

Cloud Cardiology

Danielle Barron speaks to Consultant Cardiologist Robert Kelly on using cloud computing to provide a specialist service in the community

If you are to listen to those in the know, sooner or later we will all be “in the cloud”. The advent of telemedicine has been a major advance in the delivery and accessibility of healthcare, and now cloud computing is beginning to provide a direct interface between those working in Primary and Secondary care.

Connected Diagnostics is a company that provides telemedicine services to the Primary Care sector and the interventional cardiologist Dr Robert Kelly has joined forces with them to deliver an electrocardiogram (ECG) and holter monitor over read service.

Dr Kelly is a consultant cardiologist at Beacon, Aut Even, and Mount Carmel Hospitals and Sports Surgery Clinic, Santry.

Dr Kelly explained that this innovative service was developed following the identification of a need for patients to get rapid and prompt access to test results.

“The main unmet need around ECGs is that many GPs aren’t comfortable reading ECGs themselves, and maybe refer patients to a hospital or outpatient clinic in order find a way around this. If you go through the public hospital system, you wait weeks or even months to get access to tests such as an ECG or holter monitor, unless you are acutely unwell. Also, while some GPs offer these tests, others do not, and many more feel uncomfortable reading them.”

Indeed, Dr Kelly explained that clinical evidence shows that GPs fail to detect atrial fibrillation on ECG in over 20 per cent of cases whereas an ECG over-read service provides 98 per cent detection. In the same study, it was shown that up to 40 per cent of myocardial infarctions may be also missed on ECG.

The new service currently provides an over read for ECGs and will soon also offer an over-read for holter devices. The information from the ECG or holter monitor is uploaded and within 24 hours the GP receives a mail to say that the results can be downloaded.

The service was piloted a year ago in three GP practices; one in Dublin, one in the south-east and one in Cavan.

“It was very interesting because some of them wouldn’t necessarily do ECGs

but they did it just to see what it was like,” commented Dr Kelly.

The pilot study in the three separate practices showed that ECG over-read by a cardiologist reduced the need for patient referral to hospital / clinic in over 50 per cent of cases.

“What this service provides is a direct access to a consultant cardiologist that will provide you the information in terms of the ECG and will provide it rapidly so that it will influence your decision making,” explained Dr Kelly.

“For the patients it means you get almost direct access to the cardiologist, but it also means that the GP can then look after the patient with them having to go to the hospital.”

A visit to the ICGP AGM last May served to identify the level of interest within the primary care community, and it was clear that this was something that would serve an unmet need for GPs, explained Dr Kelly.

“In general we had good buy-in from GPs - the biggest challenge is to bring them on board. Trying to get people to change to something that is very worthwhile but very novel will take time.”

Access

According to Dr Kelly, accessing holters is notoriously difficult and there is a not insignificant cost involved.

“The value of a holter service in general practice is debatable, as GPs do not have the training to know exactly what they are looking at. Our service gives easy access to a holter, and this is costed on our service at a very low level.

“The great value of this is that technology that is out there and the benefit of cloud computing means that the holter information can be accessed by everyone. This is very rapid and cuts through the red tape of time.”

Despite the rapid nature of the service, it has the capacity to serve a large number of general practices.

“The infrastructure that we have created with the Connected Diagnostics model is that you can cover a huge amount of GPs, as there is one consultant accessing the cloud and obviously all the information is very secure in terms of confidentiality. This offers a specialist service outside the hospital and this is the first of its kind in Ireland, and only the second in Europe,” said Dr Kelly.

Connected Diagnostics also has the services of a UK educator, and delivers free training as part of their service, he added.

“When a GP signs up to the service, they are given a training course of how to do an ECG properly, how to place the leads, the common pitfalls of an ECG etc. So there is a certain standard that GPs have to attain before they can use the service, and then we keep a close eye at the beginning to make sure they are not doing something very obviously wrong in terms of the ECGs we are getting. After that, it is as you need it, you can avail of it.”

Subtleties

ECGs aren't simple to read and they are not “black or white” – most ECGs fall in the middle, explained Dr Kelly.

“There are a lot of subtleties on ECGs that can be of importance to different individual patients. Of all the ECGs you get, more than half will be normal, but there are many subtleties that will relate to specific cases, for example someone who takes part in sport at a competitive level will have many apparent abnormalities that are in fact normal, and others that are not normal.”

The new service is a clear indication of the direction medicine is taking in the 21st century, said the consultant.

“It is really of its time, where the technology is excellent and you have the benefits of cloud computing. There is a lot of technology coming through in cardiology for monitoring patients coming through – this is where it is at right now.”

This type of service is not restricted to cardiology, added Dr Kelly.

“You could stick some other medical test in there, report it within the cloud and have the result back to the GP within a similar timeframe. To me, that is a fantastic opportunity in medicine.”

This interview between Danielle Barron, Editor of the Irish Medical News, and Robert Kelly, Consultant Cardiologist, was printed in the IMN issue dated January 21st 2013.