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GER-e-TEC Study: An Innovative Geriatric Risk Remote Monitoring Project

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Abstract: Telemedicine can help in the management of patients suffering from chronic pathologies, particularly elderly patients with numerous comorbidities. Elderly residents in nursing homes usually have multiple comorbidities, including cognitive and psycho-behavioral pathologies, cardiac disorders, diabetes, chronic obstructive pulmonary disease, and kidney disease, and use multiple medications. This implies the need for regular monitoring, and a high level of medical and multidisciplinary expertise for the healthcare team. The GER-e-TEC (GERIATRICS and e-TECHNOLOGY) project aims to provide these fragile elderly

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patients with telemedicine tools, more specifically telemonitoring, backed by a well-defined and personalized protocol. The tools use non-invasive communication sensors and artificial intelligence techniques, allowing daily monitoring with the ability to detect any abnormal changes in the patient's condition promptly. The GER-e-TEC project specifically considers the challenges of aging residents, especially those who are in nursing homes, with a major focus on falls, malnutrition, cognitive-behavioral disorders, and iatrogenic conditions.

Keywords: decompensation of geriatric syndromes; GER-e-TEC; geriatric syndromes; remote monitoring of risk; telemedicine for the elderly

INTRODUCTION

Telemedicine has demonstrated its effectiveness in the management of chronic pathologies such as heart failure and hypertension (1). Initially, telemedicine was developed in the field of rhythm disorders and for patients with pacemakers (1), and gradually evolved to other fields of patient care. The monitoring of patients with chronic pathologies by telemedicine systems helps improve the quality of life of patients. Telemonitoring can enable a significant reduction in the number of re-hospitalizations, and in turn reduce costs for the healthcare system. These solutions also promote the collection of accurate medical data to allow for appropriate monitoring of the patient's state of health. The objectives are thus ambitious, ranging from an improvement in morbidity and mortality to a reduction in re-hospitalizations, as well as an improvement in quality of life and medico-economic costs (1).

The stakes of telemedicine are high in geriatrics, particularly in the follow-up of elderly people with chronic pathologies requiring repeated trips to the hospital. In France, 25.6% of the population is over 60 years old and there are 600,000 people living in nursing homes, where the average age is 85 (2). The residents of nursing homes are polypathological (heart failure, hypertension, malnourishment, diabetes, COPD, kidney failure, cognitive and psycho-behavioral pathologies) and polymedicated. From a medical point of view, this implies the need for regular follow-up care and a high level of multidisciplinary medical expertise. Since 2012, the age of working population in Europe has been shrinking while the number of people aged 60 or over continues to grow. By 2060, one-third of French people will be over 60 years of age and 5 million will be over 85, compared to 1.4 million today. Life expectancy from birth continues to increase around the world, approaching or exceeding 85 years for women and 80 years for men in Europe (3). They make frequent use of the hospitals, and most often in cases of emergency. The number of preventable Emergency Unit hospitalizations is increasing every year in France, especially for elderly people residing in nursing homes.

According to a survey performed by EHPA (Etablissement d'Hébergement pour Personnes Âgées), and the Department of Research, Evaluation and Statistical Studies (DRESS) (4) in 2015, in France, 600,000 individuals are living in nursing homes. Older people are entering these nursing homes at a later age than previously, and when they do, they are increasingly dependent on others for most basic

needs. As shown by Morley et al. in 2011, the proportion of residents in Healthcare Resource Groups (HRGs), classified 1 to 4, represented 91% of the population (5). According to the results of a 2015 national analysis conducted in nursing homes by ANESM (Agence Nationale de l'Evaluation et de la qualité des établissements et Services sociaux et Médico-sociaux—National Agency for Assessment and Quality of Institutions and Social and Medical-Social Services), more than half of these residents are admitted to hospital each year for an average stay of about three weeks, after being processed through Emergency Services (6). Visits to Emergency Units are frequent for nursing home residents, with one in four admitted at least once a year and one in ten at least twice a year (7). According to the HCAAM (Haut Conseil pour l'Avenir de l'Assurance Maladie—High Council for the Future of Health Insurance), hospitalizations for this population cost 1.7 billion Euros per year in health insurance (8). Emergency hospitalizations for nursing home residents are considered preventable, according to the authors, in 7–67% of cases (9), and their frequency could be reduced by improved decision-making procedures. Causes of preventable hospitalization include lack of medical availability and lack of communication between paramedics and healthcare physicians (10).

To explain the geriatric phenomena, it is necessary to understand the Bouchon 1-2-3 model (11):

i. The effects of aging that gradually reduce functional reserves, without ever leading to decompensation.
ii. The superimposed chronic conditions that alter the functions.
iii. Decompensation factors that often co-occur in the same patient: acute medical conditions, iatrogenic pathology, and psychological stress.

For example, the effects of aging on the brain promote confusional state and acute cerebral decompensation. Chronic neuropsychiatric conditions, including dementia, are common. There are many trigger factors including cardiovascular and metabolic disorders, infections, iatrogenic diseases, and environmental stress. Prolonged life expectancy is real, and we are witnessing the growing importance of anticipatory medicine, i.e., preventive medicine.

The main objective of the GER-e-TEC (GERIATRICS and e-TECHNOLOGY) project (12) is to study the contribution of telemonitoring in dependent elderly patients with a structured and protocolized medical care to avoid situations of acute decompensation and complications of geriatric risks. The geriatric risks concerned are falls, constipation, dehydration, confusion, iatrogenia, malnourishment, heart failure, diabetes, infections, and bedsores (12). In this context, GER-e-TEC is the first telemonitoring platform in France that takes into account the unique risks of the elderly while monitoring chronic pathologies such as hypertension, chronic heart failure, and diabetes. Personalized monitoring will enable early detection of any abnormal changes in a patient's state of health and therefore alerts can be sent to healthcare professionals. Patient care and management processes can thus be optimized, as can the quality of life of elderly patients (2). The collection of information by the platform will not only enable personalized monitoring but will also provide a better knowledge of patients and a particularly effective tool for transmission between healthcare personnel (12).

TELEMEDICINE APPLICATIONS IN NURSING HOMES IN FRANCE

According to the Public Health Code, *telemedicine* is defined as a form of remote medical practice that uses information and communication technologies. It allows healthcare professionals, with or without their patient's presence, to connect with one another, or with specialists involved in the patient's care (13, 14). Telemedicine is a recent development in healthcare, enabled by technological progress and promoted by public authorities due to its potential possibilities, including improved accessibility to care, optimized use of professionals' time, improved collaboration between professionals, optimized care pathways, and revived innovation in therapeutic treatment plans (13, 14). Telemedicine has shown its effectiveness in the management of chronic diseases, such as heart failure and high blood pressure, among others.

The Limoges University Hospital participates in the Icare project, a pilot research study that evaluates the effectiveness of home telemonitoring for elderly people with chronic diseases. Unique to Europe, its aim is to prevent the loss of home autonomy by demonstrating that remotely monitoring chronic diseases in elderly patients avoids decompensation (disruption of balance) and unplanned hospitalization. The study is being conducted over a 12-month period with 500 elderly volunteers, some of whom will benefit from remote monitoring using biometric sensors installed in their homes. These (non-worn) sensors monitor constants, such as blood pressure, blood glucose, weight, blood oxygenation rate and temperature, and transmit the data securely to the patient's attending physician and nurse, as well as to the geriatric doctor at the hospital, each day (15). Minutolo et al. offer a decision support system for telemonitoring of people with heart failure (16). The system is based on an ontology that groups together patient-related data such as posture, heart rate, physical activity, and alerts. Franco et al. worked on a telemonitoring study of elderly people with Alzheimer's disease (17, 18). Their system detects drifts in nycthemeral rhythms from the location data. A review of literature done by Edirippulige et al. suggested there was little evidence to support telemedicine, but there was only one small randomized controlled trial (19). In fact, most studies were observational and qualitative. They are mainly based on surveys and interviews of stakeholders (patients and health staff). Some studies have evaluated the costs associated with implementing telemedicine services. The present review showed that there was evidence for feasibility and stakeholder satisfaction in using telemedicine in nursing homes in a number of clinical specialties including geriatrics (19). With respect to cost, this study (19) makes the following observations:

- In *medical coordination*, the management of telemedicine patients becomes economically affordable when usage exceeds about 850 consultations per year.
- In *dermatology,* tele-expertise proves to be most cost-effective.
- In *geriatrics,* geriatric assessment and patient education seem to be the most cost-effective.

Telemedicine is increasing in popularity due to the computer and communication tools being deployed in the field of health. Specialties such as Cardiology,

Dermatology, and Diabetology have shown particular interest. As the population ages, geriatricians are more and more concerned about the quality and applicability of this practice in nursing homes. The telemedicine projects in France deployed in nursing homes is summarized in Table 1 (13, 14).

Development of the MyPredi platform

The MyPredi (formerly E-CARE) platform integrates the monitoring of chronic diseases including diabetes, hypertension, and COPD (20). The MyPredi

TABLE 1 Telemedicine in nursing homes in France (13, 14)

Telemedicine project	Type of telemedicine	Medical specialties
Télégéria	Teleconsultations, video consultations with experts, and teleassistance	Orthopedics, dermatology, care of pressure ulcers, vascular medicine, palliative care, pulmonology, neurology, and urology
TELEHPAD program	Teleconsultations	Geriatric medicine, psychiatry, dermatology, cardiology, and neurology
TELEFIGAR	Teleconsultations	Geriatrics, Neurology, Dermatology, and Diabetology
Agetelepsy	Teleconsultations	Psychiatry
TLM Chronic Wounds	Teleconsultations	Chronic wounds
Télémédecine T6 Saint Malo Cancale	Teleconsultations	Geriatrics
Télémédecine EPSM 56	Teleconsultations	Psychiatry
Téléplaies T7	Remote expertise	Chronic wounds and scarring
e-Consult49 project	Teleconsultations	Psychiatry, Cardiology, Vascular medicine, wounds, and Internal medicine
Mutualité Française Loire telemedicine project	Teleconsultations Remote expertise	Psychiatry, Pain, Geriatrics, and Ophthalmology
Telem'ehpad project	Teleconsultations	Geriatrics
Remote consultations program in the departments of Gironde and Dordogne	Teleconsultations	Geriatrics, psychiatric and behavioral issues associated with Alzheimer's-disease or related conditions, chronic wounds, psychiatric illness, and palliative situations
Télésanté Lorraine	Teleconsultations	Cardiovascular and pulmonary conditions, geriatric psychiatry, dermatology, iatrogenic conditions, and palliative care
***e-Vline and TMG 91* project**	Teleconsultations	Geriatrics

Table continued on following page

TABLE 1 **Telemedicine in nursing homes in France (13, 14) (Continued)**

Telemedicine project	Type of telemedicine	Medical specialties
OURSES project	Telemonitoring	Cardiology, behavioral issues
HOMECARE project	Telemonitoring	Behavioral issues associated with Alzheimer's-disease or related conditions
DETECT study	Remote expert consultations	Psychobehavioral disorders
GERONTOACCESS study	Teleconsultations	Geriatrics
Teleconsultations project with Nantes University Hospital	Teleconsultations	Geriatrics and behavioral issues
LNA Santé nursing home project	Teleconsultations	Geriatric psychiatry
TELEPALLIA	Teleconsultations Remote expertise	Palliative care
Télésanté Aquitaine (TSA)	Teleconsultations	Bedsores and wounds
Mobile Chronic Wound Treatment Center of the Dermatology Department of the *Besançon University Hospital telemedicine project*	Telemonitoring	Chronic wound
Haute-Vienne chronic wounds telemedicine project	Remote expertise	Chronic wounds
CICAT in Occitanie and TELAP in Normandy (Domoplaies telemedicine service)	Remote sessions	Chronic wounds
ETAPES (Experimental Telemedicine And Provision of Enhanced Services) Program	Teleconsultations and remote delivery of expertise	Dermatology
Rouvray Specialist Hospital telepsychiatry project- TISSE: Telemedicine In a Socially Structured Environment	Teleconsultations	Psychiatry
e-DENT	Teleconsultations	Odontology
TELEDENT study	Teleconsultations	Odontology

platform, created from E-care, is a generic platform with original architecture with proven functionalities to manage patients with chronic pathologies who require long-term follow up. E-care consists of a patient module, with a tablet and sensors, and a server module which receives and processes the data collected from various patient modules. The server module combines semantic web and artificial intelligence technologies.

Generic ontologies are used to adjust to different pathologies and different types of sensors and data. An inference engine is used to monitor the patient's health and to detect any abnormal situations (21). The architecture of the medical telesurveillance platform is generic for the early detection of any abnormal development. It takes into account the following patient data: profile (sex, age); medical history; prescribed medications; physiological data (blood pressure, heart rate); behavioral data (physical activity, posture); and information about the patient environment and place of life (climate, city) (21). It is capable of integrating new data sources. Personal health data is private, and its access is protected by law to protect the rights of the people and their accommodations, requiring adequate security appropriate to their criticality by a certified host.

To manage the vocabulary of different health professionals (doctors, nurses, etc.), we use domain ontologies. The architecture is generic and can contain all domain ontologies (diseases, drugs, interventions). Domain ontologies allow programmers to share the same semantics and maintain consistency of data.

A generic ontology-based data collection tool is offered in MyPredi (Figure 1). It allows the collection of patient data by a question/answer mechanism. It offers more flexibility in its integration, and it allows:

- Configuration of contextual and adaptive questionnaires independent from the domain.
- The hierarchical structuring of the questionnaires through the definition of semantic links between the questions and the conditions for their display.
- The history of tests and questionnaires.
- Intuitive integration and maintainability thanks to its generic structure.

For the detection of anomalies, we use an expert system based on in-built inference rules. These rules are generic and will continue to evolve with new knowledge generated by deep learning algorithms on the data collected and the evolution of the patient's condition. All alerts detected by the system are forwarded to the nursing staff responsible for monitoring the patient. Ontologies are particularly suitable for understanding, sharing, and integrating information (20–23). However, various issues on ontology remain unanswered. For example, the ideal method of designing, representing, reasoning, automation, evolution, and alignment of ontologies are in early stages. Furthermore, the persistence of ontological data, systems of integration on an ontological basis, design of databases accessible from ontologies, and integration of vagueness in ontologies need to be addressed (24). In addition to the problems encountered by the heterogeneity of the available data, the sequence of algorithmic processing capable of exploiting these data represents a scientific and technical challenge. In the future, the MyPredi platform should gradually be enriched with other communicating sensors such as the ECG and the electronic stethoscope, integrating the signal processing tools that will enable better detection of situations of risk (20, 22).

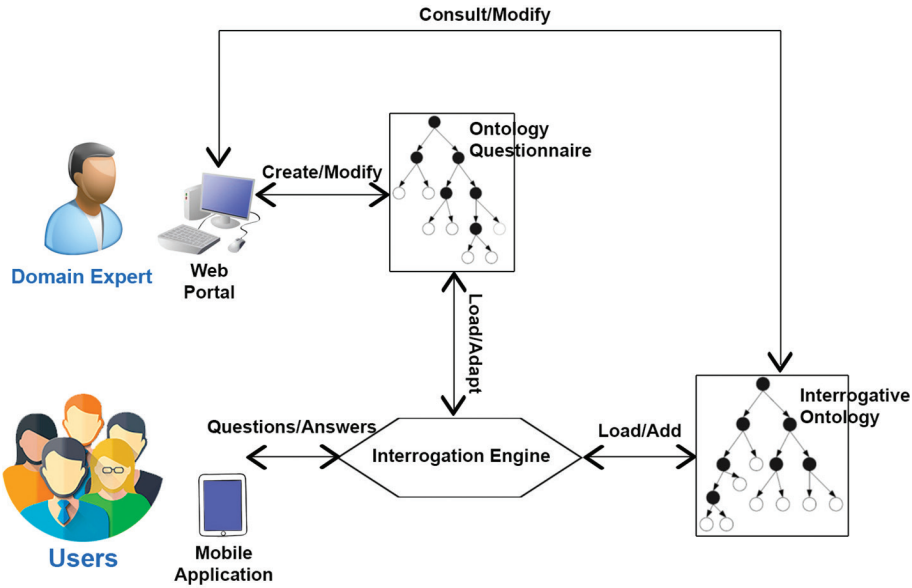

Figure 1. Data acquisition architecture by questions/answers. The acquisition tool essentially consists of three components: the Integration Engine, Ontology Questionnaire, and Integration Ontology. The Interrogation Engine allows the user to conduct an interrogation, ask questions according to the patient's context, and to adapt them according to the answers provided. The Ontology Questionnaire allows modeling the questionnaires to be used for data collection. The Interrogation ontology allows storing responses to questionnaires in the form of interrogations.

Other communicating sensors could also be considered, such as an electronic spirometer, in order to complete the platform and extend its interest in other chronic diseases such as asthma, COPD, and chronic renal failure (24, 25).

THE GER-E-TEC PROJECT

We implemented the GER-e-TEC project incorporating all the information mentioned above. MyPredi system is a remote monitoring platform used for the elderly in nursing homes under the project name GER-e-TEC. The aim of the project is to study the contribution of telesurveillance of residents in nursing homes of Strasbourg University Hospitals, France, through a structured and a protocolized medical follow-up to avoid acute decompensations and complications of geriatric conditions. The project relies on partners—a multidisciplinary team consistent with the requirements in terms of medical, scientific, and structural skills—who work together. The objective of our work is to develop a codified preventive approach for the management of the main geriatric risks in nursing homes using a personalized remote monitoring platform of residents, in order to avoid factors leading to acute decompensation in the elderly. The collection of information by the platform allows not only a personalized monitoring, but also a better

understanding of the patient, providing a particularly effective tool for information transmission between the medical staff (doctors, nurses) in nursing homes. This data collection will also permit the identification of markers subsequently used to improve the early detection of decompensation, thus improving the monitoring of patients, and hopefully reducing the number of hospitalizations. This work creates a resident liaison file.

Main developments and functions

The platform helps caregivers by automating the processing of sensor information, questions, and questionnaires in order to detect and report medical risk situations early. MyPredi remote monitoring platform will provide personalized care for the main geriatric risks to avoid the occurrence of acute factors leading to decompensation in elderly patients. The information collected will be supplemented by codified therapeutic care, according to the international recommendations in nursing homes. This platform provides all paramedical and medical health professionals with information on the resident's geriatric data. This information will be updated regularly, including anthropometric, nutritional, cognitive, and iatrogenic data. Together, the data will provide a real-time picture integrated into an electronic platform, creating a standardized gerontological assessment based on simple and rapid measures. Geriatric risks include the risks of falling, constipation, dehydration, confusion, iatrogenic, malnutrition, heart failure, diabetes, infections, and bedsores. The platform uses an intelligent algorithm to process data and generate alerts based on medical knowledge of the diseases treated, as modeled by ontologies. The general principle adopted by this platform is the anticipation of decompensation through the detection of warning signs that ultimately lead to hospitalization. A series of measures and questionnaires will be integrated into the platform for adaptive and personalized monitoring of the patient's state of health in nursing homes. This study is being supported by CENTICH (National Expertise Center for Information and Communication Technologies for Autonomy).

Expected results and prospects

The improvements and perspectives of this project will be, in the medium term:

i. To decrease the number of preventable hospitalizations by implementing the platform in nursing homes.
ii. To ensure continuity and regularity in the follow-up of patients, particularly in those with complex chronic diseases.
iii. To improve the quality of life of nursing home patients through better follow up.
iv. To take into consideration the resident's needs and expectations.
v. To improve access to hospital care facilities, reducing the use of emergency services, medical care, inappropriate hospitalization, and transport.
vi. To promote safe medical practices, sharing and optimization of knowledge in order to safely improve the information exchange among health professionals to better articulate the different health care levels.

Methodology

Using a tablet and connected objects (Figure 2, Table 2), the patient's vital signs are measured daily: blood pressure, heart rate, weight, oxygen saturation, capillary glucose, temperature, and physical activity. The entire device is ISO13485 medical certified with CE marking (12). With the GER-e-TEC project, we can now offer medical teams and paramedics a remote monitoring device that optimizes the management of patients suffering from geriatric syndromes and their accompanying conditions. This remote monitoring system will allow monitored patients to record their daily physiological data (weight, oxygen saturation, blood pressure, heart rate, blood sugar) and complete questionnaires on the state of their health. The data will be automatically sent to our MyPredi platform, which is designed to predict situations that are at risk of deteriorating. A coordination unit will then be able to monitor the patient remotely, providing comprehensive and personalized treatment of the areas of concern detected by the platform and helping the patient with their therapy. Table 3 provides an overview of the functioning of Ger-e-Tec study.

The GER-e-TEC project was tested on a patient who, after providing his written consent, was monitored daily by a team of healthcare professionals. The patient was given a pedometer to monitor his sleep and activity. The goal was to test the ergonomics and functionality of the remote monitoring platform on a daily basis before using it in the study. After an experimental phase (see Figure 3 for some examples of daily monitoring), with the implementation of

TABLE 2 **Technical characteristics of the MyPredi platform sensors**

Sensors	Characteristics
Balance	A&D Medical, Model: UC-352BLE Bluetooth: 4.0
Sphygmomanometer	A&D Medical Model: UA-651BLE Bluetooth 4.0
Pulse oximeter	Jumper Model: JPD-500F Bluetooth: 4.0
Pedometer	Ecare Fit No model Bluetooth 4.0
Glucometer	FORA Advanced pro GD40 Model: TD-4272H/GD40h Bluetooth 4.0
Thermometer	Jumper Model JPD-FR302 Bluetooth 4.0

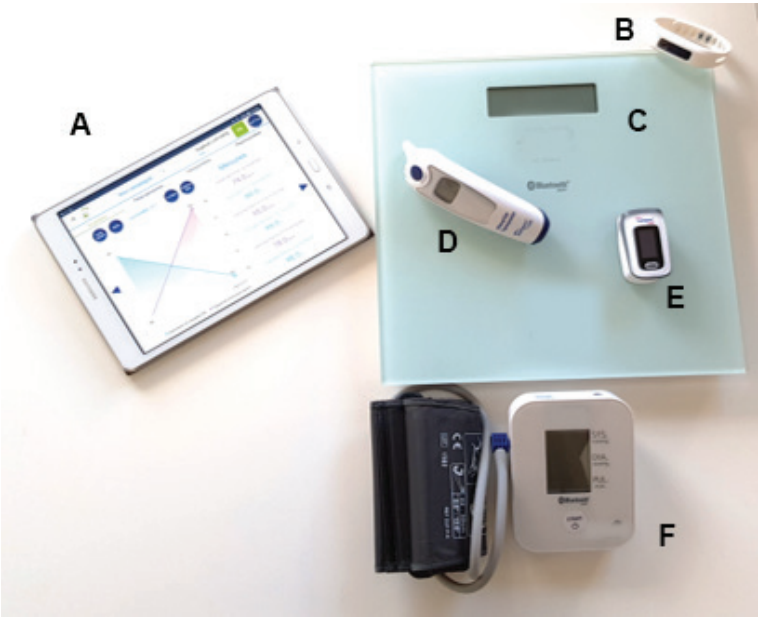

Figure 2. Remote monitoring. The devises used for the daily remote monitoring of the elderly residents in nursing homes. **A,** Tablet with special software for recording daily vital and physical activities; **B,** Pedometer for monitoring walking distance; **C,** Balance for measuring body weight; **D,** Thermometer for measuring body temperature; **E,** Glucometer for measuring daily blood glucose level; **F,** Sphygmomanometer for monitoring blood pressure. The caregiver at each nursing home is provided with these gadgets. These have sensors, and upon measurements, they send the data to the tablet, which can be remotely accessed and assessed by the appropriate health professional.

TABLE 3 Functioning of the Ger-e-Tec study

Patients monitored remotely	Coordination unit	Medical team
Physiological data analyzed daily	Processing of alerts	Medical advice if/ where needed
Help with therapy-related questions	Help with therapy	
Remote consultations	Coordination of doctors and patients	
	Sending reports to doctors on the health status of their patients	
	Monitoring of patient compliance	
	Delegation of tasks	

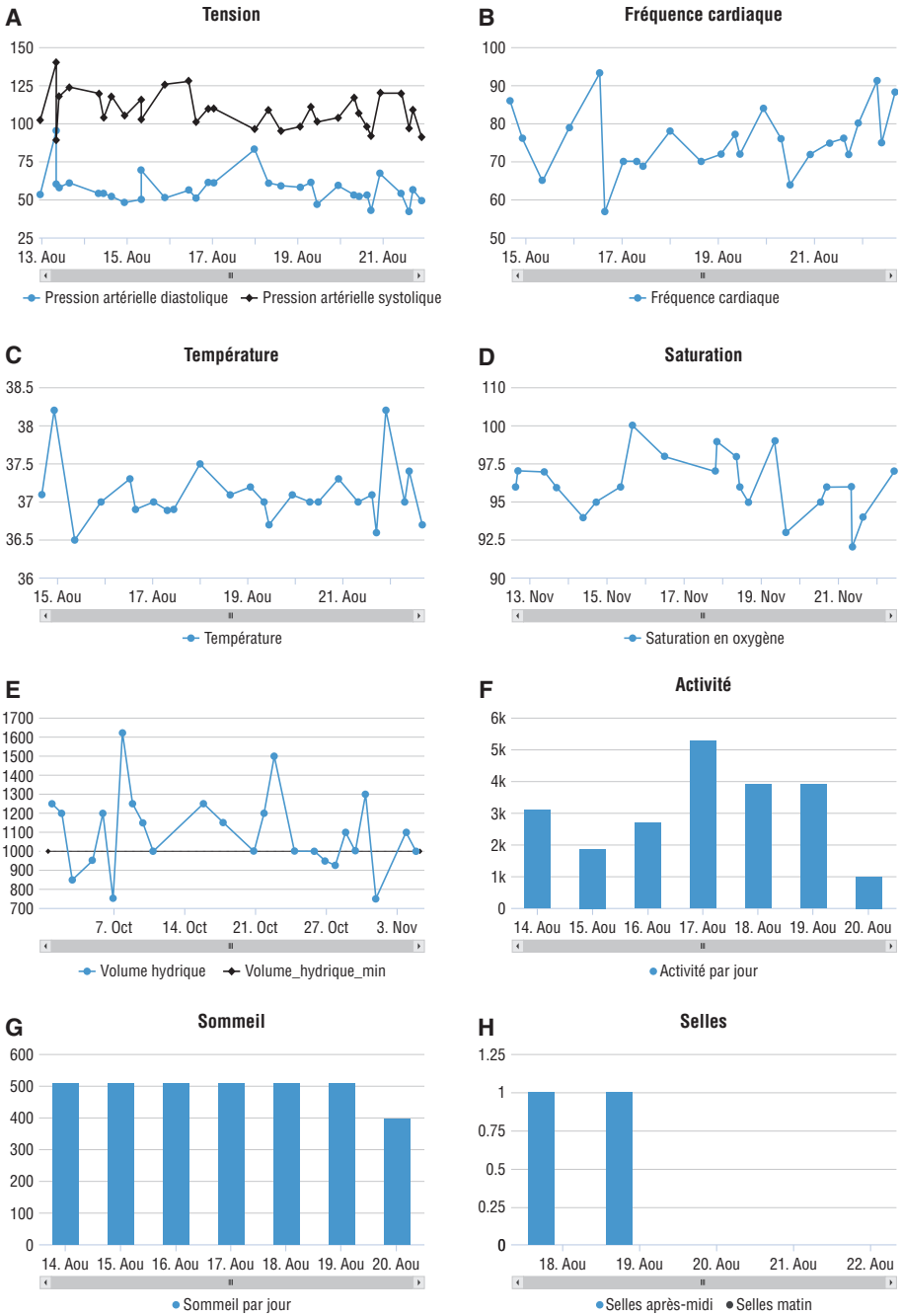

Figure 3. Daily remote monitoring by the GER-e-TEC Study. Representative readings of **A,** Blood pressure; **B,** Heart rate; **C,** Body temperature; **D,** Oxygen saturation; **E,** Hydration status; **F,** Physical activity; **G,** Sleep; **H,** Stool.

technological processes on the MyPredi electronic platform, the remote monitoring of 36 patients was carried out between September 24, 2019, and November 24, 2019. The results of this phase of telemonitoring, concerning the 10 geriatric risks, showed that the MyPredi telemedicine system automatically and non-intrusively generates alerts related to the degradation of geriatric risks, particularly with regard to pain, heart rate risk, bed rest, and cardiac decompensation (26). These are the risks where the system offers the best sensitivity values and 100% positive predictive value. For the practitioner, this experiment underlines that the MyPredi remote monitoring platform can detect 100% of these mentioned geriatric risks with relevant alerts. In this experiment, the MyPredi system also showed itself capable and satisfactory in detecting the degradation of other geriatric risks like dehydration and undernutrition. For the practitioner, this means that in the absence of an alert, the patient has no problem (100% negative predictive value).

However, there are many false alarms in this context, mainly due to non-compliance with protocol and to some extent, the over-sensitivity of the system. Our innovative telemedicine solution enables the remote monitoring of geriatric risks through the use of non-intrusive medical sensors that allow the patient's physiological data to be fed back, in addition to questionnaires integrated into the MyPredi platform. Previous work described in the literature has focused primarily on geriatric risk, and in particular, the risk of falling. The use of telemonitoring systems for elderly people is steadily increasing, but the majority of work in this age group concerns the telemonitoring of heart failure and rhythmology on the cardiovascular side, mainly at home (27–32). Other telemonitoring projects for the elderly have studied different chronic diseases, notably COPD (33–35) and diabetes (36). Telemonitoring projects are developing in the context of geriatric syndromes, mainly on the risk of falls (37, 38) and the monitoring of neuro-psycho behavioral disorders (39, 40).

Our telemonitoring project will allow us to assess elderly patients in their entirety. Our project proposes a personalized medical follow-up with the aim of preventing the occurrence of acute decompensation via the MyPredi telemonitoring platform, which allows for early detection of situations at risk of deterioration of the patient's health status by sending alerts to healthcare professionals. Daily medical monitoring of patients, based on personalized protocols set up by the medical profession, is carried out by healthcare teams on the MyPredi platform. It is done on the basis of measurements and online questionnaires. Alerts are sent to a coordinating medical unit (nurses and doctors) when a patient presents a risk of deterioration to his or her health status so that measures may be taken. This experiment demonstrates the relevance of the technological choices, tools and solutions developed and adopted in MyPredi for the follow-up of geriatric patients. All patients who were remotely monitored, and the healthcare professionals who were telemonitoring, were able to use the system without any technical problems until the end of the experiment. The MyPredi telemonitoring platform has also been used in elderly subjects with a risk of heart failure, with similar results (41). With the GER-e-TEC project, we propose to provide the medical and paramedical team with a telemonitoring device to optimize the management of patients suffering from comorbidities, with a focus on geriatric syndromes. The healthcare team will thus be able to carry out a personalized follow-up for the patient by remotely treating the points of attention detected by the platform and carrying out therapeutic education.

The patient benefits from personalized and preventive care that ensures better quality of life. This involves multidimensional care, with the monitoring of numerous indicators not taken into account in previous studies, such as the risks of constipation, dehydration, iatrogeny, pain, and sleep monitoring. Our project is in line with the need to update the care pathway in nursing homes into the digital age, with an eye on 5P medicine (predictive, preventive, personalized, participatory, and proven) and population ageing.

CONCLUSION

Ger-e-TEC is a unique and innovative project. To this day, and to our knowledge, it is the only platform for remote monitoring of prevention of decompensation of geriatric risks. It differs from other projects in many ways by providing added value. First of all, it has an innovative organization of the care pathway. A coordination unit—made up of a nurse, a doctor, and a hospital—enables the residents of a nursing home to be cared for in an optimized manner. Patients receive long-term medical monitoring through daily and non-intrusive information gathering. The telemonitoring platform ensures optimized medical follow-up care thanks to its technological advantages, namely the integration of artificial intelligence. The patient benefits from personalized and preventive care that ensures better quality of life. This involves multidimensional care, with the monitoring of numerous indicators not previously studied, such as the risks of constipation, dehydration, iatrogeny, pain, Covid-19 infection, and sleep monitoring.

Conflict of Interest: Mohamed Hajjam is the CEO of PREDIMED. The other authors declare no potential conflict of interest with respect to research, authorship, and/or publication of this chapter.

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