Wessex Academic Health Science Network

NHS

Independent Evaluation of the use of Cardionectics C.Net5000 Monitor in General Practice (LIMITED SCOPE)

Lead Author:

Philippa Moran, Senior Programme Manager (Insight)

Date of Report:

26/09/2019

EVALUATION TEAM

Philippa Moran, Senior Programme Manager

CORRESPONDENCE

Philippa Darnton, Associate Director & Evaluation Lead
Wessex Academic Health Science Network,
Innovation Centre, 2 Venture Road, Southampton Science Park, SO16 7NP
Philippa.Darnton@Wessexahsn.net

DISCLAIMER

This report presents the preliminary findings of an independent evaluation of the use of Cardionetics C.Net5000 electrocardiogram (ECG) monitor in Park & St. Francis Surgery, Chandlers Ford, Hampshire. The evaluation was extremely limited in scope and the preliminary findings in this report are those of the author and do not necessarily represent the views of Cardionetics or Park & St. Francis Surgery.

ACKNOWLEDGEMENTS

We would like to thank Cardionetics, Park & St. Francis Surgery, and patients and carers at Park & Francis Surgery, for their participation in this evaluation.

CONTENTS

1. BACKGROUND AND OVERVIEW

Cardionetics (https://www.cardionetics.com/) is an innovative hardware and software solutions company specialising in providing intelligent systems for diagnostic, monitoring, and screening purposes to help patients and healthcare professionals.

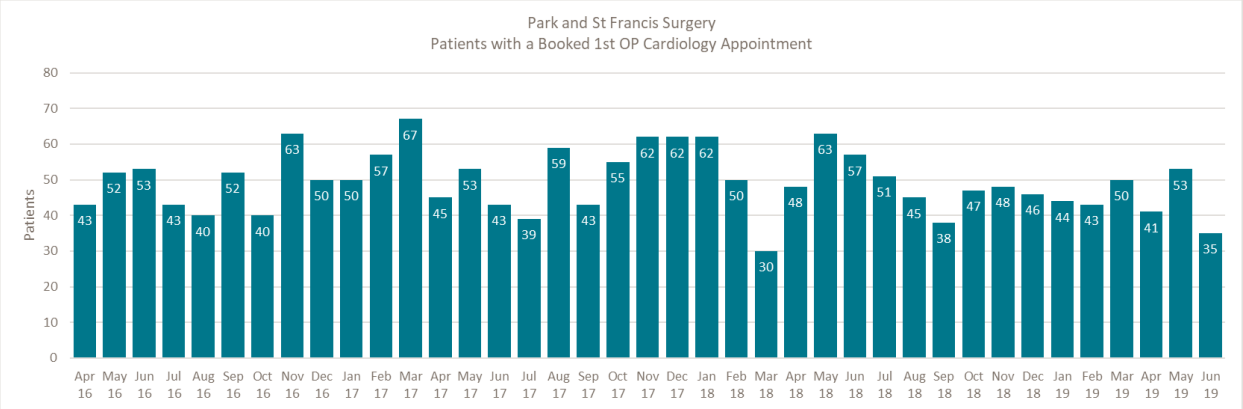
The Cardionetics C.Net5000 (https://www.cardionetics.com/products/c-net5000-ecg-monitor/) is a 24/48-hour ambulatory electrocardiogram (ECG) monitor with instant automated analysis, designed specifically for use in general practice to assist in the early detection of cardiac arrhythmia. This device aims to help healthcare professionals provide better patient care, by capturing infrequent, paroxysmal, and silent arrhythmia events.

Ambulatory ECG is a test that monitors and/or records the electrical activity of the heart over a prolonged period of at least 24 hours, while the person is walking about (ambulatory) and doing other normal activities, including resting or sleeping. It is preferable to a resting ECG for diagnosing intermittent arrhythmia, as the patient is unlikely to experience symptoms during a short test, and for conditions that may be asymptomatic, such as atrial fibrillation (AF).

The National Institute for Health and Care Excellence (NICE) guidance on transient loss of consciousness ('blackouts') in over 16s includes 'Quality statement 6: Specialist cardiovascular investigation – ambulatory electrocardiogram (ECG)' which states 'People with a suspected cardiac arrhythmic cause of syncope are offered an ambulatory electrocardiogram (ECG) as a first-line specialist cardiovascular investigation.'

Park & St. Francis Surgery in Chandlers Ford (Hampshire) have agreed to be a demonstrator site for this technology. Previously, if a patient needed an ambulatory ECG, they would have been referred to secondary care. Between October 2018 and August 2019, GPs at Park & St. Francis Surgery used the Cardionetics C.Net5000 to determine if referral to secondary care was necessary.

For context, there are approximately 49 new patients per month on average (Apr16-Jun19) being referred to secondary care cardiology from Park and St Francis Surgery, based on data for patients with a booked first appointment as a proxy for referrals, as shown below.[1]



[1] Wessex AHSN is providing this data using Axon 360 from Openvie (AKA Harvey Walsh). Harvey Walsh are licenced by NHS Digital to receive Hospital Episode Statistics data under data sharing agreement DARS-NIC-05934-M7V9K. Harvey Walsh have agreed to process the data only for the purposes agreed with NHS Digital. Harvey Walsh is an IT solutions, NHS Informatics and Healthcare Consultancy which provides services to the NHS, Pharmaceutical and Device Industry, Patient Groups and Healthcare Charities. Harvey Walsh follow the NHS Digital HES Analysis Guidelines and required security policies to ensure that data is handled appropriately with all outputs being in aggregate form with small numbers suppressed.

2. EVALUATION QUESTIONS

This evaluation was provided by Wessex AHSN to support the real world testing of innovations in primary care demonstrator sites. The purpose is to provide some initial insights into the impact and acceptability of the Cardionetics ECG monitor by answering the following questions;

- Does the use of Cardionetics C.Net5000 ambulatory ECG monitor in a primary care setting reduce unnecessary referrals to secondary care cardiology?
- What are patients' self-reported experiences of using this device?
- How do staff feel about using this device?

The following performance metrics were identified at the start of the project;

- Number of C.Net5000 ECG tests carried out within the GP practice
- Number of patients who would have been referred to secondary care cardiology if this device was not available
- Number of patients referred to secondary care cardiology following a C.Net5000 ECG test – both urgent and non-urgent
- Number of secondary care cardiac referrals avoided

The evaluation is extremely limited in scope given the small scale of the project and the limited data received.

3. RESULTS

3.1 QUANTITATIVE ANALYSIS

The C.Net5000 was used 36 times between 29/10/2018 and 29/08/19 (10 months), equivalent to just under once a week or just under 4 times a month. Every test was 24 hours, none were 48 hours. 23 patients were female (64%) and 13 were male. The presenting symptoms and ages are shown below;

Presenting Symptom	Age 19-49	Age 50-64	Age 65-74	Age 75+	Total
Palpitations	5	6	4	1	16
Shortness of breath	1			3	4
Dizziness	2	1			3
Syncope			1	2	3
Other	3	1	5	1	10
Total	**11**	**8**	**10**	**7**	**36**

Of these 36 patients;

- 21 would previously have just been verbally reassured.
- 12 patients would previously have been referred to secondary care (1 urgently)
    - 8 of those 12 were subsequently diagnosed and treated in primary care (including the one who would previously have been urgently referred), 3 were routinely referred to secondary care and 1 was referred to community cardiology for further 24hr monitoring.
- Overall, 3 patients were referred to secondary care following a C.Net5000 test .
- Rhythm disturbances were found in 4 patients, 3 were diagnosed and treated and the other was referred to community cardiology for further 24hr monitoring.

Therefore, 9 secondary care referrals were avoided (8 routine and 1 urgent) over a period of 43 weeks, which equates to 11 annually. There are approximately 588 referrals to secondary care cardiology annually from this GP practice, so avoiding 11 represents about 2% (of referrals to secondary care cardiology). However, given the monitor was used less than 4 times a month on average and approximately 49 patients are referred to cardiology each month, it seems likely that it was not fully utilised. This is reinforced by initial estimates at the start of the project that the monitor would be used twice a week, more than double the actual use.

3.2 PATIENT EXPERIENCE

After use of the Cardionetics ECG monitor, patients were given a simple questionnaire to complete and return, to understand their perspective on the device.

Eight patients completed questionnaires, all of whom responded 'yes' to the following questions;

- Was it easier having this done in the surgery rather than at UHS?

- Was the procedure explained?
- Did the GP or Healthcare Assistant (HCA) answer any questions satisfactorily?
- Do you know what is going to happen now?

Only one of the eight patients had any issues while they had the monitor at home, which was that the back of the machine kept coming off. This was also mentioned by a member of staff who completed a feedback questionnaire (see following section).

The following comments were provided by three of the patients;

"Easier and more personal to have done at the surgery"

"HCA very efficient"

"Very easy and efficient"

3.3 STAFF EXPERIENCE

At the end of the trial, one staff member was given a simple questionnaire to complete and return to understand their perspective on the device. This stated that training was *"good and enough to be able to use"*, and they felt confident using the monitor. They responded as follows to being asked about benefits;

- *"Yes as quicker and easier to be seen"*
- *"Less referrals/paperwork etc"*

Other comments;

- *"Sometimes back of the battery part came off when patients used it"*
- *"GP needs to analyse results – takes more time"*

In addition, a GP at Park & St. Francis Surgery provided the following feedback by email;

"found it really convenient, much quicker than having to refer to the hospital, most useful for low risk symptoms. The hospital gets paid every time they do 24 tape and I would be keen to provide this service if we get paid to do them, otherwise I will keep referring them to the hospital."

However, another GP at Park & St. Francis Surgery verbally expressed concerns over the accuracy of the readings.

4. CONCLUSIONS

This was a very small scale project with limited data collected however, there are some preliminary indications that the use of Cardionetics C.Net5000 ambulatory ECG monitor in a primary care setting can reduce unnecessary referrals to secondary care cardiology.

The very small number of patients and staff questioned were happy to use the monitor, but highlighted the following points which require further investigation;

- The back of the monitor/battery coming off
- Time taken for GPs to analyse results (this would need to be offset against any potential time saved by fewer referrals/paperwork)
- GP concern over the accuracy of readings - where has this originated from and is it justified?

To estimate the scale of any potential reduction in referrals and the roll-out potential, would require a much more in-depth study on a larger number of patients and staff. This could also explore the above points. It would also need to consider actual, compared to potential, use of the monitor and explore any possible barriers to implementation.

VERSION CONTROL

Version	Status	Key Changes	Authorised by
Draft v.1	Filed		PM
v.2	Filed	More data	PM
v.3	FINAL	More data	PM