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Acute Care: Efficiencies from Implementing Sustainable TEC Best Practice in Secondary Care with Florence

Florence Overview

Non-compliance to health care guidance has always been a significant challenge in healthcare, particularly long-term condition management. Our healthcare system was not designed to be patient-centric with a legacy of minimal emphasis on empowering patients to take responsibility for their conditions resulting in cohorts of patients who can become fairly passive and non-compliant.

Acknowledging this and, the significant impact that activating our patients can have on their own health outcomes, Flo provides an opportunity to educate and enable patients by focusing on improving their adherence to clinical guidance, and consequently clinical outcomes improve, faster.

The clinician clearly retains responsibility yet with an effective mechanism of motivating patients towards behaviour changes impacting on condition, the patient becomes an active participant adding a value that often only they can.

Florence (or Flo to her friends) was designed by looking at motivation and what motivates patients to increase their quality of care in between face-to-face contacts as part of a shared management plan. Using Flo's unique persona to her best advantage is an important component in motivating patients to take an active role.

Flo is not condition or purpose specific. Flo focuses on helping patients to help themselves and dependent upon the original local purpose of using Flo, Flo's interactions and pathways will vary as designed by clinical teams. Existing pathways and best practice are willingly shared amongst organisations using Flo via the Florence Community of Practice

Rationale for use of Florence

- *Reduction in avoidable non-value added face-to-face contact, healthcare usage, crisis episodes and side effects of non-compliance (e.g. readmission or A&E attendance)*
- *Support clinician and patient adherence to agreed best practice care and shared management plans*
- *Empowering patients to take responsibility for their adherence to agreed advice, increasing engagement with their health and improving their self-care capability*
- *Supporting prioritisation of care - releasing capacity, enabling appropriate and timely care to be delivered to patients based on clinical need.*
- *Promotion of appropriate routes of access into services as clinically indicated due to patient's increased understanding of clinical indicators, appropriate routes of access and improved compliance to clinical guidance.*
- *Reduced patient anxiety with the opportunity to self-monitor reinforced by timely feedback developing an increased understanding of their condition and what it means for them*
- *Improve the patients' freedom to manage their own condition with reinforced patient education - permits increased or decreased clinical support as required.*

Florence has been recently cited in independent publications as an exemplar innovation. The King's Fund publication "Florence: telehealth for long-term conditions" highlights Flo amongst eight examples of successful innovation. The Innovation Unit and The Health Foundation came together in the "Against the Odds" research project to identify 10 UK innovations which have demonstrated "successful scaling", one of which is Florence. From these case studies, they were able to highlight eight key enablers for scalability of new innovations within the NHS.

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Focus: Acute Care

It is widely acknowledged that more people are living longer, with more complex conditions, costs are increasing whilst NHS funding remains flat with a rising expectation of the quality of care received.

In 2016, The King's Fund reported that between 2003/4 and 2015/16, the number of attendances at major A&Es increased by 18%, and admissions to hospital via major A&E departments rose by 65 per cent over the same time period.

The King's Fund has also been an increase in the number of patients receiving elective care of 11% between 2012/13 and 2016/17, while the standard of 92% of patients receiving elective treatment in 18 weeks from referral was missed in 2016/17.

There is now a significant opportunity to integrate evidence based technology enabled care services into routine healthcare delivery, moving towards clinical pathways that represent safe, efficient healthcare that is popular with patients and carers alike

Clinicians in acute care have embraced Flo as a tool to deliver sustained improvement in both clinical and efficiency outcomes. Indeed, primary care associated clinical cohorts accounted for almost half of Flo use in the first half of 2017.

"It fits within and can be adapted for existing work processes rather than requiring substantial redesign. It doesn't require staff to develop new skills or very different ways of working."

The King's Fund – "Florence: telehealth for long-term conditions"

Condition Index:

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Example Pathway: Maternity

Benefits:

1. Readings such as blood pressure and blood glucose taken at home result in **less face-to-face consultation time** in clinic and are taken in real time.
2. Improved access to real-time BP and BG readings to **improve clinical decision making.**
3. **Patient safety increased** with real-time advice including guidance of what to do if their condition worsens or support needs increasing as per their management plan.
4. **Improved timeliness** of clinical decisions, resulting in the opportunity to **intervene earlier** if the patient's condition worsens.
5. An opportunity to support patients understanding of **lifestyle improvements** that support controlling their PIH or GDM.
6. An increase in **patient engagement, awareness and knowledge of their BP, BG or foetal movements** with motivation and support in adopting a healthier lifestyle.
7. Provide extended support to new mums upon discharge from hospital to **educate and motivate towards continuation of breastfeeding.**
8. **Increase in the wide-ranging and long-lasting benefits** to both mum and baby due to **higher number of weeks breastfeeding.**

Pregnancy Induced Hypertension Management

Flo has supported mums-to-be diagnosed with pregnancy induced hypertension (PIH). At City Hospitals Sunderland Foundation Trust (CHSFT), Flo was implemented into a PIH pathway, which **monitored BP and other symptoms**, such as headaches. **If the symptoms were of concern, ladies would be asked to contact the hospital**, and possibly be admitted for additional care. One case study from Mr Kim Hinshaw, Consultant Obstetrician & Gynaecologist at Sunderland City Hospitals, describes how one ladies symptoms triggered an alert in Flo, asking her to call the maternity ward; the patient was admitted to hospital, and the decision was taken to induce labour with **no resulting maternal or neonatal complications**. Using Flo for PIH ensures that **contact with patients are timely and appropriate**, which can help to **ease demands on clinical time**.

Gestational Diabetes Mellitus

CHSFT designed a pathway with Flo to help pregnant ladies monitor their BG after being diagnosed with GDM. Similar to the PIH pathway at CHSFT, integrating Flo into the pathway ensured that **patient contact was timely and appropriate**, and patients requiring more support were able to be admitted before their condition worsened. In addition to this, one case study describes how Flo was also able to **support lifestyle changes** such as weight loss and reduced levels of smoking. For more information about Flo for GDM, please take a look at this video.

Foetal Movements

Midwives at County Community Hospital within NHS Highlands, have integrated Flo support to Foetal Movement Awareness for their Mum's to be, with the aim of the pathway being to **help women to be more aware of their babies movements**. The team incorporated bite-size messages into Flo's protocol that shared health promotion advice and

also clinic appointment reminders. The pathway commenced when mums to be reached 16 weeks of their pregnancy with Flo interacting through to 38 weeks.

- **82% of women said that Flo helped them become more aware of their baby's movements.**
- **92% of women felt that Flo's messages helped them to attend their appointments.**
- **93% of women confirmed that they would recommend Flo to other women in the same circumstances**.

Breastfeeding Support
CHSFT also developed a pathway to support mums to continue to breastfeed up to 6 weeks & beyond. Flo is introduced to mums while they are in hospital after giving birth, and she sends advice and support messages which compliment the education provided by midwives while in hospital. **Feedback from mums was overwhelmingly positive, and breastfeeding rates at 6 weeks increased significantly**.

Although CHSFT were one of the first sites to use Flo for maternity, we have seen use expand across the UK. For example, Sandwell & West Birmingham Hospital currently use Flo to support mums with GDM, or existing diabetes, Great Western Hospitals have developed a PIH pathway, while new mums in Dudley now receive support with breastfeeding. This successful spread and adoption is only possible due to sites sharing best practice through the Simple Telehealth community.

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Example Pathway: COPD & Asthma (Impact on Acute Services)

Benefits:

1. To establish, and sustain, **better habits around inhaler use and supporting recognition** of signs and symptoms of exacerbation, **empowering patients to initiate rescue medication** as directed by their care plan.
2. To support appropriateness of treatment with **correct medication dosage,** and type, as applicable.
3. To actively promote and encourage **sustained behaviour change.**
4. **Reduce avoidable healthcare usage** and crisis episodes, (e.g. attendance at GP surgery, Out of Hours, Walk-in Centres or A&E) resulting from a poorly controlled asthma or COPD.
5. **Educating** patients with a diagnosis of COPD and/or asthma to **improve confidence** with **self-management** of their condition.

Pat's Story

Ann Hughes, a Practice Nurse in Stoke-on-Trent, introduced Flo to her patient, Pat: Pat has severe COPD with reduced lung function causing anxiety and impacting on her day to day life, activities and healthcare usage. **Ann frequently attended hospital due to her COPD; in a 3 month period, Pat had attended A&E twice via 999 and had two hospital admissions despite being supported by hospital at home.**

Since being introduced to Flo, Pat feels reassured and has become confident in managing and recognising her symptoms. This has allowed her to return to activities she previously enjoyed and even take up some new hobbies. **Since using Flo Pat has not had any further hospital admissions or visits to A&E.**

Pat comments:
"I know now, if I can't keep up revolutions on my bike there's something wrong."

Examples of further case studies

John Stalker was diagnosed with COPD after experiencing a persistent cough and prolonged periods of breathlessness. John was admitted to hospital 11 times in 2014 - however, in the 10 months following his introduction to Flo, John was only admitted to hospital once and he has been able to initiate treatment and specialist support earlier.
"Having support like this – including the specialist nurses a text away - is all about freedom and retaining independence, which is crucial."
John Stalker, COPD patient in Lanarkshire.

"We've found at the surgery its reduced the doctors' visits by round about 75% in patients who are on Flo."
Practice Nurse Maggie Whitmore at Furlong Medical Centre.

Asthma

Flo supports patients with Asthma in NHS Highlands by helping them to monitor their peak flow and other symptoms, as well as reminding them to use their inhalers. Patients have found Flo's support very helpful, and knowledge and control of their condition has improved, which for some has meant fewer flare-ups and admissions.

"Another benefit of being able to remotely monitor my patients' readings with Flo is that they no longer have to attend as many appointments at the clinic. Given how precious clinic appointments are, not having to see patients who are on Flo as often has really freed up some capacity for us."
Corinne Clark, Respiratory Specialist Nurse.

Flo has also helped in the management of paediatric asthma, whereby messages are sent to the parent to remind them to ensure that their child uses their inhaler as prescribed.

Example Pathway: Hypertension (Managed by Acute Services)

Benefits:

1. Blood pressure readings taken at home result in **less face-to-face consultation time** in clinic and are taken in real time.
2. **Avoidance of white-coat hypertension (WCH) symptoms** in pre-op assessments which could result in delays to surgery.
3. Improved access to real-time blood pressure readings to **improve clinical decision making.**
4. **Patient safety increased** with real-time advice including guidance of what to do if their condition worsens or support needs increasing as per their management plan.
5. **Improved timeliness** of clinical decisions, resulting in the opportunity to **intervene earlier** if the patient's condition worsens.
6. An opportunity to support patients understanding of **lifestyle improvements** that support controlling their hypertension.
7. An increase in **patient engagement and awareness of their blood pressure** with motivation and support in adopting a healthier lifestyle.

Pre-Op Assessment - Blood Pressure Monitoring

The King's Mill Hospital at Sherwood Forest Hospitals integrate Flo into their pre-op assessment procedure, whereby Flo monitored patients BP readings. Amongst the small pilot cohort of patients identified as having raised BP at their pre-op assessment, **42% were found to have WCH** when monitoring with Flo.

Following on from this success, Circle Nottingham Pre-Assessment Unit ran a 6 month pilot which demonstrated that **73% of patients suffered from WCH**. Timely and accurate identification of WCH symptoms meant that surgeries were able to proceed as normal, **helping to reduce cancellations or delays,** and the costs associated with these.

Example Pathway: Oncology

Benefits:

1. Temperature taken at home improved access to real-time readings to **improve clinical decision making.**
2. **Patient safety increased** with real-time advice including guidance of what to do if patients temperature is raised or support needs increasing as per their management plan.
3. **Improved timeliness of clinical decisions,** resulting in the opportunity to **intervene earlier** before patient's condition worsens.

University Hospitals of North Midlands NHS Trust developed an innovative pathway where patients who had received chemotherapy would take their temperature at home. A raised reading of 38 degrees celsius could be a possible early sign of potential infection caused by a lowered immune system following treatment; those patients who had high temperatures were asked to contact the Emergency Assessment Bay at UHNM for treatment and/or advice. **Acting early prevented more serious complications, which could potentially result in a hospital admission and a potentially lengthy stay.** Take a look at the case studies below for more information.

Case study one:
The patient was alerted by Flo to call the Emergency Assessment Bay at the hospital as her body temperature was 38.4 degrees. The patient called into the hospital as requested, and was able to discuss her associated symptoms of shortness of breath and fatigue with the triage practitioner, who then asked the patient to attend the Emergency Assessment Bay for further investigation. Upon review by the doctor the patient was suspected to have neutropenic sepsis, yet upon further investigation, including a chest x-ray, the patient was diagnosed with a chest infection. The patient was then prescribed antibiotics and **able to be discharged home the same day. The prompt action of the patient to contact the EAB as advised reduced the duration and severity of the infection and potentially the patient's length of stay in hospital**"

Case study two:
The patient was alerted by Flo to call the Emergency Assessment Bay at the hospital as his body temperature was 38 degrees. The patient called in as requested and the patient was subsequently asked to attend the Emergency Assessment Bay for further investigation.

Upon review, the patient's pyrexia was confirmed and he was admitted to a specialist ward for 3 days where he received 48 hours of intravenous antibiotics and was discharged home. **By this patient acting promptly by calling the Emergency Assessment Bay for further advice upon experiencing a raised temperature, the severity and duration of infection was not exacerbated and the patient was able to return home quicker.**

Case study three:
The patient was alerted by Flo to call the Emergency Assessment Bay at the hospital as his body temperature was 38.6 degrees after his chemotherapy treatment the day previously. The patient called in as requested and was admitted to AMU Ward 218 as he was experiencing tiredness, a high temperature and cough.

The patient was treated for an infection secondary to a UTI and started on the appropriate medication. The patient was discharged the day after. **The prompt action by the patient to contact the Emergency Assessment Bay and**

receive appropriate clinical treatment reduced the severity and duration of the infections and also the patient experiencing side effects associated with the UTI and secondary infection plus potential further complications.

Case study four:
The patient was alerted by Flo to call the Emergency Assessment Bay at the hospital as her body temperature was 38 degrees. The patient therefore attended the Emergency Assessment Bay, was administered with oral antibiotics and **discharged home as there were no signs that neutropenia had developed. The patient did not require an admission.**

The same patient also attended the Emergency Assessment Bay a few days later, as Flo had alerted her due to a temperature of 38.6 degrees, and was diagnosed with community acquired pneumonia and administered the appropriated treatment as an inpatient. **The prompt action of the patient to contact the EAB as advised reduced the duration and severity of the infection and potentially the patient's length of stay in hospital.**

Example Pathway: Medication Concordance

Benefits:

1. To **establish**, and **sustain, better habits** around prescribed medication.
2. To **reduce side effects** associated with **non-compliance.**
3. To actively promote and encourage **sustained behaviour change.**
4. **Reduce avoidable healthcare usage** and crisis episodes, (e.g. attendance at GP surgery, Out of Hours, Walk-in Centres or A&E).
5. **Faster and sustained** achievement of clinical outcomes through patient's concordance.
6. Maximises patient **familiarisation with technology** as a precursor for any requirement for step-up monitoring with Flo.
7. Help to **reduce missed appointments**, **increase capacity**, and **reduce costs associated with missed appointments.**

One of the most simple applications of Flo is medication reminders; however **ensuring medication concordance is key to improving patient outcomes**, and therefore **reducing care costs**, such as more clinic appointments, admissions and additional non-condition treatments which may arise through the patient's symptoms worsening (e.g. falls).

In acute settings, including Newcastle-upon-Tyne Hospital and The Shrewsbury and Telford Hospital Flo has been used to support medication concordance for a number of conditions, including Parkinson's and epilepsy.

Case study one:
Flo helped an elderly patient demonstrate **greater awareness of the importance of taking his medication**, and to reduce his anxiety associated with this. The patient used Flo to be able to prompt and then confirm that he had taken his medication as prescribed.

Being able to confirm, in real time, that medication had been taken revealed an additional benefit above reminding and encouraging the patient to take the original desired action. **One morning after being unsure if he had taken his medication or not the previous night, the patient was able to confirm with his nurse that he had** as he could not remember. This **avoided the possibility of side effects associated with medication either being missed or being taken again in error.**

Case study two:
Ron has Parkinson's and always gets his medication on time because his wife is his main carer supports him. However, his wife also has earlier stages Parkinson's, and often forgets to take her own medication, which has resulted in her experiencing "freezing" episodes. Flo has been set up to remind and prompt her to take her medication to ensure she can continue to care for both Ron and herself.

Ron's wife comments:
"I do make sure now that I have my tablets upstairs and downstairs, so when I hear a text message at the agreed time I take them. I don't always get to open the message as I am busy with Ron"

In this instance, Flo is helping to improve patient outcomes for both Ron and his wife.

Example Pathway: Diabetes

Benefits:

1. BG & BP readings taken at home result in **less face-to-face consultation time** in clinic and are taken in real time.
2. Reduction in appointments **frees up capacity in clinics** with associated cost savings.
3. Improved access to real-time BG & BP readings to **improve clinical decision making.**
4. **Patient safety increased** with real-time advice including guidance of what to do if their condition worsens or support needs increasing as per their management plan.
5. **Improved timeliness of clinical decisions,** resulting in the opportunity to **intervene earlier** if the patient's condition worsens.
6. An opportunity to support patients understanding of **lifestyle improvements** that support controlling their hypertension.
7. An increase in **patient engagement and awareness of their BG/BP** with motivation and support in adopting a healthier lifestyle.
8. **Stabilisation of condition** due to medication reminders & regular testing, resulting in **improved patient outcomes**.

The Diabetes Specialist Nurse Team at South Tyneside NHS Foundation Trust has implemented Flo to support patients to self manage their diabetes. Patients have demonstrated improved glycaemic control, **reducing both short and long term associated health risks** and r**educing the number of required clinic appointments**.

South Tyneside shared a case study with us about a lady who was demonstrating poor glycaemic control, and despite changes to her medication to remedy this, was at risk of short term complications, such as increased tiredness, lethargy and thirst, plus polyuria and a more likely risk of infection. If the the period of poor glycaemic control continued, she would have been at risk of long term complications such as heart attack, stroke, kidney disease, damage to her nerves and circulation in her feet, amongst other things. To support better self-management, the patient was enrolled on Flo to prompt her to take her BG four times a day, and also to send motivational and support messages aimed towards behaviour change and lifestyle improvement. At the outset, the ladies **HbA1c was 94 mmol/mol, but with Flo's support this reduced to 52mmol/mol**, significantly decreasing both short and long-term risks to the patient. The patient's improvement in glycaemic control also meant that she **required fewer clinic appointments**.

Sandwell & West Birmingham Hospitals have also employed Flo in their diabetes care for patients, supporting both BG monitoring, and BP monitoring for Diabetic Nephropathy. The team set up a protocol-driven, diabetic renal nurse-led review clinic to specifically target education. Results over 3 different time periods between 2003 and 2014 in a mixed ethnic population were evaluated, and it was found that there were statistically significant **reductions in HbA1c, patient satisfaction scores were high and medication compliance increased.** Improved treatment concordance and self-management **improves long-term patient outcomes**, and can have cost benefits associated with **reduced acute care requirements** throughout the patient's life. Sandwell & West Birmingham Hospitals were joint winners for this work at the 2015 Quality in Care awards in the "Best initiative for the prevention, or earlier detection, of diabetes" category.

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Example Pathway: Orthopaedics

Benefits:

1. **Reduced number of follow-up appointments** at clinic after discharge, leading to **improved capacity** for clinicians.
2. Contacts with patients are **more appropriate and efficient**.

Knee and Hip Replacements

Sherwood Forest Hospitals integrated Flo as an alternative to face-to-face follow-up appointments in their discharge pathway for patients who had undergone knee and hip replacement surgery. Results show **fewer, but more appropriate, appointments** in follow up clinic with clinicians feeling that patients have at least the same confidence as if followed up face-to-face in clinic, with **72.2% of patients were able to be discharged by the nurse remotely without having to attend clinic releasing 490 clinic appointments equating to 24 clinic sessions.**

The 6/12 month follow-up pathway was one of 5 acute applications that were evaluated by the East Midlands Academic Health Science Network (EMAHSN), part of which included clinician response to using Flo:

Do you believe that using Florence has helped the patient to manage their own health and wellbeing more conveniently?

Definitely yes	**30.6%**
Probably yes	**40.8%**
Probably no	**17.3%**
Definitely no	**8.2%**
No change	**3.1%**

Have you had more or fewer contacts with this person because of using Florence?

A lot more	**0%**
A little more	**11.2%**
A little fewer	**83.7%**
A lot fewer	**1%**
No change	**4.1%**

Have your contacts with this person been more or less appropriate because of using Flo?

Definitely more	**25.5%**
Probably more	**58.2%**
Probably less	**3.1%**
Definitely less	**3.1%**
No change	**8.1%**

Do you believe the Flo process has given the patient the same level of confidence as a 'face to face' appointment would have?

Definitely some	**33.7%**
Probably some	**33.7%**
Probably less	**17.3%**
Definitely less	**12.2%**
No change	**3.1%**

Patient satisfaction was also high, with patients agreeing/strongly agreeing with the following statements:

- 'Florence is improving my overall care experience'- 67.3%
- 'I feel that Florence supports the existing care I receive'- 77.6%
- 'I find Florence very convenient'- 88.8%
- 'Florence is easy to use' – 86.7%

To read the full report, please click here.

Example Pathway: Ascites Management

Benefits:

1. Weight readings taken at home result in **less face-to-face consultation time** in clinic and are taken in real time.
2. Improved clinical access to weight readings to **improve clinical decision making.**
3. **Patient safety increased** with real-time advice including guidance of what to do if their condition worsens.
4. **Improved timeliness** of clinical decisions, resulting in the opportunity to **intervene earlier** if the patient's condition worsens.
5. **Reduced waiting time for patients requiring ascites to be drained.**

NHS Nottinghamshire has been using Flo to support ascites management for a number of years now. Flo asks patients for regular weight readings, and based on the patient's baseline, the readings can help in determining if there has been a build-up of ascitic fluid. **This ensures that patient contact is appropriate and timely, and has helped to reduce waiting times.**

The ascites monitoring pathway in Nottingham was also included in the same evaluation by EMAHSN as the orthopaedic discharge pathway, with patient and clinician feedback gathered as an evaluation measure.

Patients agreed/strongly agreed that:

- 'I feel I have learned more about my condition and what works best for me' - 87.5%
- 'Florence is helping me manage my own health better' - 81%
- 'I feel very reassured that Florence is helping me manage my health and wellbeing' -91%

Do you believe that using Florence has helped the patient to manage their own health and wellbeing more conveniently?

Definitely yes	**25%**
Probably yes	**62.5%**
Probably no	**0%**
Definitely no	**0%**
No change	**12.5%**

Have your contacts with this person been more or less appropriate because of using Flo?

Definitely yes	**31.25%**
Probably yes	**62.5%**
Probably no	**0%**
Definitely no	**0%**
No change	**6.25%**

In response to the statement **'has the use of Flo with this person avoided any hospital admission'**? the following results were achieved:-

Yes	**75%** (in some cases this occurred on more than one occasion)
No	**6.25%**
NA	**18.75%**

Example Pathway: Renal Transplant

Benefits:

1. Medication titrated safely to **improve patient outcomes and safety**.
2. Text **messages act as a record for patients** to see when medication dosage changed.
3. **Reduction in the number of telephone contacts** to titrate medication, therefore **creating time-saving efficiencies** for clinicians.

CHSFT have used Flo to support titration of immunosuppressantpatient'sion for patients who are the recipients of renal transplants. After receiving the patients' results, clinicians use Flo's free text option to tell the patient any changes they need to make to their medication dosage. The patient is then asked to reply to Flo to confirm that they have taken note and understood the changes to their medication. **Using Flo has reduced the amount of time clinicians spend contacting patients by up to half, allow them to make time savings and free-up time in their working day.** To find out more about the pathway.

CQC Reports:

Use of Flo at Sunderland Royal Hospital for maternity was highlighted as an area of outstanding practice:

"The use of the tele-health system [Flo] in maternity services enabled women to monitor blood glucose levels and blood pressure in their own homes avoiding unnecessary visits to hospital."

City Hospitals Sunderland Foundation Trust CQC Report, January 2015.