

Zio[™] XT – Case Study Dartford and Gravesham NHS Trust

Transformational Partnership in Stroke and TIA Services

iRhythm partnered with Dartford and Gravesham NHS Trust to significantly improve ambulatory cardiac monitoring in its Stroke and TIA Services.

The Trust looked to transform the patient pathway for ambulatory cardiac monitoring and improve clinical outcomes in patients with stroke or TIA by adopting a remote AI Powered ambulatory ECG monitoring service – The Zio XT service.^{1,2}

This opportunity to redesign services has also resulted coverage within the UK national press and publication at international Stroke conferences.³⁻⁵



The Challenge³

The Trust reported the following:

Clinical

Conventional ECG monitors (Holter monitors) are usually only worn for 24 hours or occasionally up to seven days and if patient does not develop abnormal rhythm during that time, the condition could be missed.

Operational

Holters were cumbersome, so patient compliance could be low. For hospital staff, it was labour-intensive, as a cardiac physiologist had to manually assess large ECG datasets recorded by the devices.

Following an internal review of the pathway, clinicians decided that in between a 12 lead ECG and an implantable loop recorder (ILR) there needed to be an intermediary duration of rhythm monitoring longer than 48 hours. The team decided to redesign their pathway to provide another option before ILR as the existing pathway utilised 24-hour monitoring for which there was a 16-week waiting time for results.

“We needed a monitoring device that was somewhere between a traditional monitor and implantable loop recorder”

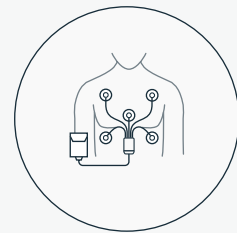
Strategic Objectives⁶

In its Strategy 2030 the Trust set out its intention to deliver effective digital change and enable:

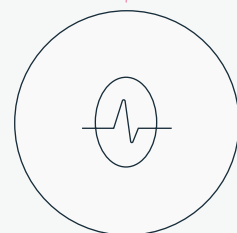
“a patient-centric healthcare experience that embraces advanced technology”



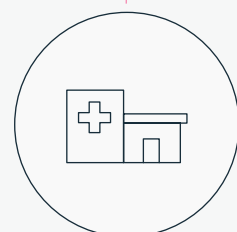
Short wear times increased the risk of arrhythmias being missed.



Low patient compliance with Holter technology.



Labour-intensive pathways for hospital staff in assessing ECG datasets recorded by the devices.



A need for an intermediary duration of rhythm monitoring which is longer than 48 hours.

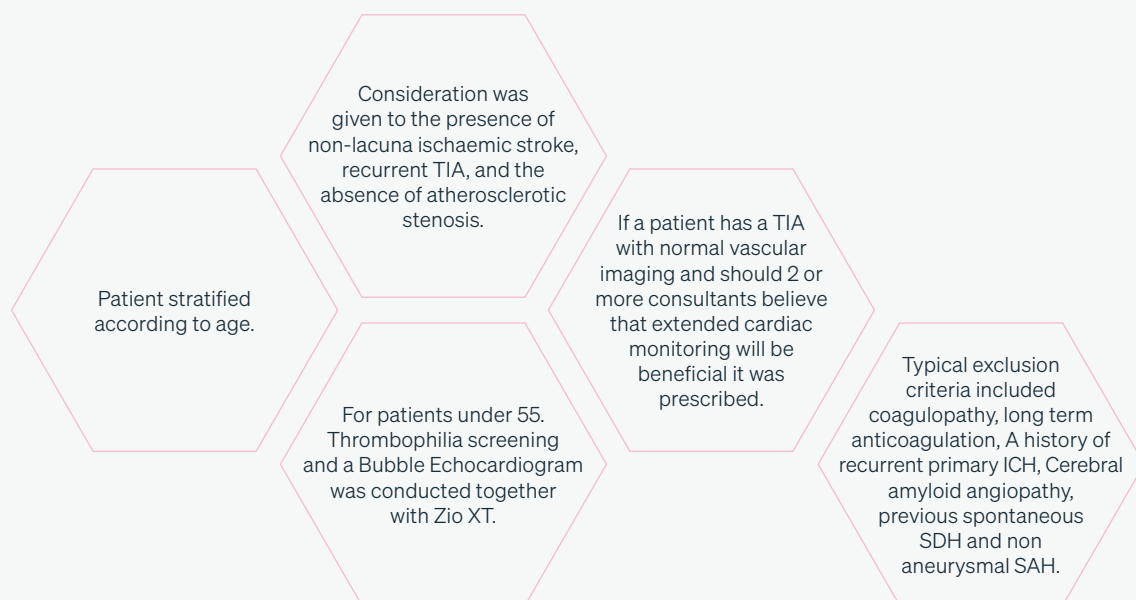
The Solution

The team identified an innovative, AI-enabled ECG monitoring service, the Zio XT service from iRhythm Technologies. The service consists of the Zio XT monitor worn for up to 14 days and analysis by AI combined with Cardiac Physiologist analysis and an ECG report.³ This put monitoring in the hands of the Stroke Physicians thus relieving burden on the Cardiac Physiology team for longer term monitoring.

The objective was to efficiently project manage service introduction and measure the positive impacts of change. This was achieved through a joint team approach where the project was led and owned by Dartford and Gravesham consultants and executives with technical support provided by iRhythm where required. This partnership approach ensured that key personnel within the Trust and iRhythm were able to complete robust benchmarking and pathway mapping.

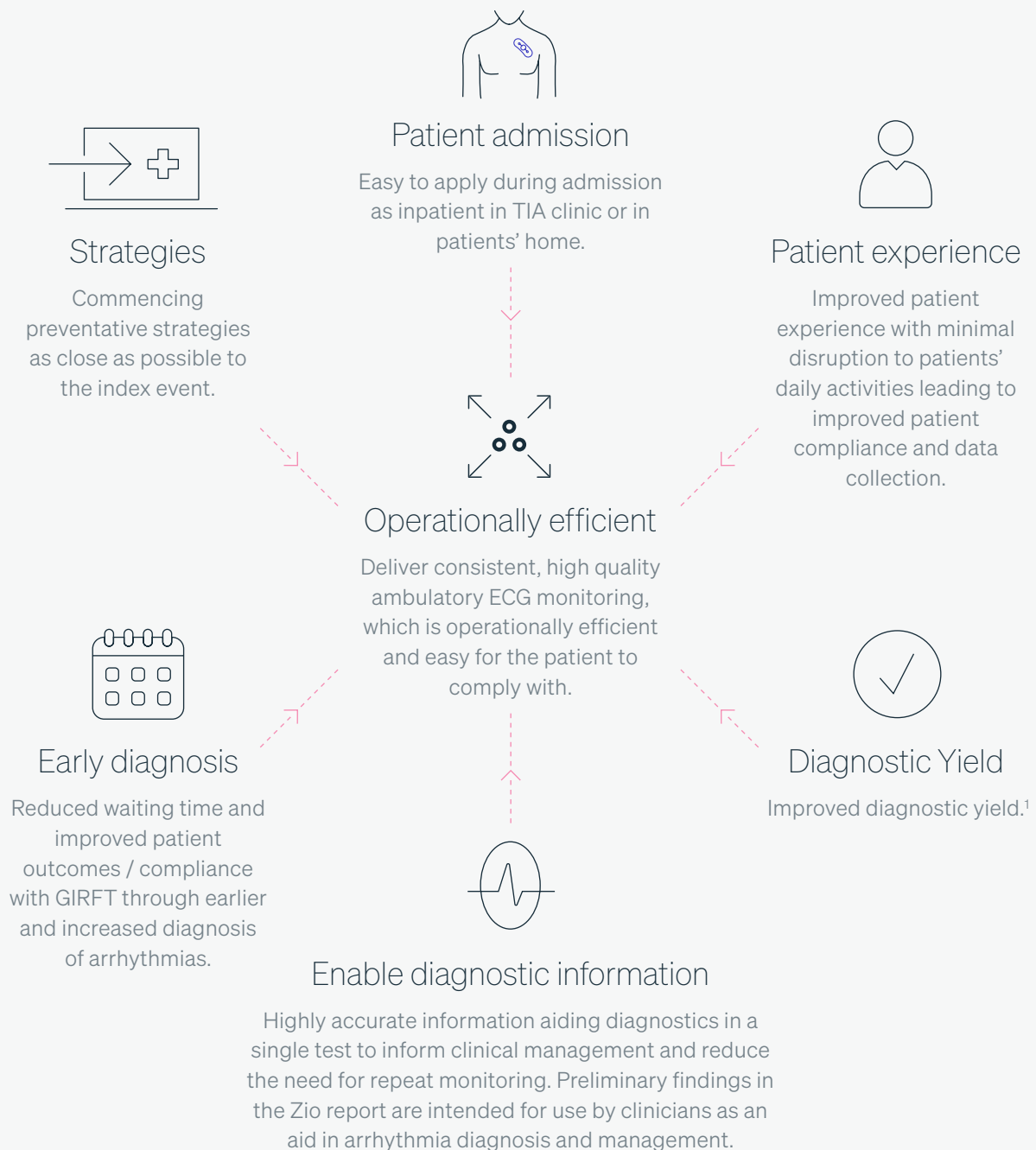
Patient Selection

The overall project was clinically led by Darent Valley Hospital Stroke team with close collaboration with colleagues from Cardiology and technical support from iRhythm. This work facilitated the continuous optimisation of the patient pathway including overall effectiveness by refining referral criteria for arrhythmias other than PAF. This allowed safe holistic patient management. The end result being a seamless process which now requires minimal intervention and monitoring. The schematic below includes excerpts from the patient pathway and selection criteria.⁷



The Steps to Success⁸

It was of critical importance that the project had a simple but clear approach from the Trust. Early in that process, information provided by iRhythm regarding clinical and financial modelling data from other NHS Trusts who had experience using the device helped DGT to achieve a robust benchmarking process. That laid down the foundation for the Trust to initiate a year long pilot project. Resounding success on multiple areas from the pilot led to the eventual adoption of the technology as an essential tool in the cryptogenic stroke pathway. The adoption of Zio XT supported the following:



Impact

Zio resulted in significantly higher detection of AF. Time from referral to diagnosis and subsequent anticoagulation was also significantly reduced. It also reduced requirement for repeat monitoring due to inconclusive results. Overall, use of Zio has patient and system benefits compared with traditional Holter monitoring in patients with ESUS.⁵

Notably it was also reported that there was better patient user experience and the improved detection of other arrhythmias with quicker definitive treatment.⁴

100 day⁴
reduction in time to
initiation of anticoagulation

91%^{4,5}

reduction in
Monitor fitting
appointments

>4x^{4,5}

increased AF
detection

71%⁵

reduction in
additional
monitoring /
repeat tests

87%⁵

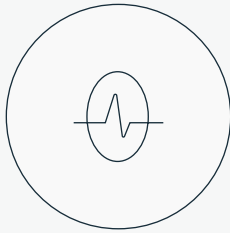
reduction in time to results

iRhythm Technologies

Customer Experience (CX)



Physician Observations³



“Longer monitoring times are better because the pick-up rates are higher, and there are fewer false readings”



“Clinicians need to use it in the right context and embed it in a very structured pathway”



“We succeeded because we planned well. One of the major reasons why the process has worked well is because of the continuous support from iRhythm technical and management team with ongoing training of members of staff working in the Stroke unit and in the outpatient clinic. This has led to minimum device loss and had a big impact in the overall success.”



Reference sources

- 1 <https://www.nice.org.uk/guidance/mtg52>
- 2 The Zio XT monitor is a prescription-only, single-patient-use, continuously recording, ECG monitor. Zio XT is indicated for use on patients who may be symptomatic and asymptomatic or who may suffer from transient symptoms such as palpitations, shortness of breath, dizziness, lightheadedness, pre-syncope, syncope, fatigue or anxiety
- 3 How AI-powered wearable tech has helped improve the arrhythmia care pathway - Dr Saeedur Rahman Consultant Stroke Physician, Darent Valley Hospital, Dartford and Gravesham NHS Trust Health Awareness March 2024
[Learn more – https://www.healthawareness.co.uk](https://www.healthawareness.co.uk)
- 4 Adopting Adhesive Single lead Cardiac Patch in Improving rhythm analysis strategy for patients with TIA and Ischaemic strokes, A. Ahad 1, P. Aghoram 2, S. Botes 3, S. Rahman 4, Poster from ESOC 2023
- 5 Evaluation of Adhesive Cardiac Rhythm Monitors for Investigation of Embolic Stroke of Undetermined Source (ESUS) Abdul Ahad, Prasanna Aghoram, Shauna Botes, Saeedur Rahman Abstract from ESOC 2023
- 6 Dartford and Gravesham Trust Strategy 2024-2030 <https://www.dgt.nhs.uk/about-us/trust-strategy>
- 7 Patient Pathway and Selection Criteria for patients with embolic stroke of undetermined source (ESUS) – Dr S Rahman 2024
- 8 Project and Zio Service Review data held on file 2024