



SUSQI PROJECT REPORT

Combined MDT Pregnancy and IBD Clinic

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Background:

IBD stands for Inflammatory Bowel Disease. This is an Auto- Immune condition that affects the gastrointestinal (GI) system, meaning that the body's immune system 'attacks' healthy cells in the gut/digestive tract causing it to become inflamed and causing symptoms. It is a lifelong chronic condition with episodes of relapse and remission. There are 2 main types of IBD: Ulcerative Colitis – which affects the Colon (Large Bowel) and Crohn's Disease which can affect any part of the GI tract but is more common in the small intestine. (Small Bowel). It is not clear what causes IBD or why some people get it, and others do not. It is different to irritable bowel syndrome (IBS) although some of the symptoms may be similar. People who have IBD often have 'triggers' which cause episodes of relapse or 'Flares' of symptoms and one of the known triggers can be pregnancy.

Pregnancy in women with inflammatory bowel disease (IBD) presents unique clinical challenges that require careful coordination between maternity and gastroenterology services. Women with IBD are at increased risk of adverse pregnancy outcomes, including preterm birth, low birth weight, and disease flare-ups, particularly when their condition is poorly managed during pregnancy (Selinger et al., 2013; Nguyen et al., 2006).

However, the current model of care in many healthcare systems remains fragmented, with women frequently attending multiple, separate appointments across maternity and IBD clinics. This fragmented approach often leads to delays in specialist input, conflicting medical advice, inefficient use of resources, and a suboptimal patient experience, increasing the risk of complications and contributing to patient stress. A significant concern is the duplication of appointments and inconsistent information, which can impair clinical decision-making and lead to patient confusion (De Lima et al., 2021).

Around 0.5-1.7% of women are thought to be affected with IBD in pregnancy, with often the peak incidence of IBD diagnosis between the second and fourth decades of life, coinciding with female reproductive years (Wang et al 2023, Molodecky et al 2012) This often can lead to incidences of new or recent diagnosis in pregnancy, often in a state of active disease. Recently in the last year in our

service we have had 3 new in pregnancy diagnosis alone. It is recognized that IBD activity at the time of conception is a key determinant of the course of IBD during pregnancy, and active disease is associated with adverse pregnancy-related outcomes such as miscarriage, fetal growth restriction and pre-term birth (Kim et al 2021).

It is therefore essential that optimal disease control is supported to help improve pregnancy related outcomes that are comparable to the general non-IBD population. A key factor in this is the accessibility to timely and expert advice and support from gastroenterology services in the incidence of active disease and the prompt management of this to ensure quiescent disease on conception.

Within our local services, long waiting lists and difficulties with staffing levels for the IBD helpline and regular follow up with gastroenterology consultants has resulted in many women experiencing long delays for reviews and access to services even when in a state of new diagnosis or active disease; the compounding effect of this service accessibility alongside then conception and pregnancy can result in a lack of optimization prior to pregnancy, increasing the chance of pregnancy complication. It is imperative therefore that multidisciplinary and holistic management of pregnant women with IBD is supported, with specific attention on the benefit of supporting timely care for clinical remission prior to conception, pre-conception counselling and joint obstetric and IBD-management. We identified that there was a high rate of active disease and flare in pregnancy for our women seen through maternity services with 50% having active disease in pregnancy – reflecting perhaps the challenges in service in supporting optimisations and care outside of pregnancy.

In response to these issues, the proposed development of a combined Maternity and IBD Clinic represents a strategic and transformative solution designed to streamline care, improve outcomes, and enhance the sustainability of healthcare delivery. The combined clinic model addresses these inefficiencies by bringing together maternity and IBD specialists into a single, integrated appointment. This approach supports the delivery of timely, consistent, and patient-centred care. By aligning specialist advice, consolidating visits, and enabling real-time interdisciplinary collaboration, the clinic can reduce delays in care, enhance the quality of information shared with patients, and facilitate prompt interventions when needed.

Importantly, this model also supports environmental sustainability by reducing the number of appointments and associated patient travel, thereby lowering the healthcare system's carbon footprint (Mortimer et al., 2018). In addition, the clinic enables more efficient use of healthcare resources, avoiding unnecessary investigations and potentially costly interventions such as intravenous therapies, which may otherwise result from delayed or fragmented care.

Early evidence from similar integrated care initiative, such as joint rheumatology-obstetric clinics and combined endocrine-pregnancy pathways, demonstrates improved maternal and neonatal outcomes, increased patient satisfaction, and reduced healthcare utilisation (Clowse et al., 2016; Ghosh et al., 2021). The combined Maternity and IBD Clinic has the potential to similarly transform care for this vulnerable population.

Ultimately, this project is strategically aligned with wider goals in healthcare: improving patient outcomes, enhancing care efficiency, reducing system strain, and supporting holistic, person-centred

care. Through early intervention, coordinated treatment planning, and reduced administrative burden, the combined clinic promises to improve both physical and psychological outcomes for mothers and their babies, while contributing to a more effective and compassionate healthcare system.

The creation and development of this combined MDT clinic helps to support this essential approach to care, with the developed relationships and connections between the MDT team, pre-conception counselling services and clinics are also available and enable efficient review and timely care for women considering pregnancy. Within our services here at the NNUH, we have a Nursing IBD specialist team who manage a IBD help line that is available usually 9-5 Monday to Friday. All pregnant women are usually advised to inform their IBD nursing specialist when pregnant are then booked into the IBD Nursing specialist lead nurses' clinic. All women should have a Gastroenterology review in pregnancy to support access to timely advice around IBD disease control, medication options and safety and support for investigations where required. It is recognized due to the delay in service provision and access that many women do not achieve this access to gastroenterologist review in pregnancy in the original service provision prior to the introduction of the clinic.

For women seen in maternity services, those with a booking history of IBD will be referred by community midwifery to a consultant led pathway of care and seen within the maternal medicine clinic on an average schedule of usually 5 appointments across the pregnancy trimesters. Prior to the clinic introduction, much of the care was undertaken in silo with Letters of referral often written between specialties, but no joint review or consultation. As discussed, much of the care would be obstetric led supported by the Nursing specialist teams for IBD, with access to gastroenterology challenged at times. This could often lead to repeated communication challenges and delays, with often escalation and then repeated reviews having to take place prior to women accessing the expert care advice and often treatment adjustments that were required in instances of active disease. There was also recognized variation in practice amongst obstetric consultant practices with a variation in care provision and surveillance in pregnancy as well as conflicting advice that may be provided to women at times over biologic medication and options for medication safety in pregnancy.

Before the clinic was established, efforts were underway to improve coordination of care, as a growing number of women were facing long delays and poorly managed cases of active disease. These issues became evident through direct patient contact and feedback, which highlighted challenges in care pathways for women with both diagnosed and undiagnosed IBD, particularly when new symptoms emerged. Patients consistently reported fragmented and delayed communication.

The core team also identified inconsistent levels of clinical confidence and variation in the information shared with women about managing IBD during pregnancy. Many women lacked a clear understanding of their condition and how it should be managed before and during pregnancy.

In response to this need, we began a collaboration between the lead maternal medicine consultant, maternal medicine midwife, and IBD Nurse Specialists. This led to the creation of the combined IBD clinic.

As a Maternal Medicine Centre within our regional network, we are well positioned to implement this model of care. It reflects the broader goals of maternal medicine: to create more collaborative and sustainable services that integrate nursing and maternity care for women with complex medical conditions in pregnancy. Our team includes a specialist IBD nurse, network lead maternal midwife, lead obstetrician, obstetric physician, and consultant gastroenterologist. We have already initiated meaningful changes and view this clinic as a key step in delivering long-term, sustainable service improvements. Operational support is in place to facilitate the changes required for the successful implementation of the combined clinic model.

Specific Aims:

To improve services for pregnant women with a diagnosis of IBD by bringing together maternity specialists (obstetricians) and IBD experts (nurses and consultants) in a single, combined clinic.

Methods:

Current System: Pathways for Escalation of Care in Pregnant Women with IBD

The existing system has identified several pathways through which care is accessed or escalated for pregnant women experiencing complications related to IBD. Each of these pathways presents potential challenges that may affect the timeliness and quality of care:

Booking Through Community Midwife

- Women may disclose a history of IBD at their initial booking appointment with a community midwife. When this happens, appropriate referral to consultant-led care can be made.
- However, this relies on women voluntarily disclosing their condition and on community midwives recognizing the significance of IBD in pregnancy. A lack of awareness may result in missed or delayed referrals to specialist care.

Notification via IBD Nursing Helpline

- Some women inform the IBD Nursing Team of their pregnancy via the helpline.
- Due to staffing limitations and delays in responding to helpline queries, there can be significant lag in initiating appropriate care escalation.

Nurse-Led Clinic Booking

- Once pregnancy is identified, women may be seen in a nurse-led clinic managed by the Lead IBD Nurse.
- However, this pathway is contingent on timely notification by the patient and depends heavily on clinic capacity and gestational timing. Delays in communication or capacity limitations can affect timely access to care and nursing teams can have trouble accessing specific obstetric support and advice and guidance if not known who is named consultant or leading care

Consultant-Led Maternity Pathway

- Women with identified IBD may be placed on a consultant-led maternity care pathway, which typically includes reviews at 12, 28, 32, 36, and 40 weeks gestation, along with ultrasound monitoring.
- An additional review at 20 weeks may be arranged if there are concerns about disease activity or complexity.

- This represents the standard model of care for known complexities but may not be initiated in all cases due to gaps in identification or referral.
- There may be a lack of experience or current knowledge base around specific IBD advice in pregnancy and around medication safety that can lead to differing and conflicting information given to women according to latest guidance

Acute Flare or Symptom Escalation

- Women experiencing a flare or concerning symptoms may present through various routes, including their GP, community midwife, maternity triage, or the IBD Nursing helpline.
- Practitioners in these settings may not be fully informed about the complexities of IBD in pregnancy or the clinical indicators of an active flare. This can lead to uncertainty about appropriate escalation and delay in multidisciplinary team (MDT) review.
- Delays are also possible in accessing gastroenterology consultants through traditional channels (e.g., referral letters, outpatient appointments), particularly due to service capacity constraints.

Flare Management and Specialist Review

- When a flare is identified and treatment is required, initial assessment is usually conducted in the nurse-led IBD clinic.
- The nursing team will escalate cases to the gastroenterology consultants for advice and management planning.
- However, face-to-face appointments are often limited with a gastroenterologist due to capacity issues, which may further hinder timely treatment initiation.

Designing the Improvement: Establishing the IBD-Pregnancy MDT Clinic

The improvement initiative aimed to create a multidisciplinary team (MDT) clinic that brought together expertise from gastroenterology, obstetrics, the IBD nursing team, and specialist midwives. This collaborative approach was designed to streamline care for pregnant women with IBD by integrating services and improving communication across disciplines.

Key Elements of the Clinic Design

Integration into Existing Obstetric Pathways: The clinic was embedded within the existing obstetric maternal medicine care pathway. Scheduled reviews were aligned with standard obstetric appointments, requiring no additional clinic space or resources—making the change cost-neutral.

Joint Reviews with Gastroenterology: A gastroenterologist and IBD nurse specialist now attend the clinic every four weeks. Their presence enables real-time MDT discussions and treatment decisions during clinic appointments.

Clinic Capacity Optimization: By incorporating IBD reviews into the obstetric pathway, gastroenterology and IBD nurse-led clinic slots were released and reallocated, improving overall service efficiency.

Dedicated IBD Clinic Sub-Template: Within the maternal medicine clinic, a dedicated sub-template was created. This reduced the main clinic's capacity by eight appointments, reallocating these to a focused IBD pathway. Women with IBD in pregnancy are now grouped within the same clinic structure, enhancing continuity and peer support.

Mid-Pregnancy Transitions & New Bookings: For women already under care, transitioning to the new clinic required rearrangement of reviews and scans. For newly booking patients, the pathway was implemented at the point of referral upon identification of IBD in pregnancy.

Reduced Appointment Burden: Women no longer need to attend multiple, separate appointments. This supports socioeconomic equity by reducing travel, time off work, and other burdens of complex pregnancy care.

Faster Treatment Access: Immediate, MDT-supported decisions enable quicker access to treatments such as LMWH during active flares—critical for preventing complications like DVT or PE (now the leading cause of maternal mortality, per MBRRACE-UK 2024). The IBD Nurse Specialist's prescribing qualification further supports timely interventions.

Streamlined Access to Biologics and Treatment Adjustments: Women on IV therapies benefit from quicker adjustments in therapy schedules. This responsiveness reduces flare duration and promotes better disease control during pregnancy.

Empowering Personalised Care: Having all key professionals in one room facilitates shared decision-making. Women are empowered to make informed choices, with unified support from the full MDT team.

Pilot Phase and Iteration

Initially, the improvement began by embedding IBD Nurse Specialists into obstetric clinics without gastroenterology input. While this improved access, it still resulted in delays and fragmented care due to the need to separately consult various gastroenterology consultants. This was addressed by identifying a key link consultant in gastroenterology to provide continuity within the clinic. Their direct involvement enhanced decision-making and enabled a more cohesive, evidence-based care model.

Documentation and System Integration

A significant early challenge in implementing the combined clinic was the fragmentation of documentation systems. The maternity electronic patient record (EPR) operated separately from the medical records systems used by gastroenterology and IBD nursing teams. This limited the visibility of care plans and clinical reviews across disciplines. To address this:

- IBD clinic letters were dictated by the attending gastroenterologist, with administrative support from the Obstetric Maternal Medicine secretary.
- The maternity team ensured that all relevant information and clinical decisions were also documented in the maternity EPR, ensuring visibility within the obstetric care pathway.

- With the anticipated launch of a Trust-wide combined EPR system next year, further integration and shared access to documentation is expected, which will enhance cross-specialty communication and care continuity.

Stakeholder Involvement and Sustainability

Key stakeholders identified in this service redesign included:

- The IBD team: IBD nurse specialists, consultant gastroenterologists, and service leads
- The Maternity team: specialist midwives, the Clinical Lead for Maternal Medicine, and obstetric clinical leadership
- Administrative support is a critical component of sustainable change. While current processes rely on existing personnel, there is a clear need to explore the formal provision of dedicated administrative support to ensure cohesive, timely documentation across services.

Resource Management and Rationale for Change

The clinic was designed to use existing clinical templates and appointment slots, minimizing additional cost and avoiding disruptions to broader service delivery. The lack of direct and timely gastroenterology access was a key driver for change. While the introduction of a dedicated IBD clinic has not directly reduced the workload of gastroenterologists—and may appear to increase it—it consolidates care into a single, structured monthly clinic. This aligns with best practice standards for the care of pregnant women with complex conditions like IBD and reflects a sustainable, collaborative approach that prioritizes patient care quality.

By bringing together professionals from maternity and gastroenterology in a coordinated clinic, the service has improved care consistency, responsiveness, and overall experience for women with IBD during pregnancy.

Measurement:

Patient Outcomes:

The introduction of the combined IBD-Pregnancy MDT clinic aims to enhance care coordination, timeliness of interventions, and reduce care fragmentation. The following outcomes and metrics will be used to assess the impact and effectiveness of this service redesign:

Improved Care Efficiency, timeliness and Safety:

- The number and timing (gestation) of gastroenterology consultant, obstetric consultant, and IBD nursing reviews during pregnancy.
- Changes in the frequency and distribution of reviews compared to pre-clinic implementation data

Clinical Effectiveness and Disease Management

We will assess the impact of the clinic on disease control and pregnancy outcomes by tracking:

- The number of active IBD flares during pregnancy.
- The frequency and type of treatment escalations, including:
 - Oral steroids
 - IV steroids
 - Biologic therapies

- The number of antenatal admissions specifically for IBD flare management and IV therapy.
- The severity of disease presentation requiring inpatient care.

Maternal and Neonatal Outcomes

To understand broader health impacts, we will seek to try track:

- The rate of preterm births among women with IBD.
- The number of neonatal unit admissions linked to maternal IBD status during pregnancy.

Equity in Access and Outcomes

National data consistently highlights the link between socioeconomic disadvantage and poor pregnancy outcomes. Women in the lowest deciles of the Index of Multiple Deprivation (IMD) experience maternal mortality rates twice as high as those in the most affluent groups. Those facing multiple social and medical complexities are particularly vulnerable to poor outcomes, and our care models must actively respond to this inequity. Designing services that are socially sustainable and equitable ensures that care quality is not dependent on a woman's socioeconomic background. It also helps to mitigate some of the systemic barriers that affect women with social vulnerability.

Within our population group we will look at the IMD Decile of the cohort of women within the pre and post intervention and seek to understand how accessible services are designed in repose to our demographic population.

Patient Experience and Satisfaction

To capture patient perspectives, we will:

- Conduct a pre-implementation survey via the Trust's Audit Team to assess baseline experiences of IBD care in pregnancy.
- Collect post-implementation feedback through follow-up surveys, capturing women's views on the new clinic model.
- Gather qualitative themes from verbal feedback during and after clinic visits to identify areas of success and potential improvement.

Staff Experience and Professional Confidence

We are also gathering staff feedback to understand how the clinic has influenced their knowledge, confidence, and ability to provide high-quality care for pregnant women with IBD.

Adherence to Clinical Standards

As part of quality assurance, we will monitor adherence to key national recommendations for autoimmune conditions in pregnancy, specifically:

- The prescription of Aspirin for pre-eclampsia prevention where indicated.
- The use of LMWH (low molecular weight heparin) during active disease flares, in line with current maternal mortality risk reduction guidance (e.g., MBRRACE-UK 2024).

Environmental sustainability:

It is recognised that due to the complexity of the project and the variety of equipment use that may be used per outpatient appointment or inpatient bed day that the granular details of number, type

and waste of used medical items or –equipment per appointment or inpatient stay has not been separately calculated.

Instead, to convert the following into greenhouse gas (GHG) emissions:

- Outpatient appointments (OPAs) with gastroenterologist, IBD nurse and maternity
- Hospital admissions of pregnant women
- Day care days
- Neonatal unit admissions of preterm babies
- Combined IBD and maternity OPAs

the Sustainable Healthcare Coalition’s Sustainable Care Pathway Guidance for inpatient bed days was used, which includes an average for equipment and consumables used. It was assumed that the carbon footprint of 1 hour of an outpatient appointment is equivalent to an inpatient bed day, 37.9 kgCO₂e, divided by 24 hours, 1.58 kgCO₂e.

It was assumed that all the OPAs are on average 20min long and that the length of stay of a pregnant woman with IBD is on average 6.3 kgCO₂e. The average length of stay of a preterm baby in the neonatal unit was recorded as 7.6 days.

The GHG emissions associated with patient travel were estimated based on the average distance patient travel, which was recorded as 40.66 miles for a return journey by the Health Outcomes Travel tool, the assumption that the mode of transport is an averaged sized car with unknown fuel. The emissions factor was sourced from Department of Energy Security and Net Zero’s database on carbon conversion factors.

The GHG emissions embedded in medication were estimated using the emissions factor from the UK government’s database of carbon conversion factors for SIC codes.

Economic sustainability:

Financial data was obtained utilizing the [NHS England 2024/2025 NHS Payment Scheme Prices workbook](#). Calculations and figures were supported by the Trust Business manager for maternity to ensure correct costings had been applied. All medical costs were calculated utilizing the BNF costings.

It is important to note that the financial costings used in this analysis are based on the Tariffs document, which represents the costs paid to Trusts for outpatient appointments, day cases, or inpatient stays. However, this method does not account for the full cost of care, as it does not include overheads, trust income, grants, and other running costs. Instead, the tariff provides an estimated average cost for each activity.

Although we sought detailed financial costings from the financial team, the accurate breakdowns based on medical coding were not available within the time frame of the Green Nursing Challenge. As a result, this has limited our ability to fully capture the economic sustainability of the IBD clinic model.

In the future, we aim to continue monitoring and understanding the economic impact of the service improvements brought about by the combined IBD clinic. We plan to gather more granular financial data to assess the true economic costs, including inpatient stays, NICU admissions, and the impact of the combined appointments in the context of block tariff payments, such as those related to maternity

services. This more detailed analysis will help to better understand the cost-effectiveness and economic sustainability of this service improvement.

Social sustainability:

Medically complex pregnancies can place a significant emotional, social, and practical burden on women. These individuals often face increased healthcare demands, including frequent and complex appointments, challenging decision-making processes, and the need to interpret medical evidence to make informed choices—all while managing their underlying health conditions.

This journey requires care from skilled, compassionate, and well-informed professionals who can provide holistic support and guide women through pregnancy safely and confidently.

Barriers to Engagement in Pregnancy Care

Women with complex pregnancies often face multiple challenges in engaging with care, including, balancing medical appointments with work, childcare, and other responsibilities. In addition, Navigating fragmented care pathways can be stressful, and many women may experience financial strain due to frequent travel and time away from paid or unpaid responsibilities. These barriers can lead to reduced engagement with care and missed opportunities for disease control and health optimization, further exacerbating disparities.

By designing care models that coordinate multiple specialties into a single, integrated clinic, we hope to provide the following to support social sustainability:

- Reduce the number of appointments required
- Minimise the financial and logistical burden of frequent travel
- Simplify the care journey, making it easier for women to attend and engage
- Ensure that decisions are made collaboratively, in real time, with all key professional's present
- Improve continuity of care, especially for those with complex needs
- This approach is particularly valuable for women with social vulnerabilities, helping to bridge the gap in outcomes between different socioeconomic groups and promoting equity of access, experience, and outcome.

We seek to understand the theorised improved impacts discussed above through the Patient feedback surveys to understand and monitor the views and impacts of Outpatient appointments and reviews both within the IBD and maternity services.

Results:

Patient outcomes:

Improved Care Efficiency, timeliness and Safety:

- *The number and timing (gestation) of gastroenterology consultant, obstetric consultant, and IBD nursing reviews during pregnancy.*

The introduction of the combined IBD clinic has improved both access and timing of gastroenterology care in pregnancy. Prior to the clinic, the average gestation at first gastroenterologist review was 20 weeks, with only 6 out of 15 women seen during pregnancy. In contrast, in the combined clinic model, the average gestation at first review reduced to 13 weeks.

When examining the timing of clinical reviews, all women in the post-implementation cohort were seen by a gastroenterologist, an IBD nursing specialist, and an obstetrician. The mean gestational age at the first review was 13 weeks, with the first gastroenterologist review occurring at 17 weeks. It is anticipated that these timings will improve over time, as the trajectory of care becomes more streamlined and consistent. The limited time frame of the Nursing Challenge window may have contributed to variability in these review timings, as some women were already pregnant when they transitioned to the combined clinic pathway, resulting in different gestational ages at the time of their first review.

Looking forward, as newly pregnant women are booked onto the combined pathway from the outset of their pregnancy, there is an expectation of more consistent first-trimester reviews by the obstetrician, gastroenterologist, and IBD nursing specialist. This should lead to a more standardised and timely approach to care moving forward.

Within the post implementation combined clinic cohort, IBD nurse-led reviews decreased from 27 to 4, reflecting the shift toward regular, integrated care within the joint clinic rather than independent appointments. While some nursing reviews may still occur outside the clinic—especially for flare-ups or treatment follow-up—these are now more likely to be virtual, offering reassurance and continued support.

As processes for identifying, referring, and triaging pregnant women with IBD become embedded, earlier and more coordinated access to obstetricians, gastroenterologists, and IBD nurses is anticipated throughout pregnancy and beyond.

Disease activity and treatment escalations

- *The number of active IBD Flares during Pregnancy*

Within the Pre-Clinic cohort, 7 women experienced an IBD flare during pregnancy, with a total of 14 flare episodes recorded across these pregnancies. The average gestation of first Flare was 15 weeks, conversely in the post clinic introduction cohort, this data showed a reduction in gestation of first flare to 12 weeks – indicating perhaps the earlier access and more timely intervention and recognition of IBD flare state in pregnancy since the Clinic introduction. Additionally, in the Combined Clinic cohort, 3 women experienced an IBD flare during pregnancy, with each experiencing only a single flare episode to date.

It is acknowledged that, due to the unique timing of the Green Challenge window, some women in the Combined Clinic cohort have not yet completed their pregnancies, and therefore the dataset remains incomplete.

Regarding antenatal admissions related to IBD flares, 2 women in the Pre-Clinic cohort required hospital admission for intravenous (IV) steroid therapy, with an average length of stay of 6.3 days.

Conversely, in the Combined Clinic cohort, there have been no antenatal admissions or need for escalation to IV therapies and steroids due to IBD flare.

- *Frequency and types of treatment*

Among the women who experienced IBD flares during pregnancy and required treatment 5 out of 7 received oral corticosteroids. In total, 9 courses of oral steroids were administered. The average number of courses per patient was 2, representing at least 16 weeks of pregnancy spent on oral steroid therapy.

In contrast, within the Combined Clinic cohort, although 3 women experienced an IBD flare, only one required a course of oral steroids. In the remaining cases, disease activity was managed through early optimisation and adjustment of existing IBD medications, without escalation to steroids.

This may reflect improved responsiveness and timely access to specialist IBD care within the combined clinic model, supporting more proactive disease management.

It is, however, acknowledged that due to the limited data collection window defined by the Green Challenge, some women in the Combined Clinic cohort have not yet completed their pregnancies and may still experience flares later in the gestational period. Ongoing monitoring of these pregnancies will be essential to ensure comprehensive outcome tracking and to enable improved comparability in future analyses.

In terms of intravenous (IV) therapies, 2 women in the Pre-Clinic Introduction cohort required escalation to biologic IV therapies to optimise and control disease activity. Within this group, escalation involved a range of biologic agents, each associated with varying levels of cost, treatment complexity, and burden compared to non-biologic therapies.

The initiation of biologic therapy also resulted in an increased number of day-case attendances for infusions. This not only contributes to greater patient burden—including time commitment and travel—but also has a higher environmental impact, particularly in terms of carbon emissions associated with repeated hospital visits and resource use.

Neonatal Outcomes:

To understand broader health impacts, we sought to try track:

- The rate of preterm births among women with IBD.
- The number of neonatal unit admissions linked to maternal IBD status during pregnancy.

Pre-Clinic Introduction Cohort

Within the pre-clinic cohort, the average gestational age at delivery was 38 weeks. Of the 15 women, 3 delivered before 37 weeks' gestation. Of these preterm births, two were associated with the severity and impact of IBD during pregnancy, while one was due to unanticipated spontaneous preterm labour.

The average birth centile was the 42nd centile, and 3 out of 15 babies required admission to the neonatal unit. The average neonatal length of stay was 7.6 days, noting that one baby was excluded from this calculation due to a prolonged admission following extreme prematurity unrelated to IBD disease activity, to avoid distortion of the overall data.

Post-Clinic Introduction Cohort (Combined Clinic Model)

In the post-clinic cohort, the average gestational age at delivery was 39 weeks, with no premature births or neonatal admissions reported to date.

It is acknowledged, however, that due to the limited data collection window of the Green Challenge, several women within the combined clinic model remain pregnant. As such, longer-term outcomes are still being collected, and ongoing monitoring will be essential to enable robust comparison between cohorts in future analyses.

Summary of patient outcomes:

Activity	Before	After	Change
Appointments			
Outpatient appointments – gastroenterology consultant	10	1	-9
Length of outpatient appointment (hours)	2	0.3	-1.7
Outpatient appointments - gastroenterology IBD nurse	27	4	-23
Length of outpatient appointment	5.4	1	-4.4
Outpatient appointments - maternity	75	17	-58
Length of outpatient appointment	10.	3.4	-6.6
Outpatient appointments - gastroenterology plus maternity	-	54	+54
Length of outpatient appointment	-	10.8	
Admissions			
Hospital admissions for IBD in case of flare ups	2	0	-2
Length of stay for IBD	6.3	0	-6.3
Day case	19	6	-13
Treatments			
IV therapies - steroids	2	0	-2
IV therapies - biological	9	3	-6
Iron infusion	10	2	-8
Oral steroid medicine	9	1	-8
Oral iron	8	2	-6
LMWH injections (in case of flares when receiving steroid, 1 per day over the 8 week course)	6	2	-4
Aspirin	10	9.	-1
Birth and Infant outcomes			
Delivery prematurely	3	0.	-3
Low birth weight baby	1	0	-1
Admission to neonatal unit	3	0	-3
Length of stay at neonatal unit	7.6	0	-7.6

Overall, the pre-clinic cohort showed a higher proportion of women entered pregnancy with active disease as seen by the higher number of first and early second trimester incidences of Flare and disease activity; this may contribute to and bias the increased incidence of escalating care needs later in pregnancy. However, the results also highlight the overall health optimisation of women with IBD entering pregnancy, which may reflect broader challenges within gastroenterology services, including the burden on clinical activity. These challenges are evidenced by delays in accessing regular gastroenterology reviews and support, particularly through the nursing IBD helpline.

These findings support the rationale behind the combined clinic intervention, reinforcing the importance of early assessment and proactive management of IBD in pregnancy. The role of pre-

conception counselling is also highlighted as a critical factor in improving maternal and neonatal outcomes. The MDT collaboration with the new combined clinic has seen a greater referral into the pre-pregnancy counselling service offered by the maternal medicine team, with increased awareness and understanding of the IBD and pregnancy services enabling timely referral through for health optimisation and planning prior to pregnancy.

The data reveals a noticeable trend towards reduced escalation of care in the post-clinic cohort, particularly in terms of higher intervention treatments such as IV steroids and inpatient admissions. This trend supports the hypothesis that early, timely, and collaborative review during pregnancy allows for the swift identification of disease activity and enables prompt, efficient treatment with oral therapies, potentially leading to quiescent disease.

In the pre-clinic cohort, there were instances where IV steroids and inpatient admissions were required, contributing to both increased financial costs and a larger carbon footprint. However, in the post-clinic cohort, no patients required inpatient admissions or IV steroids, highlighting the potential benefits of early intervention and more streamlined care in reducing the need for more intensive treatment options.

The post-clinic cohort demonstrated a clear improvement in the quality of care and adherence to evidence-based guidelines. All women in the post-implementation group received aspirin – 100% compared to only 67% women in the pre-clinic cohort. This reflects enhanced care quality, improved compliance with clinical practice and policy, and more effective risk stratification for hypertensive disorders such as pre-eclampsia during pregnancy.

Low-molecular-weight heparin (LMWH) was initiated appropriately in cases of active disease or IBD flares across both cohorts. However, in the Combined Clinic cohort, earlier identification and recognition of flare activity likely led to more timely initiation of LMWH. This earlier intervention reflects better optimisation of thromboprophylaxis in the context of autoimmune inflammatory states, which are recognised contributors to increased thrombotic risk in pregnancy.

This is particularly relevant given the rising incidence of venous thromboembolism (VTE) in pregnancy, now identified as the leading cause of direct maternal death in the UK (MBRRACE-UK, 2025), with approximately one-third of fatal VTE events occurring in the first trimester. These findings support a significant improvement in the quality of antenatal care and risk mitigation in the post-clinic cohort, compared to the pre-clinic model.

Patient Feedback and experiences of the Combined clinic:

Patient feedback highlighted that women felt there was a more cohesive and consistent approach to their care in the post-clinic setting. This suggests that the combined clinic model not only improved clinical outcomes but also contributed to a better patient experience overall with many verbal feedback responses highlighting and valuing the combined expertise and supportive collaborative model. It is recognised that data collection on the patient experiences for women experiencing the new combined clinic is still ongoing beyond the window of the Green Challenge.

Acknowledgments of constraints

We acknowledge the time constraints associated with the Nursing Green Challenge, which limited the scope of data collection. Within these parameters, we were able to review a one-year cohort of patients seen prior to the implementation of the Combined IBD Pregnancy Clinic, comprising 15 women. The post-implementation cohort was slightly smaller, including 10 women. However, several of these women remain pregnant and are currently receiving ongoing care through the combined clinic.

As a result of the shorter follow-up period and the presence of ongoing pregnancies, comprehensive birth and neonatal outcome data are not yet available for a significant proportion of the post-implementation group. These outcomes will be captured and analysed in future phases to enable more robust comparison between cohorts.

To enable a balanced comparison between cohorts, we matched the sample sizes to 15 patients each. For the post-clinic implementation group, the additional 5 patients were included based on the typical schedule of five combined IBD clinic appointments during pregnancy. This approach allowed for consistent calculations related to emissions and costings in both the pre- and post-clinic settings.

It is acknowledged that there are limitations in the comparability of the cohorts; however, the observed changes in both economic and environmental impact—particularly the reduction in clinical appointments—are noteworthy. This is especially relevant when considered against best practice guidelines regarding the recommended number of appointments each specialty should provide during pregnancy; with the maternity schedule of care being a minimum of 5 antenatal Clinic reviews and the need for women to see a gastroenterologist at least once in pregnancy.

It is also important to highlight the dynamic nature and heterogeneity of the patient cohort included in this review. Women with IBD in pregnancy can present with a wide range of clinical complexities and disease activity, making direct comparisons across cohorts inherently challenging. As noted by Tunney et al. (2024), 56% of women were in clinical remission in their study at the time of conception, and 18% were receiving biologic therapies. Their study found that women in clinical remission at conception were significantly less likely to experience disease flares during pregnancy. Furthermore, active IBD at conception was associated with higher rates of preterm birth.

Benefits to Staff and System Resilience

Upskilling and Knowledge Sharing

Regular exposure to the IBD-pregnancy interface allows the IBD nursing team and midwives to enhance their skills and knowledge. Band 6 IBD nurses rotate through the clinic, supporting broader team development and improving responsiveness via the IBD helpline, as well as better patient continuity. There is now a dedicated Triage slot daily for any Pregnant patients escalating care concerns, representing a protected care pathway than recognises the timely responsiveness required for those patients with IBD who may be experiencing any issues in pregnancy.

In addition to the improved benefits for women, staff were also asked to complete a feedback questionnaire to understand their perceptions of the combined pregnancy clinic model. The results revealed several key improvements in staff experience and confidence. Notably, there was an increase

in staff confidence in supporting women with IBD during pregnancy. Staff also reported enhanced communication between specialties involved in the care of women with IBD, leading to fewer delays in accessing care. Furthermore, staff noted an improvement in the consistency of the advice provided to women, with better alignment across departments. Overall, staff feedback highlighted the improved consistency, continuity, and collaboration of care provided within the combined clinic model, demonstrating its positive impact not only on patient outcomes but also on staff satisfaction and teamwork.

Environmental sustainability:

The carbon footprint of 15 pregnant women receiving separate antenatal care and care for IBD amounted to 7,064 kgCO₂e. After combining the IBD clinics and antenatal clinics the carbon footprint of care reduced to 1,848 kgCO₂e. The majority of the GHG emission reduction, 51%, was due to a reduction in the use of medication. Amongst the medication the reduction in the use of biological IV therapies caused the main decrease in GHG emissions. The second major cause of the reduction in GHG emissions, 17%, is due to a reduction in the admissions of preterm babies to the neonatal unit. The decrease in patient travel due to a decrease in OPAs, hospital admissions and day care contributed 14% to the carbon footprint reduction. The decrease in hospital admissions and in day cases of pregnant women with IBD flare-up, contributed around 9% each to the carbon footprint reduction. The reduction in OPAs (excluding travel) only reduced the carbon footprint by 0.4%.

Comparing before and after, the biggest change is in the GHG emissions of the hospital admissions which reduced to zero, followed by medication, 86%, and day cases, 68%.

Table: GHG emissions savings (kgCO₂e)

Activity data	Unit	Reduction	GHG emissions savings (kgCO ₂ e)	Proportion of total GHG emission savings (%)	Percentage of reduction – after
Outpatient appointments	Number	36	18.98	0.4%	32%
Hospital admission for IBD flare-ups	Bed days	12.6	477.54	9.2%	100%
Day cases for IBD flare-ups	Number	13	492.70	9.4%	68%
Admission to neonatal unit	Bed days	22.8	864.12	16.6%	100%
Patient travel	Journeys	51	704.92	13.5%	38%
Medication	£	11,116	2,657.40	51.0%	86%
Total			5,215.66		

With an average of 15 women being seen in the service per year, the projected annual saving is 5215.66, equivalent to driving 15,345 miles in an average car.

Regarding outpatient appointments, the overall movement and consolidation of appointments into the maternity pathway resulted in a relatively small reduction in the total number of appointments and a corresponding CO₂e saving, with the largest impact seen in the reduction of patient travel journey's which contributes to 9.5% of the carbon footprint reduction. However, it is important to note that within the pre-clinic cohort, there was a marked underrepresentation of gastroenterology appointments. Specifically, 9 out of the 15 women did not see a gastroenterologist at any point during their pregnancy. This falls below evidence-based standards of care for the management of IBD in

pregnancy and may reflect systemic access challenges and underrepresent the number of outpatient reviews that should have occurred in the pre clinic cohort.

Additionally, some women in the post clinic arm were seen for follow-up teleclinics with an IBD nursing specialist in addition to the five combined clinic visits. While this may appear to increase CO2e emissions due to the additional appointment, the teleclinic represents a lower CO2e burden. More importantly, it provides a recognised improvement in care quality, with better continuity and follow-up for women whose disease management had escalated—such as with oral steroids—ensuring timely intervention and follow up.

If we model the CO2e emissions savings based on a fixed cohort of appointments under standard care (including the recommended best practice of one gastroenterology and one IBD nursing review during pregnancy) versus the new combined clinic model, a clear reduction in the number of appointments and therefore CO2e emissions can be observed.

Economic sustainability:

The introduction of the combined IBD-Pregnancy MDT clinic has demonstrated clear potential for financial sustainability. The cost of providing care to 15 women prior to the change was £95,567. Following introduction of the joint clinic, this reduced to £17,944, saving £77,623.

Financial Savings Breakdown by Activity

Activity	Savings (£)
Outpatient appointments – gastroenterology consultant	873
Outpatient appointments - gastroenterology IBD nurse	2,231
Outpatient appointments - maternity	6,786
Outpatient appointments - gastroenterology plus maternity	-7560
Patient travel - journeys	820.80
Length of stay for IBD	42,310.80
Day case	9,347
IV therapies - steroids	32.60
IV therapies - biological	8,955.32
Iron infusion	1,233.84
Oral steroid medicine	92.16
Oral iron	38.52
LMWH injections (in case of flares when receiving steroid, 1 per day over 8 week course)	715.68
Aspirin	4.38
Length of stay at neonatal unit	11,742
Total	77,623.10

1. Service Productivity and Efficiency Gains

The implementation of a joint IBD pregnancy clinic has improved both productivity and quality of care by consolidating gastroenterology, IBD nursing, and obstetric services into a single, coordinated pathway. This integration extends to administrative and operational functions, streamlining service delivery.

By reducing the need for multiple appointments across separate clinics, the model improves resource utilisation, enhances staffing efficiency, and increases patient access, without compromising care standards.

Although both standalone clinics remain in place—and their associated costs continue—the reduction in duplicated appointments for pregnant women has freed capacity within gastroenterology and nursing services, allowing more non-obstetric patients to be seen.

While not direct cost savings, the reduction in appointments results in perceived financial efficiencies. Using standard tariff costings, the clinic demonstrates a clear reduction in resource use and associated costs when compared to traditional models of care representing a theoretical cost saving of £7560.

Overall, the combined clinic offers a more cost-effective, high-quality care model, with better use of staffing and clinical time.

2. Cost Avoidance and Preventative Value

The results show a reduction in both inpatient admissions and the need for escalated IV therapies, such as steroids, as well as the use of biologic drugs. This cost avoidance reflects a benefit not only in financial terms but also in a reduction in complications. It may be indicative of more timely interventions, with lower-cost escalation options like oral steroids being administered promptly. This allows for better control of active disease and acute flares, potentially reducing the need for more intensive and costly treatments later. Overall, the largest cost saving was seen in the reduction of Inpatient bed stays representing a theoretical cost saving of £42,310.80. In addition, the reduction in medication costs for IV therapies such as Biologics and IV steroids resulted in a combined saving of £8987.92

Whilst we do not have the longer-term outcome measures in the post clinic cohort due to the time constraints of the challenge, The clinic is expected to prevent downstream healthcare costs by improving maternal health and controlling IBD disease activity during pregnancy.

Better disease management may lead to fewer pregnancy-related complications, such as:

- Preterm birth
- Low birth weight
- Neonatal intensive care admissions

The results so far suggest a positive trend with a reduction in neonatal unit stays due to prematurity associated with Early planned delivery due to IBD complexity resulting in a perceived reduction of £11,742.

3. Cost-Neutral Implementation

Importantly, the service redesign has been cost-neutral. Clinical hours contributed by consultants and nurse specialists were reallocated from existing clinic schedules across three specialties and merged into a single multidisciplinary pathway. No additional staffing or infrastructure investment was required, as existing clinic templates and capacity were repurposed.

However, the full impact of these benefits will need to be measured over a longer time frame than the Green Challenge allows. Continued data collection and an in-depth understanding of the care journey and outcomes for women with IBD in pregnancy will be essential in assessing the longer-term efficiency benefits of this integrated model of care.

Social sustainability:

Social sustainability was a key outcome to explore in the design of the combined clinic. The consolidation of appointments and reduction in patient travel were focal areas, assessing their impact on both patient convenience and the overall experience. Additionally, providing a clear and collaborative model of care that delivers consistent, evidence-based advice was another key goal.

Feedback from patients prior to the clinic implementation, when receiving care through traditional pathways, highlighted concerns with inconsistent and conflicting clinical advice. Many women reported a lack of harmony in the recommendations provided by different professionals, particularly regarding pregnancy management, mode of birth, and timing of delivery (e.g., induction of labour).

Many women with active disease reported the challenging impacts upon their family life, their ability to bond and enjoy their pregnancy and impactful on their levels of anxiety and fear during the pregnancy period. Journeys reduced from 112 across the cohort to 76, saving 36 journeys and 3,090 miles, costing 1,730.50 across the cohort (approximately £115 per patient).

In contrast, the new combined clinic model allowed women to feel supported by a cohesive team that offered timely and consistent advice, contributing to a more unified experience. A combined multidisciplinary approach allowed women to feel that the barriers previously present in accessing specialised care within IBD services were broken down. Access to timely advice and support was notably improved. Women reported feeling listened to and supported in their efforts to achieve a healthier pregnancy.

This feedback was gathered through direct verbal input from women who were later supported through the combined clinic pathway or may have given feedback prior to the clinic commencement.

It is important to acknowledge that, within the time constraints of the Green Challenge, a survey was designed to gather feedback for both the pre-and post-clinic implementation. However, due to information governance and approval processes, the distribution of the postal survey was delayed and has only recently been initiated. As a result, qualitative feedback is still forthcoming, but we hope to have some data for analysis before the end of the challenge period.

Staff feedback highlighted several key benefits of the combined clinic model:

- Improved continuity of care
- Greater support for pregnant patients with IBD
- Enhanced multidisciplinary collaboration
- Clearer clinical planning and follow-up

There was a notable improvement in overall confidence following involvement in the Combined Clinic model. The number of staff reporting lower confidence (somewhat not confident) decreased from 2 to 0. All respondents now report either somewhat confident or extremely confident, indicating a positive impact on staff self-assurance and clinical capability.

This shift may reflect increased interdisciplinary learning, structured support, and exposure to collaborative care planning within the new clinic model.

Discussion:

The introduction of the combined multidisciplinary clinic for women with IBD during pregnancy has shown promising outcomes in several key areas. Clinical effectiveness has notably improved, with better adherence to evidence-based guidelines, such as the timely initiation of aspirin and low-molecular-weight heparin (LMWH) for women with active disease. This shift reflects an enhancement in care quality and a move towards more proactive, efficient management of IBD in pregnancy. The reduction in the need for higher intervention treatments, such as IV steroids and biologic drugs, further highlights the effectiveness of early, collaborative intervention, which likely prevented the escalation of disease activity.

From an economic and environmental perspective, while the reduction in inpatient admissions and the avoidance of escalated therapies like IV steroids and biologics result in tangible cost savings, these savings may not fully capture the broader environmental impact. Medications used in escalated treatment plans, such as biologics, come with a higher carbon footprint due to their manufacturing processes. Conversely, the increased use of cost-effective medications such as LMWH and aspirin and oral steroids may initially increase CO₂ emissions due to higher adherence rates, but this is expected to decrease over time as disease control improves. The suggested improvements in costs and environmental impacts, such as the reduction in inpatient stays and neonatal admissions, may reflect the overall improvement in the quality of care and timely access to advice and treatments. This timely intervention likely minimizes the impact of active disease and flares during pregnancy for women with IBD. However, it is important to acknowledge the difficulty in directly establishing a causal relationship between these improvements and the reduction in complications. The complexity of IBD in pregnancy and the various factors influencing outcomes make it challenging to attribute these benefits solely to the combined clinic model.

The clinic model also positively impacted social sustainability, a key goal of the intervention. By consolidating appointments and reducing the need for multiple specialty visits, the clinic reduced patient travel, offering a more sustainable, efficient care pathway. Patient feedback from the pre-implementation cohort highlighted significant challenges with fragmented and inconsistent care, particularly in areas like pregnancy management, mode of birth, and the timing of delivery. In contrast, women in the post-implementation cohort reported feeling supported by a cohesive team, which

provided consistent, evidence-based advice. This shift not only improved clinical outcomes but also helped women feel more confident and empowered in their pregnancy journey.

The perceived cost reduction in neonatal admission costs may be linked to improved disease management during pregnancy and a lower need for preterm delivery. However, due to the heterogeneous nature of the sampling and the cohorts, this relationship is challenging to define clearly. The pre-clinic cohort spans a full year, providing more complete outcome data, whereas many women in the post-clinic cohort are still pregnant within the timeframe of the challenge, limiting the availability of outcome data for comparison.

Additionally, it is difficult to determine whether preterm birth was iatrogenic or spontaneous, and whether it can be attributed to IBD status. As data collection continues, we hope to gain more insights into the long-term impacts and trends, allowing us to assess whether there is a significant decrease in outcomes such as preterm birth, low birth weight, and neonatal care admissions.

However, it is important to acknowledge the limitations in the study design and data collection. The cohort sizes, particularly in the post-clinic group, were limited due to the shorter follow-up time, with some women still pregnant and not yet delivering. Furthermore, the heterogeneity of the patient population means that comparing outcomes across cohorts is challenging. Differences in the timing of preterm births—whether iatrogenic or spontaneous—further complicate the analysis of neonatal outcomes. While preliminary data suggest a reduction in complications like preterm birth and neonatal admissions, more data will be required to fully evaluate long-term trends and outcomes.

The delayed survey feedback due to information governance and approval processes also limits the qualitative insights available at this stage. Despite these challenges, the direct verbal feedback from patients provides valuable insights into the improved patient experience and the perceived benefits of a more integrated, collaborative model of care.

Conclusions:

This combined multidisciplinary clinic has proven to be a useful and effective initiative for improving the management of pregnant women with IBD. The integration of gastroenterology, obstetrics, and nursing care has streamlined the care process, improving timely access to care, ensuring continuity of care, and reducing the need for high-intensity treatments like inpatient admissions and IV steroids. These outcomes have led to both economic savings and environmental benefits—particularly through reduced CO₂e emissions from fewer inpatient stays and treatments. Additionally, women have reported feeling more supported and empowered, indicating a significant improvement in the patient experience.

Key elements that contributed to the success of the project include collaborative care by a multidisciplinary team, the consolidation of appointments, and the consistent delivery of evidence-based advice. This model of care has allowed for early intervention and better disease control, minimizing complications such as preterm birth and reducing the need for escalated treatments. Timely access to care and the continuity of patient management have been crucial in achieving these results.

Overall, this model supports a sustainable, high-value care approach that aligns with NHS goals of better patient outcomes, reduced variation in care, and efficient service delivery. By reducing unnecessary clinical interventions and improving patient health outcomes, the clinic model contributes to a more cost-effective and patient-centred healthcare system.

However, there were challenges during the project that provided important learning opportunities. One key lesson was the difficulty in directly linking specific improvements (such as the reduction in neonatal admissions) to the combined clinic model, as the variability in patient presentations and the timing of outcomes made causality hard to establish. Additionally, the delays in survey distribution and feedback collection highlighted the importance of efficient administrative processes to capture comprehensive data within the designated timeframe.

To ensure lasting change, steps have been taken to build on successful aspects of the initiative. The clinic's model has been recognised for its ability to improve care coordination and patient satisfaction, and as a result, there are plans to expand the initiative. The maternal medicine department and team is committed to spreading the learning gained from this project to other clinical pathways and potentially scaling up the combined clinic model for other conditions such as Epilepsy. The success of this initiative depends on continued support from multidisciplinary teams and adequate resource allocation to maintain service quality as the project grows.

Further steps will be taken to monitor the long-term impact of the clinic, including ongoing data collection on neonatal outcomes, patient satisfaction, and the broader cultural shift towards collaborative care. Additionally, the maternal medicine team plans to explore ways to share this model with external partners and more widely across the maternal medicine network, both regionally and nationally, to improve wider engagement with this approach.

The organisation is committed to ensuring the lasting effect of the initiative by continually assessing its effectiveness and making necessary adjustments based on feedback and evolving needs. This approach will help foster long-term cultural change within the institution and the healthcare system.

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