

Use of an Innovative Technology Enabled Care Service (Tecs) “Florence” To Empower Patients and Enhance Adherence to Treatments in Diabetes

Parijat De*, Susan Irwin, Jagjit Kaur and Karen Moore

Department of Diabetes & Endocrinology, Sandwell & West Birmingham NHS Trust, UK

*Corresponding author

Parijat De, Consultant Physician & Clinical Lead in Diabetes & Endocrinology, City Hospital (SWBHT), Dudley Road, Birmingham B18 7QH, E-mail: p.de@nhs.net.

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Abstract

Summary: In Sandwell and West Birmingham Hospitals NHS Trust, diabetes prevalence is high with a large ethnic minority population. Social deprivation is significant and compliance is a major stumbling block in the achievement of diabetes and Blood Pressure (BP) targets. Our aims were to improve adherence to BP treatment via engaging patients in their own health through text reminders and regular encouragement, and determine the clinical and cost effectiveness of this simple, yet unique method of virtual clinic consultation through FLORENCE (Flo).

Since April 2014

- 100 patients have enrolled for BP monitoring.
- 26 for blood glucose and insulin reminder.

Results

- Medications have been adjusted (added new agent or increased dose) in 27/100 (27%).
- 46/100 (46%) patients have been discharged with good BP control preventing 107 outpatient appointments (saving £11,663 vs. £2,329 Flo associated costs).
- Total savings £9,334.
- High patient satisfaction.
- Improved utilization of manpower resources and healthcare professional time – thus clinically and cost effective model of care delivery recognizing the importance of supporting patients outside of face-to-face care to improve outcomes.

Flo's use continues to grow in our Trust. This simple Telehealth technology can be easily replicated in any NHS Trust or CCG, as has been shown within our own Trust.

Keywords: Diabetes, Blood pressure, Florence, Hypertension.

Introduction

Sandwell and West Birmingham Hospitals NHS Trust (overseeing a population of 430,000) has double (around 10.1%) the national and regional prevalence of diabetes and significant ethnic minority (South Asian and Afro-Caribbean) population. Social deprivation is high and compliance is a major issue in the management of blood pressure in diabetes patients, particularly in those with Diabetic Nephropathy (DN), where evidence suggests strict control of BP and glycemia can significantly delay cardio-renal complications.

Digital delivery via Simple Telehealth/Flo (STH/Flo) mobile phone service was developed by Stoke-on-Trent CCG and has been encouraging frontline practitioners to empower patients to use telehealth as an enabling tool to take more responsibility for their health and well-being. STH/Flo has been shown to enhance

clinical management and is positively welcomed by patients [1,2]. Given the compliance issues we faced, together with poor BP control in our high risk patients with diabetes and renal disease, we took this opportunity and became part of the West Midlands Academic Health Science Network (WMAHSN) Integrated Care Flo Exemplar project for key long term conditions across the region, to empower patients to take more responsibility for their own health and wellbeing. We decided to concentrate mainly on Blood Pressure improvement in our patients with DN through this process.

Aims of project

Compliance is a major issue in any chronic disease management, particularly medication adherence in two specific areas (especially in our ethnically diverse population).

- Blood Pressure control (a third need 3 or more BP tablets to control their BP to targets and those with diabetes and renal

disease often need 5 or 6 different BP medicines).

- Adolescent diabetes (the need to engage with blood glucose testing (often 3-4 times per day) and taking insulin (often 4 times per day).

We decided to implement an innovative approach and adopted Florence (Flo) to motivate, educate and engage patients in managing their own health. Flo sends advice and collects patient information. Clinicians can access this information through any device connected to the internet, e.g. a computer in their surgery, a tablet or smartphone. It is free for patients; texts are paid for by NHS organisations.

The main objectives thus were to:

- Improve adherence to treatment plans in DN patients - through encouragement, reminders and regular contact;
- Regularly collect self-reported data and provide instant feedback;
- Enable improvements in clinical team productivity and outcome;
- Engage patients in their own health and improve outcomes.
- Determine the cost effectiveness of this virtual clinic consultation strategy (Figure 1).



Figure 1: What is FLORENCE?

Methodology

We received this exciting opportunity to join FIO via WMAHSN who were investing in the rollout based on the demonstrable enhancements in clinical management and patient satisfaction <http://www.simple.uk.net/home/articles>.

Flo is a main mode of digital delivery endorsed by NHS England and the Health Foundation; and is continuing to reinforce the evidence base for enhanced effectiveness and efficiency of technology enabled care services (TECS). Flo has already been used in over 70 organisations across the country and by over 40,000 patients.

Our involvement was to commit to an initial minimum of 12 months active but funded usage (e.g. Sep 2014-Oct 2015 in relation to the LTCs/medication reminders focus of the project (hypertensive CKD and adolescent diabetes population) with technical and administrative support from the WMAHSN team. Subsequently, this process would cost the Trust/CCG £10,500 for access, support and 37,500 texts over the next year (8p/text).

The protocols used concentrated on:

- BP reminders (once weekly, once monthly) in CKD and diabetes patients,
- High initial BP readings for diagnosis.
- Poorly controlled hypertension.
- Medication compliance.

We provided some sphygmomanometers to lend to patients (hypertension protocols) but most patients bought their own BP machines after explaining to them the importance of this minimal health investment.

Other clinical protocols offered and used by our team include (individual teams can also devise their own protocols): weight management, blood glucose testing reminders, managing mood & anxiety.

Outcomes

Quantitative outcome measures:

Till April 2016, 100 patients have enrolled with Flo for BP monitoring, and 26 patients for BM and insulin reminder since April 2015.

Of the 100 patients for BP management:

- In 27/100 (27%), BP medications were adjusted (added new agent or increased dose).
- 46/100 (46%) patients were discharged with good BP control.

This intervention has resulted in reductions in urine ACR and stabilisation of renal function.

Outpatient or face to face attendances prevented: 107.

- 45 (Flo follow up only).
- 62 (discharged).

This has saved £11,663 (national average £109 per OP attendance) simply from BP management for our DN cohort.

This is against a total cost of £2,329 assuming 75% of the 107 patients have used the WMAHSN Hypertension CKD/diabetes protocol for the full 12 weeks (364 texts/patient, cost per patient £29.12 for the service).

At a conservative estimate, we have thus managed to save £9,334 using Flo (BP service alone). This has resulted in improved utilisation of manpower resources and healthcare professional time (in line with current NHS & CCG drive towards fewer OP appointments, care closer to home and Primary care autonomy).

Qualitative outcome measures: See patient satisfaction results later.

Quotes from 3 patients

"Flo messages for Blood Pressure were very motivational and helped me increase my activity levels and improve my diet".

Another patient quoted *"using Flo on my tablet is so easy & convenient; I am partially sighted and can enlarge the text. I use Flo for BP and periodic BG testing which I have found very helpful recently changing from basal insulin".*

"I have used Flo which has allowed me to send in both BP & BG readings without having to attend so many clinics – I have difficulty taking time off work and have found this service extremely useful".

2 Examples Recognizing Excellent Practice involving FLORENCE in our Trust

1) A new patient case study from one of our colleagues has been published which will further increase clinical engagement <http://www.simple.uk.net/home/casestudies/casestudiescontent/florencehelpsdomesticviolenceandabusedisclosure>

"Florence feels more like a friend you can trust than a computer system" was the quote patient used in the case study above.

2) In October 2015, we won the joint best initiative for prevention and early detection of diabetes and complications - Quality in Care (QiC) national award, Flo played a big part in the nurse led diabetes renal clinic BP assessments (Figure 2).

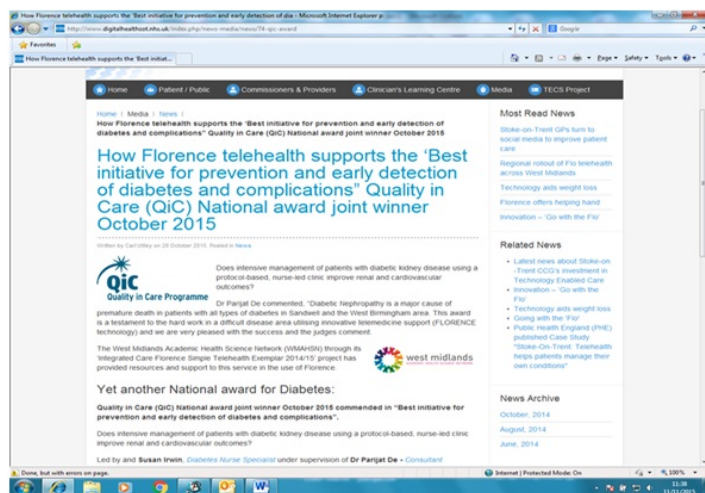


Figure 2: Screen shot of Flo mentioned in National QiC award London

October 2015.

Why is our project and findings innovative?

- Improved medication compliance through the use of technology and telemedicine.
- Improved ability and knowledge to adjust own BP medications/ insulin dose in complex patients with diabetes & renal disease.
- Ability to safely discharge patients back to GP where target BP achieved and those with diagnosis of "white coat hypertension" without recourse to hospital visits.
- Remote patient monitoring with reduced numbers of clinic visits, doctor & specialist nurse contact and hopefully, less future cardio-renal complications from engagement and collaborative working - high patient satisfaction
- Useful education and insight gained from patients about lifestyle and habits impacting on adherence.
- Significant cost savings for the health economy through innovative technology adaptation.
- Florence Gives Patients Their Freedom Back (patients aren't tied to a machine at home or visits to surgery or hospital. They take BP or BM readings at their convenience whether at home with family, or on holiday).
- Florence Gets Patients More Involved (regular, personalised health advice and medication reminders are sent to patients based on their readings – they take more responsibility for their own healthcare).
- Florence Gives Patients Confidence (frequent, short messages are unobtrusive and help the patient feel more cared for, more involved, and more in control of their own healthcare).

SWBHT Florence Patient Feedback 2015

The first two charts A and B relate specifically to the Hypertension and Medication reminder protocols and the final question was posed to all patients using the protocols listed above (Figures 3A-3C).

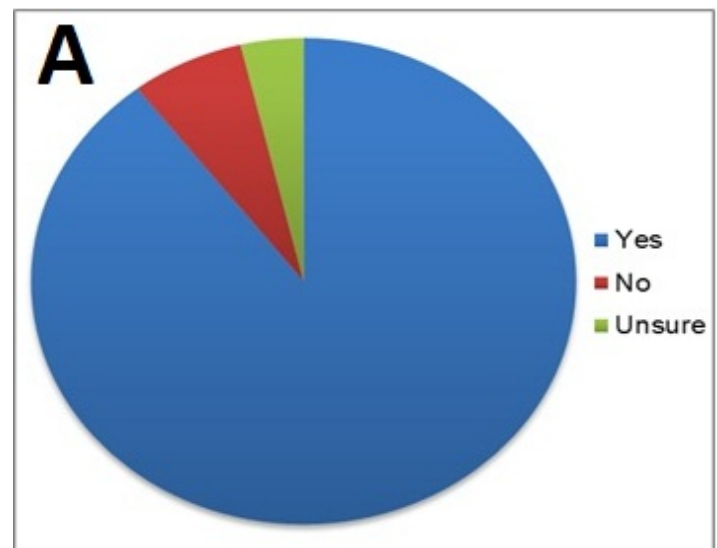


Figure 3A: Hypertension – Are you confident about taking your blood pressure at home?

YES- 90% No – 7% UNSURE – 3%.

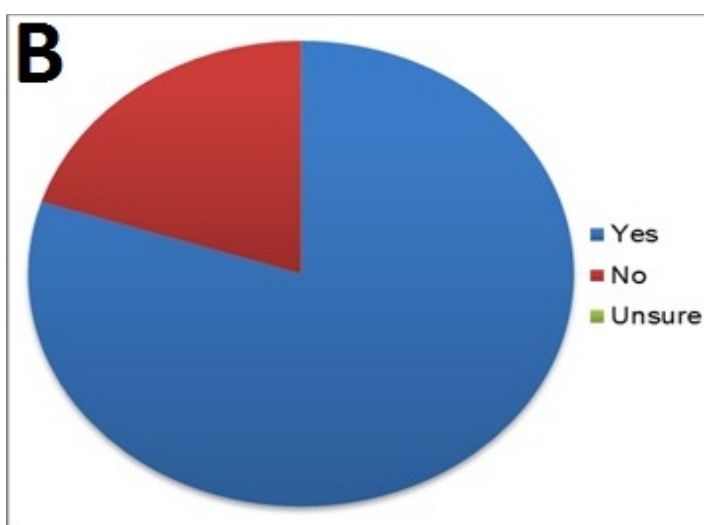


Figure 3B: Medication Reminder – Does Flo help you to remember to take your tablets regularly?
YES – 80% NO – 20%.

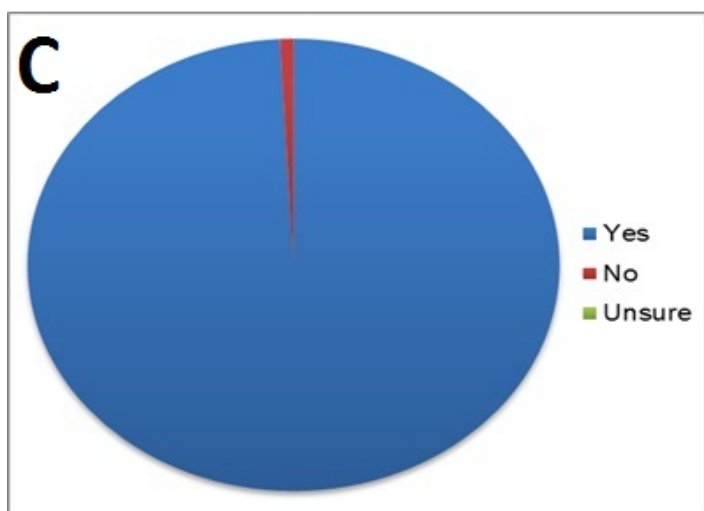


Figure 3C: Patient Preference – Do you prefer to text your readings to Flo?
YES – 99% NO – 1%.

Conclusions

Although the diabetes team has been using FLORENCE since 2014-15, there has recently been an increase in local clinical engagement with Flo within our Trust & CCG. As a result uptake in SWBH is continuing to grow, with new user accounts already set up for the following new teams - Pharmacy, Respiratory, Paediatric Diabetes, Haematology and Occupational Therapy.

We expect that our patient numbers will likely increase significantly in the coming months. Given the momentum now gaining pace in our Trust, we plan to involve the acute sector as well, to achieve faster clinical outcomes, improve team productivity and release non-urgent capacity.

Recently, five organizations nationally have received praise from

the CQC with Flo cited as outstanding practice – we hope to replicate this for our Trust as well.

Our Occupational Health Team have recently taken up the STH/Flo protocols for Workforce Stress Florence Telehealth sub-project.

Thus, Flo can be easily replicated in any NHS Trust or CCG. All that is required is basic funding, motivated & interested staff working in teams, support from Flo administrative team and willing patients who can use a mobile to text messages and most importantly, organisations ready to innovate and experiment with newer & smarter ways of working.

Acknowledgement

As mentioned earlier, the project was funded by WMAHSN for the first year 2014-2015, who paid for the years text bundle (37,500 texts) for using FLO. We have currently applied for internal Trust charity grant for future funding of Flo.

Other awards/recognition of Flo

- In October 2015, we won the joint best initiative for prevention and early detection of diabetes and complications - Quality in Care (QiC) national award, Flo played a big part in the nurse led diabetes renal clinic BP assessments.
- We have presented our Flo project findings in London for the 7th World Healthcare and Technology summit congress on 26th Sep 2016
- We have shared our Flo project findings amongst colleagues and peers at West Midlands CYP (Children and Young People) network meeting.
- Our paper on Flo is due to be published in Autumn issue of “West Midlands RCP Newsletter” 2016.
- Our pilot FLORENCE project findings have also been shared with RCP London as part of Future Hospitals Project.

References

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