

Case Study / Clinical Evidence  
Diabetes

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## Self-Management: Improved Condition Control, Sustained Savings in Clinical Time, Reduced Hospital Admissions

A summary of evidence from 20 case studies and clinical reports proves that Florence activates patients resulting in a significant reduction in the risk of their long-term diabetic complications, freeing up clinical capacity and hospital resources.



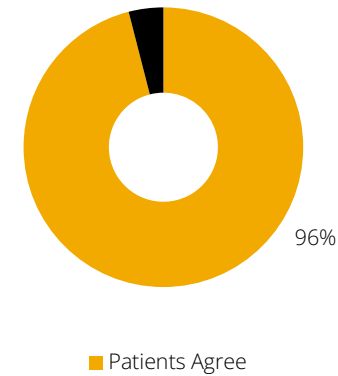
Intelligent health messaging service Florence is proven to enable self-management and facilitate behavioural change in patients with Type 1, 2 and gestational diabetes, resulting in lower blood glucose levels and blood pressure readings, resulting in freed up clinical time, avoided hospital admissions and significant cost savings.

- 96% of patients agree sending readings to Florence makes a difference
- 113% increase in number of patients fully compliant with their medication
- Studies show 55-67% of patients achieve lower HbA1c results with HbA1c levels decreasing by an average of 21-45%
- GP contacts are reduced by 48%, 64% fewer clinical hours are needed, and 54% of clinicians state contacts to be more appropriate
- An average of three fewer ante natal appointments are needed for patients with gestational diabetes and significant pathway improvement
- One study reported 100% of patients avoid hospital admission with 58% reporting no hypos at all and 42% milder hypos that are treatable at home

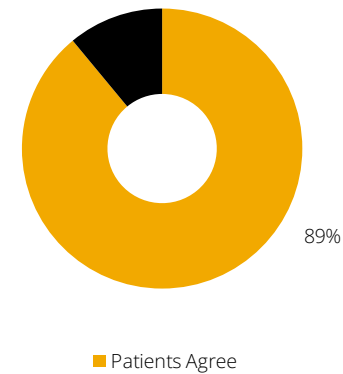
### Easy and accessible for patients

A questionnaire, part of an East Midlands clinical study, revealed how reassured and supported patients feel using Florence to submit their readings to their clinical teams. 94% felt confident using a mobile phone to send their readings with 89% agreeing Florence helped them to self-manage their condition. They felt connected to their team and appreciated the regular and enhanced access to services with Florence's clinically appropriate responses to the blood glucose readings they were submitting, with 96% agreeing staff gain a good understanding of their health problem through Florence.

"Sending readings to Florence makes a difference"



"I feel very reassured Florence is helping me manage my health and wellbeing"



As a result, patients' adherence to their treatment plan is improved and, in some cases, where younger patients have previously disengaged from their diabetes, completely turned around their diabetes control.

### Sustained improvement through behaviour change

Josh, a 23-year-old Type 1 diabetic in Nottinghamshire, is one such example; having been hospitalised 46 times in one year due to unstable control, he was able to self-monitor his condition and identify early signs of deterioration. “Florence has saved my life. I am no longer going in and out of hospital and when I see my doctor and nurse, I can have a more meaningful discussion about my health, and they can see my progress on the computer.”<sup>1</sup>

Erin, a 16-year-old under the care of NHS Western Isles “completely turned around her diabetes in six weeks reducing her HbA1c by a third.”<sup>2</sup> Prescribed Florence after being admitted to hospital with ketoacidosis and a HbA1c of 112 mmol/mol she had reduced her risk of developing kidney, eye disease and cardiovascular complications by 60% by a 29 mmol/mol drop in her HbA1c, and within 3 months by 80% by a further 10 mmol/mol drop to 73 mmol/mol.

“I would recommend Florence to help people that take any kind of medication - it’s done the world of good for me.”<sup>3</sup>

Patients are taking their medicine; a South East Staffordshire study shows a 113% increase in the number of patients fully compliant with their medication.<sup>4</sup> Patients are also more proactive in managing their medication, ordering their insulin in good time. Naomi, a 20-year-old Type 1 diabetic reduced her HbA1c from 119 in July to 70 mmol/mol by November by monitoring her condition with Florence. “I’m very proud of myself, to think I would be down to my last dose of insulin before I would ask for more. I’m so organised and focused that I rarely forget to order my medication now.”<sup>5</sup>

Dr Jackie Cornish, NHS England’s Clinical Director “Making sure children and young people understand their condition and know how to effectively manage it through life is one of the most important elements of care because this reduces the likelihood of complications in later life.”<sup>6</sup>



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<sup>1</sup> (Cund, et al., 2015)

<sup>2</sup> Case Study – [HbA1c down 29 mmol thanks to Florence](#)

<sup>3</sup> Case Study – [Improving adherence to diabetic management plan with Florence](#)

<sup>4</sup> Case Study – [Reducing HbA1c levels in 55% of patients using Florence](#)

<sup>5</sup> Case Study – [Improving adherence to diabetic management plan with Florence](#)

<sup>6</sup> (NHS England Medical Directorate, 2016)

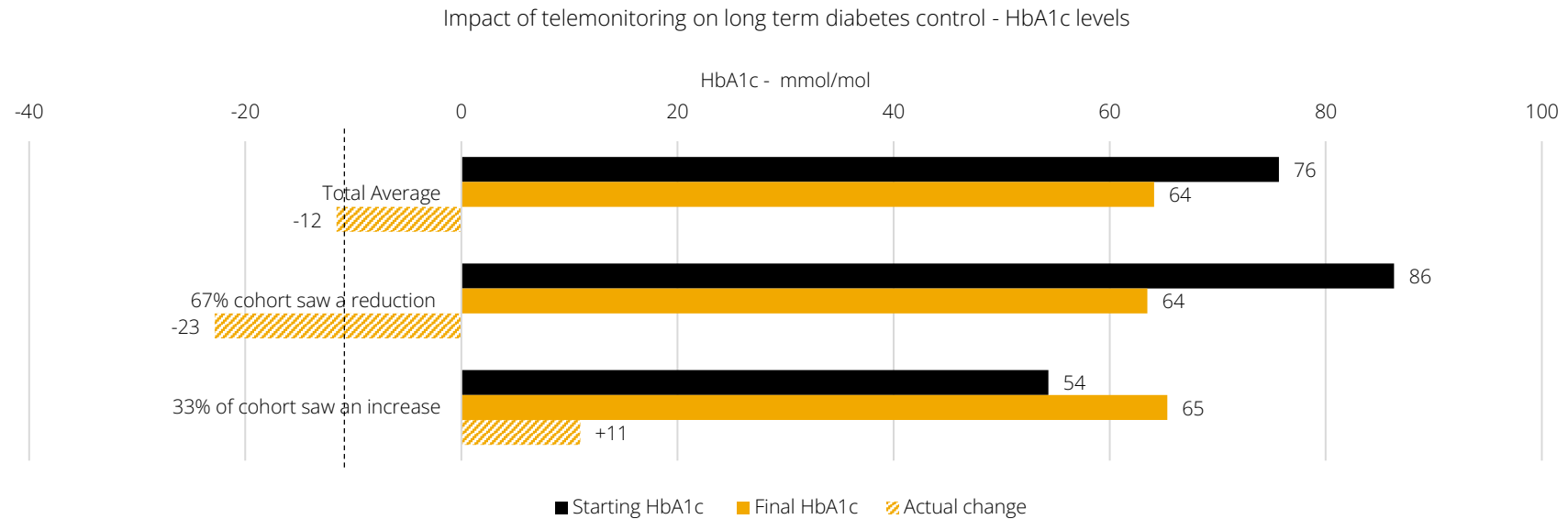


Figure 2: Impact of telemonitoring on HbA1c results in NHS Ayrshire & Arran<sup>7</sup>

The sustained behaviour change in patients diagnosed with Type 2 diabetes is also significant with Florence messages motivating patients to make positive lifestyle choices in exercise, diet and smoking cessation. Clinical evidence shows that with an 11 mmol/mol reduction in HbA1c in Type 2 diabetes patients, they are 43% less likely to suffer amputation, 16% less likely to suffer heart failure, and 19% less likely to suffer cataracts.<sup>8</sup> In South Tyneside, a female patient with Type 2 diabetes was motivated by Florence to submit blood glucose readings four times a day and receiving confidence boosting reassurance enabled her to reduce her HbA1c from 94 mmol/mol to 52 mmol/mol, reducing her very real risks of long-term complications.<sup>9</sup>

Similarly, another Type 2 patient, in the absence of exercise while recovering from a hip replacement was able to use Florence to “tighten the control I have on my diabetes and check my blood levels more regularly.”<sup>10</sup>

It took her two to three weeks of Florence before she had got her blood glucose under control enough to stop taking insulin.

The benefits extend beyond the patients to their families and carers. In Nottinghamshire, Josh’s mother’s anxiety was reduced significantly with her son successfully self-managing his diabetes, in South Tyneside a Type 2 patient’s

<sup>7</sup> Case Study – [Empowering people living with diabetes by introducing Florence](#)

<sup>8</sup> (Stratton, et al, 2000)

<sup>9</sup> Case Study – [Reducing health risks associated with diabetes through Florence self-management](#)

<sup>10</sup> Case Study – [Patient no longer requires insulin after three weeks with Florence](#)

husband's shift work wasn't compromised by having to take his wife to fortnightly appointments to monitor her blood pressure, and for another 77 year old Type 2 patient in residential care, bringing her diabetes under control reassured her residential care home staff she was being monitored safely with a significantly simplified treatment plan, freeing them from having to call in readings and administer unnecessary injections.<sup>11</sup>

Through self-management via Florence, patients are reported to be more proactive in checking and identifying when there are issues. This is reflected in the success reported by Sandwell & Birmingham NHS in discharging 46% of the study cohort with their blood pressure under control and 107 outpatient attendances avoided.<sup>12</sup>

In podiatry, Debra Drury, Clinical Podiatry Specialist with Pennine Care NHS Trust, has "seen that Florence is of real benefit to our patients." Daily reminders to check their feet, motivates them to seek help earlier to prevent rapid deterioration. "Even if Florence is helping just a quarter of the patients we have on our caseload, that's massive."<sup>13</sup>

Dr Rahul Nayar, Consultant in Diabetes and Endocrinology at City Hospital, Sunderland, also highlights the successes in using Florence to treat patients with gestational diabetes citing how patients can normalise their pregnancy, and benefit from more balanced childcare, work, and wellbeing due to their self-management and reduced need to attend appointments.

With reduced patient anxiety, more pregnancies safely reach full term and fewer babies are born at extreme birth percentiles with one mother, with underlying Type 2 diabetes, able to lose 4kg of weight, reduce her daily cigarette consumption from 20 to three, and achieve a healthy foetal growth.<sup>14</sup>

### Clinicians provide enhanced patient care

54% of clinicians highlight that with patients' blood glucose readings to hand during consultations either face to face or via call, they can make more productive use of the appointment time, can safely and accurately up titrate medication with immediate feedback on its impact on patients and identify any early signs of deterioration in a timelier manner.

*"The beauty of Florence is the flexibility – it's so simple, so flexible, so adaptable."*<sup>15</sup>

Able to set up patients quickly and easily and enter clinically approved advice appropriate to the different parameters, a specialist team's clinical reach is widened through integrating Florence into existing pathways and in their educational programmes enabling them to regularly monitor patients they might not otherwise have seen until their review, enabling them to identify which patients need one on one support.

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<sup>11</sup> Case Study – [BG remote monitoring results in no further hospitalisation or ambulance call outs](#)

<sup>12</sup> (De, et al, 2016)

<sup>13</sup> Case Study – [Podiatry team prevent deterioration and exacerbations with Florence](#)

<sup>14</sup> Case Study – [Diabetes in Pregnancy](#)

<sup>15</sup> Katie Robertson Bailey, Clinical Project Manager & Registered Nurse, Lincolnshire

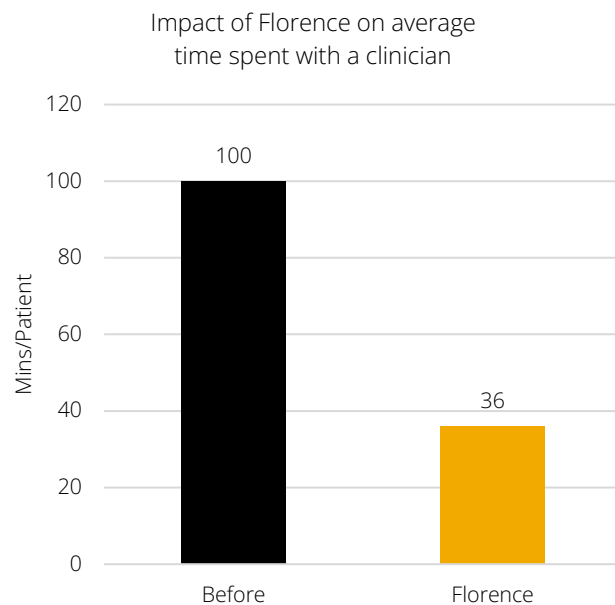


Figure 3: Summary of data from South East Staffordshire study over 12 weeks (n=54)<sup>16</sup>

45% of clinicians report that less contact is needed with their patients. Clinicians report fewer unnecessary calls as patients grow in confidence; according to Sister Denise Ballinger, District Nurse in Staffordshire, “the introduction of Florence [to one particularly anxious great grandmother] has given the nursing team an average of 95 minutes a day to spend with other patients.”<sup>17</sup> Through the support and reassurance provided by Florence, the patient was able to submit her blood glucose readings and self-administer her insulin injections.

Alison Stewart, Safe Care Lead for Diabetes in South Tyneside was able to halve her review time and contact with a Type 2 diabetic patient to weekly and reduce Florence’s interactions to once daily as the patient’s confidence to self-manage increased and her HbA1c improved from 94mmol/mol to 52mmol/mol.<sup>18</sup>

Dr Rahul Nayar, highlights a more “united team” more effective and productive in their provision of care by integrating Florence. Pregnant mothers on average needed to attend three fewer ante-natal appointments during the 12 weeks they were enrolled on Florence, due to their self-management and the team’s ability to remotely monitor them and “one stop shop” patients’ pregnancy checks, scans, and diabetes reviews into one visit.

#### Clinical time and resources saved

An NHS England report highlighted the high risk of psychosocial complications the longer time is left between appointments at a time when teenagers and younger patients are at risk of disengaging with their diabetes as they transition into adult care.<sup>19</sup> The simplicity of Florence and mode of communication has particularly appealed to the younger generation engaging them at this crucial time and supporting and educating them in managing their diabetes thereby reducing the likelihood of complications in later life. With “80% of NHS spending in diabetes goes on managing complications, much of which could be prevented,” the impact of prescribing Florence to patients with diabetes is significant and sustained.

<sup>16</sup> Case Study – [Reducing HbA1c levels in 55% of patients using Florence](#)

<sup>17</sup> Case Study – [Increasing self-care confidence using Florence](#)

<sup>18</sup> Case Study – [Reducing health risks associated with diabetes through Florence self-management](#)

<sup>19</sup> (NHS England Medical Directorate, 2016)

Updated figures from NHS 20/21 show that from the 107 avoided outpatient attendances from bringing diabetic patients' blood pressure under control in Sandwell & Birmingham a gross estimated £13,375 or average £133.75 is saved per patient.

If we apply £80 per antenatal appointment (as used in the study) saved from Florence monitoring used for pregnant women with gestational diabetes (4.5% of pregnancies) with an average three appointments saved over a 12-week period, or in one case study four appointments over 20 weeks, £320 was saved per patient - between 10–20 times the cost of Florence.

The South East Staffordshire study shows that of the 12 patients with frequent admissions due to hypoglycaemia, with Florence monitoring, seven avoided any hypos at all, and five had milder hypos which could be treated at home, avoiding ambulance call outs and hospital admission. Using NHS 20/21 figures this would be an estimated cost saving of £917 per hospital admission avoided. A&E admission with ambulance call out of £292 and £625 for hypoglycaemic disordered non elective short stay.

Two large scale studies have also shown that improving HbA1c by 11 mmol/mol for patients with Type 1 or Type 2 diabetes cuts the risk of microvascular conditions by 25%.<sup>20</sup> With patients on average achieving a 20 to 50 mmol/mol reduction in HbA1c with Florence, the cost savings from the significantly reduced risk of long term complications of kidney disease, neuropathy and retinopathy is substantial.



<sup>20</sup> (King, et al, 1999) (Nathan, 2014)

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