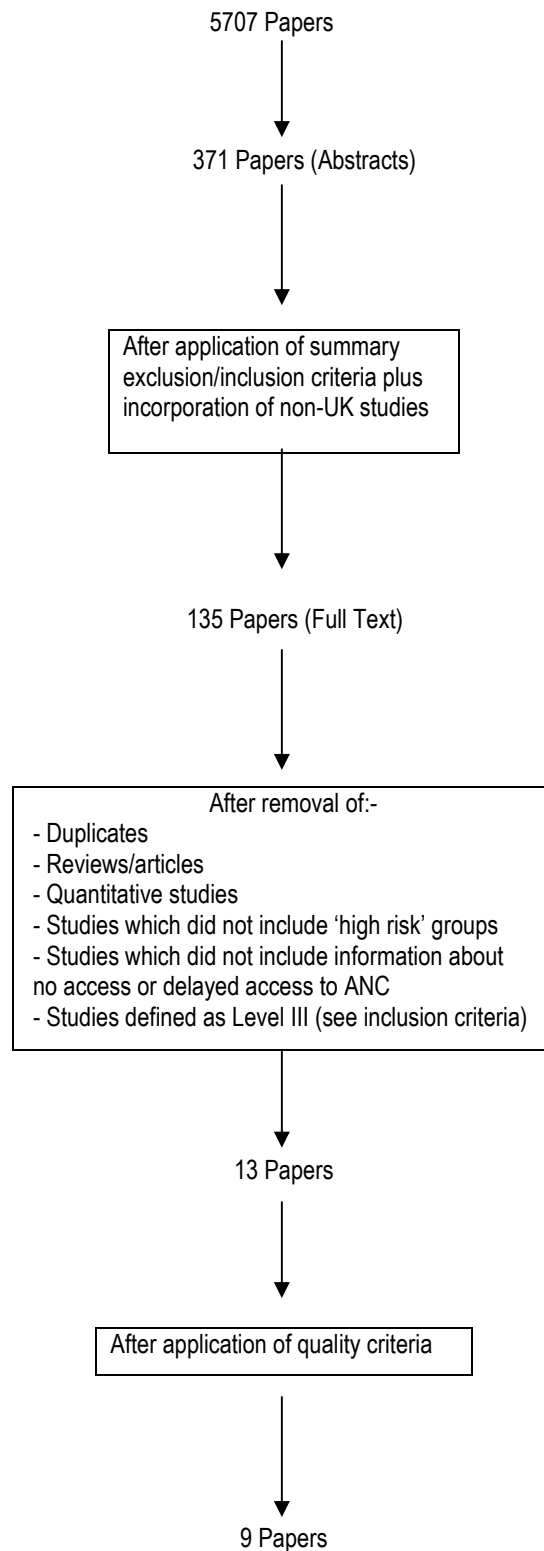
**Table 2. Included studies**

<i>Database/search engines</i>	<i>No of hits</i>	<i>No of hits after inclusion criteria applied (abstract stage)</i>	<i>No of hits after inclusion criteria applied (full text stage)</i>
Medline/Journals @ovid full text/your journals @ovid/AMED/ International Bibliography of the Social Sciences/Social work abstracts/ NASW Clinical Register/ Wilson Social Sciences Abstracts [SD]	1147	86	24
Medline/Journals @ovid full text/Embase/your journals @ovid/AMED/ International Bibliography of the Social Sciences/Social work abstracts/ NASW Clinical Register/ Wilson Social Sciences Abstracts [KF]	1455	151	47
Cinhal [SD]	1372	61	31
Cinhal [KF]	399	41	12
BNI	291	10	6
PsychInfo	721	19	8
National Research Register	31	3	1
British Library	291	10	6

Across all databases and both searches a total of 5707 articles were identified of which 371 appeared to be potentially relevant. The abstracts of these papers were screened independently by both reviewers (SD & KF) using summary inclusion/exclusion criteria. It became clear at this stage that a lack of potentially relevant UK based studies would restrict the search considerably. Following discussions between the two reviewers it was decided to incorporate studies conducted in non-UK settings adopting the grading system highlighted in the inclusion criteria. This generated a total of 135 papers for full text review.

Initially, the full text articles were screened for their relevance in addressing the research questions (See Table 2). A significant number were eliminated at this stage because they failed to incorporate women from high risk groups and/or did not include the views of women who accessed ANC late or not at all. Category III studies were also removed along with quantitative studies, reviews/articles and any duplicates. 13 studies were eventually considered suitable for quality assessment (see figure 2) and, of these, 4 failed to meet the quality requirements; 2 because of insufficient data to support the findings (Lee & Grubbs 1995, Young et al, 1990), 1 because of an over reliance on quantitative data (Lia- Haogberg et al 1990), and 1, a 26 year old occasional paper which failed to meet contemporary qualitative standards (Parsons & Perkins 1990). This left 9 papers to be included in the final analysis and synthesis stages.

**Figure 2. Flow Chart summarising Search Strategy**



### **Characteristics of included studies (levels one and two)**

All the included studies were undertaken between 1998 and 2006. Only one study based on a UK sample was located. This included a mixed sample of women from minority and marginalised groups, and those dependent on drugs and alcohol. All of the other included studies were from North America, comprising two from Canada, and six from the USA. The participants included women from low income backgrounds, from marginalised and minority ethnic non-English speaking communities, teenagers, women who had experienced domestic violence, and women who were HIV positive. All of the studies used interviews and focus groups for data collection, and most appeared to adopt a variation of the grounded theory approach to data collection. Most appeared to have used a version of constant comparative thematic analysis. Two adopted an explicitly participatory approach.

One study (Sword 2003) targeted non-attenders. All of the other studies included late or irregular attenders and most also included 'early', or regular, attenders.

### **Quality of included studies**

Two papers were scored as A-B, one as B and six as B-C (on a scale of A-D). The main deficits were limited or no discussion of the theoretical perspective of the study, or of researcher reflexivity, or of the ethical conduct of the study. Discussion of the analytic strategy was also limited in many of the studies. While these deficits may reduce the transferability of some aspects of some of the studies, it was decided that none of them were fatally flawed, and so they were all included. Appendix 3 sets out the assessment of each study and the consequent summary score, followed by the summary quality score.

### **Definitions of 'delayed' or 'irregular' care**

Eight studies included late (or 'delayed') attenders, or those attending infrequently. In three cases (Lutz 2005, Dartnell et al 2005, Smith et al 2006) no definitions were given. For Mackey and Tiller 1998, Napranvik et al 2000, and Tandon et al 2005, this was defined as in the third trimester/ after the fifth month of pregnancy. For Peacock et al 2001 and Daniels et al 2006, this was after the first trimester. Napranvik et al 2000 also included women who had less than 50% of the visits recommended by the ACOG (American College of Obstetricians and Gynecologists).

## 4. Authors' Synthesis of Review

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The quantitative review revealed a dearth of literature to investigate the relationship between antenatal access and clinical outcomes. However the best available evidence suggests that unbooked women may have more perinatal morbidity with a possibility of increased perinatal mortality. The findings also suggest that women who access care late may have poorer neonatal outcomes, but interestingly, caesarean section rates may be reduced. Disappointingly maternal outcomes receive little attention in the included studies. The impact of antenatal access on clinical and psychological outcomes needs attention.

Although the evidence is weak, it is not easy to rectify the situation. As anticipated, no randomised controlled trials were identified related to non attendance or late attendance for antenatal care. However, it is unlikely, and some would consider unethical, to carry out a RCT on a service that is already well established as it would mean withdrawing the service from one group. A further problem would be sample size, given the small maternal mortality rate in the UK. Matching for the numerous confounding variables and selecting a valid scientific sample would also provide methodological challenges. Confounding variables are numerous, not always well defined and can be transient (e.g. maternal motivators). Despite the lack of strong evidence, antenatal care is generally accepted as important. Yet if one accepts that it is an important aspect of maternity care then we need to target it appropriately; three layers of inquiry are required to do this. Firstly, there is a need to increase access to care. Secondly, there is a need to explore content of care. Thirdly, there is a need to explore women's views. The qualitative findings in this review give insight into these areas.

The results of this qualitative review indicate that, for high risk women, the normative assumptions in documents such as the NICE antenatal guidelines do not apply. Women in this group do not appear to be able to apply healthy principles to their lives. Some of them do not appear to be health literate, and many of them do not demonstrate personal autonomy, social and cultural support for themselves and their pregnancies, and/or the capacity/resources to be mobile/available to attend clinical sessions. For a number of the participants in the studies we included, there was a lack of trust in care givers and care systems, and a lack of caring, respect and kindness in the care that they received.

In choosing to access prenatal care, high risk marginalised women perform a subconscious act of weighing up and balancing out, in order to maintain or become a socially acceptable (or valued) pregnant woman. The factors that come into play in this process can be summarised by the following model, based on the Health Belief Model (HBM: see application to prenatal care in Bluestein and Rutledge 1993). The HBM has seven inputs to the likelihood of seeking care: psychosocial and socio-demographic *modifiers*, *perceived benefits*, minus *perceived barriers*, *perceived susceptibility*, *perceived severity*, *perceived need*, and *cues to action*.

### **A) Initial use of antenatal care is influenced by:**

- Pregnancy rejection or acceptance (*psychosocial and sociodemographic modifier*.)
- Personal capacity or incapacity (*perceived susceptibility, perceived severity, perceived need*)

### **B) Continued access** is influenced more strongly by a balance between:

	<b>Factors</b>	<b>Mediated by:</b>
<b>GAINS</b> (perceived benefits)	<p><b>Clinical</b> self, baby</p> <p><b>Psychosocial</b> chance to change, creating a socially valued pregnancy, consequent (gain in) confidence, pride, knowledge</p>	<p><b>Provision of:</b></p> <ul style="list-style-type: none"> <li>• cultural, emotional, physical safety</li> <li>• caring in the care</li> <li>• credible staff with excellent communication and interpersonal skills</li> </ul>
<b>VERSUS</b>		
<b>LOSSES</b>	<p><b>Psychosocial loss</b> stigma, powerlessness, broken confidence</p>	<p><b>lack of:</b></p> <ul style="list-style-type: none"> <li>• cultural, emotional, physical safety</li> <li>• caring in the care</li> <li>• credible staff with excellent communication and interpersonal skills</li> <li>• respect for women's self and lifestyle knowledge</li> </ul>
	<p><b>Resource loss</b> (money, time)</p>	<ul style="list-style-type: none"> <li>• difficult/expensive access to care</li> <li>• perception that antenatal care provides no benefit</li> <li>• failure to value women's time.</li> </ul>

## **5. Discussion**

### **5.1 Practice/Policy Relevance**

### **5.2 Recommendations**

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#### **5.1 Practice/Policy Relevance**

Although generally acknowledged as an important part of maternity care (Villar and Bergsjö 1997), there is little evidence to suggest that accessing antenatal care or accessing antenatal care early improves clinical outcomes. However, it is also difficult to ascertain whether those women who had favourable outcomes would have done so if they had not accessed antenatal care. Antenatal care has three main components, risk assessment/screening, preparation for labour and health promotion. Based on the evidence in this review, we are unable to determine whether any/all of these factors influence short and long term outcomes.

The papers reviewed demonstrated inconsistency in definitions, standards and antenatal services. For example, the literature demonstrates disparity in definitions used regarding early and late bookings. Although national standards exist (e.g. NICE), the lack of robust evidence to support these standards has led to local policy variations. Variations in antenatal care between individual health professionals, units and regions are unlikely to be reflected in a national audit. Validation of antenatal practices would require triangulation of data collection methods, which would have to include assessment of women's views.

From the limited number of available papers, it is apparent that there is a need to apply a more focussed, strategic approach to the care of women in the antenatal period. To do this, consensus, from all stakeholders, needs to determine optimum standards for targeted 'high risk' groups. This is likely to include innovative ways to engage with hard to reach groups who may not access conventional services; provision of joined up care so that women with multiple clinical, social, and psychological needs can have them met via a one stop shop; widespread advertisement that these aspects exist to raise community awareness of local service provision; provision of confidential access to non-judgmental care for women who feel that their pregnancy is not socially acceptable; guaranteed minimum wait times in clinics and other care provision contexts; and services that reward staff who are credible, who consistently demonstrate a caring and respectful attitude, who have excellent communication and interpersonal skills, and who provide care that is culturally sensitive. This should include front of house staff such as receptionists, and support staff.

#### **5.2 Recommendations**

The literature suggests that late bookers are associated with a number of socio-demographic factors and high risk groups (Rowe and Garcia 2003). It is difficult to tease out, therefore, whether it is these factors or failure to access early antenatal care that create bad outcomes. Questions are complex and it is likely that only a number of questions of various data collection methods will reveal meaningful answers. Research into which elements of current antenatal care provision make a difference to maternal wellbeing in general, and which make a significant contribution to high risk women and babies is required. Qualitative studies in the area of high

risk UK women who attend antenatal care irregularly or not at all should be integral to future work.

Given the heterogeneity between and within groups it is difficult to set measurable standards across the whole pregnant population; different standards may be needed for different populations. Until such standards are agreed, it is unlikely that care can be audited. A national audit of all pregnant women is likely to produce superficial results which may not translate meaningfully into practice. It was not within the scope of this project to look at specific groups in detail; however, pursuing work on known disadvantaged groups (as identified in CEMACH report and elsewhere) may be a plausible option. This would enable an exploration of relevant standards and permit a layered approach to the complexities of this topic area. The resource implications of this are likely to be vast.

Those who fail to 'book' pose a particular challenge, in that accessing these women, or their maternity histories is difficult and unlikely to be carried out prospectively. Furthermore, as was discovered in an audit of 'unbooked' women giving birth at King's College Hospital in London in 2000 (Beckman and Demilew 2001), almost half had contact with antenatal services despite never formally 'booking.' Women who mobile or asylum seekers, for example, and not registered with a GP are likely to access antenatal care via an A & E department (Health Link 2006).

What is needed is probably not a national confidential enquiry but more basic work to find out what works in improving access for disadvantaged groups and whether that improved access improves outcomes. Only then would it make sense to audit whether what is recommended is actually happening in reality. The first step may be to conduct a detailed review of specific groups, known to disengage with antenatal services. Three distinct groups should be considered; women with medical complications; women with underlying socio-demographic issues and women social/psychological concerns.

What may also be useful is a series of case studies of sites where the uptake of antenatal care by disadvantaged and marginalised groups is particularly high or low to ascertain which of the elements of care identified by this study are likely to maximise care-seeking behaviour; successful innovations that might be transferable; and strategies for improving care provision in sites where high risk women are less likely to seek care. Following women throughout the maternity continuum would also be useful, to obtain a clear understanding of the pattern and content of care received, and the relationship of these to intrapartum decisions and subsequent outcomes.

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