



a patented, complete and evidence based telemedicine technology of highest priority

EXECUTIVE SUMMARY OF THE PROJECT

In Belgium, according to the statistics, on a total population of only 10 million people, every day an average of 100 till 250 people should die of heart attacks and vascular diseases while an average of 550 people are daily for the same reason admitted into a hospital for treatment. A leading Belgian cardiologist Dr. Pedro Brugada, recently mentioned in his presentations even a figure up to 300 deaths per day, due to cardiac failure.

A recent study by Prof Guy De Backer of the University of Gent and by Jan Peers of the University of Leuven, concludes that the prevention of heart diseases could generate total yearly savings on health costs of 100 million Euro.

According to a study of the World Health Organization in 2005, 80 % of the deaths could have been avoided if preventive measures would have been taken.

Cardiovascular diseases are also the main cause of mortality in the rest of the European Union, the USA and the other industrialized countries. They account for approximately 40 % of deaths in both the male and female populations.

In the EU it is estimated that cardiovascular diseases should kill around 1.9 million people every year, with the associated annual health costs estimated at EUR 105 billion. Around half of these deaths occur in people who have previously had a heart attack, most of whom will develop heart failure before they die. There are currently around 10 million heart failure patients in the EU and it is one of the commonest medical reasons for hospitalization in adults. Finding better ways to manage and treat coronary heart disease and chronic heart failure is therefore seen as one of the most effective ways of reducing the human cost and financial burden of these debilitating conditions.

"The greatest challenge and opportunity for the management of long-term medical conditions is to help patients to help themselves. This will happen through our heart link online systems and services project that remotely monitors potential and effective (secondary prevention) heart patients, recuperate them in case of heart failure alert and through the use of our technology directly motivate them to adhere to treatment regimes and adopt beneficial

lifestyles: this will improve the survival of people with heart disease and will contain the overall cost of care,"

With our "preventive" technology, the above mentioned fatal figures and percentages could be drastically reduced at reasonable investment and operational costs and minimal human effort.

With that aim, [Heart Link Online \(HaLO\)](#), active in "vital" on line information systems, develops and commercializes for potential and effective heart patients, an online "Heart Monitoring Service" outdoors as well as indoors (where it will click into the domestic equipment of the residence).

We are indeed creating a personal on-line heart monitoring lifeline. This service offers people with a chance for a heart dysfunction, a normal active life outside hospital walls, knowing that a watchdog is continuously monitoring their heart.

Our wireless sensing, tracking and tracing and immediate help technology, will trigger an adequate medical intervention if a heart accident is going to occur, and will offer an eventually continuous follow-up after an heart accident and/or a surgical heart intervention has taken place.

Concretely it means that should the initial symptoms (physiologically or through critical-data-mining of the logged data of a potential patient) of an upcoming heart attack occur, our sensing technology will transmit, indoors as well as outdoors, through GPRS as well as through indoors and outdoors Wifi networks, the exception of the heart rhythm of the patient to the heart specialist, permanently available at the central monitoring and dispatching services: in case there are indications that a heart attack is imminent, a specially equipped ambulance will pick up the patient within the shortest time frame and bring him to the closest heart specialist or the cardio center of a clinic for immediate treatment.

It is the idea that the ambulance will have a heart specialist on board, as well as all basic equipment and medicine for immediate treatment of the patient.

In the ambulance, a super powerful 12 point ECG monitor will be fixed on the patient of which the signals will be, through a GSM, transmitted directly to the cardio center where the patient is being transported. In this way, the cardiologist, waiting in the clinic for the arrival of the patient, can already examine and follow at distance, the cardiac evolution of the patient concerned.

In order that no medical mistakes should occur, the patient will carry with him our patented smart card with high memory and high security, with all his/her basic medical information on it, so that the heart specialist in the ambulance has all personal medical data immediately at his disposal.

In case needed, the same information on the smart card will be transmitted from the ambulance to the heart specialists in the clinic, so that upon arrival, the "doctor-surgeons" team has all correct info needed for immediate surgical intervention.

In a next technological deployment stage we will also use similar therapeutic tools to monitor those illnesses typically associated with heart disease (so-called co-morbidities such as hypertension, diabetes and heart arrhythmia) .

On the same platform, we are also able to log on a regular predefined time schedule, all medical data of a patient by means of the following hard and software tools:

- Blood pressure meter with automatic data transmission (Bluetooth)
- Body scale with automatic data transmission,
- peak flow meter with automatic data transmission,
- SpO2 meter with automatic data transmission
- Glucose meter with automatic data transmission, supervision and alarm functions for the GP as well as for the specialists concerned

All these systems, once available, will allow the Medical Central Dispatching Center to have a very complete and permanent view on the total health situation of each patient connected to our central monitoring system and to intervene long before any health failure occurs.

With various technology partners worldwide, we are also trying to come to implantable biosensors which should sense initially the heart rhythm. This option should be complementary to our belt we are offering now to the market.

Our technology is already fully operational in several university and general hospitals, wellness and sport centers in Germany, Switzerland, Austria and Belgium.

The technology works already successful for more than five years so that with great confidence we can state that our technology is proven, trusted and evidence based.

We are now aiming to introduce this technology to all countries where we can set up a joint venture with a local business, medical, financial or any other partner who believes in our concept and is able to co-invest with us in the setting up of a national, regional or specifically local and/or special heart link online unit in his/her country or region.



Heart Link Telecare



We could summarize the situation as follows: "In the modern age of wireless telecommunications and anywhere connectivity via cellular and internet networks, there should be no reason why we cannot and should not provide our effective and potential patients with full remote and non-intrusive preventive heart monitoring care, saving time and money in unnecessary visits to doctors and hospitals and preventing in large amounts many fatal heart failure deaths."

To conclude, a short but promising statement by the European Commission in "eHealth: A Lead Market in the Making" and "Transforming the European as well as the global Healthcare Landscape"

Our new technological approach aims to support an urgently needed restructuring of the health delivery systems. This restructuring entails a two-fold paradigm shift:

- a) from symptom- based to preventive healthcare and
- b) from hospital-centered to person-centered health systems.

So, in close cooperation with the GP's, the cardiologists, diabetes specialists etc, we presume that we are on the right track.



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