SUSQI PROJECT REPORT
Sustainability within antenatal clinic services focusing on the change in booking processes

Start date of Project: October 2024
Date of Report: January 2025

Team Members:

- Abbie Le-Blancq - ANC & MAU ward manager
- Emily Cornwall - Deputy Ops manager in maternity services
- Suganya Sukumaran - Lead consultant of obstetrics
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Background:

Our current trust provides care to approximately 2000 women yearly. NICE guidelines state "*Women with uncomplicated pregnancies are usually managed in the community by a midwife. GPs, obstetricians, and specialist teams become involved when additional care is needed.* Within maternity services, all too often women attending antenatal appointments remain within the hospital setting for greater periods of time than is warranted. Some of this is due to lengthy waiting times to be seen, however at times this is due to the duplication of appointments—particularly in the first trimester.

At present, many women attend our hospital antenatal services for a repeat dating booking appointment at the time of their scan. This duplicates a task that has already been completed by a community midwife. Women attend the hospital for a scheduled scan, followed by observations which are completed by a healthcare worker, and an appointment with a midwife. Women will also be seen by the obstetric team, either on the same day (with a variable wait time), or they will return on a different day. This reduces efficiency and impacts on resources, whilst contributing to increased carbon emissions, greater time demands on women and staff, and additional financial strain on both the NHS and expectant mothers.

Low risk women with no clinical concern, are typically supported by their community midwifery team, only attending the hospital for their scans and any necessary blood tests. The 2016, Better births report which states "*A named midwife coordinates the care and takes responsibility for ensuring that the needs of the woman and her baby are met throughout the antenatal, intrapartum and postnatal periods."*

For high-risk pregnancies, women attend for their scan and have a review from the obstetric team with any necessary bloods being taken. There is not always a need for them to see a midwife during their hospital attendance.

At present the trust provides safe and effective care for all women, however Demographics information covering George Eliot Hospital (GEH) feature levels of financial concerns, poverty proofing and more time constraints. This ultimately leads to frequency of DNA of appointments due to being unable to attend multiple appointments. A change is required to meet the needs and requirements of the women who attend GEH. It is therefore our objective to eliminate the need for repeat booking processes.

To support this project, a multi-disciplinary team working approach was utilised. The project team, led by the antenatal clinic manager engaged consultants, midwives, health care assistants (HCAs) and the admin team. Insights from across the team were sought to help develop a deeper understanding of the dynamics of current working processes, in particular how day-to-day tasks were. This also helped to engage the wider team to engage in effective and sustainable change. Key stakeholders were also identified, Involvement from the deputy manager operations manager for maternity was imperative, as they offered a nonclinical prospective which the team found invaluable. This also encouraged them to engage in some of the long-term proposed changes to the bookings process which were fundamental in managing the follow-up process in the clinic.

Specific Aims:

1. To eliminate the requirement for all low-risk women to have a dating booking appointment within the antenatal clinic with a midwife.
2. To support most women on the high-risk pathway to be seen promptly by the obstetric team, reducing the need for repeat trips to hospital and duplication of midwifery workloads.

Methods:

We first undertook a process mapping exercise which highlighted areas of inefficient resource use throughout the patient pathway (Appendix 1). We met as an MDT and included staff who would be key to implementing change - band 6 midwives and band 2 healthcare assistants (HCAs). We proposed a new pathway for women attending for their scan

- Women would attend for their scan as usual
- Women would then have their blood taken with an HCA. Urine, blood pressure and other observations would no longer be taken (as will have been taken by community midwife at recent appointment). HCAs taking blood prevented an appointment with the midwifery team.
- Women's notes would be reviewed on the day of their appointment by the midwife to enable a review of their records and complete a growth chart. Low risk women would then be free to go home. High risk women would then need to be seen by the consultant.

This change required HCAs to be trained in venepuncture. Other services already have HCAs taking blood and so this was agreed to be appropriate. The HCA team were advised and were mostly agreeable to the change (refer to the survey results in the social sustainability section below). Training was provided to one HCA during the competition timeframe. For the service to be embedded, further training has been scheduled with additional HCA staff.

Following a one-week trial of this process, positive feedback was received from staff. Some consultants also agreed it was quicker for them too. Due to staff commitments and unexpected sickness, we have needed to temporarily revert to our previous system, pending training for additional HCA staff. However, 4 additional staff members have been booked on to venipuncture training. This

time delay allowed us to identify further improvements to the new process. For example, we now plan to adjust the process so that high risk women will go from their scan, to be seen by the consultant, and then to have bloods taken last. In instances where the HCAs are not available to take blood, they are done by the midwives, however having seen the consultant first should reduce midwifery time and duplicated workload.

Measurement:

Patient outcomes:

We anticipate this change will make care more person-centered, timely and efficient. We will monitor formal complaints as well as ask staff if they are receiving fewer verbal comments/complaints about waiting times in their clinics. We will monitor average waiting times in the clinic through snapshot observations which will be measured against baseline data collected on clinic attendance times.

As the change may support improved availability of appointments in clinics, we will also monitor if the date from booking to the appointment reduces, indicating women can be scheduled into their appointments sooner.

Environmental sustainability:

To measure the greenhouse gas emissions impact of the reduction in midwifery appointments including urine and carbon monoxide tests, the carbon footprint of urine bottle and urine catcher was based on their material composition, weight and the emissions factors of the UK Government's carbon conversion factors for company reporting. It was assumed that both items are disposed of in clinical waste, with the carbon emissions factor for high temperature incineration taken from Rizan et al. The carbon footprint of dipstick and carbon monoxide tube was based on cost with the emissions factor taken from the UK government conversion factors for SIC Codes from 2021 accounting for price inflation. Carbon footprint of gloves and Clinell wipe was sourced from Rizan et al., and the carbon footprint of the paper towels from Mike Berners-Lee . ERIC provided data on energy and electricity use which was attributed to the outpatient appointment based on floor space and patient volume, with emissions factors from the UK government database.

Data on travel was based on the average patient journey as recorded in the Health Outcomes Travel Tool, assuming a mix of modes of transport for the given distance as recorded by the National Travel Survey.

Activity data	Carbon footprint/woman (kgCO2e)
Urine bottle	0.09
Urine catcher	0.01
Dipstick	0.14
Gloves (pair)	0.05
Cloth	0.01
Tristel Spray per use	0.18
Energy usage for midwifery	0.47
Energy usage for waiting area	0.64
Carbon monoxide tube	0.08
Water use	0.003
Paper towel	0.03

Economic sustainability:
The cost of carbon monoxide tubes and urine tests was provided by the procurement team at the trust.

- Carbon monoxide tubes: £30 per box of 200 (15p each).
- Urine test dipstick: £33.51 per tube of 100 sticks (33p each).
- Urine Catcher plastic pot: £3.58 per plastic bag off 500 bottles (7p each)
- Urine cardboard pots: £7.00 per 200 in box (approx. 4p each)

Using the 2024/25 NHS Payment Scheme workbook, the price of an Outpatient attendance for maternity services was used to estimate cost savings from reduced midwifery appointments.

- In-person antenatal clinic appointment: £84 (based on follow-up attendance)
- First attendance with single professional: obstetric service £182, midwifery service £215

Social sustainability:
We conducted surveys with our obstetric, midwifery and HCA staff to assess their perceptions of our proposed changes and how this may impact on their work and job satisfaction. Due to the small sample size in our trial, the impacts on women were assessed informally through conversations with midwives and doctors following consultations to determine if the change has improved the running off clinic. This highlighted that doctors were not aware what was causing delays in seeing women and a discrepancy in the understanding of what each person's role entailed.

Results:

Patient outcomes:
We require more time to measure the outcomes of the project, however we anticipate care will be more person-centered, timely and efficient. Already since the launch of this trial period, improvements have been identified such as better working relationships and collaboration with the Deputy ops team, to ensure all areas of care are being valued and utilised. The change may also empower staff, e.g. by building quality improvement knowledge and skills, and promote development of leadership qualities within the workforce.

In the period of our trial, we did not receive any complaints and will continue to monitor complaints as the change is embedded. A spreadsheet was created (Appendix 2), highlighting how the change can reduce time spent within the unit. On average, it was noted that a saving of up to 1 hour could be saved per patient attending their booking appointment. This would equate to roughly 42 hours being saved when considering 7 high risk booking clinics a week. Low risk booking criteria was not included as further data collection is required outside this project.

Environmental sustainability:
The service currently sees an average of 106 women per month (1,248 per year) that may benefit from these changes. Each month, the change will potentially prevent

- 64 urine tests and carbon monoxide tests,
- 64 15 minute appointments with midwives
- 42 repeat journeys as women can be seen by consultants on the same day

Each month the reduction in urine and carbon monoxide tests will lead to savings of 34.15 kgCO2e. The reduction in energy usage for 15 minute midwife appointments will save 29.76 kgCO2e. The reduction of 42 repeat journeys saves 206.22 kgCO2e. Reduced waiting time for all 106 women would save 68.26 kgCO2e in energy usage.

Over a year, greenhouse gas emissions savings would amount to 4,060.68 kgCO2e, equivalent to driving 11,964.64 miles in an average car.

Economic sustainability:
Per year, approximately £451 will be saved in reduced consumables (£115 from reduced CO2e tests, £53 from reduced urine plastic pots, £30 from reduced urine cardboard catcher pots and £253 from reduced urine dipstick testing).

A reduction in 64 midwifery appointments per month would save £5,376 per month, or £64,512 per year in appointment costs.

Social sustainability:
Below is a list highlighting several key areas of social impacts for women:

- Travel/Parking Costs: We know women attending the clinic face financial barriers. This project will reduce travel expenses.
- Employment/Carer responsibilities: The project will reduce time women are required to take off work for appointments and will support in reducing impacts on childcare or carer responsibilities
- Waiting Times: Data collected pre- and post-intervention by HCAs showed a reduction in waiting times for appointments.
- Satisfaction and value from Appointments: Feedback has indicated varying perceptions of the value provided by appointments, with some women reporting duplication from their community midwife visits. Reducing this duplication supports satisfaction with services and care provided.

Unfortunately, no replies from the obstetric surveys have currently been received, however informal feedback was provided within the trial week. It was noted that women were seen quicker and had minimal waiting times between all services being provided. This can be reflected with the appendices highlighting the times in which patients were seen. Despite the lack of responses to the consultant survey, there was full participation from the consultant body regarding the change once there was a full understanding of what changes would occur.

For staff, job Satisfaction and wellbeing is supported by reducing workload. The project revealed that staff time was often stretched thin, contributing to staff attrition and potential burnout. With some concerns over wellbeing and morale, especially related to late shifts and excessive demands, this project can support in reducing these pressures. Additionally, the project may reduce additional costs and time requirements such as booking interpreters for appointments where information was already provided in the community.

We conducted a HCA survey with 2 HCAs reporting "*I would like to support the midwifery team by upskilling in my role and I would like to learn a new skill".* The others did not feel the change would impact on their experience at work. All 4 respondents agreed that we should reduce travel and waiting times for antenatal clinics where possible, to support an improvement in women's experience. Three out of the four said that reducing the environmental impacts of maternity / NHS care is very important to them, with one person saying it was somewhat important to them. Quotes from survey include;

> "*I feel my role is to support the midwives so I am happy to do what is needed to ensure antenatal clinics run as efficiently & smoothly as possible for both staff and the women attending appointments."*
>
> *"Any up for any changes to ANC that will help patients and staff. Also keen to do more in my role and learn other skills."*

A less positive element to the change has been around the resources needed to support staff to be trained in venipuncture. This has caused some stress, knowing that there was an expectation that they were required to learn a new skill. However, this has been considered, and extra steps have been taken to support staff during this change, which ultimately will increase staff satisfaction, potentially reduce sickness levels and will hopefully achieve better utilisation of our antenatal clinics, ensuring patient complaints are minimised.

As the antenatal clinic manager and lead for the project, I have felt that my role is to support the midwives, so I am happy to do what is needed to ensure antenatal clinics run as efficiently & smoothly as possible for both staff and the women attending appointments. This also supports me to develop new skills within my role.

Overall, the project aimed at saving midwifery time and improving appointment workflows and it showed promise in addressing these challenges, though further attention is required in areas such as resource allocation and staff support. Ongoing feedback from the full MDT would be considered and valued following this project as changes or alterations can also be considered if not working effectively or to full effect.

Discussion:

Potential challenges

- Due to staffing rotas there are times when no consultant is available, which will impact on this change running successfully as women would not be able to have their appointment on the same day as a scan. One suggestion for mitigating this was women being seen by the registrar on their initial appointment. However, it was confirmed that this cannot be completed as women would still need to return to see their named consultant at some point.
- Due to the timing of the project, many consultants had booked annual leave or were rostered on their 'HOT' weeks. This meant that they were not able to attend the clinic, as they are covering other areas within the unit. This sometimes impacted negatively as women were having duplicated appointments, wasted travel and time. It was not identified early enough within the project how much this would impact on the project. However, a new format has been generated to identify consultants' workloads over a 6-week rolling roster. This allows

the booking team to identify when consultants are not in clinic and thus reducing the risk of women needing to attend to be turned away for a repeat appointment.

Potential benefits

- Healthcare assistant skills can be transferable once successfully trained. At present many support workers are rotational and may lack these skills especially when working on labour suite or triage. By enabling completion of blood taking, this could also help reduce waiting times in other areas as these skills can be used to help midwives achieve overall tasks.
- At present job satisfaction and morale for the support staff working in antenatal clinic can be low, as the role can be extremely limited, and task orientated. By enabling this change, support staff are invested in.
- By working together, antenatal services and community care will have a better working relationship which will improve services for women and the resources that are required to provide safe and effective care.

Conclusions:

Although this project change was explored in a short trial, our findings show that this can be a successful way to reduce waiting times and improve experience for women and staff, however improvements are needed to optimise the process for long term benefit. One stand-out element was involving all health professionals in skills which can be completed. Additionally, it is important to consider the time constraints necessary to implement this change successfully. Following the project, healthcare assistants time will be used more broadly in clinic, with staff placed on a rolling roster which will highlight their role in the clinic day by day. This will encourage staff members to be present and prepare staff for what their working day will be, as well as supporting midwives with utilising clinic time and resources.

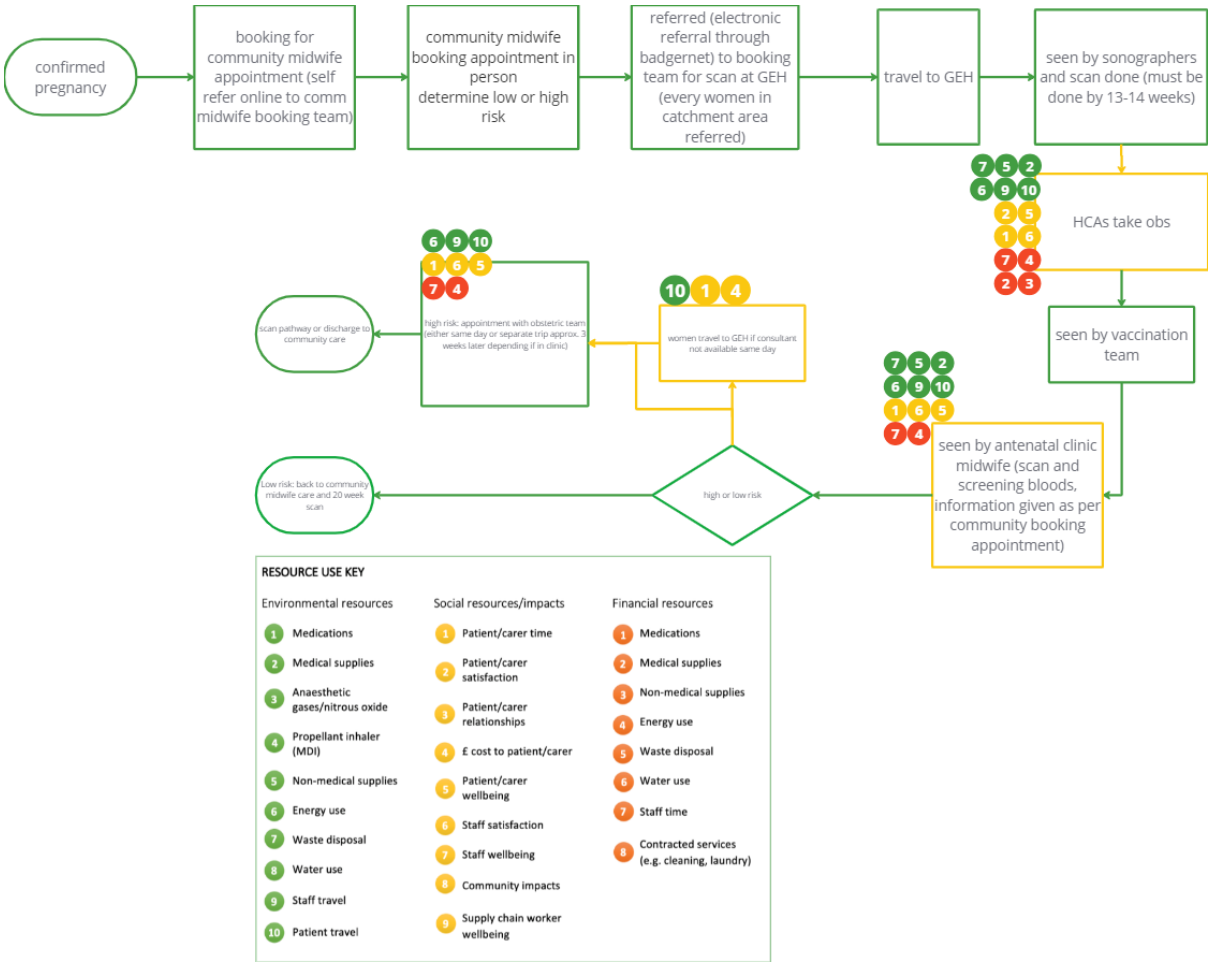
Due to the new changes being made, further discussions and feedback are needed on a regular review to assess whether changes are working or if further changes could be made, which will enable a more robust way of working. The planned changes to our patient pathway could be developed and applied in a range of practice areas within and outside of maternity services. The project offers more diverse ways of working which can enhance working relationships with women as well as colleagues.

The trust holds monthly champion meetings in which all staff are encouraged to attend, and this project will be spoken about to highlight how carbon emissions can be reduced while optimising care pathways. It will also highlight sustainable measurements are necessary for ensuring the long-term success and efficiency of the service. This enables better working relationships, better care provided to women but also factoring in social inequalities women face when meeting time restraints, wasted resources and duplication off appointments.

References and Resources

1. UK government carbon conversion factors 2024: full set (for advanced users)
2. Rizan, C., Bhutta, M., Reed, M., and Lillywhite, R. (2021) The carbon footprint of waste streams in a UK hospital, *Journal of Cleaner Production*, 286, 125446
3. Rizan C, Reed M, Bhutta M. Environmental impact of personal protective equipment distributed for use by health and social care services in England in the first six months of the COVID-19 pandemic. Journal of the Royal Society of Medicine; 2021 0(0) 1–14. DOI: 10.1177/01410768211001583
4. UK Government full data set 1990 – 2021, including conversion factors by SIC Code
5. Mike Berners-Lee (2021). How bad are bananas.

Appendix 1: Process Map highlighting inefficient resource use.



Appendix 2: Snapshot of waiting times with standard versus new process

	Booking Process - Trial period					
Patient 1	Completed Scan	08:37		Patient 3	Completed Scan	09:09
	Vaccination	08:53			Vaccination	09:15
	Seen by HCSW	09:07			Seen by HCSW	09:32
	Midwife	Avoided			Midwife	Avoided
	Doctor commenced and completed	1015 / 10:28			Doctor commenced and completed	10:27/ 10:35
	Bloods	10:00			Bloods	09:46
	Appt time	08:30			Appt Time	08:50
		Total: 2 hours 38 minutes				Total: 2 hours 25 minutes
Patient 2	Completed Scan	08:40		Paitent 4	Completed Scan	10:27
	Vaccination	08:57			Vaccination	10:39
	Seen by HCSW	08:56			Seen by HCSW	Avoided
	Midwife	Avoided			Midwife	Avoided
	Doctor commenced and completed	09:42 /09:47			Doctor commenced and completed	10:59 / 11:03
	Bloods	09:10			Bloods	11:00
	Appt time	08:30			Appt Time	10:10
		Total: 1 hour 17 minutes				Total: 2 hours 21 minutes
	Booking process before trial period					
Patient 1	Completed Scan	08:40		Patient 3	Completed Scan	09:15
	Vaccination	N/A			Vaccination	N/A
	Seen by HCSW	No data			Seen by HCSW	No timings noted
	Midwife	09:37			Midwife	11:02
	Doctor commenced and completed	11:03 / 11:09			Doctor commenced and completed	12:00/ 12:19
	Bloods (by midwife after discussion)	10:25			Bloods (by midwife after discussion)	11:45
	Appt time	08:30			Appt time	09:10
		Total: 3 hours 19 minutes			seen by smoking team	10:19
Patient 2	Completed Scan	08:50				Total: 3 hours 9 minutes
	Vaccination	10:18		Patient 4	Completed Scan	11:11
	Seen by HCSW	No timings noted			Vaccination	N/A
	Midwife	09:50			Seen by HCSW	No timings noted
	Doctor commenced and completed	Did not see as no consultant - to return at 36/40			Midwife	12:35
	Bloods	10:20			Doctor commenced and completed	13:19/ 13:27
	Appt time	08:30			Bloods	13:05
		Total: 2 hours 30 minutes (no doctor review)			Appt time	10:30
						Total: 3 hours 37 minutes

Critical success factors

Please select one or two of the below factors that you believe were most essential to ensure the success of your project changes.

People	Process	Resources	Context
☐ Patient involvement and/or appropriate information for patients - to raise awareness and understanding of intervention X Staff engagement ☐ MDT / Cross-department communication ☐ Skills and capability of staff X Team/service agreement that there is a problem and changes are suitable to trial (Knowledge and understanding of the issue) ☐ Support from senior organisational or system leaders	X clear guidance / evidence / policy to support the intervention. ☐ Incentivisation of the strategy – e.g., QOF in general practice ☐ systematic and coordinated approach ☐ clear, measurable targets X long-term strategy for sustaining and embedding change developed in planning phase ☐ integrating the intervention into the natural workflow, team functions, technology systems, and incentive structures of the team/service/organisation	X Dedicated time ☐ QI training / information resources and organisation process / support ☐ Infrastructure capable of providing teams with information, data and equipment needed ☐ Research / evidence of change successfully implemented elsewhere ☐ Financial investment	☐ aims aligned with wider service, organisational or system goals. X Links to patient benefits / clinical outcomes ☐ Links to staff benefits ☐ 'Permission' given through the organisational context, capacity and positive change culture.

This template is adapted from SQUIRE 2.0 reporting guidelines.

Template References

- SQUIRE | SQUIRE 2.0 Guidelines (squire-statement.org)
- Home | Sustainable Quality Improvement (susqi.org)