City Research Online

City St George's, University of London

Citation: Melamed, A., Small, K., McCourt, C., Beach, E., Fallows, V., Tonks, R., Arrowsmith, A. & Deave, T. (2026). Antenatal risk assessment and classification in maternity care: An integrative review. Midwifery, 158, 104789. doi: 10.1016/j.midw.2026.104789

This is the published version of the paper.

This version of the publication may differ from the final published version. To cite this item please consult the publisher's version.

Permanent repository link: https://openaccess.city.ac.uk/id/eprint/37306/

Link to published version: https://doi.org/10.1016/j.midw.2026.104789

Copyright and Reuse: Copyright and Moral Rights remain with the author(s) and/or copyright holders. Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge, unless otherwise indicated, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way. For full details of reuse please refer to City Research Online policy.

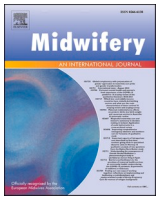
City Research Online: http://openaccess.city.ac.uk/ publications@citystgeorges.ac.uk

Midwifery 158 (2026) 104789

Contents lists available at ScienceDirect

Midwifery

journal homepage: www.elsevier.com/locate/midw



Review Article

Antenatal risk assessment and classification in maternity care: An integrative review

Anna Melamed [a,*], Kirsten Small [b], Christine McCourt [c], Emily Beach [a], Victoria Fallows [a], Rachel Tonks [a], Alison Arrowsmith [a], Toity Deave [a]

[a] University of the West of England, Bristol, UK
[b] Griffith University, Australia
[c] City St George, University of London, UK

ARTICLE INFO

Keywords:
Antenatal
Pregnancy
High-risk
Midwifery
Pregnant woman
Risk assessment

ABSTRACT

Problem: Antenatal risk assessment and classification dominates midwifery care but may not be improving outcomes and may introduce iatrogenic harm.
Background: Midwifery-led care and birth settings promote good birth outcomes and women's experiences. In the United Kingdom increasing numbers of women are classified as having high-risk pregnancies and therefore recommended to have obstetric-led care and birth settings, restricting the number of women accessing midwife-led care.
Aim: Evaluate and integrate literature on the effectiveness, justification and impact of antenatal risk assessment and classification as performed in the UK.
Methods: Integrative literature review of 16 articles from 2000 to 2025, from midwifery and obstetric perspectives.
Findings: Many antenatal risk assessments did not improve outcomes due to inconclusive tests, lack of treatment options and difficulties balancing risks. The assessments and proposed treatments were not clearly communicated to women and assumed benefit and acquiescence in the absence of evidence. Risk assessment processes could create physical and emotional iatrogenic harm to women.
Discussion: Reductive medical-model risk assessments and subsequent care pathways are not compatible with women-centred care and lead to known benefits of midwifery care being under-utilised. Biopsychosocial risk assessment could be culturally and value sensitive, better address social determinants and inequalities, offer genuine choice and control for women and increase the use of women-centred midwifery services while enhancing safety.
Conclusion: UK antenatal risk assessment lacks efficacy in improving outcomes, risks iatrogenic harm and can negatively affect women's experiences. A shift to relational models of midwifery antenatal risk assessment could be more women-centred, personalised and culturally specific, possibly leading to better outcomes overall.

Statement of Significance

Problem

Antenatal risk assessments leading to increasing proportions of women being classified as high-risk and directed to obstetric-led birth settings are not improving outcomes, lack a clear evidence-base and can introduce iatrogenic harm.

What is Already Known

Midwifery and medical models of care are in tension. Women with straightforward pregnancies and moderate conditions fare better in midwifery-led care, but decreasing numbers of women are deemed eligible due to high-risk categorisation.

What this Paper Adds

This paper examines antenatal risk assessment as a key dimension of the current crisis in UK maternity care and proposes instead biopsychosocial- risk assessments in relational care models.

* Corresponding author.
E-mail address: anna.melamed@uwe.ac.uk (A. Melamed).

https://doi.org/10.1016/j.midw.2026.104789
Received 18 November 2025; Received in revised form 19 March 2026; Accepted 28 March 2026
Available online 3 April 2026
0266-6138/© 2026 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

Background

A large body of evidence supports the benefits of midwifery models of care with women-centred, personalised, culturally-adaptive care, continuity of carer, and salutogenic care that supports normality and possibly mitigates health inequalities (Scarf et al., 2018; Brocklehurst et al., 2011; Hutton et al., 2019; Dahlen et al., 2022). The recent Cochrane review on midwifery continuity of care models showed reductions in caesarean and instrumental births, higher rates of positive experiences and lower financial costs, with equivalent fetal and neonatal outcomes (Sandall et al., 2024). Midwife-led birth settings similarly showed significant reductions in intervention rates and enhanced maternal safety without compromising neonatal safety (Scarf et al., 2018; Hutton et al., 2019). Midwifery-led care is recommended in the United Kingdom (UK) for women with low-risk pregnancies and recent initiatives have emphasised the importance of woman-centred midwifery care (NICE, 2025; National Maternity Review, 2016; NHS England, 2023). Women with intermediate risk factors also have better outcomes in midwifery-led care than those in obstetric care, while not recommended under current guidelines (Scarf et al., 2018; Hutton et al., 2019; Sandall et al., 2024; Hollowell et al., 2015).

The dominant obstetric framework extrapolates individual clinical and epidemiological risk from population-wide patterns. Individual women are increasingly risk-assessed against population data, labelling deviation as 'high-risk'. I.e. identified as having a having a higher likelihood of a future problem, that may in turn lead to a poor outcome. In the UK National Health Service (NHS), additional surveillance and / or intervention is then typically advised along with obstetric-led care, albeit with midwifery appointments (NICE, 2025; Lupton, 1999; Scamell, 2014; Roberts, 2019). These women are consequently "risk-assessed" out of access to midwifery-model antenatal care and midwifery-led birth settings, and into obstetric-led care in hospital settings with its attendant high rates of intervention and industrial-model care (NHS Digital, 2023). This can create a tension between the rhetoric and reality of personalised maternity care, restricting genuine choice of birth-place. (Tompkins et al., 2025). Increased screening and monitoring of pregnant women correlates with increased birth interventions (Hutton et al., 2019; Alfirevic et al., 2017). Classifying pregnancies as high-risk may increase the chance of iatrogenic harm, both physically and psychologically (Scarf et al., 2018; All-Party Parliamentary Group on Birth Trauma, 2024). Rising interventions increase the cost of maternity care and have been linked to high rates of attrition for midwives (Schroeder et al., 2012; Small et al., 2025; Feeley and Stacey, 2024).

Since the 2015 UK government target to halve stillbirth rates, perinatal risk management technologies and clinical governance have taken centre-stage in maternity care (Healy et al., 2016; Gov.UK, 2026). With a primary focus on improving neonatal morbidity and mortality rates, recent UK initiatives have refined risk classification processes and increased monitoring and surveillance (Royal College of Obstetricians and Gynaecologists, 2021; England, 2019; Weeks et al., 2025). The Saving Babies Lives Care Bundles, for example, recommend increased surveillance of women at risk of fetal growth restriction (England, 2019). Recent reports of avoidable poor outcomes and the current National Maternity and Neonatal Investigation often lead to increased governance and surveillance, regardless of the causes of the poor outcomes (Weeks et al., 2025). However, the NHS England Maternity Transformation Programme started in 2016 has not achieved the desired improvements in outcomes, with recommendations such as person-centred care and continuity of midwifery care poorly implemented (Sandall et al., 2024; NHS England, 2025). Between 2012 and 2023, spontaneous labour rates declined from 64% to 43%, while inductions rose from 21% to 33% and caesarean births from 25% to 40%. Stillbirth rates fell modestly from 0.48% to 0.39% of births, missing the 50% reduction target, and neonatal mortality slightly increased from 0.28% to 0.3% (Royal College of Obstetricians and Gynaecologists, 2021; Weeks et al., 2025;ONS, 2025;ONS, 2025). Maternal deaths from direct causes rose by 33% between 2016 and 18 and 2019–21 (Knight et al., 2024).

Midwives play a key role in antenatal risk assessment, but the biopsychosocial model of midwifery approach differs from obstetrics. It involves supporting salutogenesis with ongoing vigilance for deviations from the norm, considering the woman's history and values. It considers the individual woman in her social setting, with the aim of supporting health (not the absence of disease) and can consider wider factors such as social and economic relations (Davis-Floyd, 2001; Walsh and Newburn, 2002). In doing so, risk assessment can remain grounded in the woman's embodied experience and social relations. Feminist critiques of medicalised risk assessment processes have examined the power relations and biopolitics implicit in the systems and mechanisms. These include the disempowerment that occurs for the woman in the context of the hospital building, the uniforms and hierarchy of the staff, and privileging the supposedly objective data of her own body gained from technological tests the medical experts alone can interpret (Young, 1984). These factors are exacerbated when intersecting with race and class (Ashley et al., 2022; Obionu et al., 2023). Evaluation of antenatal risk assessment and classification (ARAC) needs to account for clinical outcomes for babies and women, *and* women's experience. Despite a body of literature on models of care, (Sandall et al., 2024; Davis-Floyd, 2001; Walsh and Newburn, 2002) and critiques of medicalisation and risk (Lupton, 1999; Scamell, 2014; Scamell, 2014; Healy et al., 2016) especially regarding intrapartum risk assessment, (Scamell, 2011; Small et al., 2021) there is no existing review integrating outcomes, women's experiences and sociocultural analysis of ARAC.

In line with other places in the global north, current UK ARAC practice has an impact on who is able to access midwifery-led care, and therefore on intervention rates and consequent health impacts, pregnancy and birth experiences, and NHS operation. Most of the authors are based in the UK, and experiences here are emblematic of global tendencies. We aimed to examine the rationale and evidence base for ARAC. Our question is whether the current practice of UK ARAC and the subsequent recommended interventions are effective, justifiable, and beneficial to women.

Terminology: In antenatal care, 'screening' is often used to mean screening for fetal congenital abnormalities. We use screening and ARAC in its broader sense of testing in the absence of symptoms (Roberts, 2019; Harris et al., 2004). We use the term high-risk to include the terms intermediate risk or complex care needs.

Positionality: The main author, AM, is a midwife and analyses maternity care from a feminist midwifery perspective. The other authors are midwives (EB, VF, RT, AA), or other health professionals applying woman-centred, biopsychosocial approaches (CM, KS, TD). This literature analysis is grounded in a women-centred and biopsychosocial midwifery framework.

Aim

To evaluate and integrate literature on the effectiveness, justification, and impact of antenatal risk assessment and classification as currently performed in UK maternity care. This will inform whether current UK ARAC improves birth outcomes and identify potential iatrogenic effects on women's experiences and health.

Integrative review method

The integrative review method, as outlined by Whittemore and Knafl (2005) and Dhollande et al. (2021) was selected as it facilitates the integration of diverse methodologies, research designs, and data sources, not possible with a systematic review. The aim was development of analysis with a defined focus, beyond the remit of a scoping review. Integrative review involves systematic searching and screening and enabled integration of midwifery and obstetric literature, quantitative

and qualitative research, and studies on diverse ARAC systems.

Literature search

Search terms and inclusion and exclusion criteria were developed through an outline by AM based on commonly used terms, then by discussion with the co-authors initially and during the search process (Tables 1 and 2).

The foci were the process, aim, experience, and outcomes of ARAC, excluding literature focusing on fetal abnormality screening. The search included studies from 2000 onwards, enabling inclusion of analyses of key historical developments, and previous initiatives to refine the antenatal risk assessment and classification process (McIntyre et al., 2011; RCM, 2000; Vos et al., 2017; Jordan and Murphy, 2009; Gomez and Young, 2002).

Searches were conducted in October 2024 in CINAHL Plus, AMED and MEDLINE as the databases with the largest collection of relevant midwifery and obstetric literature. Through title screening AM selected a list of 71 articles. Two reviewers independently screened articles based on the abstract and full text using the Rayyan platform, resolving disagreements through discussion, for example exclusion of texts solely referring to clinical governance. Revised detailed selection guidance was provided after clarification through discussion with the text screening team (AM, TD, EB, VF, RT, AA) (Fig. 1).

Data evaluation and selection

Data evaluation included assessment for relevance and use of the Critical Appraisal Skills Programme Checklist (CASP) (CASP, 2018). Papers were selected for both methodological quality and theoretical relevance to ARAC from a midwifery perspective; for example whether the topic related to ARAC regarding outcomes, care, service culture, experience of midwives or women. No papers were rejected due to quality. Although our focus was on the UK, relevant literature was included from comparable high-income countries with reasonably accessible health provision. Due to the range of articles from discussion pieces (RCM, 2000; Jordan and Murphy, 2009; McGlone and Davies, 2012), literature reviews (Roberts, 2019; McIntyre et al., 2011) and qualitative and quantitative research (Harris et al., 2004; Baddington et al., 2023; Clark et al., 2024; Jackson et al., 2006; Knox et al., 2018; Stahl and Hundley, 2003) measures of relative importance were hard to quantify to permit comparison. However, larger empirical studies were more heavily relied on in the analysis than shorter discussion pieces. The high CASP rating and the insights from primary research involving women's views made Baddington et al., Clark et al. and Harris et al. particularly pertinent for analysing ARAC in terms of women's experiences, and Breeze and Lees for examining the efficacy of ARAC (Harris et al., 2004; Baddington et al., 2023; Clark et al., 2024; Breeze and Lees, 2007). Ten articles were written from a midwifery perspective (Roberts, 2019; Harris et al., 2004; RCM, 2000; Jordan and Murphy, 2009; McGlone and Davies, 2012; Baddington et al., 2023; Clark et al., 2024; Jackson et al., 2006; Knox et al., 2018; Stahl and Hundley, 2003). Four articles were written from obstetric perspective (Vos et al., 2017; Gomez and Young, 2002; Breeze and Lees, 2007; Carter et al., 2022).

Literature inclusion (Table 3).

Table 1
Search terms.

OR	AND	OR	AND	OR
Risk		Pregnan*		Catagor*
Chance		Antenatal		Clasifi*
Uncertainty		Maternit*		Manageme*
Liabil*		Prenatal		Pathway
Danger		Perinatal		

Table 2
Final agreed inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Published in English language	Intrapartum, acute, urgent care, and postnatal settings
Women's and midwives' experience of risk classification	Genetic counselling and pre-conception risk assessments
Risk discourse in antenatal context	Fetal screening and fetal congenital abnormalities
Risk classification impacts and outcomes	Low-income countries or those with significantly different health or social systems from those in the UK
	About organisational structures or clinical governance only
	Medical anthropology

Data extraction and analysis

Data extraction, assessment and reduction steps were developed through an iterative process by AM following a thematic network approach for integrative review data as described in Dhollande et al. (2021) Initial codes were created through close reading and detailed documentation, which were then reduced, connected, and grouped into subcategories and themes aided by maps and co-author discussions. A bespoke, detailed data extraction table was developed including sections on; risk assessment process, efficacy, effect on women and midwives, choice and decision making, the role of midwife, and policy level. Data from diverse methodologies was thus integrated into the final synthesis and interpretation. The relatively small numbers of participants in the quantitative study (111) and the audit (98) allowed for equal weighting with the qualitative data. Quantitative synthesis or meta-analysis was not undertaken due to heterogeneity of study designs, outcomes and methodologies, and the nature of a mixed method integrative review. The data extraction headings formed the basis of the synthesis of the findings.

Findings

Three key areas each with sub-themes, were developed from the literature reviewed (Fig. 2).

Rationale for risk assessments

Do ARAC improve outcomes?

Debate over the rationale and efficacy of ARAC as screening was evident throughout the literature. Widely accepted screening criteria are: a reliable and accurate test and a recognisable early asymptomatic stage of a health problem, that can be treated, ideally early in the evolution of the condition (Breeze and Lees, 2007, WHO, 2026, Andermann et al., 2011, WHO 2025). Risk assessment is "screening for conditions that could result in adverse perinatal outcomes for which an intervention would improve the health outcome for mother or child." (p191) (Jordan and Murphy, 2009). The value of any risk assessment is dependent on the action able to be taken and the benefits of this action (Vos et al., 2017).

Seven studies revealed ARACs not fulfilling these criteria (Harris et al., 2004, Jordan and Murphy, 2009, McGlone and Davies, 2012, Baddington et al., 2023, Clark et al., 2024, Knox et al., 2018, Stahl and Hundley, 2003). Firstly, poor predictive values led to inconclusive findings, including reduced fetal movements as a predictor for perinatal morbidity and mortality, (Clark et al., 2024) and fetal growth scans being predictive of shoulder dystocia (Baddington et al., 2023). Many risk assessments in 2003 lacked sensitivity, specificity, and predictive value, often relying on expert opinion, and socio-demographic and physical traits often failing to predict adverse outcomes (Stahl and Hundley, 2003). The next challenge was the absence of acceptable management options to address the risk. For example, for risk of preterm

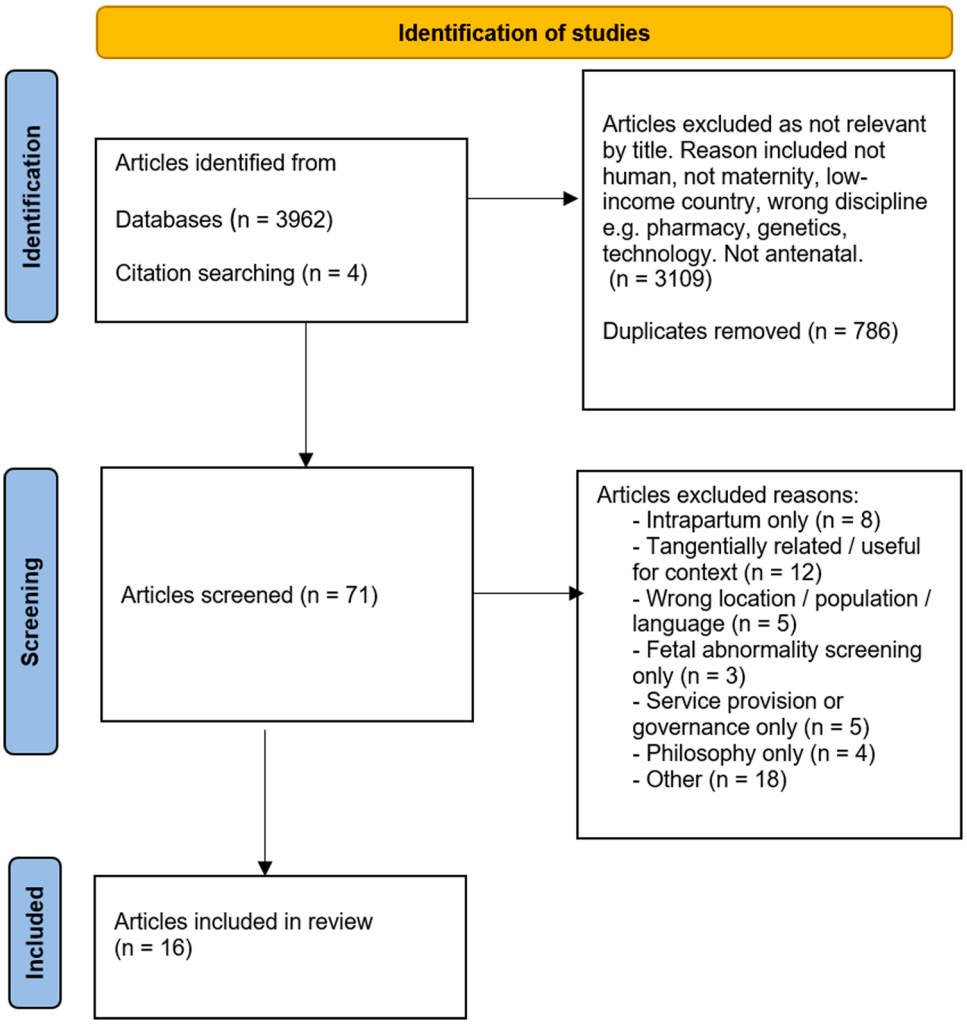


Fig. 1. PRISMA diagram of search results.

labour in 2009, or for the case of a unilateral short fetal femur where there was neither '*normalcy nor treatment.*' (Jordan and Murphy, 2009). More recent studies point to the 2003 and 2009 findings still being the case.

Tools for addressing fetal concerns in 2004 and 2009 were essentially limited to termination of pregnancy, induction of labour, or caesarean section. Statistically improved birth outcomes correlated with ultrasound scans were mainly due to higher rates of termination of pregnancy; removing babies with poor prognosis from the population whose outcomes are measured, as is still the case today (Harris et al., 2004, Jordan and Murphy, 2009).

Additionally, some treatments did not deliver conclusive benefits. For some ARAC programmes in the early 2000s and also in 2018 there were no improvements in outcomes flowing from having been risk assessed (Harris et al., 2004, Knox et al., 2018, Stahl and Hundley, 2003).

ARACs increasingly use population-wide, epidemiological data to assign a risk category for the individual woman. This approach limits personalised care, and often does not take salutary factors, other health factors, previous perinatal experiences, the woman's values and her own knowledge of her body, or clinical expertise into account. The resulting recommendations may or may not be applicable for that specific woman (Harris et al., 2004, McGlone and Davies, 2012).

In response to this, the TCDST aims to integrate personalised risk weighting, including protective factors. Prospective modelling suggests its personalised assessment for threatened preterm labour could prevent 90% of hospitalisations while maintaining similar neonatal outcomes (Carter et al., 2022).

Body Mass Index (BMI) was developed for aggregating population data for public health indicators, not individual risk assessment. Its use in ARAC, despite marginal outcome differences, risks pathologizing otherwise normal bodily states and conflicts with women-centred care principles (Knox et al., 2018).

Defensive practice and communication of ARAC

ARAC is perceived to reduce risk for the health care professional or NHS Trust, with midwives conducting tests out of fear of legal or emotional consequences (Clark et al., 2024). Despite ARAC not preventing malpractice suits, it is sometimes intended to avoid litigation (Jordan and Murphy, 2009). Influenced by defensive practice, blame culture, and fears of poor outcomes and litigation, midwives offer choices that suit maternity service protocols, do not offer a holistic risk-assessment based on the woman's characteristics or values and overestimate the likelihood of poor outcomes (Jordan and Murphy, 2009; McGlone and Davies, 2012; Clark et al., 2024). Women are over-referred to obstetric-led care, and rarely move back into midwifery-led care despite being eligible (Stahl and Hundley, 2003; Kelly, 2017). This is widely acknowledged as an on-going issue (Lorenc et al., 2024).

Most studies emphasised presenting absolute rather than relative risk when communicating with women (Jordan and Murphy, 2009; McGlone and Davies, 2012). Provider communication strongly influenced

Table 3
Table of the included literature showing the research question, research method and main findings as pertaining to ARAC.

Author (date) Country	Issue / Focus	Research method	Findings
Baddington et al. (2023) New Zealand	Navigating ultrasound prediction of large babies.	Feminist poststructuralist qualitative. Interviews with 16 women.	Prediction of a 'large' baby negatively impacts on women's birth experiences.
Breeze and Lees (2007) UK	Prediction of fetal growth restriction and perinatal outcomes.	Evidence review and discussion.	Dopplers and biochemical screening good at prediction. Pre-term birth risk can outweigh in-utero demise risk.
Carter et al. (2022) UK	Protocol for implementation evaluation of Tommy's Clinical Decision Tool.	Protocol for mixed method early implementation evaluation study.	Not applicable.
Clark et al. (2024) UK	Midwives' and obstetricians' experiences of altered fetal movement.	Focused ethnographic study.	Heightened focus on fetal movement may increase anxiety and intervention.
Gomez and Young (2002) USA	Weighted risk index for antenatal prediction of perinatal outcome.	Trial of weighted antenatal risk score.	Good for predicting low birth weight. Less good for caesarean sections and Apgar's.
Harris et al. (2004) Australia	Experience of ultrasound for primiparous women	Qualitative research; interviews with 34 women. Theoretical analysis.	Scans leading to terminations improves overall birth outcomes by removing babies with poor prognosis from birth outcomes. Seeing as knowledge and pleasure.
Jackson et al. (2006) UK	Women's experiences of referral and attendance to hypertension antenatal clinic.	Qualitative interviews with 21 women. Thematic analysis.	Antenatal services need improvement for 'at risk' women.
Jordan and Murphy (2009) USA	Balance of risk assessment and risk distortion.	Discussion.	Exaggerated perception of pregnancy risk. Universal application of surveillance and risk management lacks evidence base.
Kelly (2017) UK	Transferring care from midwives to obstetrician: an audit.	Audit of 98 randomly selected records.	2% out of possible 22% referred back to midwifery led care. 10% inappropriate referrals. 32% wrongly classified as high risk.
Knox et al. (2018) Scotland and New Zealand	Health policy and consequences for midwife-woman partnerships: Is normal pregnancy compromised by body mass index (BMI) measure use?	Comparative case study of policy, guidelines and midwifery models of care in New Zealand and Scotland.	Medical and midwifery values in conflict. BMI as a tool may be ineffectual.
McGlone and Davis (2012) UK	Risk and obesity: Towards a 'tolerable risk' approach?	Discussion.	'Tolerable risk' in partnership with women better than 'absolute risk' to address maternal obesity.
McIntyre, Chapman, Francis (2011) Australia	Hidden costs of universal application of risk management in maternity care.	Literature review and discussion.	Over-use of caesareans affecting women's future reproductive health.
RCM (2000) UK	Assessing and managing risk in midwifery practice.	Discussion.	Overview of policy changes.
Roberts (2019) UK	How do risk management principes fit with the reality of clinical midwifery?	Literature review.	Risk classifications and management at odds with promoting normality and safety.
Stahl and Hundley (2003) Germany	Effect of risk label on psychosocial state of pregnant women.	Quantitative prospective case-control study. 111 women in antenatal class.	Worse psychosocial state in high-risk category. No difference in other variables.
Vos et al. (2017) Netherlands	Evaluation of implementation of scorecard-based antenatal risk assessment and care pathways.	Evaluation of implementation including reach and fidelity across 10 trial sites.	6 out of 11 municipalities met implementation criteria.

women's understanding of risk. Phrasing such as normal/abnormal or increasing/decreasing altered interpretation even with identical numbers (Jordan and Murphy, 2009). Women's perception of risk was often higher than the absolute risk, differed from the practitioner's perception, and increased with any recommended intervention (McIntyre et al., 2011; Jordan and Murphy, 2009; Stahl and Hundley, 2003). The balance of risks of the intervention versus the problem it was intended to mitigate against were usually not sufficiently explained to women (McIntyre et al., 2011; Jordan and Murphy, 2009; Baddington et al., 2023). For example, risks associated with caesarean birth, including wound infection, neonatal intensive care unit admissions, and stillbirth in subsequent pregnancies, were downplayed and benefits overstated (McIntyre et al., 2011). 'Shroud waving' ("*They said I was at risk of killing my baby*" (p559[46])) is a powerful dynamic, regardless of actual risk or accuracy of the screening. Additionally, the information the health care professional *could* impart is often inconclusive and

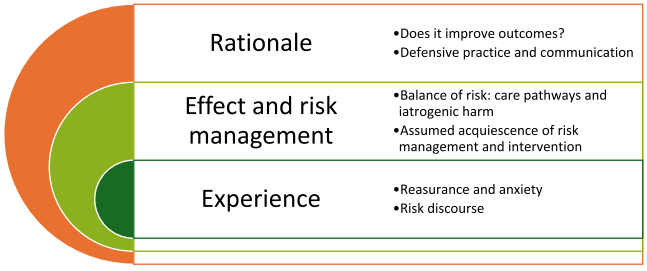


Fig. 2. Findings.

complex, making it hard to deliver in a short time frame (Harris et al., 2004). The authors therefore query the practicalities of how midwives will explain the complex algorithms in tools like the TCDST, and whether such tools provide guidance on communicating risk (Carter et al., 2022).

Sometimes neither absolute nor relative risk is explained, but rather ARACs were presented to women as routine, non-voluntary, and part of low-risk care; women were told they *'need to have the scan to see whether the baby is doing what it should be doing'* (p31) (Harris et al., 2004; Baddington et al., 2023). Out of the twenty four women attending a hypertension clinic in 2006, only one felt she had been fully informed by her midwife as to the purpose and process of the clinic (Jackson et al., 2006).

The effect of ARAC: management of risk and iatrogenic harm

Balance of risk

The enactment of ARAC itself, even if the findings are normal, may alter a woman's pregnancy and birth journey. Assessment for reduced fetal movement increased the likelihood of induction of labour, even after reassuring scans and no concerns were found (Clark et al., 2024). Testing the glucose tolerance of healthy, asymptomatic pregnant women changes the pregnancy experience for many healthy women (Jordan and Murphy, 2009).

In cases of deviant findings with recommended interventions to mitigate risk, attendant iatrogenic risks can be high. Induction of labour and pre-labour caesareans can cause iatrogenic prematurity and low birthweight, precludes planned birth in midwifery settings and is

associated with more negative birth experiences. In the cases of fetal growth restriction screening, which still has low specificity and predictive value, some babies may have fared better in utero (Breeze and Lees, 2007).

The management of the risk of future intrauterine hypoxia is balanced against iatrogenic low birth weight. The AFFIRM trial on women's fetal movement monitoring demonstrated that monitoring did not conclusively reduce stillbirth, but did increase inductions of labour, caesarean sections, neonatal unit admissions and possibly post-birth neonatal death (Clark et al., 2024). The Saving Babies Lives Care Bundle, increased the number of caesarean sections, inductions of labour, and neonatal unit admissions. (Carter et al., 2022) Caesarean sections double the incidence of unexplained stillbirth in subsequent pregnancies as well as significantly increasing rates of spontaneous abortion, ectopic pregnancy, uterine rupture and placental abruption (McIntyre et al., 2011). Inductions of labour or planned caesareans subsequent to scan findings of a larger fetus (15% margin of error with diagnosis of 'large for gestational age' incorrect in 60% of cases) did not improve outcomes for women and babies and increased other risks, casting doubt on the value of the growth scans (Baddington et al., 2023; Reed, 2025).

When risk management is applied to many for the benefit of few, there is a high chance of iatrogenic harm without clinical benefit due to burgeoning prophylactic interventions. Women labelled as high-risk often have more interventions than would be beneficial, possibly due to care-provider bias (Stahl and Hundley, 2003). As McIntyre state: "*Medical risk in pregnancy is known to benefit 15% or less of all pregnancies. Risk management applied to the remaining 85% of healthy women results in the management of risk in the absence of risk*" (p 211) (McIntyre et al., 2011).

Due to resource limitations, there is a corresponding deficit for women genuinely at risk (McIntyre et al., 2011; Carter et al., 2022). ARAC with low specificity leading to high numbers of induction of labour and caesarean sections may increase the chance of those who would genuinely benefit from interventions being overlooked; aggravating the 'too much too soon, too little too late' problem (McIntyre et al., 2011; Carter et al., 2022).

Ironically, risk management interventions reduced evidenced-based care, such as midwife-led birth settings, women mobilising and using water-immersion during labour, and continuity of carer (McGlone and Davies, 2012; Knox et al., 2018). Induction of labour removes the benefits of spontaneous labour onset increasing pelvic plasticity and the moulding and positioning of the fetal head (Jordan and Murphy, 2009).

Assumed acquiescence of risk management and intervention

Despite the lack of a conclusive evidence-base and possible iatrogenic harms, several articles noted the link between the risk-classification and an assumption of accepting a care pathway to mitigate that risk, regardless of how remote the possibility of the risk, nor how likely or severe the effects of the 'cure' (McIntyre et al., 2011; RCM, 2000; Jordan and Murphy, 2009; Baddington et al., 2023; Clark et al., 2024; Carter et al., 2022). Guidelines titled 'management of women with obesity' indicates disregard for women's autonomy to weigh the pros and cons of interventions (McGlone and Davies, 2012; Knox et al., 2018).

The authors note that the TCDST study assumes uncritical acceptance of recommended pathways, defining "*risk groups and corresponding personalised care pathways*" without distinguishing risk assessment from the decision to follow that care. (p.4) (Carter et al., 2022).

Women's experience

ARAC and classifying women as 'high-risk' has an impact on the care women receive and on their emotional and psychological state (Jordan and Murphy, 2009; Baddington et al., 2023; Clark et al., 2024; Jackson et al., 2006; Stahl and Hundley, 2003). Any deviant finding can negatively affect the woman's experience of her pregnancy and her confidence (Jordan and Murphy, 2009; Baddington et al., 2023). Scans indicating a larger than normal fetus increased medical surveillance and had *'oppressive and disempowering effects'* (p. 557) on women including reduced choice about their births, a sense of loss of control, disempowerment, and reduced joy (Baddington et al., 2023). The high BMI label can imply a moral failure and contribute to women's low self-worth and be anxiety-inducing, at odds with healthy living promotion (McGlone and Davies, 2012; Knox et al., 2018).

Being labelled high-risk led to lower psychosocial status scores than for those labelled low-risk in one 2006 study (Stahl and Hundley, 2003). Anxiety after a high-risk finding can lead to tokophobia, including requesting surgical birth to avoid labour (Jordan and Murphy, 2009). The dual effects of reassurance and anxiety are reported in five of the studies (Jordan and Murphy, 2009; Baddington et al., 2023; Clark et al., 2024; Jackson et al., 2006; Stahl and Hundley, 2003).

Many authors emphasised the importance of genuine shared decision-making in the mother-midwife relationship. In a midwifery model, mitigation of the power dynamics between women and health care professionals when making decisions about ARAC and subsequent care pathways is necessary to position the woman as the authority in her pregnancy and birth (Roberts, 2019; Harris et al., 2004; Jordan and Murphy, 2009; Baddington et al., 2023; Knox et al., 2018). Some women found mother-midwife allyship to be negatively affected by midwives who operate in a risk-focused paradigm (Baddington et al., 2023). For the women, the greater the perceived risk, the greater the willingness to hand over the locus of control to health care providers (Jordan and Murphy, 2009).

Women see ARAC as part of essential care, and expect reassurance or objective evidence of fetal wellbeing (Jordan and Murphy, 2009; Baddington et al., 2023; Clark et al., 2024). Although some women could articulate the scan's ability to predict placental position, fetal anomaly, and growth, less clear was their understanding of the margin of error, treatment options available if concerns were identified, or the increased likelihood of intervention (Baddington et al., 2023). Women described having the scan as a way of demonstrating acting as a 'good mother' or 'doing what is best for the baby' (Harris et al., 2004).

Jordan and Murphy claim this 'good mother' narrative also constructed acquiescence with the intervention pathway, regardless of the strength of evidence of improved outcomes or chance of iatrogenic harm. Choices were driven by guilt, fear and wanting to choose the 'right' option. The wellbeing of the fetus was assumed to take priority over the wellbeing or wishes of the mother, implying they were in conflict, with the care provider positioned as champion of the fetal interests (Jordan and Murphy, 2009).

Discussion

We set out to analyse the available literature on antenatal risk assessment and classification and the effects thereof. We found that the proliferation of ARAC over the last 25 years has not achieved its intended goals, although some improvement to neonatal outcomes was apparent. The ARACs reviewed here led to higher rates of iatrogenic harm to women through use of prophylactic intervention, exclusion from midwifery-led birth settings, heightened anxiety, and some harm to neonates from iatrogenic prematurity. Their lack of specificity, leading to high rates of prophylactic intervention may, ironically, distract focus from the smaller number for whom the benefits of an intervention would outweigh the risks. ARAC, often based on epidemiological data, aimed to predict and mitigate complications but were frequently unreliable due to lack of predictive value or treatment pathways with conclusive benefit. We can therefore assume that the ambition of the new Tommy's Clinical Decision Support Tool (TCDST) (currently being introduced as a refined ARAC tool) to only use evidence demonstrating clear clinical benefit may be limited by a lack of an available evidence base (Carter et al., 2022). Communication to women

about ARAC and recommended care pathways often assumed benefits not born out by evidence. Focusing on risk and the drive to lower the neonatal mortality rate, has arguably directed the service away from optimal outcomes for most women without appreciable positive impact. There is a disjuncture between the aspirations for ARAC and the outcomes and effects thereof. In this discussion we examine the assumptions behind ARAC and models of midwifery care and outline what women-centred relational ARAC could look like.

Risk society

Core to the debate around ARAC is the framing of pregnancy and birth as either a risky medical event (normal only in hindsight) or as a biopsychosocial event (that sometimes benefits from medical intervention) (Walsh and Newburn, 2002; Davis-Floyd, 2009). The focus on risk in antenatal care reflects the obstetric belief that birth is inherently dangerous. ARAC dominates the schedule and content of antenatal midwifery care (McCourt, 2006). This makes the midwifery focus on salutogenic care, promoting wellness and normality problematic and unstable (Scamell, 2014; Roberts, 2019; Knox et al., 2018). It undermines the biopsychosocial midwifery model and increases anxiety for both women and midwives (Roberts, 2019; Jordan and Murphy, 2009; Knox et al., 2018). Various studies in this review pointed to the underlying medical model of pregnancy being unquestioningly accepted as the norm, assuming benefits of biomedical governance and control, a phenomenon also apparent in intrapartum care (Scamell, 2014; Healy et al., 2016; Scamell, 2011; Small et al., 2021; Small et al., 2019). Risk surveillance activities by midwives were announced rather than offered with a rationale (Jackson, 2025). Discussing the effect of continual risk assessment during labour, Scamell highlights the contradiction for women between the midwife stating she is supporting and confirming normality, and continual checks for abnormality or pathology signalling that risk is ever-present and complications likely (Scamell, 2011). The focus on ARAC during antenatal appointments play a similar role in exacerbating anxiety and hindering reassuring salutogenic partnership care. The TCDST has an aim of 'providing reassurance' without recognition that undergoing detailed and rigorous risk assessments can cause anxiety for all women, regardless of the results (Carter et al., 2022).

The dominance of the biomedical discourse is evidenced by the assumption of "informed compliance", that women will follow recommendations for ARAC or subsequent care pathways (Harris et al., 2004; McIntyre et al., 2011; Jordan and Murphy, 2009; Baddington et al., 2023). Women who decline, or even question the rationale, were viewed as disruptive and not being a 'good patient' (Harris et al., 2004; Baddington et al., 2023). However, consent to a care pathway must begin with good communication and information, the possibility of informed refusal without sanction, and in the context of relations that equalise power as much as possible (Jordan and Murphy, 2009).

The current approach arguably views the woman as the carrier of the precious infant, with doctors constructed as the infant's protector from the potentially risky mother (Lupton, 2012). The ubiquity of ARAC and the primary focus on the fetus may contribute to difficulties for women experiencing pregnancy as a normal embodied state (Jordan and Murphy, 2009). This created difficulties in accurate assessment when the 'objective' antenatal CTG recording was at odds to a woman's subjective and embodied reporting of fetal movement (Jordan and Murphy, 2009; Clark et al., 2024). There is a general societal tendency to consider any screening as a protective and necessary measure, despite lack of evidence of improved outcomes and of increased anxiety and iatrogenic harm (Welch et al., 2011). Sociologists have noted the culturally specific nature of our modern 'risk society' attempting greater control over the social and natural world (Beck U. Risk Society, 1992; Giddens, 1991). In risk-oriented surveillance medicine, the woman is assumed to be in a liminal state of pre-pathology, or on a spectrum of risk of pathology, even when objective evidence indicates wellness (Clark et al., 2024; Armstrong, 1995). The idea of an action to indemnify the future is woven into the modern idea of risk (Lupton, 1999; Scamell, 2014). There is an implicit assumption by both women and health care professionals, embedded in the obstetric paradigm, that a finding of being 'high-risk' comes with an imperative to intervene to mitigate that risk. This idea of the body as a potentially perfect machine if only we had enough medical tools, is at odds with the nature of the organic world that contains uncertainties (Beck U. Risk Society, 1992; Giddens, 1991). This explains findings reported in the Lancet of higher rates of maternal mortality and maternal morbidity after caesarean than vaginal birth, along with a range of complications for the neonate (Sandall et al., 2018).

Controlling risk is not the same thing as enhancing safety, which includes important psychological, social, and spiritual needs as well as more salutogenic approaches to supporting physiological health. A re-evaluation of ARAC could help pivot antenatal care away from classifying increasing numbers of women as high-risk, and towards women-centred, personalised, midwife-led, salutogenic care. This could reduce iatrogenic harm, optimise neonatal and maternal outcomes, short- and long-term, and bring the benefits midwifery care offers including emotional wellbeing and maternal confidence. We examine below what women-centred, relational, physiology-supporting, risk assessment and mitigation could look like.

Biopsychosocial risk assessment

An important goal of personalised risk assessments and reducing interventions where possible is evident in the TCDST (Carter et al., 2022). Risk assessments must have a clear evidence-based rationale and expected benefit, and move away from epistemological broad-brush checklists. However, midwives working in a biomedical paradigm can leave women feeling disappointed in the lack of allyship, affecting the trust and reciprocity ideal in the woman-midwife relation (Baddington et al., 2023). Care grounded in the relationship between the midwife and the woman leads to better outcomes, and a better experience for women, and for midwives (Rocca-Ihenacho et al., 2021; Kirkham, 2010). Developing a risk assessment that is not binary, and is part of an on-going partnership-model conversation between the woman and the midwife, would not be a linear process, and could include room for individual cultures, values and wishes. The ability of midwifery to be local, pluralistic and community-based means it can be more adaptable to the women's values and cultures (Ashley et al., 2022). Decision about ARAC and subsequent pathways can be culturally-tailored, including views on termination of pregnancy, place of birth or expected family size. The risks of, for example, hospital-acquired infection, induction of labour, or labour stalling when transferring from home to hospital, might be more salient for some women than others.

Relational care

Relational care with a known midwife enables women to be better heard both when they say they are well, and when they say they are worried (Walsh and Newburn, 2002). Every maternity review in the last ten years has identified women not being listened to as a contributing factor to poor outcomes, exacerbating inequality and racism (Kirkup, 2022; Ockenden, 2022; Peter and Wheeler, 2022). These factors could explain how continuity of midwifery carer leads to significantly lower rates of stillbirth for socially deprived and ethnically diverse women (Roebuck et al., 2025; Fernandez Turienzo et al., 2026).

The relationship with the midwife, and a salutogenic approach, enables women to experience pregnancy as physically, emotionally, socially and culturally-situated and promotes a sense of connection to the fetus. Lupton theorises that bodies are constantly re-made and brought into contextualised being in their relations with others: the fetus, the family, the midwife, and the material environment. Through this lens, a scan in a hospital ultrasound department is a different experience from a midwife's hands in one's living room, where the woman can participate and understand what she is feeling (Lupton, 2012). Antenatal care based

on relationship-building and developing a narrative, including, but not centred on, ARAC, would support health and mitigate risk by developing a deeper understanding for the woman and her midwife of the developing pregnancy (Walsh and Newburn, 2002; McCourt, 2006). The centrality of ARAC as currently practised has squeezed out the possibility for these kind of connections.

The environment and care organisation can facilitate or hinder relational midwifery care. McCourt found that antenatal assessments in caseload midwifery were conversational rather than hierarchical, fostering relational care and genuine discussion and choice around ARAC. Unlike medical settings, ARAC uptake was not assumed (McCourt, 2006). The caseloading Albany midwifery practice, with its outstanding outcomes in an area of high social deprivation, had the initial midwifery assessment taking place in the woman's home (Homer et al., 2017).

Walsh and Newburn point out that although it's known that social and economic factors affect preterm birth and poor fetal growth, the response has been high-tech clinics and surveillance rather than developing community support networks or addressing structural inequalities (Walsh and Newburn, 2002). Under a biopsychosocial model of care, midwives would use only proven technologies, and prioritise holistic, locally accessible care connected to social support with use of interventions only when appropriate to the person's clinical situation rather than as routine. Studies included here from 2000, 2011, and 2019 called for a review of the risk management culture and a renewed focus on midwifery care (Roberts, 2019; McIntyre et al., 2011; RCM, 2000). The current intervention rates and crisis in maternity care lend an urgency to this call (Weeks et al., 2025).

Strengths and weaknesses

The strength of this integrative review is the overview of ARAC including the a-priori assumptions, the outcome and effect on the women. With a broad overview, and time-period, it lacks detail on specific ARAC. The quantitative obstetric material on outcomes and risk balance, did not always dovetail into the cultural and qualitative research on women's experiences. Some critiques of ARAC may no longer be valid due to technological developments.

Recommendations

Under the current systems and conditions, the trajectory is for birth intervention rates to continue rising with corresponding worsening maternal morbidity. This itself impacts neonates, compounded by effects of birth interventions including iatrogenic prematurity. If a biopsychosocial model of midwifery was used as the basis for a risk assessment, it could focus on relationship building, supporting the embodied experience of pregnancy. Decisions regarding risk assessment and treatment could rest with the woman and be personalised and culturally specific. This may lead to better outcomes overall, clinically and psychologically.

New risk assessment tools could allow for this shift of focus and approach by starting with a dialogue between the woman and her midwife that includes the woman's views and values, accurate information on the evidence-base for any recommended or offered ARAC and consideration of population-based statistics in the light of the woman's health and values. The already strong evidence-base for continuity of carer points to the importance of this taking place as part of relational, biopsychosocial midwifery care (Sandall et al., 2024; Fernandez Turienzo et al., 2026).

Women-centred care and choice should be considered as a central pillar, along with guidelines and clinical expertise, not secondary to guidelines. We hope the upcoming UK national maternity review considers evaluating ARAC and acknowledges the importance of relational care, whilst ensuring optimal maternal and neonatal outcomes.

Conclusions

The evidence suggests current ARAC, as practised within the UK medical model, lacks efficacy in improving fetal and maternal outcomes, risks iatrogenic harm and can negatively affect women's experiences. By funnelling high numbers of women into obstetric-led birth settings, the known benefits of midwifery care are under utilised. A shift to relational women-centred ARAC could be expected to show benefits for mothers and newborns.

CRediT authorship contribution statement

Anna Melamed: Writing – original draft, Data curation, Conceptualization. **Kirsten Small:** Writing – review & editing, Supervision. **Christine McCourt:** Writing – review & editing, Supervision. **Emily Beach:** Writing – review & editing. **Victoria Fallows:** Writing – review & editing. **Rachel Tonks:** Writing – review & editing. **Alison Arrowsmith:** Writing – review & editing. **Toity Deave:** Writing – review & editing, Supervision.

Declaration of competing interest

There were no conflicts of interest.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2026.104789.

References

Alfirevic Z., Devane D., Gyte G.M. Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour. Alfirevic Z, ed. *Cochrane Database Syst Rev*. Published online 2017. doi:10.1002/14651858.cd006066.pub2.

All-Party Parliamentary Group on Birth Trauma. Listen to mums: ending the postcode lottery on perinatal care (2024). Theo Clarke. May 13, 2024. Accessed July 4, 2024. https://www.theo-clarke.org.uk/birth-trauma.

Andermann, A., Blancquaert, I., Beauchamp, S., Costea, I., 2011. Guiding policy decisions for genetic screening: developing a systematic and transparent approach. Public Health Genomics. 14 (1), 9–16.

Armstrong, 1995. The rise of surveillance medicine. Sociol. Health Illne. 17 (3), 393–404.

Ashley, R., Goodarzi, B., Horn, A., et al., 2022. A call for critical midwifery studies: confronting systemic injustice in sexual, reproductive, maternal, and newborn care. Birth 49 (3), 355–359. https://doi.org/10.1111/birt.12661.

Baddington, C.L., Parker, G.C., Wakelin, K.J., 2023. I felt like I had no options": navigating an ultrasound prediction of a large baby in pregnancy. Women Birth J. Aust. Coll. Midwives. 36 (5), e556–e562. https://doi.org/10.1016/j.wombi.2023.04.006.

Beck U. Risk Society, Towards a new modernity. SAGE Publications Ltd. 1992. Accessed September 28, 2025. https://uk.sagepub.com/en-gb/eur/risk-society/book203184.

Breeze, A.C.G., Lees, C.C., 2007. Prediction and perinatal outcomes of fetal growth restriction. Semin. Fetal. Neonatal. Med. 12 (5), 383–397. https://doi.org/10.1016/j.siny.2007.07.002.

Brocklehurst, P., Hardy, P., Hollowell, J., et al., 2011. Perinatal and maternal outcomes by planned place of birth for healthy women with low risk pregnancies: the Birthplace in England national prospective cohort study. BMJ 343, d7400. https://doi.org/10.1136/bmj.d7400.

Carter, J., Anumba, D., Brigante, L., et al., 2022. The Tommy's Clinical Decision Tool, a device for reducing the clinical impact of placental dysfunction and preterm birth: protocol for a mixed-methods early implementation evaluation study. BMC. Pregnancy. ChildBirth. 22 (1), 639. https://doi.org/10.1186/s12884-022-04867-w.

CASP, 2018. CASP checklists - critical appraisal skills programme. CASP Crit. Apprais. Skills. Programme. Accessed July 1, 2023 https://casp-uk.net/casp-tools-checklists/.

Clark, J.A., Smith, L.K., Armstrong, N., 2024. Midwives' and obstetricians' practice, perspectives and experiences in relation to altered fetal movement: a focused ethnographic study. Int. J. Nurs. Stud. 150, 104643. https://doi.org/10.1016/j.ijnurstu.2023.104643.

Dahlen, H.G., Drandic, D., Shah, N., Cadee, F., Malata, A., 2022. Supporting midwifery is the answer to the wicked problems in maternity care. Lancet Glob. Health. 10 (7), e951–e952. https://doi.org/10.1016/S2214-109X(22)00183-8.

Davis-Floyd, R., 2001. The technocratic, humanistic, and holistic paradigms of childbirth ℭ. R. Da. Published online.

Davis-Floyd, R., 2009. Birth Models That Work. University Of California Press Cop.

Dhollande, S., Taylor, A., Meyer, S., Scott, M., 2021. Conducting integrative reviews: a guide for novice nursing researchers. J. Res. Nurs. 26 (5), 427–438. https://doi.org/10.1177/1744987121997907.
England N.H.S. Saving babies' lives version two. a care bundle for reducing perinatal mortality. 2019.
Feeley, C., Stacey, T., 2024. Novel solutions to the midwifery retention crisis in England: an organisational case study of midwives' intentions to leave the profession and the role of retention midwives. Midwifery 138, 104152. https://doi.org/10.1016/j.midw.2024.104152.
Fernandez Turienzo, C., Burton, S., Khan, Z., et al., 2026. The impact of community-based midwife continuity of care models for women living in areas of social disadvantage and ethnic diversity in the United Kingdom: a prospective cohort study. BJOG Int. J. Obstet. Gynaecol. https://doi.org/10.1111/1471-0528.70101 n/a(n/a).
Giddens, A., 1991. Modernity and Self-Identity: Self and Society in the Late Modern Age. Stanford University Press. https://books.google.co.uk/books?id=Jujn_YrD6DsC.
Gomez, J.L., Young, B.K., 2002. A weighted risk index for antenatal prediction of perinatal outcome. J. Perinat. Med. 30 (2), 137–142. https://doi.org/10.1515/JPM.2002.017.
Gov.UK. New ambition to halve rate of stillbirths and infant deaths. GOV.UK. 2015. Accessed February 13, 2026. https://www.gov.uk/government/news/new-ambition-to-halve-rate-of-stillbirths-and-infant-deaths.
Harris, G., Connor, L., Bisits, A., Higginbotham, N., 2004. Seeing the baby": pleasures and dilemmas of ultrasound technologies for primiparous Australian women. Med. Anthropol. Q. 18 (1), 23–47. https://doi.org/10.1525/maq.2004.18.1.23.
Healy, S., Humphreys, E., Kennedy, C., 2016. Can maternity care move beyond risk? Implications for midwifery as a profession. Br. J. Midwifery. 24 (3), 203–209. https://doi.org/10.12968/bjom.2016.24.3.203.
Hollowell, J., Rowe, R., Townend, J., et al., 2015. The Birthplace in England National Prospective Cohort Study: Further Analyses to Enhance Policy and Service Delivery Decision-Making for Planned Place of Birth. NIHR Journals Library. https://pubmed.ncbi.nlm.nih.gov/26334076/.
Homer, C.S., Leap, N., Edwards, N., Sandall, J., 2017. Midwifery continuity of carer in an area of high socio-economic disadvantage in London: a retrospective analysis of Albany Midwifery Practice outcomes using routine data (1997–2009). Midwifery 48, 1–10. https://doi.org/10.1016/j.midw.2017.02.009.
Hutton, E.K., Reitsma, A., Simioni, J., Brunton, G., Kaufman, K., 2019. Perinatal or neonatal mortality among women who intend at the onset of labour to give birth at home compared to women of low obstetrical risk who intend to give birth in hospital: a systematic review and meta-analyses. EClinicalMedicine 14, 59–70. https://doi.org/10.1016/j.eclinm.2019.07.005.
Jackson, C., Bosio, P., Habiba, M., Waugh, J., Kamal, P., Dixon-Woods, M., 2006. Referral and attendance at a specialist antenatal clinic: qualitative study of women's views. BJOG Int. J. Obstet. Gynaecol. 113 (8), 909–913. https://doi.org/10.1111/j.1471-0528.2006.01016.x.
Jackson, C., 2025. Risk assessment as routine: a conversation analysis of midwives' risk surveillance practices in midwife-led care during labour. Patient. Educ. Couns. 140, 109279. https://doi.org/10.1016/j.pec.2025.109279.
Jordan, R.G., Murphy, P.A., 2009. Risk assessment and risk distortion: finding the balance. J. Midwifery. Womens Health. 54 (3), 191–200. https://doi.org/10.1016/j.jmwh.2009.02.001.
Kelly, B., 2017. Transferring women's care from midwives to obstetricians: an audit. Pract. Midwife 20 (7), 32-32.
Kirkham, M., 2010. The Midwife-Mother Relationship. Palgrave Macmillan.
Kirkup B. Maternity and neonatal services in east kent: "reading the signals" report. GOV.UK. 2022. accessed January 1, 2022. https://www.gov.uk/government/publications/maternity-and-neonatal-services-in-east-kent-reading-the-signals-report.
Knight M., Bunch K., Felker A., et al. *Saving Lives, Improving Mothers' Care - Lessons Learned to Inform Maternity Care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2020-22 | MBRRACE-UK | NPEU*. National Perinatal Epidemiology Unit, University of Oxford; 2023. Accessed December 12, 2024. https://www.npeu.ox.ac.uk/mbrrace-uk/reports/maternal-reports/maternal-report-2020-2022.
Knox, S., Crowther, S., McAra-Couper, J., Gilkison, A., 2018. Health policy and its unintended consequences for midwife-woman partnerships: is normal pregnancy at risk when the BMI measure is used? N. Z. Coll. Midwives J. (54), 30–37. https://doi.org/10.12784/nzcomjnl54.2018.4.30-37.
Lorenc, T., Khouja, C., Harden, M., Fulbright, H., Thomas, J., 2024. Defensive healthcare practice: systematic review of qualitative evidence. BMJ Open. 14 (7), e085673. https://doi.org/10.1136/bmjopen-2024-085673.
Lupton, D., 1999. Risk and the ontology of pregnant embodiment. In: Lupton, D. (Ed.), Risk and Sociocultural Theory: New Directions and Perspectives. Cambridge University Press. https://books.google.co.uk/books?id=hyf-YWZleFgC.
Lupton, D., 2012. Precious cargo': foetal subjects, risk and reproductive citizenship. Crit. Public Health. 22 (3), 329–340. https://doi.org/10.1080/09581596.2012.657612.
McCourt, C., 2006. Supporting choice and control? Communication and interaction between midwives and women at the antenatal booking visit. Soc. Sci. Med. 62 (6), 1307–1318. https://doi.org/10.1016/j.socscimed.2005.07.031.
McGlone, A., Davies, S., 2012. Perspectives on risk and obesity: towards a "tolerable risk" approach? Br. J. Midwifery. 20 (1), 13–17.
McIntyre, M.J., Chapman, Y., Francis, K., 2011. Hidden costs associated with the universal application of risk management in maternity care. Aust. Health Rev. Publ. Aust. Hosp. Assoc. 35 (2), 211–215. https://doi.org/10.1071/AH10919.
National Maternity Review. Better births, improving outcomes of maternity services in England. 2016.
NHS Digital. NHS Maternity Statistics, England, 2022-23. NHS Digital. 2023. Accessed December 23, 2023. https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2022-23.
NHS England. NHS England » Maternity Transformation Programme. 2023. Accessed November 6, 2023. https://www.england.nhs.uk/mat-transformation/.
NHS England. NHS England » maternity transformation programme. 2025. accessed october 28, 2025. https://www.england.nhs.uk/mat-transformation/.
NICE. Overview | Antenatal care | Guidance | NICE. August 19, 2021. Accessed August 5, 2025. https://www.nice.org.uk/guidance/ng201.
Obionu, I.M., Onyedinma, C.A., Mielewczyk, F., Boyle, E., 2023. UK maternity care experiences of ethnic minority and migrant women: systematic review. Public Health Nurs. 40 (6), 846–856. https://doi.org/10.1111/phn.13240.
Ockenden, D., 2022. Findings, Conclusions and Essential Actions from the Independent Review of Maternity Services At the Shrewsbury and Telford Hospital NHS Trust. House of Commons.
ONS. Births in England and Wales - Office for National Statistics. 2025. Accessed August 29, 2025. https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthsummarytablesenglandandwales/2024?utm_source=chatgpt.com.
ONS. Child and infant mortality in England and Wales - Office for National Statistics. 2025. Accessed August 29, 2025. https://cy.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/childhoodinfantandperinatalmortalityinenglandandwales/2023?utm_source=chatgpt.com.
Peter M., Wheeler R. *The black maternity experiences survey, a nationwide study of black women's experiences of maternity services in the United Kingdom*. 2022. https://www.fivexmore.com/blackmereport.
RCM, 2000. Assessing and managing risk in midwifery practice. RCM. Midwives. J. 3 (7), 224–225.
Reed R. Big Babies: the risk of care provider fear. 2025. Accessed April 17, 2025. https://www.rachelreed.website/blog/big-babies-care-provider-fear.
Roberts, E.S., 2019. How do risk management principles fit in with the reality of clinical midwifery? Br. J. Midwifery. 27 (11), 703–710. https://doi.org/10.12968/bjom.2019.27.11.703.
Rocca-Ihenacho, L., Yuill, C., McCourt, C., 2021. Relationships and trust: two key pillars of a well-functioning freestanding midwifery unit. Birth 48 (1), 104–113. https://doi.org/10.1111/birt.12521.
Roebuck, C., Sandall, J., West, R., Atherden, C., Parkyn, K., Johnson, O., 2025. Impact of midwife continuity of carer on stillbirth rate and first feed in England. Commun. Med. 5 (1), 339. https://doi.org/10.1038/s43856-025-01025-z.
Royal College of Obstetricians and Gynaecologists. *Each Baby Counts: 2020 Final Progress Report*. RCOG; 2021.
Sandall, J., Tribe, R.M., Avery, L., et al., 2018. Short-term and long-term effects of caesarean section on the health of women and children. Lancet 392 (10155), 1349–1357. https://doi.org/10.1016/S0140-6736(18)31930-5.
Sandall, J., Fernandez Turienzo, C., Devane, D., et al., 2024. Midwife continuity of care models versus other models of care for childbearing women. Cochrane Database Syst. Rev. 2024 (4). https://doi.org/10.1002/14651858.CD004667.pub6. CD004667.
Scamell, M., 2011. The swan effect in midwifery talk and practice: a tension between normality and the language of risk. Sociol. Health Illn. 33 (7), 987–1001. https://doi.org/10.1111/j.1467-9566.2011.01366.x.
Scamell, M., 2014. Childbirth within the Risk Society. Sociol. Compass. 8 (7), 917–928. https://doi.org/10.1111/soc4.12077.
Scarf, V.L., Rossiter, C., Vedam, S., et al., 2018. Maternal and perinatal outcomes by planned place of birth among women with low-risk pregnancies in high-income countries: a systematic review and meta-analysis. Midwifery 62, 240–255. https://doi.org/10.1016/j.midw.2018.03.024.
Schroeder, E., Petrou, S., Patel, N., et al., 2012. Cost effectiveness of alternative planned places of birth in woman at low risk of complications: evidence from the Birthplace in England national prospective cohort study. BMJ 344, e2292. https://doi.org/10.1136/bmj.e2292.
Small, K.A., Sidebotham, M., Fenwick, J., Gamble, J., 2019. Intrapartum cardiotocograph monitoring and perinatal outcomes for women at risk: literature review. Women. Birth. 33 (5). https://doi.org/10.1016/j.wombi.2019.10.002.
Small, K.A., Sidebotham, M., Fenwick, J., Gamble, J., 2021. I'm not doing what I should be doing as a midwife": an ethnographic exploration of central fetal monitoring and perceptions of clinical safety. Women. Birth. https://doi.org/10.1016/j.wombi.2021.05.006. Published online.
Small, K., Warton, C., Bradfield, Z., Baird, K., Fenwick, J., Homer, C., 2025. A snapshot of Australian midwifery: a workforce survey. Women. Birth. 38 (4), 101928. https://doi.org/10.1016/j.wombi.2025.101928.
Stahl, K., Hundley, V., 2003. Risk and risk assessment in pregnancy - do we scare because we care? Midwifery 19 (4), 298–309. https://doi.org/10.1016/s0266-6138(03)00041-x.
Tompkins, L., Hodge, G., Shawe, J., Burrows, L., Bogaerts, A., Pearce, S., 2025. A scoping review of personalised UK maternity care: where are we now? Br. J. Midwifery. 33 (7), 398–407. https://doi.org/10.12968/bjom.2025.0024.
Vos, A.A., van Voorst, S.F., Posthumus, A.G., Waelput, A.J.M., Denktaş, S., Steegers, EAP., 2017. Process evaluation of the implementation of scorecard-based antenatal risk assessment, care pathways and interdisciplinary consultation: the healthy pregnancy 4 all study. Public Health. 150, 112–120. https://doi.org/10.1016/j.puhe.2017.05.010.
Walsh D., Newburn M. Towards a social model of childbirth: part two. 2002. doi:10.12968/bjom.2002.10.9.10606.

Weeks, A.D., Espenhahn, S., Crowe, S., 2025. The UK maternity crisis: analysing the underlying causes to find solutions. Bjog 132 (12), 1713–1715. https://doi.org/10.1111/1471-0528.18326.
Welch, H.G., Schwartz, L.M., Woloshin, S., 2011. Overdiagnosed: Making People Sick in the Pursuit of Health. Beacon Press.
Whittemore, R., Knafl, K., 2005. The integrative review: updated methodology. J. Adv. Nurs. 52 (5), 546–553. https://doi.org/10.1111/j.1365-2648.2005.03621.x.
Gov.Uk. Criteria for a population screening programme. GOV.UK. 2022. Accessed April 19, 2025. https://www.gov.uk/government/publications/evidence-review-criteria-national-screening-programmes/criteria-for-appraising-the-viability-effectiveness-and-appropriateness-of-a-screening-programme.
WHO.2026 Screening Programmes: A short guide. Published online 2020. https://iris.who.int/bitstream/handle/10665/330829/9789289054782-eng.pdf.
Young, I.M., 1984. Pregnant embodiment: subjectivity and alienation. J. Med. Philos. 9 (1), 45–62. https://doi.org/10.1093/jmp/9.1.45.