

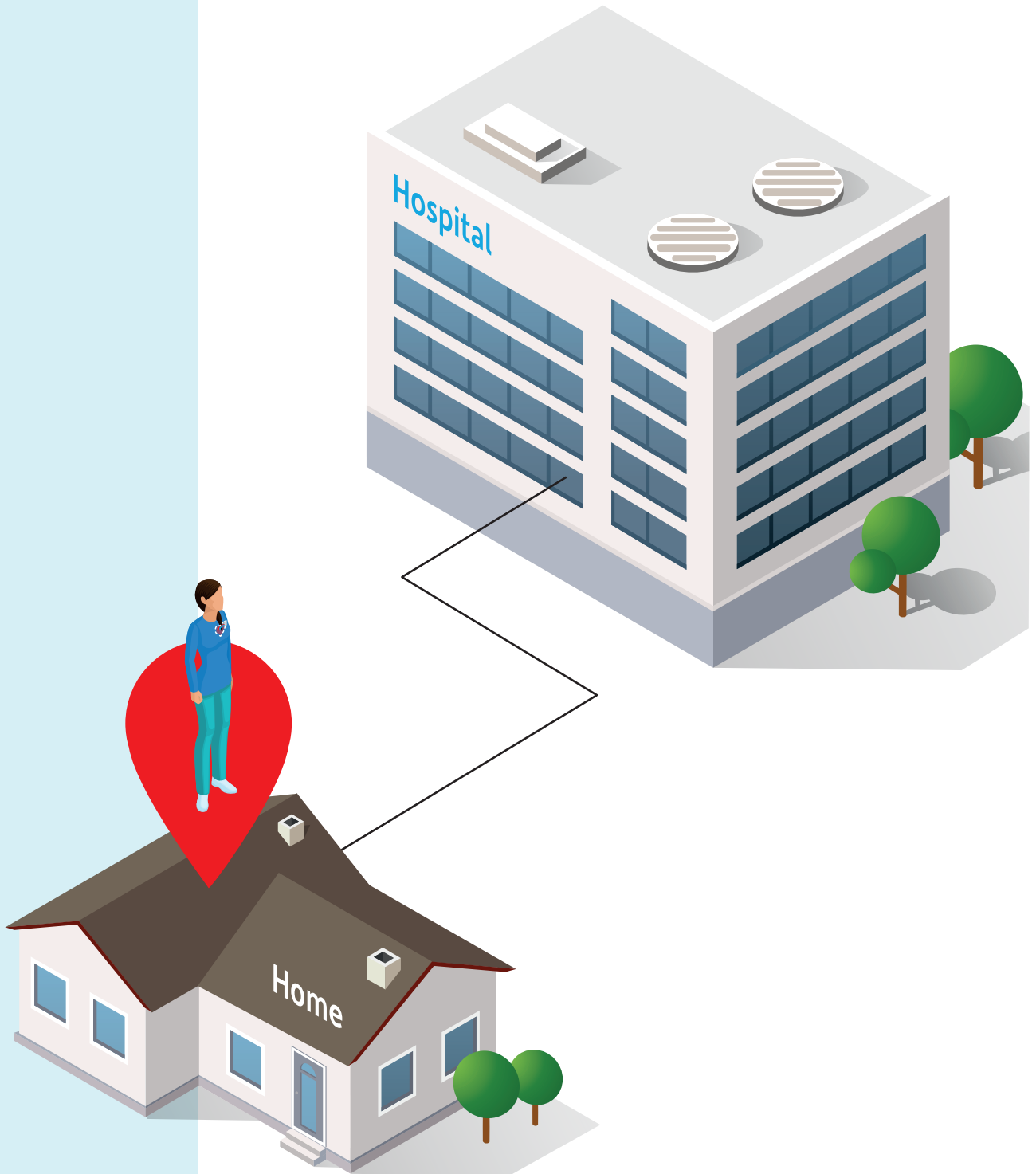
DataLinQ[®]

Response to future challenges thanks to the strongest link between a pacemaker programmer and a powerful database



Fysicon
creating medical solutions

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Pacemaker clinics that automate their workflow are prepared for the growing demand in healthcare

Information supplied by pacemakers and other cardiac devices often makes the difference between life and death. Such data must be totally reliable. So, how would it be if we could integrate the data from these pacemakers and other cardiac devices into an efficient data management system? A system that can also be controlled as an integral entity. How do you create a structured environment that enables you to manage all pacemakers, implantable cardioverter defibrillators (ICD), loop recorders and remote devices?

Integrating a range of data from various pacemaker programmers and remote device systems into a single powerful and well-organised database significantly boosts efficiency. This can be achieved by using DataLinQ. This system helps hospitals address several important challenges relating to future cardiac care, such as automating the workflow, remote care and the growing demand for healthcare.

The growing demand for healthcare is not a standalone issue; the workforce is not growing proportionately in size. Due to the increasing demand for healthcare, hospitals are being forced to think about their staff, resources, and about working more efficiently on a workflow-oriented basis. But they must also critically consider which patients they will continue to treat in hospital and who can be monitored remotely. A tour through cardiac departments of three hospitals in Europe (Citadelle Hospital in Liège, Belgium, Herlev and Gentofte Hospital in Copenhagen, Denmark, and Royal Papworth Hospital in Cambridge, United Kingdom) provides interesting insights into the wishes and experiences of users that have automated their workflow. Until just a few years ago, much of the data generated by implanted pacemakers and ICDs was printed and saved in paper folders. In an era of electronic data collection and the Electronic Medical Record (EMR), this is no longer feasible.

How does it work?

For the past several years, these three hospitals have been using a Cardiac Rhythm Management system, consisting of hardware and software components, to fully automate their workflow. The system automatically exports data from a pacemaker programmer and links the data to the EMR through means of an intelligent database. A patient comes to the hospital to have their pacemaker or ICD checked. Instead of data being manually entered into the hospital system or EMR, all the data is automatically registered into a single database. From there, the information is routed to the Cardiac Rhythm Management system or an EMR with a single click. All data from the pacemaker, ICD, ICM and remote follow-up is bundled, sorted and available in a single location.

Based on user experiences at the three hospitals, we discuss three European themes relating to Cardiac Rhythm Management that are directly related to the added value of using such a solution:

- Automating the workflow;
- Managing (more) care remotely;
- Importance of technological solutions for growing healthcare demand.

Automating the workflow

In practice, we see that hospitals are focusing on improving their workflow. For example, by using USB switches to obtain a readout of the data in pacemaker programmers. However, it is only once a Cardiac Rhythm Management system is implemented that the workflow really changes compared to the traditional way of working, including a change in the time spent on each follow-up.

Alexis Vanwambeke is Head Nurse of the Cardiac Catheterization/ Cardiac Outpatient Clinic at Citadelle Hospital in Liège. The Cardiac Rhythm Management system was implemented here in 2014. “The system records all the data from all devices for a patient. Everything in the catheterization lab is recorded. All nursing staff can record information in the system, and we are now seeing more patients in less time, which was obviously one of our objectives.” Over time, the development of enhanced Cardiac Rhythm Management system versions will free up even more time and further improve workflows for hospitals. The added value can be increased even more because the solution can also be used in surgical departments.

Integrated workflow

At Herlev and Gentofte Hospital in Copenhagen, the current workflow is also driven by integrated systems. The system is used to schedule appointments (Epic is used for this), ensures that the doctor or medical technician is available on site, and that the clinical data is received from the Cardiac Rhythm Management system. It also allows a follow-up appointment to be made and minor interventions performed, if necessary. The appointments are also imported into the system. Once the follow-up is complete, the data is rerouted to Epic, where a comprehensive overview is subsequently available.

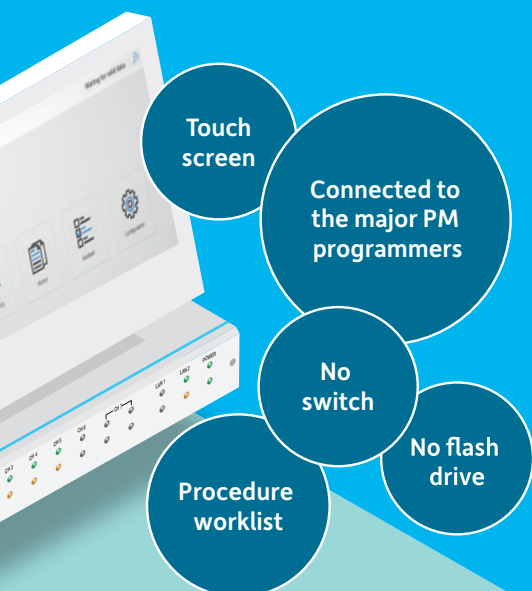


Future use

According to Thomas Høi-Hansen, Head of the Cardiology Department, the hospital is also experiencing time savings. “Until now, a follow-up visit took around 30 minutes per patient. Today, this takes less time. The workflow has become much easier. We plan to change how we schedule patients: we estimate that this will reduce the time of a half-hour consultation by five to ten minutes.” If this hospital used the Cardiac Rhythm Management system for in-home monitoring as well (the alarm functionality), it should be possible to further reduce the time spent per patient. The time savings also justify its future use, says Thomas Høi-Hansen. The number of patients is steadily increasing, while the medical staff are not keeping pace proportionately.

Time savings and more

Royal Papworth Hospital in Cambridge is one of the world’s leading cardiothoracic hospitals and carries out more heart and lung transplants than any other UK centre. This hospital also sees benefits in using the Cardiac Rhythm Management system in terms of workflow time savings. And more: “During a pandemic, medical staff are very busy,” says Andrew Raynes, Chief Information Officer. “In our hospital, you can sense the restlessness this can create among our employees. Every technology you use in your workflow which guides you through a process of gathering, processing and structuring data contributes to the safety of and care provided to patients. It gives our medical personnel more time. This comes into its own in busy teams that make optimal use of people’s time. I am convinced that the use of technology, in this case a Cardiac Rhythm Management system, protects our employees and patients.”



“We cannot escape the trend towards remote care.”

Alexis Vanwambeke

Head Nurse of the Cardiac Catheterization/
Cardiac Outpatient Clinic, Citadelle
Hospital Liège, Belgium.



“Remote device control makes it possible to better monitor patients and to rapidly initiate an intervention when necessary. This can turn remote care into an important movement in dealing with the growing demand for healthcare”

Thomas Høi-Hansen

Head of the Cardiology Department,
Herlev and Gentofte Hospital Copenhagen,
Denmark.



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There are plenty of reasons to want to change the workflow

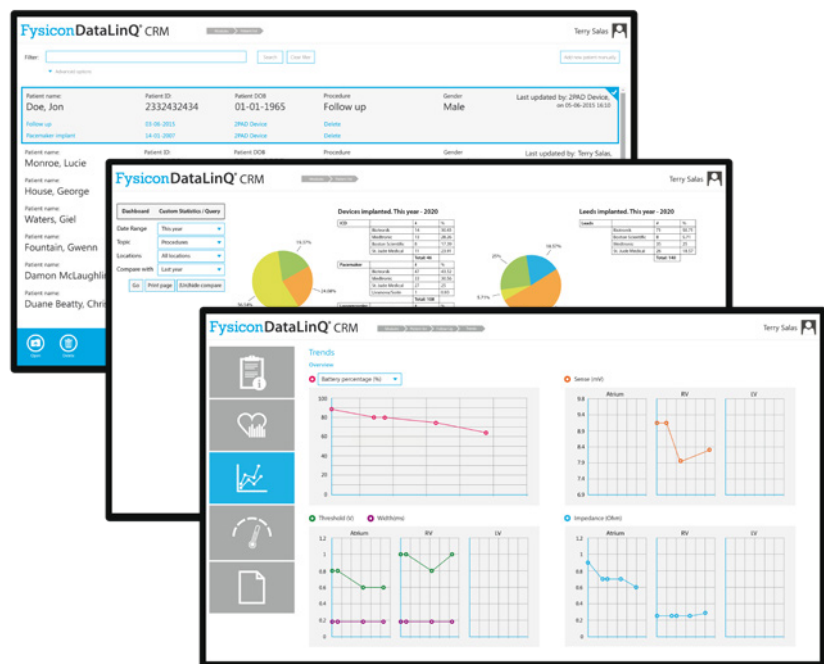
In hospitals, registration, and therefore traceability, is crucial, for example in the event of a possible recall. Traceability here touches on clinical practice, but you will also want accountability from the healthcare segment. Who did what, when and at what point in the process? It is good to document this, as well to be certain that you can implement your services even more effectively.

The full picture

The same applies to Royal Papworth Hospital. “When it comes to traceability, I think of the person, process and place,” Andrew Raynes continues. “In this hospital, we do this with various devices, for example, but also with patient wristbands so that everyone is ‘traceable’ within their care at the hospital. Each precision instrument carries a barcode. After an operation, every instrument is tracked by means of a scan. It’s all about safety, quality, precision in traceability and to be assured that you have a full picture of the patient as a basis for providing the best possible care for each patient. In other words, using a Cardiac Rhythm Management system for our hospital is also about traceability.”

Difference in time spent on a follow-up

At Citadelle Hospital, the control of devices during a follow-up is realized by a physician, with the help of a nurse. Nurses can now do more themselves and are also more involved in pacemaker examinations. One of them will be specifically deployed to this team, meaning that besides saving time, it is also spent more effectively.



Managing (more) care remotely

A hospital benefits from receiving only those patients who really require physical treatment.

Therefore a delicate balance must be found between in clinic appointments and patients that are monitored remotely. The number of people monitored remotely was increasing throughout the years but has grown even more since the Covid-19 outbreak.

Experience in Denmark shows that Covid-19 has accelerated this process. Consultations are being conducted by video or phone, so fewer people are coming to the hospital. For Citadelle Hospital, this is an obvious development: “We cannot escape the trend towards remote care.”



COVID-19 has made it important to limit hospital visiting

Royal Papworth Hospital is convinced that this form of healthcare will only increase in the future. “There is really no other way,” according to Andrew Raynes, “COVID-19 has made it important to limit hospital visits only to occasions when it is really necessary.” The hospital says its primary purpose is to be here for people who are really ill. This is not just a recognisable phenomenon in hospitals during Covid-19. The number of patients is also growing independently of this pandemic. It may therefore become a challenge to continue to see all these people over the longer term as well. Hospitals may not be able or might not even want to burden the logistics in and around the hospital with this. The ‘level of seriousness’ may need to be scaled up to be able to continue seeing the same number of patients in absolute numbers. That imposes significant demands on the facilities you need in a hospital. Because all the patients whose attendance is not mandatory (and that number is also growing) still need some sort of care, probably remotely. This is another important added value of an integrated Cardiac Rhythm Management system.

The new workflow for processing cardiac data remotely: more data, a comprehensive overview, standard data processing alerts.

In Royal Papworth Hospital, the possibility of even more focused healthcare is considered the key benefit associated with the use of a Cardiac Rhythm Management system that automatically exports data from a pacemaker and links it to the EMR. The hospital aims to be optimised for situations in which people who are in real need of care can come to the hospital. This hospital specialises in treating disorders in and around the thoracic cavity. In other words, it is not possible to examine everyone remotely. Cardiac procedures must be followed in a clinical environment.

Nevertheless, during the Covid-19 pandemic, various models have been developed for remote healthcare. According to the hospital, a Cardiac Rhythm Management is a fantastic tool in this respect. "The beauty of this is that patients leave the hospital, and we can monitor them remotely."



The future: patients continue to come to the clinic, but more and more personal meetings are scheduled based on remote data.

Many patients still value personal contact with the doctor, says Alexis Vanwambeke from Citadelle Hospital. “Based on the time savings mentioned before, we are already having noticeably more time for consultation and therefore for the patients themselves. We consider that a good thing.”

Finding the right combination

Herlev and Gentofte Hospital will start monitoring patients with heart failure to reduce the need for them to come to the hospital to the minimum. In the case of heart failure, it is possible to warn people remotely and adjust their medication, for example. There are many possibilities for ‘treating’ people at home. However, staff are used to doing things in a certain way and you obviously can’t just change that overnight. Thomas Høi-Hansen: “And we also like to see patients here in real life from time to time. Finding the right combination is key.” They say they are also relying on Cardiac Rhythm Management for this purpose.

A specialist available at any time

It is really not necessary to see patients who are doing well. That’s not logical, is the consensus in Copenhagen and elsewhere. Like other hospitals in Denmark, the hospital is highly value-based. This means it focuses on maximising the value of healthcare for the patient whilst reducing healthcare costs. Today, patients still come in for an annual check-up, but the hospital wants to move to a scenario in which they will contact the hospital if they have any problems. This also means that patients must be aware that in certain cases they can immediately contact the hospital. In turn, this means that a specialist must be available for them at any time. This is crucial to avoid causing people any anxiety.

Remote device control makes it possible to better monitor patients and to rapidly initiate an intervention when necessary. This means that people will not have to come to the hospital so often, thus reducing direct contacts with patients. This can turn remote care into an important movement in dealing with the growing demand for healthcare.

The flipside: growing data volumes

The flipside is the huge increase in the amount of data to be analysed. The information per patient is growing, a trend which is also visible in Denmark. People here say that more remote monitoring has created growing data volumes. People are looking for smart ways to deal with this. In autumn 2020, the hospital integrated its systems with Epic. This saved medical technicians time per patient. “It makes more sense to first look at the serious situations, where there is an absolute need for us to intervene for a patient,” Thomas Høi-Hansen ascertains. In the meantime, hospitals are looking for ways to further optimise the data analysis. By outsourcing, deploying additional technological solutions or by addressing these challenges by setting up (regional) partnerships among peer hospitals.

Importance of technological solutions for growing healthcare demand

Increasing numbers of patients are requiring care, yet the number of medical staff is not keeping pace. In fact, there are sometimes staff shortages. This combination creates a field of tension and demands a robust and future-oriented solution.

DataLinQ is the trade name for the Cardiac Rhythm Management system being used by the three hospitals for some time. Together with the Danish Herlev and Gentofte Hospital, DataLinQ developer Fysicon is developing an additional DataLinQ functionality designed to increase the employability of doctors in multiple hospitals. Cardiologists, for example, often spend several days working in one hospital, a few days in another and perhaps work in a third hospital on the last day of the week. Through DataLinQ, in the near future doctors will be able to work in the same way, even though they do not always work at the same location. This is why it is essential for organisations to have access to a solution that promotes data exchange and regional cooperation among hospitals and medical personnel. This way, DataLinQ plays a role in cooperative solutions that help hospitals in their search for ways to manage the growing demand for healthcare.

Cooperation and technological solutions

With the new solution, doctors should even be able to help patients from different hospitals.

For example, a patient who moves can continue to be helped in the same way. So healthcare that is normally located (too) far from the patient can be brought closer. “Some sort of satellite station for hospitals comes to mind here. Staff move towards the patients rather than the patients having to come to us,” Thomas Høi-Hansen explains.

Although this is just one example and the region involved here is Denmark, in principle this solution can be applied in numerous other situations and locations. Not every hospital can free up personnel, but partnering hospitals can, particularly when supported by technological solutions.

Jointly innovative

At Royal Papworth Hospital, they are aware of this. Andrew Raynes: “For years, the healthcare system has been considered overburdened. How do you introduce applications that enable the hospital to keep beds free for the most critical patients?”

Thanks to DataLinQ, patients go through the entire process here, but then the continued care they need can be provided remotely. This will become an important aspect of healthcare. ‘Trailblazer’ Fysicon takes this to a next, higher level. This impacts the quality of healthcare we deliver. We are pleased about the strides we are making with DataLinQ in this respect.”

In line with actual practice

Meanwhile, Fysicon – together with customers – is developing concepts for interfacing DataLinQ with other systems to create a comprehensive overview of every patient and to anticipate the future. Together innovative and moving towards a solution in line with actual practice.



What can DataLinQ do for your hospital?

DataLinQ improves the entire workflow in Cardiac Rhythm Management and not only limits itself to the use of USB sticks or switches but offers integrated technological solutions. For example, the link with EMR, trends and statistics, Remote Device Management, registration and more.

DataLinQ, developed by Fysicon, is a paperless solution for the seamless integration of data from the (remote) device systems of all the major providers. Fysicon maintains intensive contact with these providers for this purpose.

Trends and statistics organised into a single overview

DataLinQ Cardiac Rhythm Management is a complete data, management and reporting system for the registration and (remote) follow-up of pacemakers, ICDs and loop recorders. It enables you to instantly compare new and historical data, identify trends and produce statistics. The data from a follow-up procedure is automatically entered into the database. You can also enter the data of an implant procedure. DataLinQ Cardiac Rhythm Management can be operated and managed from any workstation.

Connection to the EMR and HIS

Besides being connected to the EMR, DataLinQ 2PAD is also connected to the Hospital Information System (HIS). You can choose whether patient data will be obtained through a DICOM Worklist or an HL7 A19 report; the process remains the same. After the follow-up procedure, the pacemaker technician exports the data to DataLinQ 2PAD. The data is combined with the selected patient and the combined data is forwarded to your database.

Remote Device Management is possible

In addition to data from the pacemaker programmers, it is also possible to integrate data from remote device systems into DataLinQ Cardiac Rhythm Management. A message is automatically displayed in the inbox when data from remote device systems is delivered through the hospital server. Both follow-up and remote follow-up data is integrated into a single database.

National Registry

Data can be forwarded from DataLinQ Cardiac Rhythm Management to a national registry, such as the Dutch Heart Registry (NHR). With DataLinQ CRM you can create mandatory fields that are necessary for such a registry.

Work intuitively

DataLinQ has an intuitive interface which is simple and user-friendly. With the report generator, you can effortlessly design documents and reports with a lay-out and content of your choosing. DataLinQ is modular and can be expanded at any time. Making a connection between DataLinQ 2PAD and your own database for importing data? No problem! Updates and new devices can easily be processed remotely.

More information?

If you would like to know more about what DataLinQ can do for you, request a demo. We are Dutch, down-to-earth and pragmatic. We are the 'external department' of your healthcare facility in the field of medical ICT. At your service!

