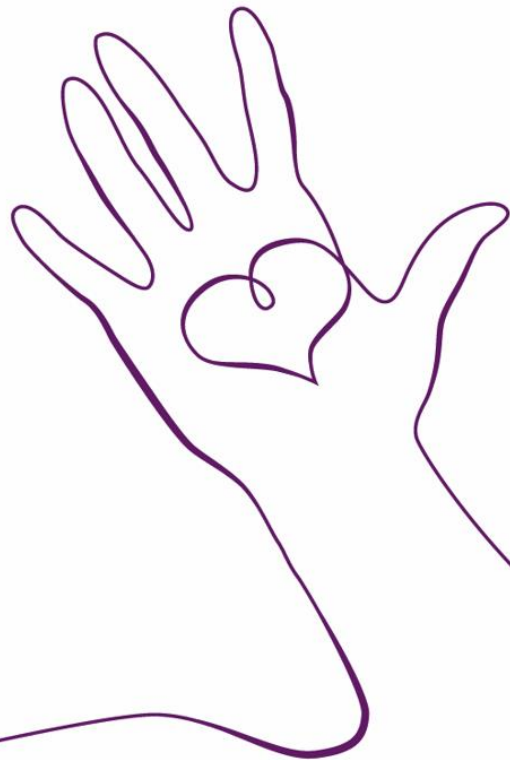


Case Study / Clinical Evidence
Maternity

Real Time Advice; Support Self-Management; Improved Outcomes for Mother and Baby

A summary of evidence from independent case studies and clinical reports demonstrates how Florence motivates changes in patient behaviour resulting in lasting health benefits while saving clinical resources.



Intelligent health messaging service Florence is proven to educate, support and motivate new and expectant mums by enabling them to self-monitor their blood pressure and glucose levels and encourage them to take up and continue breastfeeding. This results in healthier mums, longer-term pregnancies, freed up clinical time and significant cost savings.

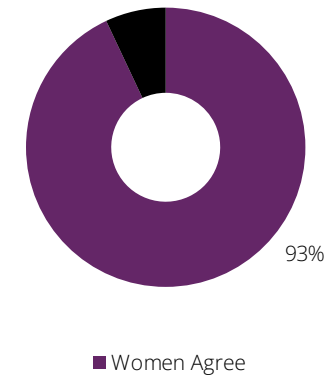
- 93% of women confirm they would recommend Florence to other women in the same circumstances
- Florence's Infant Feeding Support motivated 66% of new mums to start breastfeeding and 83% to continue to 6-8 weeks compared to the national average of 48%
- 800 face-to-face appointments saved over a 12-month period from 75 patients self-monitoring blood pressure during pregnancy, resulting in cost savings of £67,000
- Remote blood pressure monitoring with Florence saves up to 11 hours of travel time for a patient diagnosed with Pregnancy Induced Hypertension (PIH)
- An average of 3-4 ante natal appointments are saved by remote monitoring of blood glucose levels in patients with Gestational Diabetes resulting in savings of up to £340 per patient

A more normalised and balanced pregnancy for patients

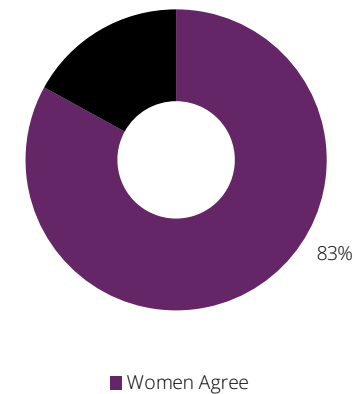
Florence is proven to enhance the care of pregnant women and new mums providing them with support at a time when they potentially feel overwhelmed. 100% of pregnant women said they would recommend Florence for blood pressure monitoring in mild hypertension, confident they were closely monitored with responses tailored to their readings, reassuring them they are within normal range,

giving them advice or directing them to take immediate action and contact the hospital.¹

"I would recommend Florence to women in similar circumstances"



"Florence motivated me to continue breastfeeding"



¹ Case Study – [Safely monitoring Pregnancy Induced Hypertension at GWH using Florence](#)

Patients reported feeling more in control of their blood pressure and appreciated being able to take their blood pressure readings at home, lowering their anxiety and reducing the need for them to visit the hospital with the associated costs. One expectant mum at Great Western Hospital said. "It was a fantastic experience, and I didn't have to come to hospital as frequently as before...and I was a lot less anxious at home when I was taking my blood pressure...It made me feel quite empowered to be able to do my blood pressure at home."²

Kim Hinshaw, Consultant Obstetrician at City Hospitals Sunderland, also described the universally positive response of women using Florence to monitor their mild hypertension, and in particular the benefits of being treated as much as possible in their home environment, reducing the need for his often-younger mums needing to balance childcare, work, and the financial burden of attending hospital.³

Patients diagnosed with Gestational Diabetes also reported higher engagement and understanding of their condition, with Royal Victoria Infirmary midwife Victoria Bowman describing how her pregnant women felt "they're working in a partnership" and appreciated being able to take "a bit more of a role in their diabetes." They were reassured by Florence's text messages and advice in response to their blood glucose readings, resulting in fewer calls seeking reassurance.

Post-natal advice & support benefits mother & baby

Over 70% of mums would recommend Florence's Infant Feeding Support. They relished the advice given by Florence's texts with one second time mum in Dudley commenting.

“I wish I'd had them when I had my first daughter.”

She appreciated the "really accurate information" approved by the NHS and midwives when new mums are often bombarded with conflicting information. If mums texted in their baby's date of birth, texts from Florence were specific to their baby's stage and behaviour giving them "nice reassurance what she's doing is right" and advice on likely behaviours such as cluster feeding.

New mums also appreciated the improved access to services real time advice from Florence provided with one new mum in Dudley reflecting,

“It's nice to have some support that's always there, no matter what time of day.”⁴

They also appreciated the extra reassurance of being able to text HELP at any time and a specialist midwife call them.

² Case Study – [Safely monitoring Pregnancy Induced Hypertension at GWH using Florence](#)

³ Video – [Using Flo Telehealth to manage hypertension during pregnancy](#)

⁴ Video – [Dudley Flo infant feeding support](#)

Real time advice facilitates better understanding resulting in better outcomes

Dr Nusrat Fazal, Consultant Obstetrician at Great Western Hospital, found that pregnant women were taking their blood pressure more than had initially been required in her “Flo on Fridays” project, and were calling the Day Assessment Unit if their readings were high, indicating according to midwife, Anne Webb “an improved understanding of the implications of their blood pressure and provides us with an opportunity to intervene earlier with a change in treatment if required.”⁵

An example was at City Hospitals Sunderland, where according to Consultant Obstetrician, Mr Kim Hinshaw, of 40-50 patients prescribed Florence for mild Pregnancy Induced Hypertension (PIH), Florence alerted the team to two acute situations, advising the women to contact the hospital immediately. One of the cases involved a 30-year-old who having had no previous complications, presented with “blurred vision” at 38 weeks 5+ and was told to self-monitor her blood pressure and urine with Florence. At 39 weeks 2+ Florence responded to a reading of 157/94 advising the patient to contact hospital immediately, labour was safely induced, and normal labour and delivery was achieved with no maternal or neonatal complications.⁶

Pregnant women, diagnosed with Gestational Diabetes, were reassured by Florence’s responses to their blood glucose readings and advice, rather than needing to call up the maternity team for reassurance, freeing up significant clinical time for the midwives. According to midwife Victoria Bowman “The calls that come through are the ones that really need the support.” With more pregnant women able to control their diabetes better call times to the clinic were reduced, prescription costs were lower with less medication required by patients, and they were able to safely achieve longer

pregnancies resulting in healthy foetal growth and fewer extreme birth weight percentiles.⁷

Dr Rahul Nayar, Consultant in Diabetes and Endocrinology for City Hospitals Sunderland NHS Foundation Trust, described how Florence supported an older mum with a family history of Type 2 diabetes, morbid obesity, and heavy smoking habit to lose 4kg in weight, stabilise her blood glucose levels and achieve the safe delivery of her third child at full term with a healthy birth weight. Prescribed Florence at 20 weeks after a formal diagnosis of gestational diabetes, her anxiety levels dropped significantly, reflected in her daily cigarette consumption dropping from 20 to three a day, she needed to attend the antenatal clinic four fewer times, reassured that she was being safely monitored and her clinicians were able to accurately titrate her medication to keep her blood glucose levels stable.⁸

A greater incidence of breastfeeding

Real time advice and support to new mums resulted in a higher initial take up and continuation of breastfeeding, resulting in an increase in wide-ranging, long-lasting benefits to both mother and baby.

In Dudley, 66% of mums reported Florence helped them start breastfeeding with 83% agreeing Florence had motivated them to continue to breastfeed to 6-8 weeks. This success in supporting mothers to continue breastfeeding is significant with Dudley reporting 43.5% of mums breastfeeding at 6-8 weeks in 2020/21 in line with the national average of 47.6%.

⁵ Case Study – [Benefits for midwives who use Florence](#)

⁶ Case Study – [Safely monitoring Pregnancy Induced Hypertension in Sunderland using Florence](#)

⁷ Case Study – [Royal Victoria Infirmary – Gestational Diabetes Mellitus](#)

⁸ Case Study – [Florence supports high risk pregnancy in safe delivery](#)

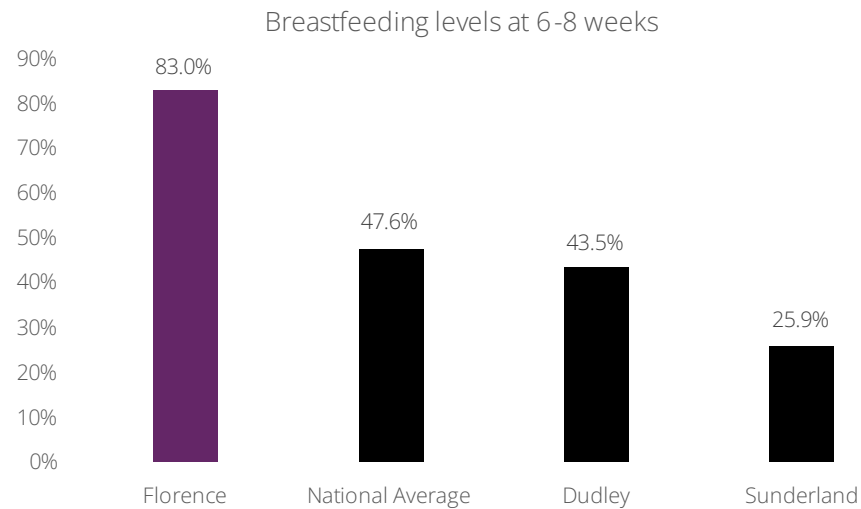


Fig 2: Mums motivated to continue breastfeeding using Florence at 6-8 weeks versus levels for the National Average, Dudley Metropolitan Councils and Sunderland Local Authority

The support given to expectant and new mums by Florence led Gillian Lund, Public Health Midwife for City Hospitals Sunderland to say, “Sunderland has some of the poorest 6-week breastfeeding compliance rates...feedback from both new mums who had not previously experienced breastfeeding support and also those mums who had received support at prior births without Flo has been overwhelmingly positive reinforced by a significant increase in our breastfeeding rates at 6 weeks.”⁹

“Even those mums that had stopped breastfeeding found the messages relating to normal baby behaviour useful and reassuring.”¹⁰

Enhanced care by clinicians

Clinicians are enabled to deliver enhanced care to the pregnant women in their care and to provide in some cases “one stop shops” to enhance the experience for patients in minimising costs, and disruption in having to attend additional ante-natal clinics when Pregnancy Induced Hypertension (PIH) or Gestational Diabetes are diagnosed. This is achievable without a significant increase in their workload; rather a reduction as evidenced by reduced call times with patients, and fewer face to face appointments needed.

Anne Webb, midwife at Great Western Hospitals, describes how “integrating Florence into our pathway has picked up ladies who are developing PET (Pre-Eclamptic Toxaemia/ rising BP), where before they may not have sought medical help or just waited to see their community midwife before getting reviewed.” This is particularly relevant given evidence from a recent study suggesting that 19% of pregnant women already self-monitor their blood pressure (49% of which were hypertensive) but that 49% of those self-monitoring did not share their results highlighting the missed opportunity for such enhanced care, which Florence picks up.¹¹

⁹ Case Study – [Supporting new families in Sunderland to breastfeed using Florence](#)

¹⁰ Case Study – [Supporting new families in Sunderland to breastfeed using Florence](#)

¹¹ (Tucker, et al., 2021)

The same study also highlighted the increased levels of understanding and engagement of those women with 68% able to provide a previous blood pressure reading compared to just 1% who did not, again suggesting an increased understanding, awareness and responsibility for their care, which Florence encourages.

The enhanced data made clinicians more responsive: “Sometimes the readings are borderline normal, so we use Florence to send our ladies a message to ask them to repeat their BP/retest urine sample” enabling them to deliver enhanced more timely care and able to intervene earlier if necessary.

Remote monitoring of blood pressure readings enabled clinicians to manage their time more efficiently. Dr Nusrat Fazal, of GWH, reported “Midwives said how it gave them more confidence in safer monitoring and how to manage time more efficiently by replacing face to face appointments with Florence.” 20% of patient interactions in the Day Assessment Unit is blood pressure monitoring.

“We...replaced around 800 face-to-face appointments by remotely supervised monitoring sessions with Florence successfully, with improved care and patient satisfaction.”¹²

At the Royal Victoria Infirmary midwives found they were able to dedicate more time to counsel those patients who needed the support as others who had been previously calling in for reassurance about their blood glucose readings were supported by responses from Florence. Call times were reduced.

By integrating Florence into the maternity pathway, Dudley highlighted the support the team could give mums, while still maintaining the relationship they value. The access to services provided by the ability to text HELP and prompt a call from a specialist midwife enabled midwives to provide safe and timely care.

More productive use of resources leads to significant potential cost savings

The cost savings arising from patients self-monitoring their blood pressure at home and potential symptoms of PIH with urine samples are significant. Mild PIH affects 5-10% of pregnant population with the average person needing to attend a clinic 1-2 times a week before birth and 6 weeks after delivery.¹³ Cost savings include up to two fewer visits a week, freed up maternity staff, as well as the cost benefits to the expectant mum.

¹² (Fazal, et al., 2020)

¹³ (Fazal, et al., 2020)

“Flo enables pregnant women to self-monitor their blood pressure at home which means less appointments for them at the hospital or with the community midwives. Using Flo saves with childcare, car parking costs, taking time off work.”¹⁴

Kim Hinshaw highlights being able to use their midwifery team more efficiently due to remote BP monitoring with Florence enabling them to work on the labour ward where they are most needed rather than going on home visits at an estimated £60 per trip. In the situation of two acute alerts from Florence and the patients being safely admitted and induced the costs saved were of a midwife’s visit and potential emergency services because of the timely intervention. In Kim Hinshaw’s words.

“Florence has shown herself to be as effective as sending out midwifery staff.”¹⁵

Dr Nusrat Fazal’s study revealed that 800 face-to-face appointments could be replaced by remotely supervised monitoring sessions with Florence successfully, in a 12-month period amongst 75 patients saving an estimated £67,000 assuming an average cost of outpatient face to face appointment with a midwife of £84. (NHS Schedule of Costs 20/21). It also achieved better compliance with the NICE guidelines for blood pressure monitoring in PIH, improved care and patient satisfaction.¹⁶

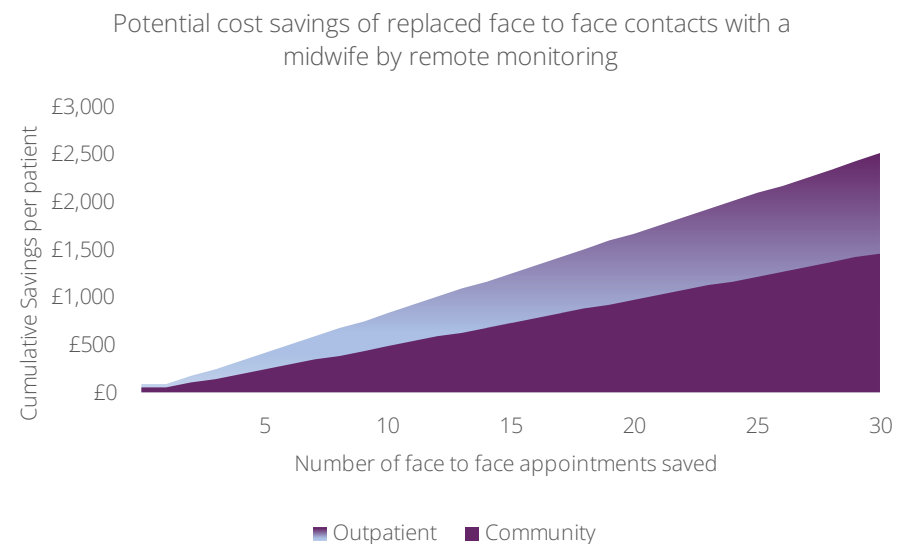


Fig 3: Potential cost savings per patient diagnosed with PIH at 20 weeks self-monitoring with Florence and following NICE guidelines based on saved face to face appointment with a midwife either at hospital or in the community. Cost assumptions do not consider saved travel costs either for patient or midwife but using NHS Lothian assumptions an estimated £7 per midwife visit would be reasonable.

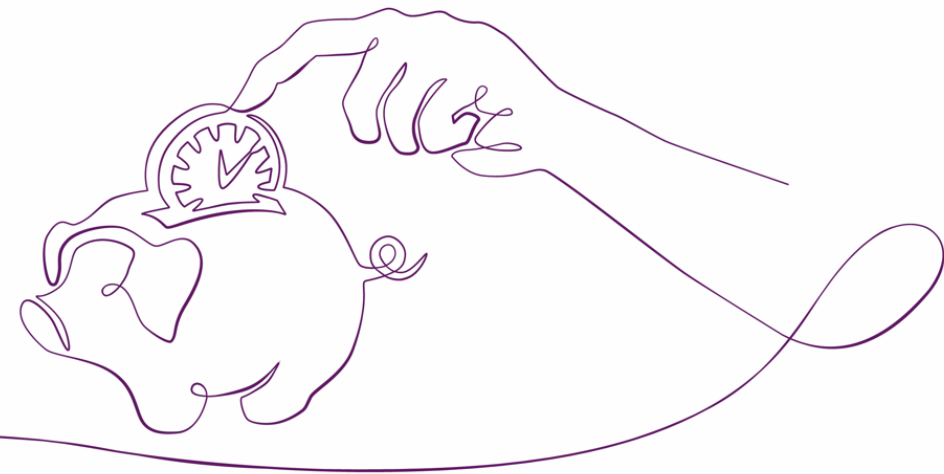
¹⁴ Case Study – [Safely monitoring pregnancy induced hypertension at GWH using Florence](#)

¹⁵ Video – [Using Flo Telehealth to manage hypertension during pregnancy](#)

¹⁶ (Fazal, et al., 2020)

With 4-5% of pregnant women diagnosed with gestational diabetes, which is also diagnosed around 20 weeks, an estimated three to four face-to-face contacts would be avoided by patients self-monitoring and clinicians being able to combine all pregnancy and diabetes checks into a “one stop shop” leading to suggested savings per patient up to £340 if with the midwifery team.

Using assumptions from HMHM Evaluation: Economic Case Studies that an average journey to a hospital would be 20-30 minutes this would be up to two hours in travel time saved for an average patient with gestational diabetes needing to attend four fewer ante-natal appointments and up to 11 hours saved for a patient diagnosed with PIH achieving a full-term pregnancy and meeting the minimum NICE guidelines.¹⁷ Conservatively using the assumption of 48% of patients travelling by car, and 19% by public transport, and 33% walking (though this would decrease as the pregnancy progressed), remote telemonitoring would save patients an additional £84, midwives in the community £182 and significantly reduce CO2 emissions. Lastly the study in NHS Lothian revealed seven patients had suffered a combined loss of earnings of 2.3 days which updated using ONS average weekly earnings as of June 2022) suggests a further potential cost saving to the patient of £281.06, resulting in an estimated cost saving for a PIH patient of remote self-monitoring of least £365.



¹⁷ (Michael, et al., 2019)

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