The Tommy's Graded Model of Miscarriage Care

A framework for consistent care
and support after each miscarriage

Tommy's
National Centre for
Miscarriage Research

Contents

Reference

This report should be referred to as follows:

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About Tommy's

Tommy's is the leading charity that exists to stop the heartbreak and devastation of baby loss and make pregnancy and birth safe – for everyone.

Bringing together a network of expert researchers, healthcare professionals and passionate supporters, Tommy's is a community dedicated to helping more families bring their babies home.

By working across the whole pregnancy journey – translating our research breakthroughs into new tests and treatments, changing national maternity policy and providing expert information and support for all – we're driving change at every level and finding ways to reduce health disparities and stop miscarriage, stillbirth and premature birth.

With the strength of our community, we know we can make change happen. Together, we can save babies' lives.

Tommy's is committed to inclusivity and ensuring that everyone feels heard and seen. To recognise transgender and non-binary gestational parents, we refer to women and birthing people in this report. However, when referencing research, we mirror the language used in the underlying study to avoid introducing inaccuracies.

Tommy's National Centre for Miscarriage Research, which opened in 2016, is a collaboration between 4 top research universities; University of Oxford, University of Birmingham, University of Warwick and Imperial College London. It is the largest research centre of its kind in Europe.

Tommy's
National Centre for Miscarriage Research

The centre's research teams focus on gaining a deeper understanding of why miscarriage happens and how it can be prevented.

The centre's specialist research clinics support 38,000 women and birthing people a year to access treatment, support and have the opportunity to participate in groundbreaking research.

Acknowledgements

We would like to express our heartfelt thanks to all of the families who took part in this study.

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We are also very grateful to Tommy's Ambassador Myleene Klass MBE, members of the Tommy's community, families who fed into the Pregnancy Loss Review and supportive Members of Parliament and Peers, who have campaigned and called for research into graded care for women and birthing people who have been affected by miscarriage.

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Foreword

Miscarriage is devastating. It can result in profound physical, psychological and social consequences, yet for too long it has been treated as an isolated, 'minor' event or 'just one of those things'. For many families, the loss of a baby is not only heartbreaking but also comes with silence, stigma and the absence of meaningful support.

The traditional model of miscarriage care means families have to wait until 3 losses have been suffered before investigations are offered. This leaves families unsupported, their grief unrecognised and opportunities to improve their situation – and possibly prevent further loss – missed.

The Tommy's Graded Model of Miscarriage Care represents a turning point. It moves us from reactive to proactive care, with evidence-based support after the first miscarriage. The approach guided by science, informed by the voices of women and families, and shaped by the compassion of healthcare professionals is determined to provide care that is equal, accessible and effective.

This report presents the results of the first pilot of the Graded Model of Miscarriage Care at Birmingham Women's Hospital. The findings are clear: the model is easily achievable, shows potential to reduce the risk of future miscarriage, improves health outcomes overall and delivers substantial cost savings to the NHS and wider society. Just as importantly, it restores dignity and compassion to care, offering families answers, support and hope when they need it most.

We cannot underestimate the contribution that is made to any study like this by the families who take part, bravely sharing their experiences to improve care for others. This study has kept those families at its centre and demonstrates what can be done when patients are heard. This report is also the product of clinicians and researchers who saw a need and dedicated time and knowledge to making this pilot and its results a possibility. Everyone who has contributed to this work should be congratulated and commended.

> ***My involvement in this work came from a very dark place – my own 4 traumatic losses. As isolated and lonely as we feel when going through a miscarriage, there are tens of thousands of us women losing babies (often needlessly) every month. We deserve to feel seen and heard after our first loss, not made to wait until we've been through the pain of 3 losses before we're taken seriously.***
>
> ***I've had the honour to meet some of the amazing families participating in this study, sharing their pain and, in some cases, holding the rainbow babies who are here today because earlier tests and treatments saved their families the heartbreak of another loss. This is our moment to give every family that same life changing opportunity.***
>
> Myleene Klass MBE, Tommy's Ambassador

We must also not forget every supporter and funder who has voiced the need for change and championed this work. Every single person who lends their voice and challenges the silence surrounding baby loss plays a part in raising awareness of the lasting impact of miscarriage and the need for change and we ask you to keep talking.

The time for waiting is over. Scotland has already shown leadership by adopting this model of care. We now call on England, Wales and Northern Ireland to act decisively to make the Graded Model of Miscarriage Care available, and to make sure no family is left without support after miscarriage. This is not only a matter of science and healthcare, it's a matter of compassion, justice and humanity.

Professor Arri Coomarasamy OBE
Director, Tommy's National Centre for Miscarriage Research

Myleene Klass MBE
Tommy's Ambassador

Executive summary

Miscarriage (loss of a pregnancy before 24 weeks) is the most common complication of early pregnancy with approximately 250,000 miscarriages occurring in the UK each year. Each occurrence is devastating for the parents of the baby lost. Research shows that miscarriage can lead to mental health difficulties in couples, such as anxiety, depression, post-traumatic stress disorder (PTSD) and suicidal thoughts. Miscarriage also affects healthcare systems and society at large. In 2021, the short-term economic costs of miscarriage were estimated at £471 million annually in the UK.

Some women experience recurrent miscarriages, and each loss compounds the grief of the last. Yet current NHS practice only routinely offers follow-up care, that could help prevent the loss of another baby, after 3 losses despite the risks of pregnancy complications and long-term ill-health being there from the first miscarriage.

> ***When we lost our third baby, as heartbroken as I was, it was almost a relief that something would get done.***
>
> Julie, who experienced 3 miscarriages

This outdated model leaves thousands of women unsupported, worsens health inequalities, misses critical opportunities to improve preconception health and most importantly results in babies' lives lost.

The Tommy's Graded Model of Miscarriage Care (GMoMC) (Figure 1), developed and piloted by the team at Tommy's National Centre for Miscarriage Research, addresses the gap in care by offering targeted support after every miscarriage:

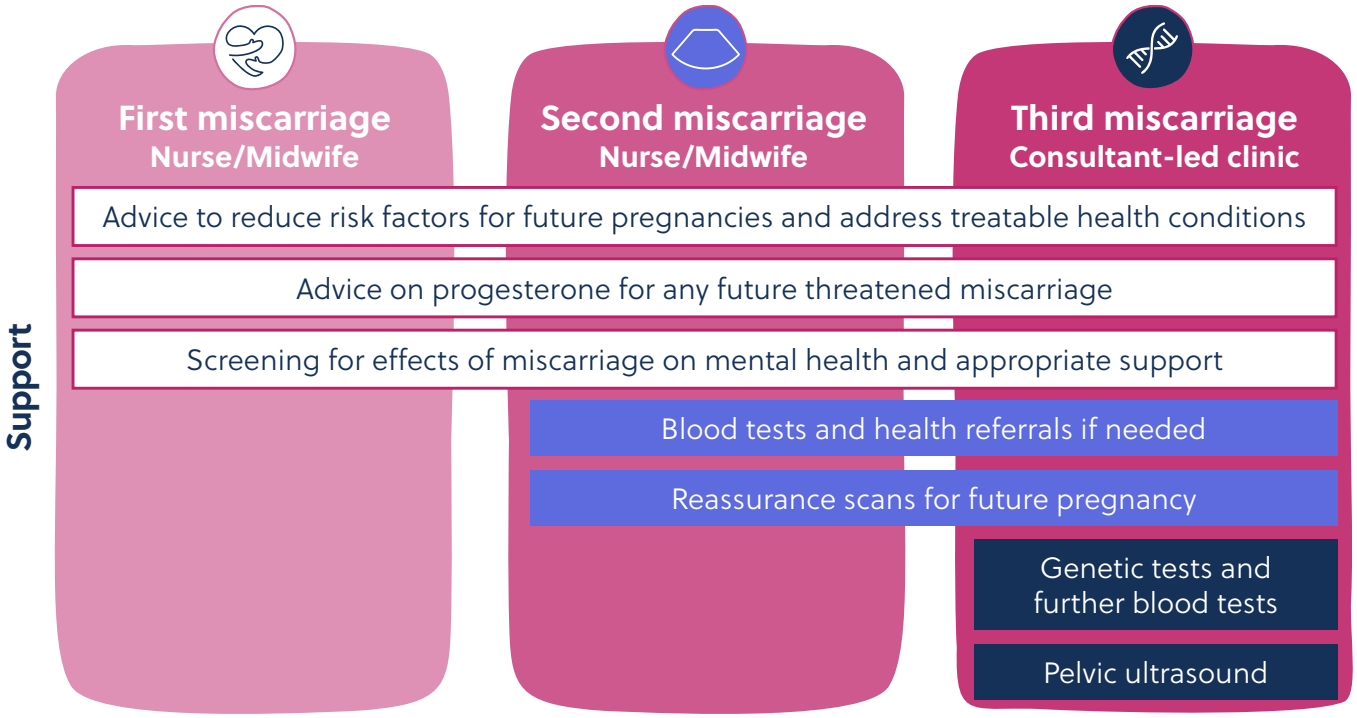

Figure 1. *The Tommy's Graded Model of Miscarriage Care*

This model of care was piloted at Birmingham Women's Hospital between November 2023 and February 2024, with 203 women with a history of 1 or more miscarriages receiving the GMoMC, against a comparison group of 203 women who received usual care (support after 3 or more losses; no follow-up support after 1 or 2 losses). The primary aim of the pilot was to evaluate the implementation of the GMoMC, with a particular focus on its acceptability and feasibility in a real-world clinical setting.

Key findings

A valued and practical care model

Healthcare professionals and women involved in the pilot reported high satisfaction with the Graded Model of Miscarriage Care. The model was feasible to deliver without overburdening services. All specialist services that women were referred to under the GMoMC, such as smoking cessation or bereavement support, reported minimal impact on service delivery.

Improved identification of risk factors

The graded model better identified risk factors that increase the risk of miscarriage compared to usual care. At least 1 modifiable risk factor for miscarriage was identified in 86% of women in the graded model group, compared with 58% in the usual care group. This meant women in the graded model group were 47% more likely to have a risk factor identified and given relevant advice to help prevent future miscarriage than women receiving usual care.

Early detection of treatable conditions

Among women who had experienced 2 miscarriages in the graded model group, 1 in 5 were found, through a blood test, to have thyroid dysfunction or anaemia – conditions with effective treatments that can improve pregnancy outcomes. Under usual care, women would be unlikely to be tested for these easily identifiable conditions until they had experienced 3 losses.

Reduction in future miscarriage risk

There was a 4% reduction in absolute risk of future miscarriage when receiving the Graded Model of Miscarriage Care compared to usual care. With an estimated 250,000 miscarriages each year, the graded model could prevent approximately 10,075 miscarriages annually in the UK.

Saves millions in the short and long term

Considering the cost of miscarriage, 1 year of implementation of the graded model in the UK could generate a short-term gross saving of over £40 million (£40,098,500) based on 10,075 miscarriages being prevented. Using ONS data on the long-term effect of miscarriage on earnings, 1 year of implementation could generate a gross saving of at least £56 million (£56,188,275) over 5 years†.

† Once implementation costs for England (171 Early Pregnancy Units) are accounted for, the estimated net saving in the short term is £25,222,261 and £41,312,396 in the long term. Since reliable estimates for the prevalence of miscarriage in England are unavailable, the UK-wide figure of 250,000 losses per year has been used to calculate the number of miscarriages that could be prevented if the 4% reduction in risk bears out nationally.

Conclusion

The Tommy's Graded Model of Miscarriage Care addresses a gap in care that can no longer be ignored. When Tommy's shone a spotlight on the lack of miscarriage care in 2021, more than 250,000 people came together to demand change [1].

The results from this study are clear: the graded model is both acceptable to women and healthcare professionals and is feasible. It can be implemented within the existing NHS healthcare setting, without placing undue burden on current services.

It enables the identification and management of modifiable risk factors for miscarriage, as well as readily treatable medical conditions. By extending care beyond acute miscarriage services into a more proactive, preconception-focused model, it allows greater time, continuity and opportunity for engagement, which may help reduce inequalities in access to timely, preventative care, particularly for underserved and higher-risk groups. Many modifiable risk factors associated with miscarriage are shared with other adverse pregnancy outcomes, including preterm birth and stillbirth; addressing these factors may therefore improve overall obstetric outcomes and support long-term maternal health.

While the study was primarily designed to assess feasibility and acceptability, there is a promising signal on clinical effectiveness and cost savings. Most importantly, the graded model places women and families at the heart of miscarriage care, ending the unacceptable 3 miscarriage wait by introducing care where there currently is none beyond emergency treatment.

Scotland has already taken the first step by embedding this model into its miscarriage pathway. The model must be rolled out across all 4 devolved nations to ensure access to care nationwide, reduce preventable pregnancy loss and set a new global standard for miscarriage support.

Roll-out supported by the necessary funding, guidance and training will advance the preventative care agenda, contribute to addressing health disparity, and provide care to thousands of women currently neglected by the NHS.

Recommendations

England, Wales and Northern Ireland must implement the Graded Model of Miscarriage Care, supported by ring-fenced funding, guidance and training.

Scotland must continue to prioritise the implementation of the Graded Model of Miscarriage Care, ensuring consistent delivery across the country.

Governments across all 4 devolved nations should commission an implementation and evaluation programme to support sharing of good practice and learnings at local, regional and national level and to assess effectiveness.

Governments across all 4 devolved nations must improve the collection and publication of miscarriage data to support understanding of the full scale of the problem and enable design and evaluation of interventions aimed at reducing miscarriage rates.

At the EPU it went something like 'you are having a miscarriage, it's okay to be sad. Here is a leaflet about miscarriages. Have a nice day'.

And when I asked for some additional support, given my history, it was very much 'until you have had three miscarriages, there's nothing we can do' and I find that unacceptable.

It was so cold and routine, like I wasn't a person at all.

Bethany, talking about the care she received after her second miscarriage

Introduction

Prevalence

Miscarriage is the most common complication during early pregnancy, affecting over 23 million women and birthing people worldwide each year – equating to approximately 44 miscarriages every minute [2].

The best available estimate suggests that over 250,000 miscarriages occur each year in the UK. However, many believe that this figure is an underestimate, as miscarriages are not always formally recorded before 24 weeks and women may not seek medical attention through an Early Pregnancy Unit (EPU) or their GP (General Practitioner), instead miscarrying at home in the early weeks of pregnancy‡.

Across the UK, maternal health inequities are still prevalent and are not improving [4]. Black women are significantly more likely to experience miscarriage than White women, with a 40% relative increase in risk [2], even after adjusting for other contributing factors—indicating that ethnicity itself is an important risk marker. This aligns with wider evidence on ethnic disparities in pregnancy outcomes.

Despite its prevalence, miscarriage is often seen as an isolated event without lasting effects. The Lancet 'Miscarriage Matters' series (2021) [2,5,6] collated available research data to confirm the huge physical, emotional and economic impact of miscarriage (Figure 2). Miscarriage has a lasting impact on health-related quality of life for many women. Pregnancy losses have been shown to have a negative and often profound effect on physical and mental health, and productivity. The psychological impact on partners following miscarriage is substantial but often under-recognised. While less pronounced than in women, some partners experience clinically significant post-traumatic stress (PTS), anxiety, and depression; at three months post-loss, around one in twelve report PTS symptoms, with potential impacts on work, home life, and relationships [7].

Women who have had 1 miscarriage are at a higher risk of experiencing another. The risk of a future miscarriage is correlated with the number of past miscarriages. Miscarriage is also associated with an increase in the risk of future pregnancy complications, including giving birth too early (premature birth), having a baby with lower birth weight (fetal growth restriction) and experiencing a baby loss later in pregnancy (stillbirth) [2,5,6]. In addition, women who have miscarried are more likely to develop heart disease and blood clots later in life, compared to those without a history of miscarriage [2,8]. The period following miscarriage represents a critical window to provide targeted support for women, with the potential to improve their physical and psychological wellbeing and improve outcomes in future pregnancies.

The emotional and mental health effects of miscarriage are often neglected. Now, we understand that women who have had a miscarriage are more likely to experience anxiety, depression, PTSD [9], and in some cases, may even attempt suicide (Figure 2) [10,11]. This underscores the urgent need for improved physical and emotional support for women during and after miscarriage.

‡ Extrapolating from live birth rates gives an estimate of 119,403 miscarriages per year [3]. The calculation is based on a miscarriage risk of 15.3%. Whilst this risk is robust based on the current published literature on miscarriage, this number is biased towards clinically recorded pregnancies and clinically managed miscarriages, meaning many early pregnancy losses and those managed without healthcare intervention are not included.

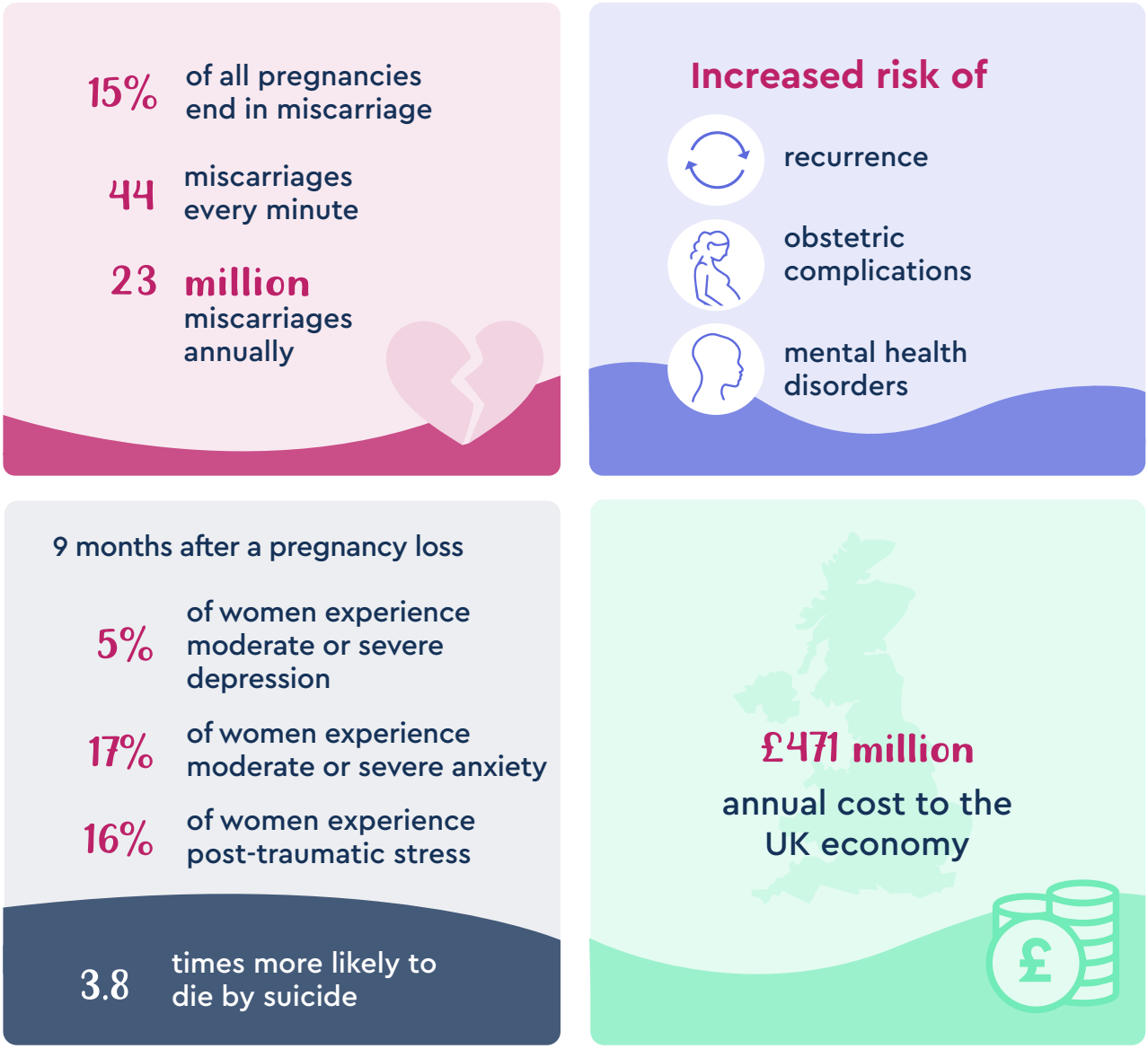

Figure 2. *The consequences of miscarriage [12-17]. The top left pink box refers to the number of miscarriages that happen globally.*

Cost

Existing evidence has largely focused on direct healthcare costs of miscarriage, particularly the cost of medical treatment and procedures following miscarriage. Only a small number of studies have looked at wider, non-healthcare costs, and these have mainly concentrated on the economic value of lost productivity among women experiencing miscarriage.

Further, much of the work on quality of life and productivity loss due to miscarriage focusses on women who have had multiple losses, second trimester losses or perinatal death. There is far less data on the effects of 1 or 2 early pregnancy losses.

Most economic evaluations take a short-term view, focusing on the period during which a miscarriage is being treated. They rarely consider the longer-term consequences, such as the economic impact of the psychological effects of miscarriage. In July 2025, the Office for National Statistics (ONS) published an analysis of the impact of pregnancy loss and complications on monthly earnings and employment. This included the finding that earnings for women who had experienced miscarriage remain lower for 5 years, compared to the year before their pregnancy loss, with an average total loss of earnings of £4,101 over 5 years [18].

The economic impact of miscarriage on partners remains underexplored, despite evidence that psychological morbidity, including post-traumatic stress, can impair work and daily functioning, indicating a likely hidden burden through reduced productivity and household disruption.

In 2021, the short-term national economic burden of miscarriage in the UK was estimated at £471 million annually [2]. This cost was calculated by combining costs of hospital, community health and social services [19], costs to patients [20] and broader societal costs associated with lost productivity over the immediate weeks following pregnancy loss [19]. The true total cost would be considerably greater.

Current miscarriage care

Women who have experienced a miscarriage often have many questions – why did it happen? Will it happen again? What can be done to stop this happening again? Care following a miscarriage is generally limited to emergency care provided at the point of diagnosis and does not address these questions. Women who have suffered a miscarriage are frequently told 'it's just one of those things'.

Emergency miscarriage care is broadly consistent. However, significant differences and inequalities arise in the care offered after this initial stage. Access to "extended" care is typically reserved for women who have experienced 3 or more miscarriages, meaning tens of thousands of women with 1 or 2 losses receive little or no follow up. And even then, women aren't always aware they can get support after 3 miscarriages and the support they are currently offered doesn't focus on optimising their wider health.

As a result, many are left feeling unsupported, with their grief and uncertainty increased by the lack of structured aftercare and guidance. Many women report feeling dismissed, isolated, and fearful of future pregnancies [21]. The absence of care for those who have 1 or 2 losses also means there are missed opportunities to identify and address risk factors that can be changed and medical conditions that can be managed to help prevent future losses.

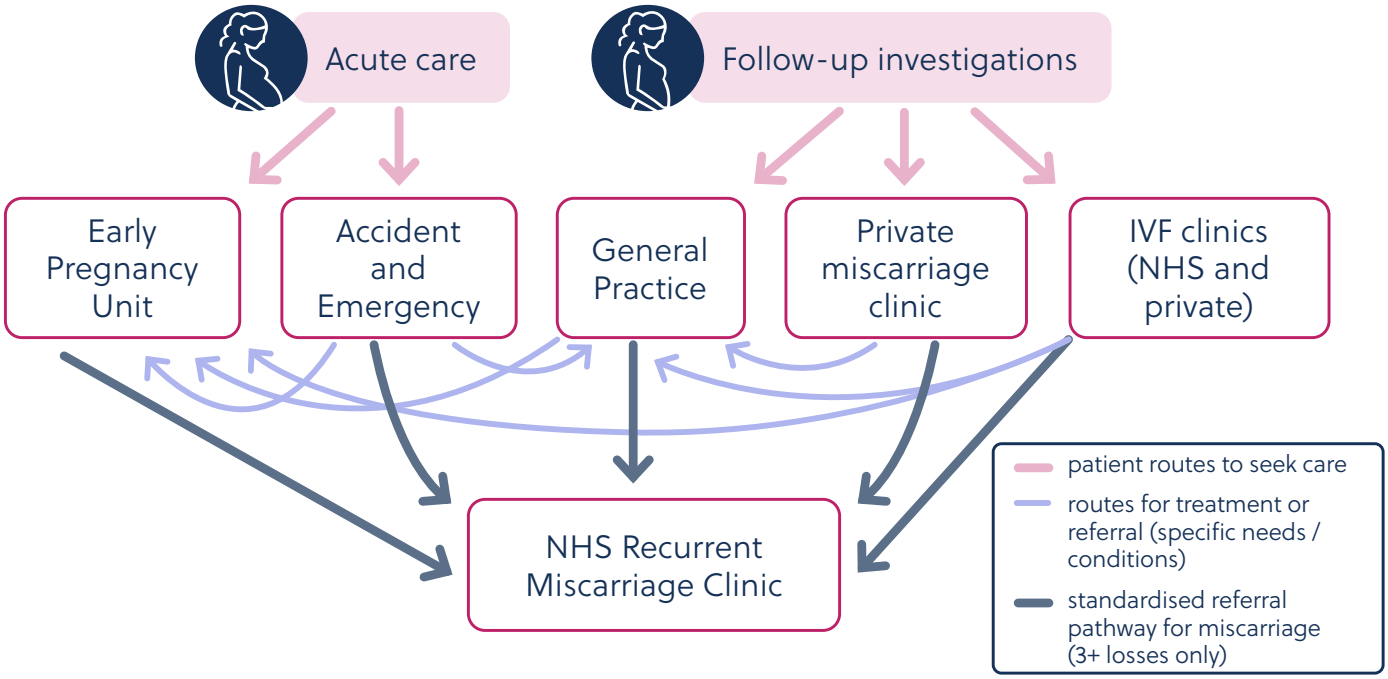

Figure 3. *Current patient pathways for miscarriage care*

It is estimated that around 50% of miscarriages are caused by chromosomal abnormalities [22]. There is uncertainty on the causes for the other 50% but there are several potentially modifiable risk factors including a body-mass index (BMI) outside of the healthy range (18.5-24.9 kg/m2) [23], smoking [24], alcohol [25] and higher than recommended caffeine intake that could contribute [26].

Lack of follow-up care also means treatable medical conditions, such as anaemia or an under-active thyroid, go unidentified. Anaemia is associated with premature birth, postpartum haemorrhage, low birthweight and maternal mortality [27]. Thyroid dysfunction can compromise embryo development and the maintenance of a healthy pregnancy [28]. Importantly, anaemia and thyroid dysfunction can be readily controlled before a future pregnancy, offering a straightforward opportunity to improve maternal and fetal outcomes.

Current clinical care doesn't just represent a gap in care; it is a systemic failure to recognise miscarriage as a serious health event with lasting consequences. The current system falls short in meeting the needs of thousands of women each year. Evidence shows that even a single miscarriage is associated with an increased risk of adverse outcomes in future pregnancies, including premature birth and stillbirth [2]. Despite this, most women receive no follow-up care after miscarriage and miss the opportunity to benefit from preconception or antenatal interventions that could help reduce these risks. Additionally, research has consistently shown that just 1 pregnancy loss can have significant mental health consequences. Yet there are no systematic efforts to identify or support those at risk.

Current miscarriage care also increases inequities, especially for women from minoritised ethnic groups such as Black and Black Mixed-Heritage communities, who may face additional obstacles in accessing care. These include financial, interpersonal (lack of childcare, unable to take leave from work) and structural factors (racism, discrimination) [29, 30] even though they are at greater risk of miscarriage and pregnancy complications [2].

A Graded Model of Miscarriage Care

In 2019, a group of 83 key stakeholders – including women affected by miscarriage, nurses, sonographers, midwives, doctors and policymakers – from across the UK came together to review the best available evidence on miscarriage care. This laid bare the realities of miscarriage care in the UK and highlighted what needed to change, proposing a 'graded model' of care [6] which advocates for providing support from the first miscarriage. This model offers a rational, evidence-based framework for supporting all women after a miscarriage. It is informed by the voices of those who have lived through loss and is shaped by the expertise of clinicians who understand its impact.

The Tommy's Graded Model of Miscarriage Care (Figure 1) emphasises the importance of better preventative preconception healthcare through proactive management of risk factors for miscarriage, identifying and managing pre-existing health conditions, and offering psychological support. It provides a stepwise approach based on the number of miscarriages women have experienced.

After 1 miscarriage:

A specialist nurse provides a person-centred consultation. This includes guidance on optimising preconception health, mental health signposting and appropriate referrals (e.g. smoking cessation services, diabetic preconception clinics). Progesterone is offered early in future pregnancies if there is any vaginal bleeding (a sign of threatened miscarriage).

After 2 miscarriages:

In addition to the care provided after the first loss, patients are offered a blood test which includes a full blood count and thyroid function tests. Additional support is provided in future pregnancies, including an early reassurance scan and progesterone if they experience signs of threatened miscarriage.

After 3 miscarriages:

Along with the care offered after 1 and 2 losses, consultant-led care is provided, offering a comprehensive range of investigations. Investigations include a full blood count, thyroid function testing, sticky blood disorder (antiphospholipid syndrome) testing, cytogenetic testing of pregnancy tissue and pelvic ultrasound scan.

When the model was first proposed, the acceptability, feasibility, effectiveness, impact on existing services, and associated costs of such an approach were unknown. Therefore, the research detailed in this report was essential to evaluate these factors, to understand how graded care could work in practice and to inform future implementation.

Research aims and objectives

The primary aim of this pilot study was to evaluate the implementation of the Tommy's Graded Model of Miscarriage Care, with a particular focus on its acceptability and feasibility in a real-world clinical setting.

The study assessed:

Acceptability of the model to both women and healthcare professionals.

Feasibility of delivering the graded model within existing EPU infrastructure.

Clinical and service-use outcomes, including early indicators of impact on risk of miscarriage.

Downstream consequences and costs, capturing the wider service implications and potential economic effects associated with implementing the graded model.

Methods

Study design

The pilot study, including the baseline and patient follow-up phases, was conducted at the EPU and recurrent miscarriage clinic within Birmingham Women's Hospital between February 2023 and March 2025.

For the purpose of this study, a broad definition of early miscarriage was adopted, encompassing all spontaneous pregnancy losses up to 14 weeks of gestation regardless of whether any ultrasound had been done to confirm a pregnancy.

The study included 203 women who received the GMoMC and 203 women in a matched control group who were selected from 1,200 patients in the baseline group. There was no lower limit to maternal age to ensure the broad inclusion of patients experiencing miscarriage. The women in the baseline group received usual care, that consisted of support after 3 losses, with little to no support after 1 or 2 losses. The study, therefore, had 203 patients in each of the GMoMC and control groups for the comparative analysis. The control group participants were closely matched to the graded model group participants in terms of age, ethnicity and previous miscarriage history.

Usual care was delivered for 6 months between February and October 2023 to provide the baseline data. The GMoMC was delivered for 4 months between November 2023 and February 2024 with follow up and evaluation taking place over the next 13 months (February 2024 – March 2025) (Figure 4). We collected information on quality of life and productivity from women who were treated under the GMoMC over a 12-month period to address the lack of data on the effects of 1 or 2 early pregnancy losses on quality of life and productivity loss due to miscarriage.

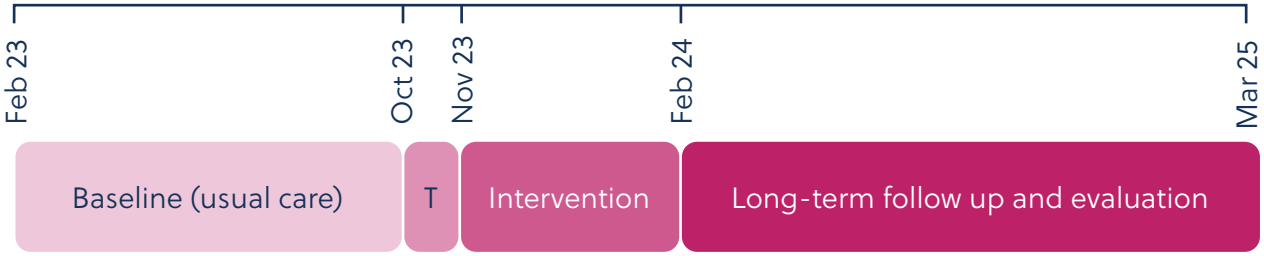

Figure 4. *Timeline of the Graded Model of Miscarriage Care pilot study. 'T' denotes a 1-month transition phase which was included to allow for preparation and training before delivery of the graded model.*

Sample size

The sample size was chosen to provide a good understanding of the GMoMC's acceptability and feasibility, taking into account the average number of women attending the EPU and the recurrent miscarriage clinic at Birmingham Women's Hospital during a 4-month timeframe. Demographic summaries of attendees at clinics is not routinely available, but comparison of participant demographics to controls is shown in Table 1.

Care offered

Women in the usual care group received emergency miscarriage care in the EPU after each loss but only preventative preconception care in the recurrent miscarriage clinic after experiencing (at least) 3 losses. In the recurrent miscarriage clinic, they were seen by a consultant and offered a comprehensive range of investigations, including full blood count, thyroid function tests, testing for antiphospholipid syndrome (sometimes referred to as 'sticky blood' disorder) and pelvic ultrasound.

A short (1 month) transition phase was introduced between the baseline and GMoMC periods. This was to enable a department-wide awareness campaign and training for healthcare professionals (HCPs) working within the EPU and the recurrent miscarriage clinic. During the transition, 4 educational sessions were held with HCPs, which focussed on addressing knowledge gaps regarding consequences of miscarriage, preconception counselling, health behaviour and medical risk factors and ways to help prevent miscarriage. Staff training materials were made available in a variety of formats, including slide decks, case-based discussions, implementation checklists and reference documents.

During the implementation phase, sustained support was provided by 3 clinical champions (Band 7 Clinical Nurse Specialists in the EPU). Clinical champions received additional training on key elements of the GMoMC who then cascaded the knowledge and supported the use of the training and educational materials by their colleagues. An implementation toolkit was also provided to HCPs, offering comprehensive guidance on the project roll-out and clinical interventions.

Figure 5 illustrates the patient treatment pathway from the EPU to the GMoMC appointment. Patients who experienced 1 miscarriage were offered the choice of a remote or in-person appointment at a time that best suited their needs. Those with 2 or more miscarriages were asked to attend a GMoMC appointment around 6 weeks after their pregnancy loss. This was to allow time for physiological recovery to make sure that blood test results would provide meaningful information.

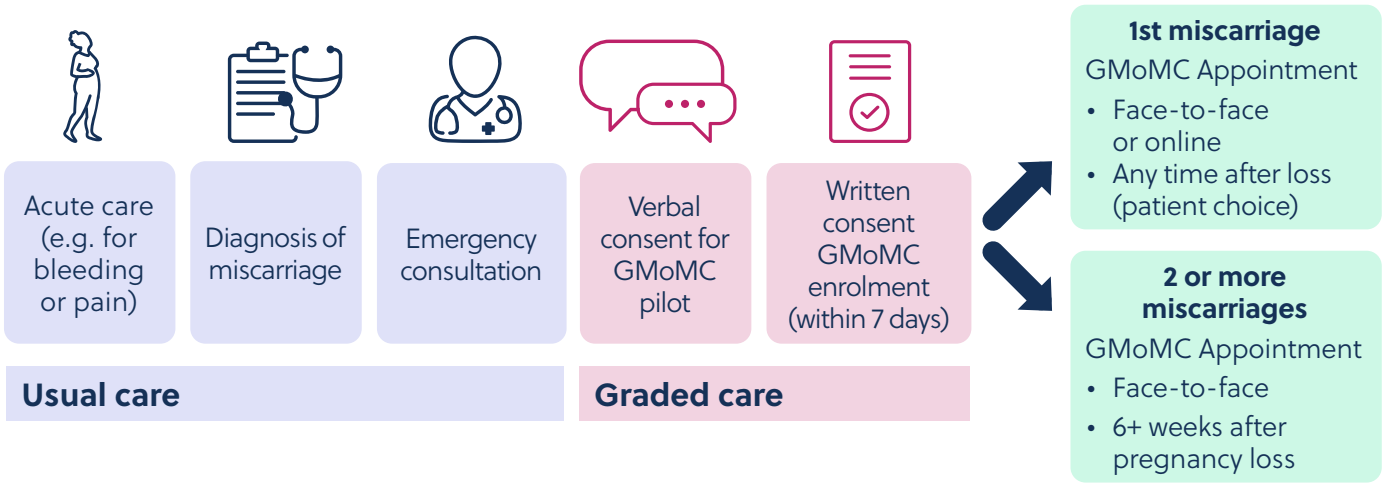

Figure 5. *Patient treatment pathway from the EPU to participating in the Graded Model of Miscarriage Care pilot study*

Delivery of the GMoMC was consistent with the help of trained staff, standardised history sheets, patient information leaflets and flexible approaches to account for additional patient needs, for example, providing tailored support for a teenage patient with autism.

Data collection

Baseline medical questionnaire

Baseline data collection in both groups included key information such as age, ethnicity, BMI, pregnancy history, obstetric and gynaecological history, past medical conditions and social factors (including smoking status, highest educational attainment and occupation). Most information was self-reported. They also collected details specific to the miscarriage they were having (the 'index' miscarriage), for example, gestational age. Baseline data on age, medical history and health behaviour was also collected from partners, as is standard for recurrent miscarriage patients as this recognises paternal factors and the partner's role in pregnancy and is informative for discussions on modifiable risk factors.

Patient questionnaires and follow up

In the GMoMC group, the impact of graded care on patient satisfaction, medical care received, effects of miscarriage on quality of life and effects on productivity were assessed through widely used, validated questionnaires including CSQ-8 (satisfaction), EQ-5D-5L (quality of life tool), the SF-12 survey (health and wellbeing) and iMTA (productivity). Additional productivity data were collected through a bespoke productivity cost questionnaire. All participants also completed a questionnaire on any subsequent pregnancies and the outcome(s) occurring within the 12-month period since their miscarriage.

Questionnaires on quality of life, productivity, health and wellbeing and medical care were collected at 4 time points (6 weeks, 3 months, 6 months and 12 months) and recalled how participants had been affected over the preceding 28 days. This allowed for calculation of total costs per participant over each previous 28-day sample period, as shown by the arrows in Figure 6.

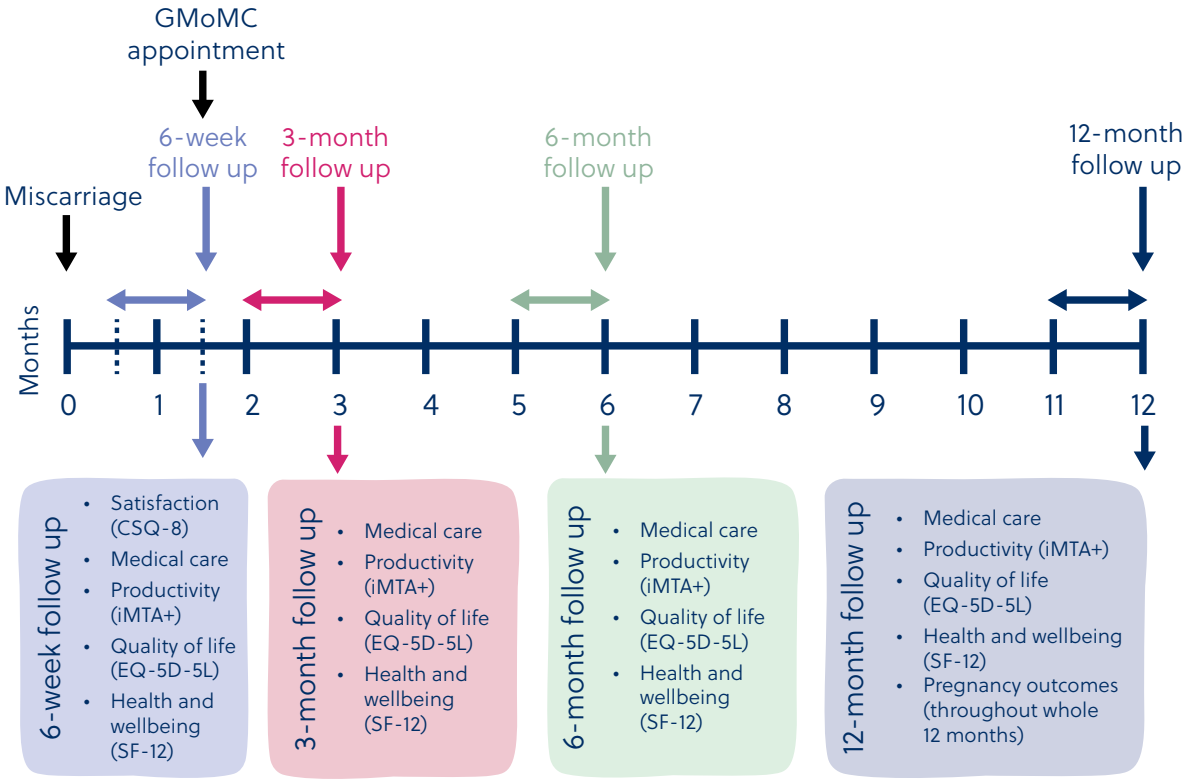

***Figure 6**. Sampling methodology for cost consequences and average costs per timepoint*

Healthcare professionals

15 HCPs (100% of 15 approached and recruited) were asked to assess the acceptability and feasibility of the graded model using a 5-point Likert scale. Adherence to the GMoMC was evaluated through direct observation of practice, case note reviews and review using an implementation checklist. The HCPs approached represented a multidisciplinary group, including those directly working in the EPU, the recurrent miscarriage clinic and members of the project team.

Feasibility

Feasibility was primarily assessed across 2 components: fidelity and practicality. Fidelity, which is a measure of the degree to which an intervention is correctly implemented, was quantified by assessing whether appropriate investigations (e.g. full blood count, thyroid function tests or pelvic ultrasound scans) were ordered, as well as whether appropriate referrals to other services (e.g. smoking cessation services, diabetic preconception clinics) were completed. Practicality was evaluated by assessing the time taken to complete consultations, supplemented by insights from semi-structured interviews. We also gathered information on sustainability, mainly through interview responses.

Risk factors, health conditions and clinical outcomes

Data were collected on the proportion of women presenting with modifiable risk factors (e.g. smoking) in both the GMoMC and the usual care groups. Standard blood tests for anaemia and thyroid dysfunction were also carried out on all women who had experienced 2 or more miscarriages.

This pilot study was not designed to assess whether the GMoMC could reduce the risk of future miscarriage. However, follow-up data on further pregnancies and outcomes were collected to check for any potential differences in the rates of miscarriage between those who received the GMoMC versus usual care.

Effects on other health services

The impact on other services and departments was evaluated by collecting data on referral rates both at baseline and GMoMC implementation phases. Semi-structured interviews with HCPs were also conducted to explore potential burdens or knock-on effects.

Analysis

Qualitative methods

Responses to the CSQ-8 questionnaire were used to select a broad cross-section of women to take part in semi-structured interviews. A maximum variation sample was used to include women reporting differing levels of satisfaction, ensuring diverse perspectives. Interview data were collected until thematic saturation was reached at 36 interviews. Interviews were conducted in person or by telephone and ranged from 19 to 65 minutes (mean 33 minutes). These explored key domains including acceptability, experience, reach, demand, satisfaction, appropriateness and ease of participation.

Semi-structured interviews and focus groups were conducted with HCPs. Participants represented a broad multidisciplinary range of roles across the care pathway, including consultant leads, clinical nurse specialists, project nurses, pre-pregnancy clinic practitioners, specialist service providers (e.g. smoking cessation), bereavement support staff and resident doctors, ensuring representation across leadership, specialist and frontline roles.

10 HCPs participated in semi-structured interviews, and a further 4 took part in 2 small focus group discussions, each comprising 2 participants. In total, 14 HCPs were included, exceeding the target sample of 10 to ensure a range of perspectives on delivering the GMoMC. Discussions focused primarily on acceptability, with a predominant emphasis on feasibility, alongside related domains including demand, adoption, practicality and sustainability. Participants were assured of confidentiality and informed of their right to withdraw at any time. All interviews and discussions were recorded, transcribed and analysed thematically.

Data were analysed using the Framework Method, comprising five stages: familiarisation, development of a thematic framework, indexing (coding), charting and mapping and interpretation. Initial familiarisation and coding were undertaken by 2 researchers, with subsequent codes generated inductively (in vivo) and refined through discussion and cross-checking to ensure analytical rigour. Data were initially organised within 3 overarching framework categories—acceptability, feasibility and reach—before being further coded at a more granular level.

Quantitative methods

All collected measurements were statistically summarised: categorical data as frequencies and percentages; continuous data as means (plus/minus standard deviation) or medians (interquartile range), as appropriate. Results are presented in narrative, tabular and graphical formats, with before-and-after comparisons displayed visually.

To assess the effects on pregnancy outcomes the crude and adjusted relative risks of miscarriage were calculated for the usual care (control) group versus the GMoMC group, adjusting for the age of the women, BMI and previous pregnancy history. The method used Poisson regression with patient-level clustered sandwich estimator, and missing data was imputed (not all patients had BMI recorded) using predictive mean matching. Crude and adjusted risk differences were calculated using marginal standardization based on the fitted Poisson regression models and 95% confidence intervals were computed using the delta method [31]. Results are combined over imputations using Rubin's rules. All analyses were performed using STATA version 19.

Cost consequences

The primary objective of the economic evaluation in this pilot study was to determine costs associated with delivering the GMoMC in an extended EPU setting and to assess any potential savings from miscarriages prevented by the GMoMC service. Cost calculations comprised of direct medical costs of miscarriage, short-term (6 weeks-6 months) productivity losses, longer-term productivity losses and monetised health loss costs.

Productivity losses were measured using the iMTA questionnaire at 6 weeks, 3 months, 6 months and 12 months [32]. Participants reported reductions in their productivity, which were costed using an average wage of £18.64 per hour (and an estimated £15.00 per hour for unpaid work) [33, 34].

Health loss costs were calculated based on changes in health utility scores, which reflect quality of life and wellbeing following miscarriage. These scores were used to estimate the cost of health decline up to 6 months after the event. The impact on health was then costed using a NICE cost-effectiveness framework [35].

The data from these cost evaluations allowed for calculation of the estimated cost of miscarriage to society in terms of lost productivity and wellbeing. NHS service costs were also used to calculate the cost of making the GMoMC available across the approximately 171 EPUs in England. Additionally, recent data from the ONS which quantified the change in earnings and employment after pregnancy loss was used to calculate long-term (5 year) cost of productivity losses [18]. Together, these elements were used to assess the overall economic impact of adopting the GMoMC in England. All costs were calculated in 2024 British pounds (GBP).

Ethics

The prospective study was conducted in accordance with the UK Policy Framework for Health and Social Care Research 2017, the applicable UK Statutory Instruments and the General Data Protection Regulation (GDPR) 2018. This study received ethical approval from the STEM (Science, Technology, Engineering and Mathematics) committee at the University of Birmingham.

Results

Recruitment and demographics

A total of 275 patients were recruited to the GMoMC study group, from 429 who were approached, and 203 of those 275 (73.8%) attended the GMoMC consultation. Of those who attended, 107 (53%) identified as being from Black, Asian, mixed, or from other ethnic backgrounds, while 96 (47%) were from White backgrounds. A summary of demographic information of participants is shown in Table 1.

Baseline characteristic	GMoMC	Control Group
Maternal age		
Mean (SD)	33.3 (6.1)	32.82 (6.1)
Ethnicity – % (no. of women)		
White	47.2% (96/203)	54.7% (111/203)
Black	8.9% (18/203)	7.3% (15/203)
Asian	34.0% (69/203)	32.5% (66/203)
Mixed	4.4% (9/203)	2.0% (4/203)
Other	5.4% (11/203)	2.5% (5/203)
Not recorded	0	1% (2/203)
Number of miscarriages <14 weeks – % (no. of women)		
1	32.0% (65/203)	39.4% (80/203)
2	22.7% (46/203)	19.7% (40/203)
3 or more	45.3% (92/203)	40.9% (83/203)

Table 1. *Baseline characteristics of participants in the pilot study*

The majority of women wanted to participate in the study. Of those who declined, the most common reasons included: patients being interested in receiving care through the GMoMC but not wishing to participate in research, not feeling ready for a follow-up appointment within the study time frame, or feeling adequately supported already by their GP, family or friends. Notably, women who conceived via assisted reproduction often reported feeling well supported, as they already had follow-up appointments with their fertility provider. There was a high representation of women with recurrent miscarriage in the study population, i.e., those who had already experienced 3 or more losses, as recruitment targeted both EPU and recurrent miscarriage clinic attendees.

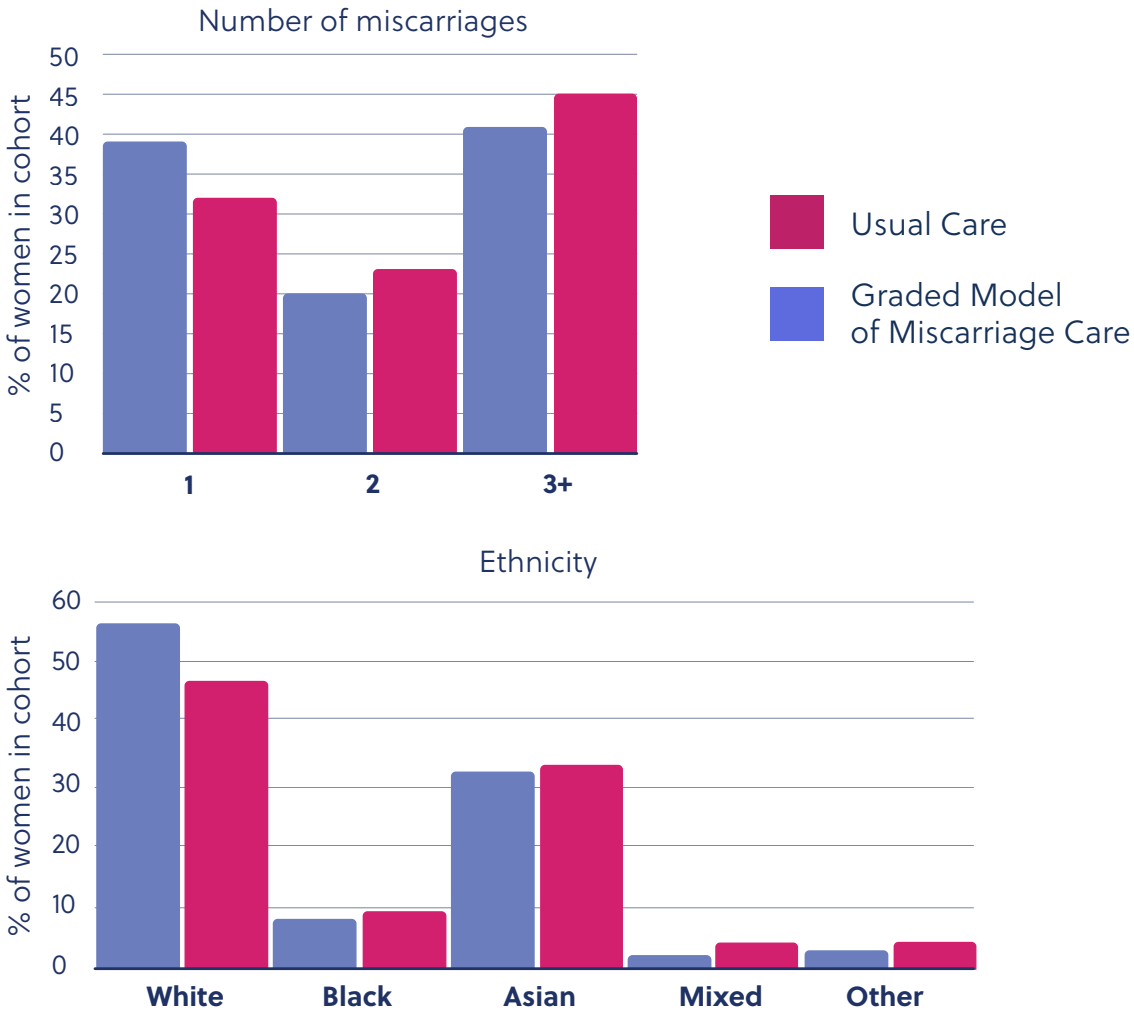

Figure 7. *Demographics of women in the graded model group (n=203) and the control group (n=203). The graded model group are shown in purple and the control group in pink.*

Acceptability and feasibility

Women

The majority of women (99%) reported being satisfied or very satisfied with the GMoMC on the CSQ-8 satisfaction questionnaire (Figure 8). The feedback from the NHS National Friends and Family Test (which is routinely collected at hospital level) was also overwhelmingly positive from GMoMC participants and no complaints were received by the Patient Advice and Liaison Services (PALS) from the study population.

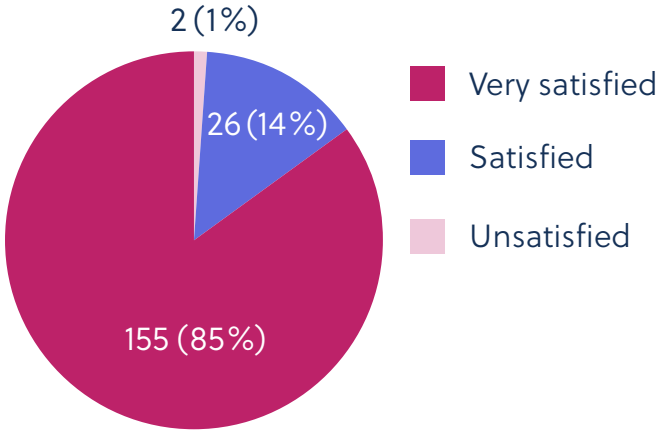

Figure 8. *CSQ-8 scores of women (n = 183)*

The semi-structured interviews carried out with women also demonstrated the high levels of acceptability and satisfaction and illustrate how much value they derived from being offered graded care. Participants consistently described the service as uniquely supportive, personalised and transformative compared with previous experiences following miscarriage. Many women emphasised the contrast between the GMoMC and the absence of care they had previously encountered.

> ***It was honestly the best thing we could ever have had... with all my 5 previous miscarriages, I have had no support whatsoever.***
>
> – JB, GMoMC patient

> ***I think it's silly that you have to have (3) miscarriages to receive what I received because if you received it on that first miscarriage like I did, you're reducing that chance to having up to that 3 losses or however many losses.***
>
> – S, GMoMC patient

> ***It all felt so passive, like things were happening to us, and it was the first time that we could kind of actively do something about it.***
>
> – I, GMoMC patient

One woman described the service as pivotal in reducing distress and uncertainty which helped restore her confidence and hope for a future pregnancy:

> ***I was greeted and supported by kind, warm people... they took the approach of finding out more... making no promises but not assuming hopelessness either. They gave me hope that 2 miscarriages wouldn't prevent me from having a healthy pregnancy. When I found out I was pregnant I was terrified. The team didn't discharge me, but the nurses offered me extra support and reassurance scans. I am so grateful to the team for everything and hope that all women who experience loss are as fortunate as me to be able to access this service.***
>
> – KW, GMoMC patient

Some patients also described how the GMoMC helped in reducing stigma, reducing barriers in their access to care or providing culturally appropriate support:

> ***I really appreciate the care I received after my last miscarriage. It was so different to the care I have had in the past after my miscarriages. I felt like someone cared, I had an interpreter available in my mother tongue, and I could talk freely and I didn't feel rushed. I felt better prepared for my subsequent pregnancy.***
>
> – RM, GMoMC patient

> ***Even after the second miscarriage, I found it was upsetting in a way, because some women were saying to me... 'you'll be okay' like you know 'just carry on'. They kind of make you sort of brush it under the carpet. And obviously that is what I struggled with...it might not be significant to you, but it's significant to me...it's just a stigma thing where, yeah, they want you to just carry on, you know, where in our culture they never used to believe in, like, depression or any of this sort of stuff. I think it's just a case of like, saying to them, you know, it's okay for you to grieve.***
>
> – C, GMoMC patient

Our semi-structured interviews with patients identified the value of mental health follow-up and referrals made as part of graded care:

> ***After my last miscarriage, which was managed at a different Trust, I was asked to follow up with a GP but I received no help or support despite having continuous spotting for 3 months following the miscarriage. I didn't know who to ask my questions to after my last loss. I wasted a lot of time searching for answers on online forums and Google which further exacerbated my anxiety for which I am now receiving therapy. The graded model is a fantastic service. Staff who saw me significantly reduced my anxiety.***
>
> – RS, GMoMC patient

> ***They [mental health team] did as much as they possibly could... it was quite deep. I've had a bit of a difficult time since processing it, but I'm in a much better place now. But yeah, yeah, I think it was, it looked at me as a whole person, and the fact that it's sort of not just, you know, a vessel for carrying a pregnancy, it's your mental health, it's your physical health, it's kind of everything was looked at in a lot of depth with you at the clinic.***
>
> – G, GMoMC patient

These accounts describe how structured, compassionate, and proactive support can meaningfully improve women's emotional wellbeing, enhance engagement with services and reduce barriers to accessing appropriate, culturally sensitive care.

Healthcare professionals

On a 5-point Likert scale (combining 'strongly agree' and 'agree'), all HCPs (15/15) found the GMoMC acceptable, and 14 of 15 (93%) considered it feasible to deliver as part of extended care. They described experiencing increased professional satisfaction when able to provide additional support to women following discharge. Rather than viewing this as an added burden on an already demanding workload, HCPs indicated that the model enabled more efficient use of time by allowing them to prioritise immediate clinical needs while ensuring that appropriate follow-up care was in place.

The majority of GMoMC appointments were conducted face-to-face, with 163 out of 203 (80.3%) held in person. The median time to the next available appointment was 7 days, with a range from 0 to 49 days. On average, consultations lasted 45 minutes, with durations varying between 35 and 90 minutes.

HCPs showed high adherence with the provision of general preconception counselling, with over 95% of patients receiving guidance on folic acid, vitamin D, diet, caffeine, smoking and alcohol.

Interviews with HCPs also demonstrated high satisfaction with the GMoMC as well as indicators of the appropriateness and feasibility of the service.

> ***If anything, I think it might even reduce our stress levels and our workload because we're saying to someone that there is going to be something in place for them. So that actually sometimes limits how many questions they ask and how much time we spend with them because they're like well, I know I'm going to get that time to come back to it. So right now I'm going to deal with grieving and what I'm going through right now.***
>
> - HCP 1

> ***But as a model, I think it's brilliant. I think it's a really good idea and all the feedback I've had anecdotally is that it's massively made a difference to people.***
>
> – HCP 2

> ***Yeah, you know, they're happy that they're getting tests earlier and referrals, but it seems to be like the big thing that they really appreciate is like the validation, you know, and the support after their last loss...and then somebody having the time to do that really.***
>
> – HCP 3

Effects on other services

There were 67 preconception referrals for 51 women (51/203, 25%) in the GMoMC group. 9 out of 67 (13.4%) women had previously been seen by specialist services and 31/67 (46%) of women took up the referrals that were offered through the GMoMC. The reason for referrals is given in Table 2. All receiving services reported minimal impact.

Referrals	**GMoMC** (%, n=203)	**Baseline group*,** (%, n=1200)
Bereavement team	7.88%	4.25%
Perinatal mental health	3.94%	0.92%
Preconception clinics**	5.91%	2.00%
Smoking cessation	9.36%	1.08%
Weight management services	5.91%	3.92%

Table 2. *Service referrals in the usual care and graded model groups*

** Frequencies (%) of referrals for standard care were calculated using data from all 1,200 women whose data was collected during the baseline phase as this best reflects the usual number of referrals made for women attending EPU due to miscarriage.*

***Preconception clinics include cardiac, diabetic, haematology, hypertension, perinatal mental health, neurology and thyroid.*

Modifiable risk factors and treatable health conditions

Risk factors

The GMoMC identified at least 1 modifiable risk factor in 86% (174/203) of women, compared with 58% (118/203) in the usual care group (Relative Risk (RR) 1.47 95% Confidence Interval (95%CI):1.29-1.68) (Figure 9). Women who received the GMoMC were therefore 47% more likely to have these risk factors identified and given appropriate advice and support to help them reduce their risk of future miscarriage.

The GMoMC pathway resulted in markedly more complete and comprehensive assessment of modifiable risk factors compared with usual care. Recording of BMI was almost universal in the GMoMC group (99.0%) but was missing for nearly a quarter of women in usual care (24.1%). Lifestyle factors—smoking, vaping and alcohol use— were also more thoroughly documented with substantial gaps in usual care. The missing data in the usual care group is notable and suggests that key modifiable risk factors are frequently overlooked or insufficiently documented in routine clinical practice.

The pilot also frequently encountered patients who had awareness of potential modifications, such as supplementing vitamin D or folic acid, or reducing caffeine intake, but were unsure of current guidance or support available (such as smoking cessation and replacements), so felt unable to make the changes alone.

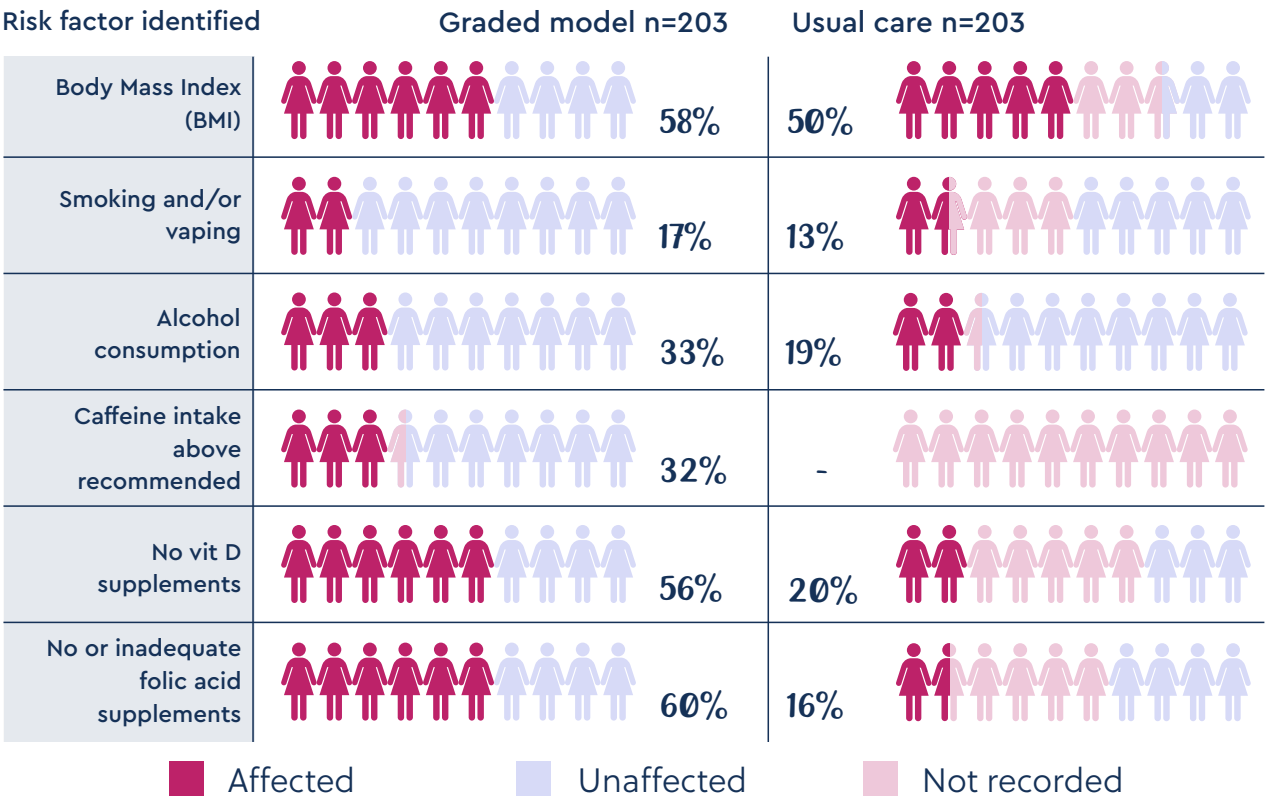

Figure 9. *Identification of modifiable risk factors in the graded model and usual care groups. The percentages represent how many women had these risk factors for miscarriage in each group (also seen through the dark pink shaded people). The light pink figures represent the number of people for whom that specific risk factor was not recorded and the purple shows those who did not have this risk factor present.*

Medical conditions

In the GMoMC group, where women had a blood test and therefore received thyroid function testing after 2 miscarriages, thyroid abnormalities were identified in 10% (4/40) of women (Figure 10).

Of the 40 women who had bloods taken after 2 miscarriages, 4 (10%) were found to have anaemia (Figure 10). There were no women that were affected with both thyroid problems and anaemia, meaning 8 of the 40 women tested were found to have a treatable medical condition. Among the 8 patients with a medical condition, 3 were White (37.5%), 4 were Asian (50%), and 1 reported their ethnicity as 'Other' (12.5%).

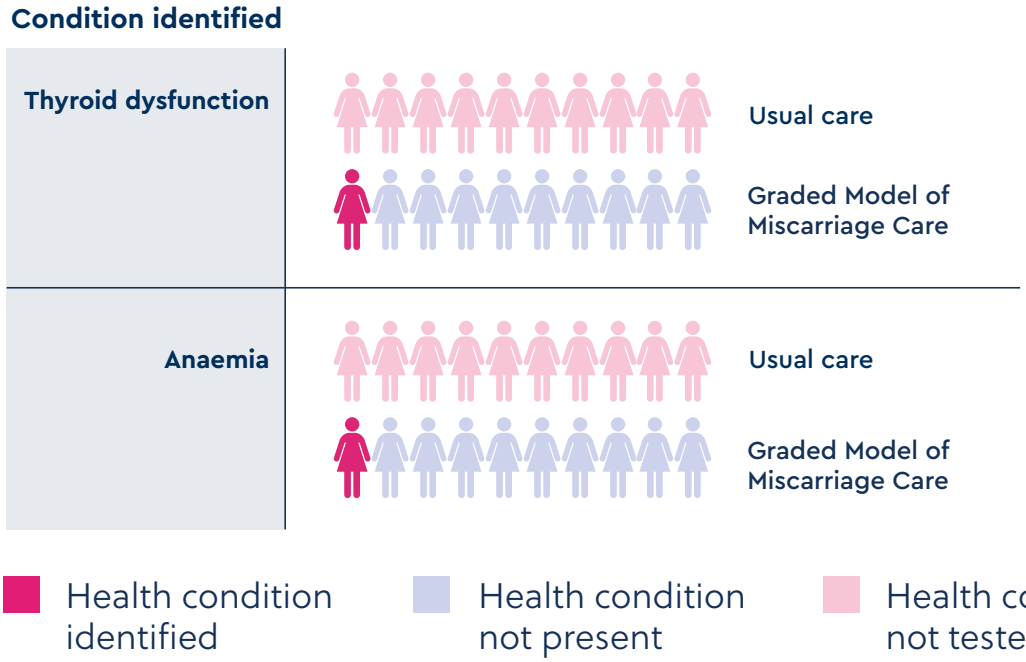

Figure 10. *Health conditions identified through blood tests after 2 pregnancy losses in the graded model group (represented by the dark pink figures). The light pink figures represent no result as these conditions are not routinely tested for after 2 miscarriages. The purple figures represent where a test was provided but no health condition was found to be present.*

Clinical outcomes

Analyses indicate a 10% relative reduction in the odds of miscarriage in women who received the GMoMC compared to usual care (adjusted odds ratio 0.90, 95% CI 0.64–1.26). The calculated odds ratio equates to an absolute risk reduction of 4% in the next pregnancy ending in miscarriage. Absolute risk here measures the total difference in risk of miscarriage between the graded model and usual care group, after adjustment to account for the characteristics of the women in each group. Based on an estimated 250,000 miscarriages in the UK each year, the GMoMC has the potential to prevent approximately 10,075 miscarriages annually.

The GMoMC has the potential to prevent approximately 10,075 miscarriages annually

Although there is statistical uncertainty in this finding, it does suggest a promising positive trend. Further studies, in particular clinical trials, would be needed to fully assess clinical effectiveness of the GMoMC.

Cost consequences

Direct medical costs

Women in the GMoMC group reported the medical care they received following their pregnancy loss at 6 weeks, 3 months, 6 months and 12 months post miscarriage. This included GP visits, emergency care and follow-up scans that were felt to be related to their miscarriage. Costs were calculated for each 28-day recall period and then summed across the timepoints to estimate the cumulative cost. The direct medical cost per woman per miscarriage was calculated to be £166 within 12 months. If these costs are representative of miscarriages across the UK as a whole, direct health costs due to miscarriage alone are likely to exceed £41.5 million each year. This approach does not account for any longer-term or ongoing medical costs due to miscarriage.

Effects on productivity

Miscarriage also impacted employment, with 57% of women in the GMoMC group reporting having taken sickness absence from work in the last 28 days at 6 weeks after their pregnancy loss. During the same timeframe, nearly a third (29%) of women reported working whilst suffering ill health, and almost 28% reported being unable to meet their unpaid work and caring responsibilities.

The effect on productivity was persistent. Many women in the GMoMC group were still affected at 3 months post miscarriage (22.5%, 23% and 12.9% reporting absence from work, working whilst suffering and experiencing limitations to unpaid work, respectively) and some still reported effects at 6 months and 12 months (as shown in Table 3). This demonstrates the profound and lasting effect miscarriage can have.

	6 Weeks	3 Months	6 Months	12 Months
Absent from work (due to ill health, in the previous 28 days)				
Absent, % (n/N)	43% (58/203)	22.5% (20/143)	9.1% (6/108)	6.7% (6/182)
Days absent, mean (SD)	11.2 (8.5)	7.2 (7.4)	4.7 (3.1)	11.8 (12.4)
Working whilst suffering (from the effects of ill health, in the previous 28 days)				
Worked while suffering, % (n/N)	29.1% (37/203)	23.0% (20/143)	12.1% (8/108)	4.5% (4/182)
Days with problems, mean (SD)	7.9 (7.5)	7.3 (7.8)	5.8 (3.5)	6.5 (2.4)
Unable to complete unpaid work (due to ill health, in the previous 28 days)				
Did less unpaid work, % (n/N)	27.9% (53/203)	12.9% (18/143)	8.8% (9/108)	3.8% (5/182)
Days of less unpaid work, mean (SD)	11.8 (8.4)	8.7 (9.2)	10.1 (6.9)	9.4 (10.5)

Table 3. *Productivity effects of miscarriage reported by participants in the Graded Model of Miscarriage Care pilot*

The majority of the women in the pilot study were in work (72.8% employed or self-employed at 6 weeks), and of those working, most were in full-time or close to full-time employment. Whilst there was significant variation across the cohort, it is notable that some women reported extended periods of absence from work, in some cases being unable to work for the whole 28 consecutive days being sampled.

Combined healthcare and productivity effects

When effects on productivity were monetised, they were found to be more costly than direct medical costs and made up a larger proportion of the total cost per sampling timepoint. In total, the cost effects of 1 woman's direct health costs, any additional health or care needs and productivity losses over the 28-day time periods sampled were:

£578
at 6 weeks post miscarriage

£544
at 3 months post miscarriage

£506
at 6 months post miscarriage

£585
at 12 months post miscarriage

Data was not gathered continually over the 12 month follow-up period, so there are data gaps, as shown in Figure 6. However, 28-day sample values can be used to reasonably estimate the cumulative productivity and health cost imposed by miscarriage up to 6 months after the event. The cumulative cost over 6 months was at least £1,626 per woman, adding together the costs at the 6-week, 3 month and 6-month data timepoints. If it is assumed that costs in the gaps between sampling periods equal the average of the 2 sampled periods either side, then the cumulative cost can be estimated to likely be at least £2,670 per woman. Since there are no data samples between 6 and 12 months, estimates beyond 6 months would be unreliable.

The cost over 6 months after miscarriage is
£2,670
per woman

Effects on quality of life

A validated tool called EQ-5D-5L was used to assess quality of life. This takes into account sensation, mobility, pain, cognition and emotion, including mental health elements, such as anxiety and depression. Women who had experienced miscarriage reported poor quality of life scores throughout the follow-up period of the GMoMC. High levels of anxiety were also reported, with 3 in 5 women reporting anxiety and depression <6 weeks after pregnancy loss. This anxiety was persistent, with around 4 in 10 women still reporting anxiety and depression at 12 months.

Overall, a substantial proportion of women who took part in the graded model reported prolonged feelings of anxiety and depression, with those experiencing multiple miscarriages showing slightly higher and more persistent symptoms [36].

Importantly, monetised health loss (derived from quality of life and decline in health and wellbeing reported) at 6 months post miscarriage increased according to the number of previous miscarriages a woman had experienced. This ranged from £963 for women who had experienced 1 loss, to £1,120 for those who had experienced 2 miscarriages, to £1,650 for those who had experienced 3 or more losses. Accounting for the number of women in each category across the study, the average monetised health loss cost was £1,310 per woman.

The average monetised health loss 6 months after miscarriage was
£1,310
per woman

Societal burden of miscarriage

The overall societal burden of miscarriage is composed of 3 distinct cost components. While direct medical costs are modest, the 'hidden' costs of lost productivity and diminished wellbeing are substantial (Table 4). ONS data from July 2025 was also used to compare our findings on health, wellbeing and productivity costs over 6 months to independently calculate productivity costs over 5 years.

Cost type	Average estimated cost per person, per miscarriage
Direct medical costs 12 months after miscarriage (e.g. GP visits, ultrasound, A&E)	**£166** Represents the immediate cost to the NHS (per miscarriage)
Healthcare and productivity loss over 6 months after miscarriage	**£2,670** (per woman, per miscarriage)
ONS productivity loss 5 years after miscarriage*	**£4,101**
Monetised health loss 6 months after miscarriage (The additional societal cost of the severe, prolonged decline in wellbeing)	**£963 / £1,120 / £1,650** Increasing from 1 previous miscarriage, to 2 losses, to 3 or more **£1,310 average, accounting for pregnancy loss history**

Table 4. *Cost component analysis showing direct medical costs, productivity loss and monetised health loss per person per miscarriage*

**The impact of adverse pregnancy events on monthly employee earnings and employment, England: April 2014 to December 2022, ONS, July 2025*

Projected gross savings

The UK-wide figure of 250,000 annual losses was used to calculate the potential number of miscarriages that could be prevented assuming the 4% absolute risk reduction - derived from pilot data and subject to statistical uncertainty - holds true nationally. Savings are then calculated using the adjusted absolute risk difference, rather than the relative effect estimate. Therefore, with an estimated 10,075 miscarriages prevented each year, we project savings of:

£40,098,500
in the short term (1 year)

This is comprised of:

- Productivity losses and healthcare costs (6 months): £26,900,250 based on the average combined cost of £2,670 per miscarriage, including direct medical costs
- Monetised health loss (6 months): £13,198,250 based on an average loss of £1,310, accounting for women's miscarriage history

Recently, the ONS published data demonstrating the effect on the earnings of women who had experienced spontaneous pregnancy loss over a period of 5 years, calculating a direct loss in earnings to each woman of £4,101 [18].This is comparable to the estimate from the graded model cohort of £2,670 in productivity losses and health costs over 6 months. Since there is no productivity data beyond 12 months from the pilot, longer-term savings in productivity have been estimated using the ONS data alongside the short-term direct medical costs and monetised health losses calculated from the pilot. This gave a crude estimate of the minimum cost saving associated with preventing miscarriages through implementation of graded care. This gives a predicted minimum saving of:

£56,188,275
in the long term (up to 5 years)

This is comprised of:

- Direct medical costs (12 months): £1,672,450 based on the immediate cost to the NHS per miscarriage of £166
- Monetised health loss (6 months): £13,198,250 based on an average loss of £1,310, accounting for women's miscarriage history
- Productivity loss (5 years): £41,317,575 based on ONS average of £4,101§

§ In this calculation the 6-month productivity loss value generated from GMoMC patient questionnaire data was replaced for the 5-year productivity costs calculated by ONS. Unlike the short-term GMoMC data-derived value, the 5-year estimate only accounts for lost earnings from 6 months to 5 years after pregnancy loss and does not include effects to health and wellbeing or other productivity losses like unpaid work or working whilst sick (presenteeism).

Intervention costs

During the GMoMC pilot, 203 patients were seen by 2 staff members working approximately 50% full-time equivalent. This care included 73 reassurance scans, 40 blood tests and 67 preconception referrals during intervention and follow-up. The graded model is designed to fit 'on top' of existing recurrent miscarriage services, which are open to referral for all women who have experienced 3 miscarriages. Therefore, the costs of the graded model are calculated based on what is needed over and above the existing service provision.

Projected across all 171 EPUS in England (with Birmingham Women's Hospital as a benchmark), and assuming an additional 36% uptake (to account for those who declined to take part in the research study), it is likely that the following services would be required annually: approximately 79,207 reassurance scans, 33,435 blood tests and 72,641 referrals to other services.

The total cost of providing miscarriage care to women after the first miscarriage and aligning all care to the graded model framework was calculated based on the resources needed at Birmingham Women's Hospital EPU as an average requirement, multiplied by the estimated 171 EPUs across England. The costing comprises:

£11,530,872
for staffing – based on 2 Band 7 nurses, both working 50% full-time equivalent

£3,345,007
for additional scans and tests – based on £3,095,766 for reassurance scans and £249,241 for additional blood tests

Therefore, the total estimated annual operational cost of offering the GMoMC through EPUs across England is:

£14,875,879

Costs would be higher for UK-wide roll-out of the model. However, there is a possibility of this being done with less resource per unit than estimated above, depending on existing resource in each EPU and population needs.

Note that this costing does not account for anticipated savings to standard recurrent miscarriage services generated firstly by a reduced number of women suffering 3 or more pregnancy losses and secondly for those women who receive graded care having early intervention to address risk factors and health conditions.

Net savings

Using the calculations[‖] above and accounting for estimated operational costs of the intervention, the predicted overall net short-term saving of implementing the model is:

£25,222,261
based on costs that would otherwise be incurred over 1 year

And the predicted net long-term saving is:

£41,312,396
based on costs that would otherwise be incurred over 5 years

These are likely to be underestimates, given that healthcare use directly following the miscarriage may not have been captured (the first sampling period was at 6 weeks and covered the preceding 28 days) and there was no sampling of healthcare costs between 6 and 12 months, though the pilot found that some women were still reporting direct health costs related to their miscarriage at the 12 month timepoint. Additionally, the longer-term estimate uses ONS data rather than GMoMC data, therefore effects on wellbeing beyond 6 months have not been costed for. The data collected during the pilot do not allow for modelling beyond 6 months, though there is a snapshot calculation for the effect at 12 months and the ongoing effect on health and wellbeing at that point is still substantial, equating to £585 per woman on average.

These estimates only account for a single annual cohort of women being treated and 1 year of intervention costs. The intervention costs would be recurrent, though savings to existing miscarriage services are anticipated through reducing demand from women with higher numbers of miscarriage. Conversely, the health, productivity and wellbeing costs would be cumulative over time and as more cohorts of women benefit from graded care. Since predicted savings outstrip predicted costs in year 1, the cumulative savings would far exceed the investment needed. However, the magnitude of the long-term cost effects cannot be estimated from the pilot data.

‖ Due to the lack of reliable estimates for the prevalence of miscarriage in England alone, the gross savings, which use the UK-wide figure of 250,000 annual losses, were used to calculate the net savings.

Being part of the research project was invaluable, especially since some tests are usually available only after a higher number of miscarriages. This support has been crucial given our circumstances, age, and limited remaining embryos.

We were so fortunate to receive this excellent care from Tommy's Research Centre. It was really supportive in providing affirmation that our loss, despite being so early, was significant to us and care and respect has been shown around our bereavement.

Emily, who had 2 miscarriages and took part in the graded model pilot study

Putting women and healthcare professionals at the heart of miscarriage care

This pilot study found that the GMoMC offers a structured approach that combines evidence-based management with supportive care while optimising healthcare resources. The model neither normalises nor over-medicalises miscarriage and is associated with high satisfaction among patients.

Care that women value

The model was taken up by the majority of women it was offered to (64%), and those who declined often cited not wanting to take part in research. The value of receiving care and support is clear through the extremely moving patient testimonies gathered from women and families who otherwise felt alone with their loss, not knowing how to move forward or manage their fear of another miscarriage.

Offering the Graded Model of Miscarriage Care would bring dignified and compassionate care to the many thousands of neglected women and their families who currently receive no specific pregnancy loss support except at the point of acute or emergency need.

The World Health Organization (WHO) describes patient experiences as a fundamental component of healthcare quality [37]. Patient satisfaction is also one of the predictors of the psychological impacts of miscarriage. Women and partners who report satisfaction with the emotional care they received following a miscarriage are less likely to experience subsequent grief, depression or anxiety [38,39].

Care that leaves no one behind

There was strong demand for the GMoMC amongst all ethnicities (almost 50% of patients were recruited from minoritised ethnic backgrounds). Additionally, our patient interviews demonstrated that the GMoMC can reduce barriers to care and help overcome stigma around pregnancy loss. By providing consistent care to all women after every miscarriage, the model could prevent those at highest risk of pregnancy complications and loss who need this care the most from falling through gaps.

This is important because there is racial disparity in the incidence of adverse perinatal outcomes. These can in part be explained by the plausible biological, genetic and environmental causal pathways but may also be reflective of difficulties in accessing care and poor experience of care. Cultural narratives can shape the meaning that is attached to early pregnancy loss but also inform expectations of care received [40]. Minoritised groups, including non-English speakers, those from minoritised ethnic backgrounds, LGBTQ+ individuals, single people and those experiencing deprivation, are at risk of discrimination within maternity services, emphasising the importance of cultural humility and equitable practice [40].

Care that works for those delivering it

For any change to be successfully integrated into routine clinical practice, the support and engagement of HCPs is essential. HCPs play a crucial role in shaping how patients experience pregnancy loss, with the potential to significantly improve care. However, existing literature consistently highlights that many women have largely negative experiences following early pregnancy loss, often due to a mismatch between their needs and the care provided. These gaps in care are frequently attributed to a lack of training in addressing the psychosocial aspects of miscarriage, time constraints, and compassion fatigue among staff [41].

In the current NHS climate of workforce and funding challenges, this research demonstrates a much-needed service is feasible and acceptable to staff. The HCPs involved in this study unanimously agreed that there is a gap in care for miscarriage and there was strong agreement that the GMoMC was feasible. Many of those interviewed reported that it helped streamline their workload, as they could refer patients to a dedicated follow-up appointment. This appointment allowed time to address unanswered questions, manage uncertainty and support preparation for a future pregnancy—ultimately enhancing the quality of care without increasing the immediate burden on staff. These findings give hope that this service is scalable and sustainable.

Optimising women's health at a crucial time

The time between miscarriage and planning a future pregnancy is crucial and warrants greater attention. Preconception care encompasses a range of interventions, including optimisation of medical conditions, medication review and lifestyle factors such as folic acid supplementation to reduce neural tube defects. It aims to identify and modify medical, behavioural and social risk factors, particularly those requiring intervention prior to conception or in early pregnancy to have the greatest impact [42-46]. National guidance, including NHS preconception information [47], highlights care beyond miscarriage services, such as vaccination updates and optimisation of existing treatments. Preconception genetic testing is not routinely indicated for all couples but may have a role in selected cases, such as where there is a relevant family history or known genetic risk.

The importance of preconception and interpregnancy care is reflected in national priorities, including the NIHR Challenge: Maternity Disparities Consortium [48], a 5-year initiative launched in 2024 to address inequalities in maternity outcomes, particularly among minoritised ethnic women and those from socioeconomically disadvantaged backgrounds. National registry data from England (n = 653,000) show that 92% of women have at least one modifiable risk factor prior to pregnancy, most commonly lack of folic acid supplementation (73%), alongside smoking, overweight and obesity (50%) and pre-existing physical (19%) or mental health conditions (9%), with higher burden among deprived and minoritised ethnic groups [49].The UK Preconception Partnership has further emphasised this through the development of a Preconception Care Toolkit [50], supporting delivery of comprehensive care and national monitoring via a preconception 'report card'.

The GMoMC provides an important platform for broader preconception and interpregnancy care. By extending care beyond acute miscarriage services, it enables greater time, continuity and proactive engagement, supporting delivery of more comprehensive interventions aligned with national guidance and offering potential to expand further in line with resources such as the Preconception Care Toolkit.

Observational data indicate low uptake of pre-pregnancy care in primary care settings, with only 7.6% of women attending appointments in the 12 months prior to pregnancy [51]. As interventions initiated after conception often have limited impact [52], strengthening preconception care is essential. The period following miscarriage offers a valuable window for engagement, supported by high recruitment in this study. Many modifiable risk factors associated with miscarriage are shared with other adverse outcomes, including preterm birth and stillbirth; addressing these may improve obstetric outcomes and long-term maternal health.

Many patients tell us that miscarriage has been a turning point for them. Implementation of the GMoMC would provide a pragmatic and feasible opportunity to support women to improve their health, which is vital for a successful pregnancy, but could also support improved lifelong family health.

Care that improves identification of risk factors

Maternal health before and during pregnancy can determine long-term outcomes for both mother and child and support women to improve their health before getting pregnant is a key public health priority [52,53].

The pilot's findings show that many modifiable factors are often overlooked in routine clinical care. The women who received graded care were 47% more likely to have 1 or more modifiable risk factors identified than those receiving usual care, suggesting that implementation of the GMoMC could improve the health of thousands of women who are hoping for a successful pregnancy.

Most of the risk factors assessed during the GMoMC are widely known in early pregnancy care and should be routinely addressed. Therefore, it is unsurprising that the differences between the graded care and usual care groups for several of the more well-known factors, for example, BMI, smoking and alcohol consumption, are quite modest. However, the pilot found that factors such as supplementation with vitamin D and folic acid, and specifically the most appropriate dose of folic acid, were often missed in usual care. The cumulative combined effect of routinely assessing for all of these risk factors within GMoMC led to a significant difference in the number of women identified as needing further advice and support to reduce their risk.

There was no indication that ethnicity affected the likelihood of identifying risk factors. The modifiable risk factors investigated (such as BMI and smoking) are known to vary across a range of demographics, such as socioeconomic status, age and educational attainment level, as well as ethnicity. The numbers in this pilot were too small to control for other/multiple characteristics, but it is possible that identification of some risks may vary by ethnicity and socioeconomic status which may be evident in a larger cohort.

Regardless, by making risk factor identification consistent and offering advice and support through the graded model, women from minoritised communities, who may not have previously had the right support following a miscarriage, would have the advice they need to help improve their overall health.

Care that detects medical conditions earlier

Medical conditions contribute significantly to maternal morbidity and mortality. Early recognition of these conditions allows timely interventions and coordination with specialists to improve maternal health before conception.

The MBRRACE 2025 report emphasises the need to bridge gaps in maternity care, advocate for early referral into EPUs for high-risk women (such as those with existing health conditions associated with pregnancy risks, or previous obstetric complications associated with future risk or at additional risk due to BMI or medication) and focus on improving preconception health [4]. The majority of women in the pilot had one or more existing heath conditions, most had a BMI outside the ideal range and some had previous obstetric complications (as well as miscarriage). Therefore, the GMoMC is well placed as a framework to bridge these care gaps.

One fifth of women who had 2 miscarriages and received graded care had thyroid problems or anaemia diagnosed. The reality that women receiving usual care would have had to experience another miscarriage before getting simple blood tests, emphasises the need of addressing these conditions, that increase the risk of future miscarriage and other pregnancy complications, in a timely fashion [54].

A substantial proportion of women in the pilot also reported prolonged psychological distress with those who had experienced multiple miscarriages showing slightly higher and more persistent symptoms [36]. The pilot findings of prolonged psychological distress in many of those who had experienced miscarriage underscore the need for a standardised psychological assessment tool and ongoing support for this group.

Care that could save babies' lives

This pilot study was intended to address concerns that changes to miscarriage care were not feasible and would place too much burden on health services. However, use of a carefully matched control group and effective follow up of most patients involved in the study in both the usual care and GMoMC groups enabled the analysis of whether the GMoMC might affect pregnancy outcomes.

Encouragingly, there was a reduction in the risk of miscarriage for those women who received graded care. Whilst the magnitude of the reduction in risk was small, at 4%, this could still translate into 10,075 fewer women experiencing pregnancy loss under GMoMC each year. It is also possible that further research on a larger cohort of women may find a larger or more statistically certain effect on risk of future miscarriage.

Understanding is also hampered by the lack of available data on miscarriages in the UK, which is needed to assess the true scale of the problem. A commitment from all 4 devolved nations to improve the collection of miscarriage data would help to better understand the model's effectiveness in reducing miscarriage risk, showing how many more lives could be saved and guiding interventions to reduce the rates of miscarriage.

Care that evolves with new tests and treatments

Having a consistent, nationwide framework for miscarriage support will also facilitate more improvements in miscarriage care at pace. New screening, tests and treatments can easily be added at the appropriate point in the framework to reach the patients who need them.

For example, a prospective, multi-centre validation study is underway to evaluate the diagnostic accuracy of a quick and simple questionnaire (known as CORE-10) in detecting psychological distress in women after miscarriage. If the CORE-10 tool can be validated against the current gold standard detailed clinical interview, it could easily be integrated into the GMoMC. This would facilitate earlier and more effective identification of psychological distress related to pregnancy loss, and better, more timely referral to appropriate care.

Graded care also included gathering information on risk factors related to the partners of those who participated. Women valued this approach and importantly, involvement of partners provides further opportunities to address miscarriage risk. Male factors, such as age, diet, smoking, health conditions and genetics are increasingly being recognised as contributing to miscarriage risk [55].

The Tommy's Net database that is used to collect data on patients involved in miscarriage research across the UK, also includes partner data [56]. Tommy's National Centre for Miscarriage Research plans to use this database as a platform for new clinical trials including those with interventions aimed at male risk factors for miscarriage. As clinical trials identify effective interventions, the graded model would provide the appropriate infrastructure to deliver treatments to those who will benefit the most.

Care that makes economic sense

Patchy and inconsistent care for miscarriage undermines efforts to improve maternal health and will likely lead to higher long-term costs to both health and society.

The health, productivity and wellbeing costs measured in the study are conservative. Using 28-day sampling gives robust cost estimates for those timepoints, but means costs are estimated for the unsampled periods. Even so, the predicted savings of over £40 million made here, taking into account medical care, sickness absence from work and effects on wellbeing in the immediate months after a pregnancy loss, is significant and would make a tangible difference even with the deduction of the estimated cost of implementation (£15 million).

The Miscarriage Matters series [2,5,6], showed the wealth of data highlighting the negative impacts associated with miscarriage that can affect women from the very first loss. This includes increases in prevalence of mental health problems, risks in future pregnancies and risks of long-term health problems like cardiovascular disease. Additionally, we know that there are long-term wellbeing and productivity effects, and the risk factors and health conditions identified in the population at risk of miscarriage during the GMoMC are likely to cause additional future health problems if not addressed. These effects can be quite removed in terms of timing and apparent connectedness to miscarriage, but all contribute to the total costs of miscarriage; to the women experiencing loss, their families and wider society, and could be tens of thousands of pounds per pregnancy loss.

This model also has the potential to reduce the physical and emotional consequences that lead to absence from the workforce, in other words, generate economic savings by reducing productivity loss. Data gathered in the pilot on healthcare use and productivity and wellbeing losses directly resulting from miscarriage clearly show the potential for the GMoMC to deliver £25 million of net savings in England just in the short term with the cumulative economic benefits being a lot larger per additional year of miscarriages prevented.

If the medical, quality of life and productivity costs reported by the women in the graded model pilot hold true for all miscarriages across the UK (estimated at 250,000 per year) the overall economic burden of pregnancy loss may well exceed £1 billion annually¶. Intervening early is therefore not only the right thing to do, it is more economically efficient.

¶ Calculated with the assumption that the direct medical costs, productivity losses and monetised health losses from the pilot study hold true for all miscarriages across the UK. The UK-wide 250,000 annual losses figure was used to scale these cost figures up.

Conclusion

For many women and birthing people, a miscarriage can be the start of an incredibly challenging journey, from increasing risk of poor obstetric outcomes to initiating widespread effects on physical and mental health, productivity and wellbeing. These effects were explored in detail in the Miscarriage Matters Lancet series [2,5,6].

Stakeholder consensus meetings held as part of the evidence gathering for the Miscarriage Matters research led to the recommendation for a graded approach for miscarriage care, but at the time there was no available evidence that it worked.

This pilot study on implementing the GMoMC demonstrates the first tangible evidence for what many patients and experts have long suspected – there is no need and no merit in waiting for 3 miscarriages to provide dedicated care. We can and must do better.

The model provides a framework that enables healthcare professionals to provide high-quality care at the right time and can be delivered even in the context of stretched services. With the right funding and workforce, demand for the GMoMC and the consequences of that care can be met and may even streamline delivery of wider care by professionals.

Furthermore, and most importantly, it could prevent future pregnancy losses and improve general health in those who receive care and possibly their partners and families. The GMoMC's universal approach to identifying and addressing miscarriage risk factors and easily treatable conditions supports Government aims to shift to preventative care, tackle maternal health inequalities and improve women's long-term health outcomes.

Despite graded care being one of the key recommendations from the Independent Pregnancy Loss Review (2023) [57], policy and practice interventions to improve miscarriage care and reduce the rates of miscarriage have been limited. Miscarriage can be a devastating point in women's and their families' lives, but the Tommy's Graded Model of Miscarriage Care provides an important opportunity to change the course of the journey for so many people affected by pregnancy loss.

Scotland has taken the first step, embedding this model into its miscarriage pathway (2025) [58] – we need to learn from their implementation of the model and ensure consistent delivery across the UK.

Roll-out across all 4 nations would address the significant gaps in care following miscarriage and improve outcomes for both women's health and their future pregnancies. Policymakers and healthcare commissioners should prioritise the integration of this model into maternity and early pregnancy services to ensure equitable, evidence-based support for all from their first pregnancy loss.

Recommendations

England, Wales, and Northern Ireland must implement the Graded Model of Miscarriage Care, supported by ring-fenced funding, guidance and training.

Scotland must continue to prioritise and fund the implementation of the Graded Model of Miscarriage Care, ensuring consistent delivery across the country.

Governments across all 4 devolved nations should commission an implementation and evaluation programme to support sharing of good practice and learnings at local, regional and national level and to assess effectiveness.

Governments across all 4 devolved nations must improve the collection and publication of miscarriage data to support understanding of the full scale of the problem and enable design and evaluation of interventions aimed at reducing miscarriage rates.

Strengths, limitations and future work

The strengths of this study include its prospective design, consecutive recruitment and high engagement across patients from minoritised ethnic communities. The inclusion of participants with varied miscarriage histories enhances the ability to generalise the findings. Additionally, the use of a comparison group receiving usual care strengthens the ability to assess the impact of the GMoMC.

However, some limitations should be noted. Most participants were recruited through the EPU, which may represent a higher-risk population. Therefore, in risk reduction calculations we looked at absolute risk, rather than relative risk. The small numbers in the calculation, due to the aim of the study being for feasibility, means that the finding of reduced risk should only be interpreted as a signal for effectiveness.

Information about future pregnancy outcomes were from a combination of patient reported information and medical records. Because of this, some miscarriages during future pregnancies where patients did not need or choose to attend an EPU might have been missed, and self-reporting can introduce some bias.

It should also be noted that Birmingham Women's Hospital is a tertiary care unit with well-established pre-pregnancy clinics and links to support services. These kinds of services may not be as available in smaller hospitals.

Net savings for introducing the graded model, alongside existing recurrent miscarriage services, were calculated for England as the model is already available in Scotland and service provisions in home nations are devolved. However, effect sizes for potential miscarriage reduction could only be calculated using UK figures, as no single nation-level figures exist.

For calculations of healthcare, productivity and wellbeing costs, 28-day recall sampling was used over 4 timepoints. This provided a wealth of data, exceeding that collected in other studies, which mostly focussed on the immediate time period after miscarriage. The approach was also pragmatic as asking women to complete questionnaires covering a continuous 12-month period following loss would be infeasible. Gap-filling between our 28-day 'snapshots' allowed for modelling of costs over 6 months following pregnancy loss, but could not be used to model reliably beyond this point.

Further work is ongoing to explore the impact of the GMoMC on the delivery of other areas of maternity care in more depth. This includes a detailed qualitative analysis of interviews to identify case study examples of acceptability, feasibility, effects on inequalities and broader impacts on care delivery as well as barriers or enabling factors for implementation. The results of these analyses will be published separately.

Contextualising the findings of this work, and all research into pregnancy loss, is also limited by the lack of accurate methods to measure the scope and scale of pregnancy loss. Many millions of patient medical records are now digitised, but accurate data on how common pregnancy loss is relies on data linkage between GPs and hospitals as well as recording of gestation dates and other information, which we know are lacking in the available records. We also believe, but can't prove due to lack of data, pregnancy loss is increasing, driven by increasing population and maternal age and prevalence of chronic health conditions so previous estimates may be out of date.

However, we do know that the network of over 200 Early Pregnancy Units across the UK could yield rich data that has been underused to date. We have work underway to use EPU survey data alongside modelling methods to generate new evidence on the scale and clinical consequences of miscarriage in the UK.

Future research should also expand the scope of care and explore the relevance of the graded model to other types of pregnancy loss, such as ectopic pregnancies. Recognising that reproductive outcomes are influenced by both maternal and paternal factors, care models should actively include partners; in this study, a total of 172 out of 203 patients (84.7%) completed the medical history with input from their long-term partner, indicating a high level of partner involvement in the process.

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Appendices

Patient baseline questionnaire

Name:	
Date of birth:	
Hospital number:	
NHS number:	
Email address:	
Contact number:	
Ethnicity:	
Occupation:	
Women's health:	
Gravida and Parity history Includes: Natural/assisted reproductive technology conception outcome of pregnancies (e.g. ectopic pregnancy, live birth, miscarriage etc.), gestation, management of loss (medical, surgical or expectant management), mode of delivery, birth weight and any complications (e.g. preterm birth, antepartum haemorrhage)	
If applicable any previous investigations for miscarriage	
Periods:	regular/ irregular/ length of cycle/ any post-coital or intermenstrual bleeding
Date of last smear:	
General health:	
Past medical history	
Past surgical history	
Drug history and allergies	
Family history	
Are you and your partner blood related?	
Modifiable behaviours:	
Do you currently drink alcohol?	Y/N
Do you currently smoke or vape?	Y/N
Do you take any recreational drugs?	Y/N
How many cups of coffee do you drink in a typical day? Do not count decaffeinated drinks	
How many cups of tea do you drink in a typical day? Do not count decaffeinated drinks	
How many cans (or equivalent) of soft drink do you drink in a typical day? Do not count decaffeinated drinks	
Do you currently take any vitamins or supplements?	
Height (cm)	
Weight (kg)	
BMI:	

Implementation checklist

Number of previous miscarriages:	1/2/3 or more
Preconception advice:	
Folic acid advice given:	Y/N/Not indicated
Vitamin D advice given:	Y/N/Not indicated
Diet advice given:	Y/N/Not indicated
Caffeine advice given:	Y/N/Not indicated
Smoking cessation advice given:	Y/N/Not indicated
Alcohol advice given:	Y/N/Not indicated
Further investigations:	
2 miscarriages:	full blood count and thyroid function testing (TSH, T4 and anti-TPO)
3 or more miscarriages:	full blood count, thyroid function testing (TSH, T4 and anti-TPO), antiphospholipid syndrome testing (anticardiolipin antibodies, beta-2- glycoprotein antibodies and lupus anticoagulant) and transvaginal 3D ultrasound scan, fetal cytogenetics and parental karyotyping (if 5 or more miscarriages)
Optimising pre-existing conditions:	
Is referral to primary or secondary care services needed for review and optimisation of maternal medical conditions?	Y/N/Not indicated
Referred to which service?	
Patient support:	
Patient information leaflet	
Contact email given for miscarriage service	
Signposting to local and national patient groups	
Signposting to Tommy's miscarriage support tool	
Referral to recurrent miscarriage clinic (for women with 3 or more miscarriages)	

Patient Information Sheet – After 1 Miscarriage

Tommy's

NHS
Birmingham Women's and Children's
NHS Foundation Trust

Dear

We are so sorry you have suffered a miscarriage. We appreciate this is an extremely difficult time for you and we hope to offer you support and advice.

It's really important to remember that if you choose to try again, your chance of a successful pregnancy remains high.

These are some of the answers to questions that you might find helpful with QR codes that lead you to more information.

When's the right time to try again?

There is no right answer but there is no physical reason that you should not try when you feel able. Generally, women try again when they feel physically and mentally better. There is some evidence that getting pregnant in the first 6 months after a miscarriage lowers your risk of miscarriage next time.

Will I have another miscarriage?

You are more likely to have a successful pregnancy than another miscarriage, but it's not guaranteed. You can visit the Tommy's Miscarriage Support Tool at www.miscarriagetool.tommys.org to find out what your chance is when other factors have been taken into account.

Can I reduce my risk of another miscarriage?

There are areas where we can all improve our general health and reduce the risk of miscarriage, but however hard you try, you can't completely rule out the chance of another miscarriage. No one can.

It's helpful to know the difference between a risk and a cause. Take alcohol for example: we know that regular or heavy drinking in pregnancy raises the risk of miscarriage; but even if you drank alcohol in your last pregnancy, that doesn't mean it caused your miscarriage.

If you have any bleeding in your next pregnancy, you should be started on progesterone vaginal pessaries, 400mg twice daily from when the bleeding starts, until 16 weeks of pregnancy to reduce the risk of miscarriage.

What can you and your partner do?

Your health before pregnancy will affect the lifelong health of your baby.
By following the advice on the next page you can:

- improve your fertility
- protect your baby's future health
- bring down your risk of problems in pregnancy.

Diet

Eat a healthy balanced diet with plenty fruit and vegetables

Tips for healthy eating

Alcohol

There is no known safe level of alcohol in pregnancy. We know that drinking large amounts of alcohol increases the risk of miscarriage.

Because you will not know you're pregnant for the first few weeks, the safest thing to do is not drink any alcohol at all if you're trying for a baby.

Drinking more than the recommended limit (14 units/week) can affect male fertility too.

Caffeine

Too much caffeine in pregnancy has been shown to be harmful to the developing baby.

If you're planning to conceive, you should consider limiting your caffeine intake to 200mg a day.

Use this handy caffeine calculator to see how much you have in a day

Exercise

Being sedentary (sitting down a lot) raises the risk of pregnancy complications. We recommend that you stay active for at least 20-30 minutes, 3 times a week.

You and your partner may find it helpful to support each other to lead a healthier lifestyle. This has health benefits for your body and mood and it could reduce the risk of miscarriage.

Weight

If you are underweight or overweight, aim to come closer to a healthy body mass index (BMI). This is between 18.5-24.9.

Try this BMI calculator

Coping with stress and anxiety

It's normal to feel very low after a miscarriage, but for most people this feeling should start to improve after some time. It can affect women or birthing people and men. It's important to be kind to yourself and talk to someone about how you are feeling. This could be your partner, friends, family or your GP, a Tommy's midwife or The Miscarriage Association.

If you would like to speak to a Tommy's midwife, email **midwife@tommys.org** or call them for free on 0800 014 7800 (Monday to Friday, 9am to 5pm)

For some people, losing a baby can lead to anxiety, depression or PTSD. It's really important to see your GP to be assessed and referred for support and/or treatment.

Long term illness

If you have a long-term illness, such as epilepsy, diabetes or a mental health condition that needs medication, talk to a doctor about the medication you are on.

They will make sure you are on the safest medication for pregnancy and support you make sure your condition is under good control. This can help reduce the chance of miscarrying and support a healthy pregnancy.

Folic acid and vitamin D

Take 400mcg a day from 3 months before trying for a baby until week 12 of pregnancy. This gives protection to the baby against spina bifida and other neural tube defects.

You should take the higher dose of 5mg daily if you have epilepsy, diabetes, a BMI higher than 30 or if you have had a baby affected by, or a family history of, spina bifida. Get a prescription from your GP

Vitamin D is an essential nutrient regardless of whether you're pregnant. You should take a 10 microgram (or 400 IU) supplement of vitamin D each day

What can my GP do?

Your GP can help guide you to specialist services (smoking cessation, dieticians, weight loss programmes) and help get long term conditions in control where needed before you try for a baby again.

They can also help you get support and treatment if you are concerned about your mental health after your loss (this is not uncommon).

If you have bleeding early in your next pregnancy, your GP or early pregnancy unit may be able to prescribe progesterone, Utrogestan vaginal pessaries, 400mg twice a day from when the bleeding starts up to 16 weeks.

What can men do?

Smoking, drinking too much alcohol, being overweight and having a diet that is not high in nutrients can all affect the quality of sperm. To make sure sperm is healthy, we advise men to ejaculate regularly (every day if possible).

Smoking

If you smoke, quitting is the best possible thing you can do. It affects male and female fertility as well as harming the developing baby. It also increases the chances of miscarriage and harms the baby's health.

If you smoke, get support to stop. Nicotine replacement therapy (NRT) is safe in pregnancy. The evidence around using vapes to quit isn't clear but we know it is safer than smoking tobacco as the toxins and poisons in tobacco smoke are very harmful.

NHS Smokefree helpline 0300 123 1044 or get the Quit Smoking app here

You can take a quiz to see whether there are other risks you could reduce.

Search "Tommy's planning for pregnancy tool" or use this QR code:

We wish you all the very best and please remember that the majority of women will have a healthy pregnancy even after 3 miscarriages.

The team at Tommy's National Centre for Miscarriage Research are working closely with the Early Pregnancy Unit at Birmingham Women's Hospital to reduce the number of miscarriages, and improve the care of people going through miscarriage.

Patient Information Sheet – After 2 Miscarriages

Tommy's

Birmingham Children's and Women's NHS
NHS Foundation Trust

Dear

We are so sorry you have suffered another miscarriage. We appreciate that this is an extremely difficult time for you and we hope to offer you support and advice.

It is not always possible to find a reason for miscarriages. However, one of the nurses will see you in around 6 weeks to carry out some investigations to check that you are not anaemic and that your thyroid function is healthy. We know this can have an effect on risk of miscarriage.

It's really important to remember that if you choose to try again, your chance of a successful pregnancy remains high.

These are some of the answers to questions with QR codes that lead you to more information.

When's the right time to try again?

There is no right answer but there is no physical reason that you should not try when you feel able. Generally, women try again when they feel physically and mentally better. There is some evidence that getting pregnant in the first 6 months after a miscarriage lowers your risk of miscarriage next time.

Will I have another miscarriage?

You are more likely to have a successful pregnancy than another miscarriage after 2 miscarriages, but sadly it's not guaranteed. You can visit the Tommy's Miscarriage Tool at www.miscarriagetool.tommys.org to find out what your chance is, when other factors have been taken into account.

Can I reduce my risk of another miscarriage?

There are areas where we can all improve our general health and reduce the risk of miscarriage, but however hard you try, you can't completely rule out the chance of another miscarriage. No one can.

It's helpful to know the difference between a risk and a cause. Take alcohol for example: we know that regular or heavy drinking in pregnancy raises the risk of miscarriage; but even if you drank alcohol in your last pregnancy, that doesn't mean it caused your miscarriage.

If you have any bleeding in your next pregnancy, you should be started on progesterone vaginal pessaries, 400mg twice daily from when the bleeding starts, until 16 weeks of pregnancy to reduce the risk of miscarriage.

What can you and your partner do?

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By following the advice on the next page you can:

- improve your fertility
- protect your baby's future health
- bring down your risk of problems in pregnancy.

Diet

Eat a healthy balanced diet with plenty fruit and vegetables

Tips for healthy eating

Alcohol

There is no known safe level of alcohol in pregnancy. We know that drinking large amounts of alcohol increases the risk of miscarriage.

Because you will not know you're pregnant for the first few weeks, the safest thing to do is not drink any alcohol at all if you're trying for a baby.

Drinking more than the recommended limit (14 units/week) can affect male fertility too.

Caffeine

Too much caffeine in pregnancy has been shown to be harmful to the developing baby.

If you're planning to conceive, you should consider limiting your caffeine intake to 200mg a day.

Use this handy caffeine calculator to see how much you have in a day

Exercise

Being sedentary (sitting down a lot) raises the risk of pregnancy complications. We recommend that you stay active for at least 20-30 minutes, 3 times a week.

You and your partner may find it helpful to support each other to lead a healthier lifestyle. This has health benefits for your body and mood and it could reduce the risk of miscarriage.

Weight

If you are underweight or overweight, aim to come closer to a healthy body mass index (BMI). This is between 18.5-24.9.

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Coping with stress and anxiety

It's normal to feel very low after a miscarriage, but for most people this feeling should start to improve after some time. It can affect women or birthing people and men. It's important to be kind to yourself and talk to someone about how you are feeling. This could be your partner, friends, family or your GP, a Tommy's midwife or The Miscarriage Association.

If you would like to speak to a Tommy's midwife, email **midwife@tommys.org** or call them for free on 0800 014 7800 (Monday to Friday, 9am to 5pm)

For some people, losing a baby can lead to anxiety, depression or PTSD. It's really important to see your GP to be assessed and referred for support and/or treatment.

Long term illness

If you have a long-term illness, such as epilepsy, diabetes or a mental health condition that needs medication, talk to a doctor about the medication you are on.

They will make sure you are on the safest medication for pregnancy and support you make sure your condition is under good control. This can help reduce the chance of miscarrying and support a healthy pregnancy.

Folic acid and vitamin D

Take 400mcg a day from 3 months before trying for a baby until week 12 of pregnancy. This gives protection to the baby against spina bifida and other neural tube defects.

You should take the higher dose of 5mg daily if you have epilepsy, diabetes, a BMI higher than 30 or if you have had a baby affected by, or a family history of, spina bifida. Get a prescription from your GP

Vitamin D is an essential nutrient regardless of whether you're pregnant. You should take a 10 microgram (or 400 IU) supplement of vitamin D each day

What can my GP do?

Your GP can help guide you to specialist services (smoking cessation, dieticians, weight loss programmes) and help get long term conditions in control where needed before you try for a baby again.

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Patient Information Sheet – After 3 Miscarriages

Tommy's

NHS
Birmingham Women's and Children's
NHS Foundation Trust

Dear

We are so sorry you have suffered another miscarriage. We appreciate this is an extremely difficult time for you and we hope to offer you support and advice.

It is not always possible to find out the reason miscarriages happen. However, we'd like to refer you to our Recurrent Miscarriage Clinic, where a specialist will arrange for tests and advice for future pregnancies.

It's really important to remember that if you choose to try again, your chance of a successful pregnancy remains high.

These are some of the answers to questions with QR codes for more information.

When's the right time to try again?

There is no right answer but there is no physical reason that you should not try when you feel able. Generally, women try again when they feel physically and mentally better. There is some evidence that getting pregnant in the first 6 months after a miscarriage lowers your risk of miscarriage next time.

Will I have another miscarriage?

You are more likely to have a successful pregnancy than another miscarriage even after 3 miscarriages, but sadly it's not guaranteed. You can visit the Tommy's Miscarriage Tool at www.miscarriagetool.tommys.org to find out what your chance is, when other factors have been taken into account.

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Tommy's

The pregnancy and baby charity