



**INNOVATION AGENCY**  
Academic Health Science Network  
for the North West Coast

# WARFARIN PATIENTS SELF-MONITORING

## Summary

Patients in East Lancashire are using technology and an app to monitor their atrial fibrillation (AF) at home.

Around 200 people are using a handheld device to test their blood's international normalised ratio (INR) avoiding the need to visit a hospital or GP clinic.

The blood test results are sent via a mobile app, secure web portal or automated telephone call. The patients then receive information on any changes to dosage of the anti-clotting drug warfarin.

## Participating organisations

This project involves East Lancashire Hospital NHS Trust, NHS East Lancashire CCG and five GP practices. InHealthCare Ltd and Lumira dx (INR Star) provide the apps and digital systems. Roche Diagnostics Ltd supplies the handheld devices and training for patients to send their INR result to the healthcare professional. Evaluation is carried out by the University of Central Lancashire.

## Why is this important?

AF is a significant risk factor in stroke and it is estimated that across the UK there are 0.5 million people who remain undiagnosed.



Warfarin Self-Monitoring credit Bruce Rollinson

Standard models of care involve travelling to clinic appointments; research shows that patient compliance, satisfaction and treatment outcome is improved when people can manage their condition at home.

## The challenge

Patients can find it difficult to attend frequent clinic appointments to check their INR levels. This can mean that their medication isn't being provided at the correct dosage. Technology for people to self-monitor and use digital systems is not taken up routinely.

## Actions taken

The Innovation Agency secured £100,000 funding which we topped up with an additional £25,000.

GPs who were providing an anticoagulation service were supplied with 100 testing devices. They then identified patients who could benefit.

East Lancashire Hospitals' anticoagulation service was also provided with 100 devices for their patients.

NHS staff and patients were given training and each patient was given a meter and test strips.

## Impacts / benefits

This programme has shown that self-testing improves accuracy of warfarin dosages, reducing the risk of blood clotting and potential strokes.

A patient survey showed positive feedback on training and East Lancashire Hospitals had one of the lowest drop-out rates compared with other self-testing projects.

Early indications show that self-testing increased the time during therapeutic range for patients. Two patients' time within therapeutic range increased from around 50 per cent to over 95 per cent.

We predict cost savings of £123,612 over five years compared with usual costs of care, for these 200 patients.

For these patients we expect to avoid a total of 11.3 strokes and other illnesses over five years.

## Plans for the future

We will deliver an evaluation and cost effectiveness package for service planners, which will allow them to review the value of using this technology in the region. We will share the results with the wider AHSN Network for potential uptake elsewhere in the country.

## Testimonials

Rosalee Stevenson, a 66-year-old patient at Pendleside Medical Practice, has been taking warfarin for atrial fibrillation for the last six years.

She said: "It's so simple. It's given me peace of mind, and I know it's there in case I don't think things are right. If I go to the dentist or have a shoulder injection I've got to stop warfarin. With self-monitoring I know I can come back and test my INR, and get it back to the level. It's just peace of mind. I would recommend it to anybody. It's wonderful."

Rosalee's GP Dr Lucy Astle said: "The app sends patient data directly from their self-monitoring device to the practice warfarin monitoring system, which is also linked to the electronic patient record. This reduces the risk of transcription error, and therefore offers a safety benefit for the patient and the practice."

June 2018

### CONTACT FOR FURTHER INFORMATION:

Dr Julia Reynolds, Head of Programmes  
Email: [julia.reynolds@innovationagency.nhs.uk](mailto:julia.reynolds@innovationagency.nhs.uk)  
Tel: 01772 520263

[innovationagency.nhs.uk](http://innovationagency.nhs.uk)

[@innovationnwc](https://twitter.com/innovationnwc)

 Like us on Facebook: InnovationNWC