

Good Practice

Remote Management of Chronic Cardiac Diseases in a Multicentre Hospital Network

Detailed information on Remote Management of Chronic Cardiac Diseases in a Multicentre Hospital Network, inspired by the Interreg Europe Good Practice template

1. Author contact information

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Are you involved in an Interreg Europe project? Yes

Please select the project acronym: **CARES: Remote Healthcare for Silver Europe**

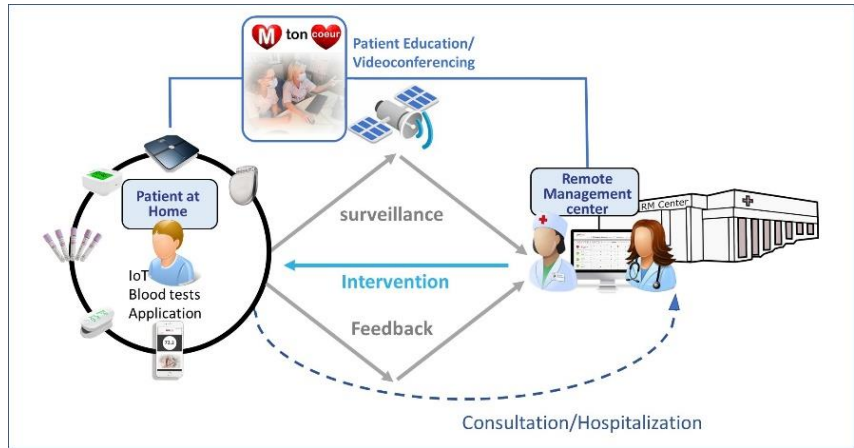
2. Organisation in charge of the good practice

Organisation in charge: Bordeaux University Hospital

3. Good practice general information

Thematic objective of the practice:	Increased availability of telecare and telemedicine services for the European population, making care fairer within the region & Widespread use of innovative tools for medical care and diagnosis (easy-to-use tools that enable shorter time until diagnosis and possible treatment with the reduction of the number of hospital stays)	
Geographical scope of the practice:	Regional/Local	
Location of the practice	Country	France
	Region	Nouvelle-Aquitaine

Practice image



Dr Sylvain Ploux, Bordeaux University Hospital

Title of the practice

Remote Management of Chronic Cardiac Diseases in a Multicentre Hospital Network

4. Good practice detailed information

Short summary of the practice:

It is possible and recommended to remotely monitor patients implanted with a pacemaker or cardiac defibrillator, as well as patients with heart failure using multiparametric approach.

Why?

Telemonitoring helps reducing complications and hospital admissions, as well as patient mortality. It also reduces the need to travel and the number of consultations required. Remote monitoring (RM) is a means of ensuring equal access to care, regardless of patients' geographical location or age.

For whom?

All patients implanted with an electronic cardiac device and/or with heart failure.

Area: Nouvelle-Aquitaine region

What is it for?

1/ Remote monitoring of cardiac implantable electronic devices: daily transmissions of technical and clinical data via a remote transmitter to the patient's home. This enables near real-time detection of device failure (battery, electrode) or clinical complications (rhythm disorder).

Detailed information on the practice:

>It also improves the patient safety, it decreases the health care utilisation and costs (reduces the number and length of hospitalisations, decreases staff work burden) and it improves the patient satisfaction (with benefits independent of the geographic location, the socioeconomic status or the age).

2/ Remote management of heart failure: daily transmissions of vital data and patient symptoms using connected wearables and an application. Telemonitoring also integrates the results of biological check-ups and data from implanted cardiac devices on the same platform. This comprehensive approach (also via the treatment up-titration, the acute management of worsening heart failure events and the patient education) means that changes in patients' condition can be detected early, prevented from worsening and be managed at home.

Some figures:

Over a 15-month period involving 161 patients with an average age of 72, there were 106 worsening heart failure events, including 39 hospitalisations. In other words, 63% were managed via remote home management. *Source: Ploux et al., 2023*

3/ The telemonitoring centre at Bordeaux University Hospital is piloting a remote monitoring network that includes 14 other centres in the Nouvelle-Aquitaine region.

Objectives of this centre:

- >Being able of offering a remote monitoring/management strategy to the largest number of patients
- >Promoting remote management of chronic diseases
- >Improving interprofessional collaboration and professional practice
- >Creating big-databases for research purposes

The Bordeaux University Hospital is using a remote monitoring system called **CareLine Solutions**, based on connected wearables reserved for the most vulnerable patients. It combines information from prostheses with vital parameters collected at home. Other chronic pathologies can also be remotely monitored and the data linked to cardiac data. Careline Solutions is an integral part of the Hospital's remote monitoring process.

Timescale (start/end date): Since 2012/ongoing

Financial resources:

This activity is reimbursed by the national health insurance since 2018.

Human resources:

Bordeaux University Hospital:

- 7 professionals dedicated to telemonitoring (8am to 5pm 5/7 days)
 - >1 cardiologist
 - >6 technicians of remote monitoring (in charge of the patient enrolment prior to discharge, managing the patient connectivity, patient calls and evaluation, etc.) / administrative staff (in charge of the appointments and billings)

Resources needed:

Peripheral centre (minimal requirements):

- 1 cardiologist
- 1 nurse for remote monitoring
- Administrative staff

Material resources:

- Cardiac implantable electronic devices (pacemaker, defibrillator...)
- A transceiver
- Connected wearables and an application for the heart failure management

Evidence of success (results achieved):

- The Bordeaux University Hospital is a **pioneer in France** in the field of remote cardiology monitoring and they created the **first and unique university degree for remote monitoring technicians** in France since 2019 (20-30 pers/y).
- **8,600 patients** are monitored on a daily basis (constantly increasing numbers) in 2023. It is the largest monitoring centre in France for all disciplines. Half of patients are older people (+65).

- More than **120,000 transmissions** per year are managed by the telemonitoring centre.
- **2/3** of worsening episodes of heart failure are managed **remotely at the patient's home**.
- **14 centres** in the Nouvelle-Aquitaine region are part of the remote monitoring network.
- By anticipating cardiac complications, the project helps to **reduce mortality and hospital admissions**.
- Remote management strategies are **available to every patient** (regardless of age, heart disease or geographical location). It is a factor in **equal access to healthcare**.
- Improves **interprofessional collaboration** and professional practice

Source: *Bordeaux University Hospital*

Remote Monitoring of cardiac implantable electronic devices:

Human resources:

- Requires a dedicated team of cardiac implantable electronic devices remote monitoring personnel

The burden of Big Data:

- >120 000 transmissions analysed/year

Low yield:

- 5% of these transmissions require examination by a cardiologist

Challenges encountered

Remote Management of heart failure:

Human resources:

- Requires a dedicated staff
- Requires frequent patient contacts → 10 calls/p/year

Multiparametric approach → Big data

The Remote Monitoring centre of chronic diseases and connected devices of the Bordeaux University Hospital:

Information sharing:

- No common medical files
- Implies multiple email exchanges

Potential for learning or transfer:

This project could be transferred to other regions thanks to several success factors:

- This practice has been in place **since 2012** and has **expanded** beyond the Bordeaux University Hospital with the creation of a **remote monitoring network** that includes 14 centres in the Nouvelle-Aquitaine region that trust the Hospital to monitor their patients remotely.

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- The **organisational model** used by the University Hospital enables professionals to work together and bring the benefits of remote cardiac monitoring to as many patients as possible.
 - The creation of **large databases for research purposes** is an important aspect of the project. These data could be used for studies and research in other European regions.
 - The hospital has figures to support the **effectiveness of the practice** (reduced complications and hospital admissions, lower mortality), and their patient numbers are also constantly growing.
 - The multicentre hospital network enables an effective strategy for **overcoming the human resource obstacle** and an effective medium to **ensure equal access to healthcare**.
 - The remote management strategies are **available to every patient**, regardless of age, heart disease or geographical location.
 - The Bordeaux University Hospital aims to develop their heart failure network and collaborate with new centres.

>**Research article:** *Ploux S, Strik M, Ramirez FD, Buliard S, Chauvel R, Dos Santos P, Haïssaguerre M, Jobbé-Duval A, Picard F, Riocreux C, Eschalier R, Bordachar P. Remote management of worsening heart failure to avoid hospitalization in a real-world setting. ESC Heart Fail. 2023 Dec;10(6):3637-3645. doi: 10.1002/ehf2.14553. Epub 2023 Oct 5. PMID: 37797957; PMCID: PMC10682851*
<https://doi.org/10.1002/ehf2.14553>

External website:

>**More information on the Liryc website** (The University Hospital Institute for Cardiac Rhythm Diseases): <https://www.ihu-liryc.fr/les-centres-dexpertises/#1>

>**CareLine website:** <https://careline.fr/la-societe-careline-solutions/#equipe-careline>

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