

# CARDIAC CARE IN THE COMMUNITY

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**Telecardiology is a new wave of diagnostic technology that allows community-based healthcare professionals to review and interpret the results of cardiac investigations such as electrocardiograms (ECGs) in a fraction of the time that it takes when often cumbersome secondary care services are involved.**

**In this article, Dr Amol Kelshiker and Dee Hannah describe how this new technology is being used in North-West London to save patients time and money, to speed up referrals for urgent specialist management, and to deliver a highly sophisticated diagnostic service that helps to eliminate the current time-consuming bureaucratic paper trail.**

**Dr Kelshiker is a GPwSI in Cardiology, working in Harrow PCTs Primary Care Based Cardiology Service. Dee Hannah is a Cardiac Nurse Consultant, also based in Harrow PCT. They are both key figures in Harrow PCT's efforts to provide cost-effective, community-based cardiology services.**

## Introduction:

Delivering an 18-week patient pathway from GP referral to the start of treatment is a key objective for the NHS – and one that primary care trusts (PCTs) have been told by the Department of Health (DoH) to achieve by the end of 2008.

Harrow PCT serves a population of nearly 250,000 in a busy commuter-belt suburban area of North-West London. More than 100 GPs dispense a wide range of clinical services from 37 surgeries – with the support of specialist nurses and other healthcare professionals.

Dr Kelshiker says; “We have already taken the DoH’s 18-week imperative on board, and are making significant strides towards ensuring that patients are not caught up in the complex pathways that can delay diagnosis and subsequent therapy.”

Nowhere is this more evident than in recent initiatives to fast-track community-based cardiac diagnostics – removing the obstacles and delays that are typically associated with costly, time-consuming and often unnecessary referrals to over-stretched secondary care cardiac services.

## Background:

In 2005, an audit of cardiology outpatients at the nearby Northwick Park Hospital revealed an average waiting time of more than 12 weeks for a cardiology appointment, giving rise to considerable distress to anxious patients. Therefore, it is not surprising that the did-not-attend (DNA) rate was as high as 25%.

Furthermore, restricted capacity for specialist tests (e.g. echo, ECG, BP and cardiac event monitoring) were leading to additional delays – often in excess of 12 weeks - before an appropriate care plan could be implemented. Meanwhile, consultation appointments with a cardiologist were being wasted because patients were either inadequately investigated or referred inappropriately.

The hospital was clearly facing a dilemma. Approximately 50% of follow-ups were deemed unnecessary in secondary care, but also inappropriate for discharge to general practice. Attempts to discharge patients often failed because GPs felt they lacked the required expertise or were not confident they would get specialist support.

The audit also highlighted fragmented patient care and delayed access to cardiac services – a common complaint from patients themselves.

Dr Kelshiker is quoted as saying; “There appeared to us to be ample evidence that these investigations could be carried out more effectively and much quicker in primary care – in many cases eliminating the need for referral to secondary care altogether.”

It was clear that the local service to patients could be improved by providing rapid and timely access to cardiac care by developing a highly-trained mobile cardiac team based in the community. This would involve trained GPs and Nurse practitioners with special interest (GpwSIs and PwSIs), specialist nurses, healthcare assistants (HCAs) – all supported by hospital-based cardiologists. This development was supported strongly by the local cardiology consultants at Northwick Park Hospital who provided advice and accepted fast track referrals for those patients who required it.

It was decided, therefore, to establish an electronic, paper-free, primary care-based diagnostic service – one that could be accessed on-line by all 37 practices within our PCT.

The service was established early in 2006, offering a wide range of cardiac investigations, previously only available via secondary care referral. Dr Kelshiker says; “We have invested in state-of-the art equipment for ECG and BP recording, and now include 24-hour ECG and cardiac event monitoring (see panel 1).”

HCAs are employed to maintain and run the service, supported by two GpwSIs and two specialist cardiology nurses who carry out most of the investigations. GPs and nurses underwent diploma courses in cardiology to ensure there were those with sufficient skills to provide correct interpretation of ECG data. Consultant cardiologists from St Mary’s Hospital and Northwick Park provide support to allow the service to run within the community.

Every general practice is now connected via PCs to a central e-mail server, allowing ECG and BP data to be requested by individual GPs and the results returned to them electronically. Alternatively, GPs can undertake their own ECG and BP tests and have them analysed by the assessment and diagnostic service.

# CARDIAC CARE IN THE COMMUNITY

Either way, the time from the GP requesting an ECG (or interpretation of an ECG) to the patient receiving a clear idea of what his or her cardiac management should be has been slashed from weeks or months to hours or days.

Of course, there is a fast-track to secondary care when abnormal ECGs dictate that referral to a cardiologist is warranted – but the vast majority of patients are seen and discharged with a clinical management plan that can be supervised in the community by their own GP and the community cardiology team. A cardiology patient pathway makes it clear which patients are suitable for ongoing primary care management and those who are not.

## **Delivering fast-track diagnostic services in the community**

From being totally dependent upon hospital-based diagnostic services, Harrow PCT is aiming to become diagnostically less reliant on secondary care resources.

The assessment service has now been up-and-running for nearly two years, and is now taking on a significant diagnostic workload. Between April and June 2007, for example, Harrow PCT carried out 123 24-hour ECGs, 76 24-hour BPs, 138 resting ECGs and dealt with 14 cardiac events. Secondary referrals to outpatient clinics have been reduced by 30-40%.

All patients attending the community cardiology service get a self-assessment satisfaction questionnaire, the returns from which indicate a 95% satisfaction rate. This reflects that most patients are seen within 2-3 weeks and do not have to travel to Northwick Park or even further for their diagnostic investigation.

The current service is just the first step towards having a comprehensive community-based cardiology service in Harrow. In the near future, it is hoped to add exercise ECG and 24-hour Holter facilities, connecting to the existing software. The ability to carry out community-based 24-hour, 7-day ECGs – e.g. for patients with suspected arrhythmias – will herald a significant advance. At the moment, all this paper data is transported to and from Northwick Park Hospital by hand, and the diagnosis can take up to two weeks.

In 90% of cases the GpWSI or PwSI is able to make a diagnosis and institute a management plan (e.g. a recommendation the GP to initiate warfarin and heart rate controlling medication for a patient whose ECG suggests atrial fibrillation, or a referral to the CAS so that patient can be investigated more thoroughly).

GPs have been given guideline pathways of care to follow for each of their ECG patients, including the all-important red flags.

Even if a practice has invested in its own ECG equipment, the PCT's GP and nurse practitioner specialists can help to interpret abnormal ECG readings.

It means that not every practice has to have its own ECG machine – each of which would require a significant financial investment. For the smaller practices in Harrow PCT, such equipment would be redundant for much of the time. Instead, they send their patients to one of the PCT's cardiac diagnostics specialists, who carry out the ECG before e-mailing the analysis back to the GP.

GPs and nurses who want to learn the practical side of cardiac diagnostics will receive all necessary support to enhance their diagnostic skills. However, in most cases, it is considered that ECG recordings are best undertaken by trained HCAs, allowing the PCT-based specialists to interpret the data and advise individual GPs accordingly. Expertise in this field, as in many other diagnostic areas – is established by doing hundreds of ECGs over time.

This is a completely paper-free system which avoids the need to fax or post hard paper copies thus minimising the risk of lost reports or having to interpret recordings and copies of poor quality.

"Furthermore, we do not give second opinions on patients who are already under the care of a hospital cardiology. We consider it unethical to intervene if a GP has chosen to refer a patient directly to secondary care" said Dr Kelshiker.

Another important feature of this service is that the equipment being used is highly mobile – enabling HCPs to take ECG readings in the homes of housebound patients, bringing the data back for interpretation and analysis. In effect, the CAS can be accessed from any site.

## **Community-based diagnostics – is it justified and who benefits?**

The main aim of this initiative has been to support direct access to diagnostic ECGs and ambulatory blood pressures for local GPs in order to improve patient outcomes. It maximises the skill mix to allow primary care specialists in cardiology to interpret the data and advise GPs accordingly.

Until this service was established, the PCT was committing considerable sums of money to send patients to hospital for their ECGs or manage patients with raised blood pressure, so it made sense to invest that money in primary care – paying extra to train GPs and nurses and to buy the equipment, but in return, delivering an efficient diagnostic service closer to where the patients live.

And of course, it is the patients who benefit. Only for the more complex cardiac investigations do patients now have to wait more than a couple of weeks for confirmation of a problem or re-assurance that there is nothing to worry about.

# CARDIAC CARE IN THE COMMUNITY

Using the traditional hospital route, one patient would probably be seen several times before being treated. Those using our primary care diagnostic and assessment service will probably have just two appointments before a management plan is agreed and implemented.

Although the service is NOT for acutely ill patients who should be treated in hospital as an emergency if a GP inadvertently refers a patient with chest pain, and it is clear from the ECG readings that a patient is in imminent danger of a myocardial infarction (MI), immediate transfer to hospital will be arranged. With the wait for a routine hospital ECG, it would almost certainly have been too late to make an effective therapeutic intervention.

Since up to 40% of patients traditionally referred to secondary care can be safely and effectively managed in the community, it makes sense, therefore, that primary care helps carry the diagnostic burden where this is appropriate clinically. Only if the PCT's specialists judge that they cannot manage a patient with confidence, would they recommend hospital intervention (e.g. cardioversion or for studies of the arrhythmia). The running of clinics in the community jointly between GPwSI, Nurse Specialists and Consultant cardiologists allows more patients to be seen and managed in the community avoiding hospital journeys

This is a valued-added service, saving time and improving patient care and experience within the NHS. Every visit to the hospital is stressful - even the car-parking! The potential to reduce the time patients have to wait for endless follow-up appointments, referrals and re-referrals is enormous - and any savings can be re-invested into patient care.

Meanwhile, consultant cardiologists are becoming more confident in the professional judgment of our PCT-based specialists (e.g. recommending whether or not a patient needs a pacemaker). They don't feel threatened - and nor should they be. The GpwSIs and PwSIs at Harrow PCT apply primary care-based skills and resources to prevent unnecessary delays to cardiac patient pathways that often waste valuable specialist time in secondary care.

Finally, this is a highly-sophisticated diagnostic initiative, and the well being of patients depends on the PCT to deliver a competent service. It simply could not have afforded to embark on this enterprise without the necessary support and training back-up - which is provided by Welch Allyn, who supplied the diagnostic equipment and the computer software required to link all 37 practices to the central server.

## Conclusions

Most GPs and other HCPs are passionate about their duty of care to patients. At Harrow PCT, this means making sure there is equity of access to high-quality cardiac diagnostic services, delivered in community-based settings - in GP surgeries, in community healthcare centres and in patients' homes.

The benefits of this particular project can be summarised as follows:

- Improvement of the patient's and carer's journey, management and experience
- Consolidation and collaboration between primary and secondary care
- Support and clinical governance from outreach cardiologists
- Greater access to more appropriate and timely cardiac care in both community and secondary care
- Effective utilisation of limited resources and encouragement of multi-disciplinary working
- Innovative working practices and continuing professional development

Initiatives such as this will only work, however, if there is support and buy-in from cardiologists, if the PCT has the confidence of its GPs, and if there are robust cardiac care pathways and guidelines in place.

To summarise, Dr Kelshiker says: "It is unacceptable and inappropriate for patients to have to wait many weeks - sometimes months - for what are relatively simple cardiac investigations which will establish diagnosis and allow onward management or exclude serious illness and allow patients to get on with their lives reassured. This was a service that was crying out for change - and we believe we have gone some way to effecting much-needed improvements to locally-based cardiac diagnostic services".

**For further information about this case study, please contact**

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