

## Case Study

Case study written in collaboration with the members of **rythmopôle** paris

# Optimize patient management and anticipate complications by applying AI to telecardiology

## Context

Rythmopôle, formed by independent electrophysiologists tied to research and new technologies in the Parisian region, was limited in its capacity to extend the remote monitoring of implantable cardiac devices to all its patients. To optimize patient management and reduce alert processing time, the team chose Implicity in 2018.



## Activity

- **Routine care :**  
Around 10 surgeries/ day
- **Research in the electrophysiology field**

### Number of patients telemonitored by Rythmopôle

**250**  
patients  
in 2018

**1600**  
patients  
in 2020

after the deployment  
of **Implicity**  
staff number unchanged

### Types of cardiac implantable electronic devices



Defibrillators



Pacemakers



Loop  
Recorders

### Team

Excellent dynamics



**6**

Electrophysiologists



**1**

Nurse in telecardiology  
with sustained activity  
in the operating room

# Benefits of remote monitoring of implantable cardiac devices

«Thanks to remote monitoring, we are proactive about possible complications, we can even predict a pathology before the patient is symptomatic.

These systems [with reference to remote monitoring systems] - allow us to have access to all the information contained in the implanted devices of our patients (defibrillators, pacemakers, implantable loop recorders); it is a real working comfort and it generates very concrete actions. Remote monitoring allows us, for example, to identify cases of «unknown atrial fibrillation» and thus to put patients at risk of stroke on anticoagulant.

A potential life saved and this concerns on average one patient per month.», says Dr. Nicolas Mignot. The doctor also underlines the benefits for health insurance: «telecardiology, even if it has a cost, makes it possible to limit the costs of transport, consultation and in some cases, hospitalization».



Dr. Nicolas Mignot

## Remote monitoring More serenity for patient

Mrs A, 30 years old, suffers from Barlow's disease and ventricular tachycardia. She is a patient at the Rhytmopôle: « Remote monitoring saved my life. My cardiologist in town thought my fainting spells were caused by vasovagae syncope, partly because my effort tests were good, but I could feel it was more than just that. Once a remote monitoring was implemented, we had concrete elements that allowed us to identify the proper care I needed». This very active young woman also believes that such follow-up enables her to "take some distance" from her illness. Remote monitoring also allows, rather paradoxically, "a more direct relationship with the patient", considers Maroussia Bigo, a nurse responsible for telecardiology at Rhytmopôle." We become a real trusted third party for them, she confirms, people often thank us".



Maroussia Bigo

- ≈ 100 alerts/day
- 95% of alerts processed exclusively by the nurse
- < 5 alerts/day to be referred to the doctor

### Remote monitoring of cardiac implantable devices allows to

- Reduce hospitalizations
- Limit physical consultations
- Predict cardiac pathologies
- Reduce costs
- Reduce mortality

### The importance of Remote monitoring is reinforced in times of COVID-19 pandemic crisis

A serenity that is priceless in these times of pandemic crisis. «I am obviously a high-risk patient,» regrets Mrs. A. Having «regular phone calls based on my clinical parameters with the medical staff has greatly reassured me. Above all, I was able to stay at home while not breaking the chain of medical care ». Mrs. A is not the only one to have seen the usefulness of such a system during the Covid-19 pandemic: «We have had calls from patients opposed to remote monitoring before the epidemic, who changed their minds. We were able to quickly send them a transmitter and are now receiving their data. For us in general, the crisis has not changed anything in terms of the follow-up of our implanted patients; we continued to do what we used to do every day ...», underlines Maroussia Bigo.

### How does it work?

« I spend an average of 3 hours a day on the platform to manage alerts. Not every event causes an alert, so we don't have 1,600 alerts per day, but more around 100. Alerts are sorted according to priority (red / yellow / blue) : we verify them and call the patient afterwards, if necessary. Out of a hundred alerts received every day, less than 5 on average need to be consulted by a doctor», says Maroussia Bigo.



**Abbott**



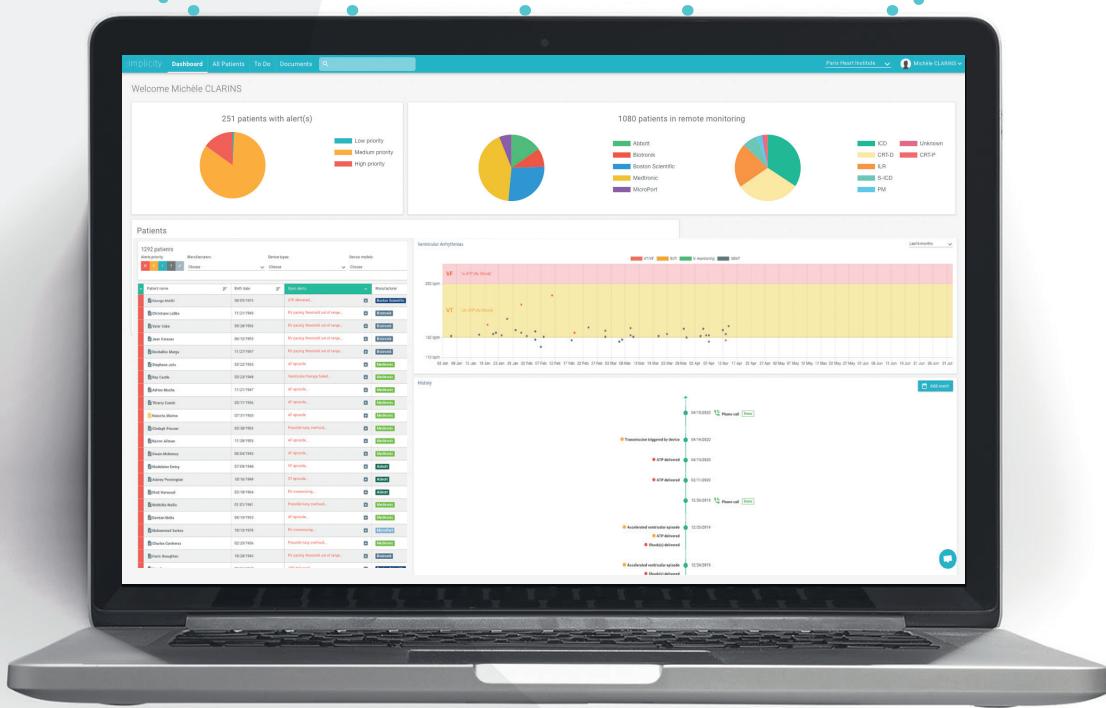
**BIOTRONIK**

**Boston  
Scientific**

**Medtronic**



**MicroPort™**



Implicity platform aggregates data from implantable connected devices (defibrillators, pacemakers, implantable loop recorders...) across all manufacturers on a single platform. « Following all those patients would be impossible for me if I had to connect on each manufacturer portal (Editor's note: Abbott, Biotronik, Boston Scientific, Medtronic et Microport) ».

#### Types of events requiring immediate actions from the team

- Lead breakage or displacement
- Episodes of unknown AF allowing prescription of anticoagulants
- Electric choc delivered

#### The Implicity features that make the difference for the Rythmopôle team

- A single platform with a homogeneous data presentation
- Alerts prioritized and grouped by customized parameters
- The traceability of the patient's history
- Billing assistance
- Automated remote monitoring reporting
- Implicity Customer Support team

#### A new profession emerges thanks to telecardiology

« Telecardiology involves a different approach to patient care. When I graduated, we didn't talk much about it. Telecardiology has allowed me to approach a completely different aspect of nursing. It is in fact another profession, very complete, allowing contact with different actors (the medical team, industrial engineers, patients on site and remotely), and involving more responsibility, » says Maroussia Bigo.

#### Implicity at the heart of the digital transformation of medicine

« Implicity platform is a summary of the medicine of tomorrow. The challenge today is to sort out the mass of information that doctors receive and effectively manage this influx of data. It necessarily involves AI and IT. We are witnessing a revolution and a digital transformation towards a predictive and personalized medicine. », supports Dr Mignot.



Tél : 09 61 67 41 14  
130 rue de Lourmel, 75015 Paris, France  
[contact@implicity.fr](mailto:contact@implicity.fr)

## About Implicity

Implicity provides remote monitoring and research platform used by electrophysiology centers to deliver better care quality for their patients with connected Cardiac Implantable Electronic Devices. On this platform, Implicity aggregates, normalizes and standardizes data from any implantable cardiac device across all manufacturers. Furthermore, Implicity carries out R&D on AI-based algorithms aiming at improving patient care and serving the future of preventive medicine. With its project Hydro, Implicity will be able to develop AI solution through Health Data Hub\*, one of the world's largest database of patients with heart diseases in the world.

Implicity covers 30,000 patients in over 60 medical facilities across Europe and the United States.  
<https://www.implicity.com/fr>

## About IMM

IMM (Institut Mutualiste Montsouris) is a multidisciplinary healthcare facility renowned for the medico-surgical management of serious or complex pathologies: oncological, cardiovascular, functional and chronic. The hospital also has a recognized maternity unit and an adolescent psychiatry center. IMM is a private, non-profit hospital open to all and without exceeding statutory rate. Each year, it receives more than 35,000 hospital stays, 160,000 consultations and gives rise to more than 15,000 surgical operations. Since its inception, IMM has devoted a lot of resources to research, technology and innovation.

<https://imm.fr/>

## About Rythmopôle

Rythmopôle is a group of independent rhythmologists whose mission is to deliver optimal care for the overall management of cardiac arrhythmias. The group has three intervention sites in the Paris region: Institut Mutualiste Montsouris, Hôpital Privé des Peupliers and Clinique Turin, and has great interest in research. With more than 1,160 implanted cardiac pacemakers and 280 cardiac resynchronizations (pacemaker or defibrillator), Rythmopôle is one of the largest centers implanting defibrillators and pacemakers in France and is very invested in telecardiology.

<https://rythmopole.paris/>

---

\*Health Data Hub is a health data platform put in place by the French government to combine existing health patient databases and facilitate their usage for research and development purposes.