

CASE STUDY

Implementation of a telemedicine model in the field of cardiology by the Polish Mother's Memorial Hospital – Research Institute

Blood pressure monitor + app + scale = cardiovascular advantage



The essence of the problem

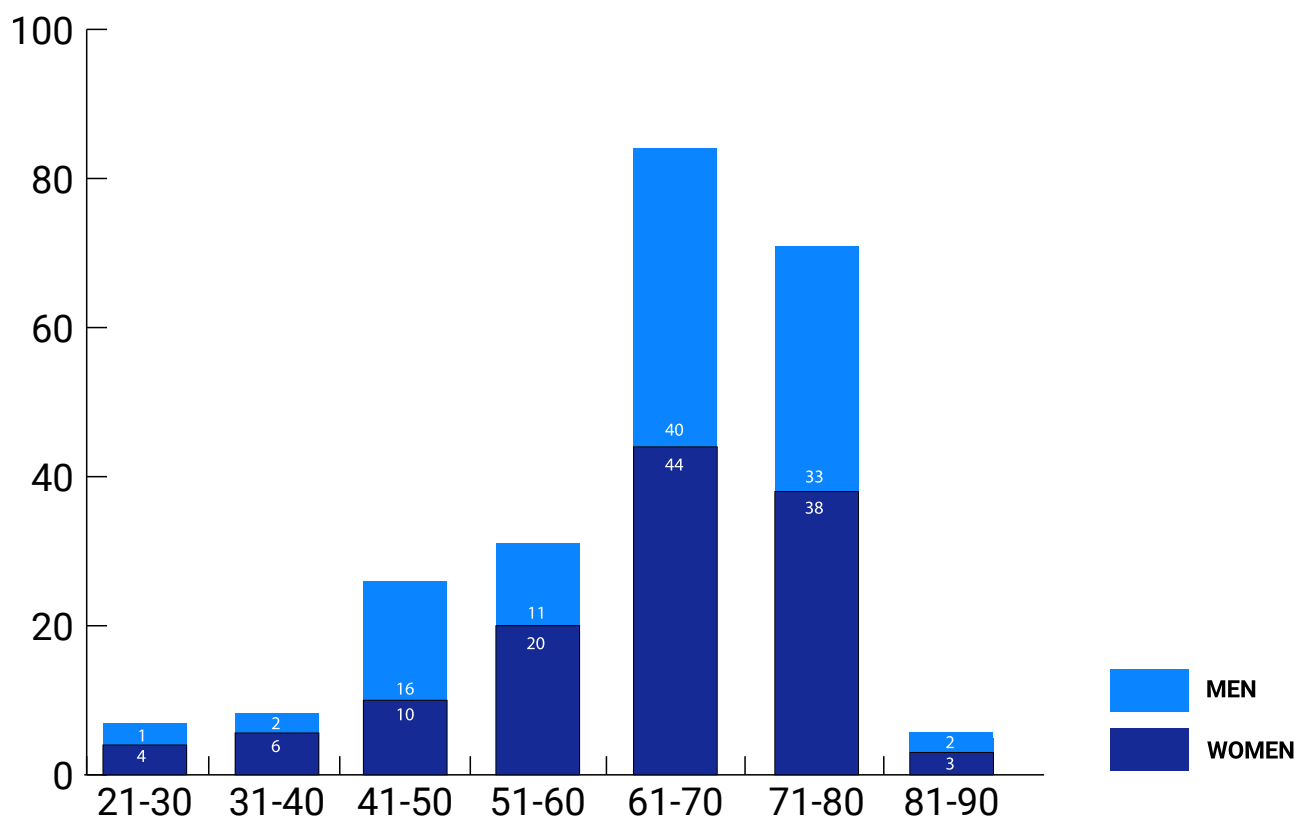
Heart failure is a major global health problem, affecting more than 64 million people worldwide¹. In developed countries, 1-2% of the adult population is affected, which means more than 10 million people. Among those over 70 years of age, this percentage rises to over 10%². In Europe, cardiovascular disease, including heart failure, remains the leading cause of death. In 2021, cardiovascular disease will account for approximately 32.4 per cent of all deaths in the European Union (EU), causing a total of 1.71 million deaths³.

About the project

As part of a pilot project, the Polish Mother's Memorial Hospital – Research Institute in Łódź, in cooperation with the University of Stavanger (Norway) and six primary care centres from Poland, implemented a telemedicine model in the field of cardiology. The main objective of the project was to increase health safety and improve the quality of life of patients with heart failure.

The idea was to use telemedicine to monitor heart failure patients at home, using **a dedicated telemedicine platform, a mobile app for the patient and scales and blood pressure monitors integrated with it**. On the medical side, the project involved primary care physicians, nurses and cardiologists.

The project was particularly aimed at older people, who are most in need of ongoing telemedicine care due to the incidence of many diseases and the need for regular examinations. The pilot study **involved 230 male and female participants over the age of 18**. Figure 1 shows the age and gender distribution of project participants.



The age of the participants ranged from 25 to 87 years. The vast majority of participants were **between 61 and 70 years old**. The gender breakdown of participants was similar, with a slightly larger group of women (125) compared to men (105).

Diagram and assumptions of the telemedicine model implemented in the project

- Individual medical user access to the telemedicine platform and patient access to the mobile application
- Differentiated user interface (different for the patient, doctors and nurses consulting the patient, doctors carrying out monitoring)
- Real-time descriptive and measurement data
- Monitoring of vital signs: blood pressure and pulse measurement 2x a day, weight measurement 1x a day
- Measurement results sent from the devices to the mobile application on the patient's phone via Bluetooth communication and further via the mobile network to the telemedicine platform
- Alarm measurement ranges set individually for each patient
- Verification of alarm measurements on working days during medical team hours

Comarch solutions used in the project

The project uses advanced telemedicine technologies to support cardiac patients in their daily care and prevent disease exacerbations:

Comarch e-Care 2.0

A medically certified telemedicine platform for the secure collection, processing and analysis of data collected by measuring devices. The platform allows patients' health to be monitored remotely in real time and supports medical staff in the implementation of established practice patterns and the analysis of medical data.



Comarch HomeHealth 2.0

A medically certified mobile app integrated with external measuring devices such as **blood pressure monitors and scales**. The solution is used for the remote medical care of chronically ill patients or post-hospitalisation patients, as well as those at risk for specific disease entities, including **cardiovascular diseases**.



Comarch HomeHealth 2.0 application supports the patient in the treatment process by providing a doctor-ordered schedule of tests and pharmacotherapy. It guides the user step-by-step through all the measurements, reminds them to take them, analyses the results and sends them to the Comarch e-Care 2.0 telemedicine platform, where medical staff can analyse them and, if necessary, modify the treatment plan or carry out video consultations with the patient.



This is a medical device. Use it according to the instructions for use or the label.

Results and conclusions of the project

At the end of the project, patients were asked to complete satisfaction questionnaires to gather their opinions on the use of telemedicine solutions in monitoring their health. The vast majority of respondents had not used telemedicine solutions before, but are satisfied with the technologies used in the project and were convinced to use telemedicine in the future.

67%

respondents have not used any telemedicine solutions before

74%

patients were satisfied with the use of telemedicine to monitor their health

70%

participants were convinced to use telemedicine solutions in the future

The factors that have the greatest influence on the willingness to use telemedicine solutions were identified by patients as follows:

- Rapid access to reliable health advice
- Effective treatment by trusted specialists
- Continuity of care
- Involvement and support of family and carers in the treatment process
- Clear recommendations, messages and support for taking care of your own health
- Involving patients in treatment decisions and respecting their preferences
- Emotional support for the patient - increased empathy

The results show that the largest group of respondents was aged 61-80 years, highlighting the particular need for remote telemonitoring in this age group. The study shows that the elderly people, despite the widespread belief in society that they are technologically excluded, are coping well with the new digital challenges.

Telemedicine is a suitable solution for patients who are limited, e.g. due to mobility difficulties or living out of town, and for patients who do not receive continuous care. The project has shown that, despite the fears and uncertainties associated with the use of telemedicine solutions, the vast majority of participants are satisfied with this form of care. The results of the study provide opportunities and hope for effective patient involvement in the implementation of telemedicine solutions.



The material is based on

Sauter, J., Lipka-Matusiak, I., Rogiewicz, J., Kozłowska, K., Bielecka-Dąbrowa, A., & Trzmielak, D. (2024).

Telemedicine and the Digitalisation of Health Services-Perspectives and Overview of Research. Digital Health and Informatics Innovations for Sustainable Health Care Systems, 185-189.

Endnotes

- 1 Bahira Shahim, Chris J Kapelios, Gianluigi Savarese, Lars H Lund, Global Public Health Burden of Heart Failure: An Updated Review, Cardiac Failure Review 2023;9:e11. DOI: <https://doi.org/10.15420/cfr.2023.05>
- 2 European Heart Network. 2019. Heart Failure and Cardiovascular Diseases - A European Heart Network Paper. European Heart Network. https://ehnheart.org/wp-content/uploads/2023/08/EHN-heart-failure-paper_final_180419.pdf
- 3 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Cardiovascular_diseases_statistics

Manufacturer/advertiser:

Comarch S.A.

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