Heart failure management model at University Medical Center Ho Chi Minh City

Vu Hoang Vu[1,2], Nguyen Cong Thanh[2], Pham Dang Duy Quang[2]
Nguyen Duong Khang[2], Bui The Dung[2], Truong Quang Binh[1,2] ✉

[1] University of Medicine and Pharmacy at Ho Chi Minh City
[2] University Medical Center Ho Chi Minh City

▶ **Correspondence to**
Prof. Truong Quang Binh
University of Medicine and Pharmacy at Ho Chi Minh City
University Medical Center Ho Chi Minh City
Email: binh.tq@umc.edu.vn

▶ Received: 10 November 2023
Accepted: 28 November 2023
Published online: 30 November 2023

To cite: Vu HV, Nguyen CT, Pham DDQ, *et al. J Vietnam Cardiol 2023*;**107E**:86-92

ABSTRACT

The program has three key components - human resources, management tools, and research training. It takes a multidisciplinary approach involving various specialists. Nurses play a central role in educating and connecting with patients.

Management tools include a patient handbook for self-monitoring, a specialized heart failure clinic for post-discharge follow-up, and use of standardized data variables and the REDCap platform for streamlined data collection and analysis.

The program follows the EuroHeart data standards and has expanded to involve other hospitals in collaborative data collection and sharing of program experiences.

Additional activities include training courses for medical staff, conferences to discuss program challenges/solutions, and a patient club to strengthen doctor-patient relationships.

Standardized, multicenter management programs can optimize patient care, provide valuable real-world data to advance heart failure research in Vietnam, and continuously improve outcomes.

In summary, the UMC-HCMC program exemplifies a systematic, patient-centered approach to heart failure care aiming to reduce mortality and hospitalizations. Key next steps are expanding to more sites and patient groups, and conducting further research.

HEART FAILURE MANAGEMENT MODEL AT UNIVERSITY MEDICAL CENTER HO CHI MINH CITY

With the spirit of adhering to the recommendations of Associations and the effort to improve outcomes in heart failure patients, while creating a suitable environment to collect real-world data reflecting the heart failure epidemiology in Vietnam, University Medical Center Ho Chi Minh City has implemented and applied a heart failure management model with 3 components: human resources, management tools, and research training (Figure 1).

a. Human resource

Heart failure management at University Medical Center Ho Chi Minh City is also based on a multidisciplinary coordination, including cardiologists, rehabilitation physicians, nutritionists, palliative care specialists, other specialties, and the nursing force. All share the same focus of caring for heart failure patients to improve their

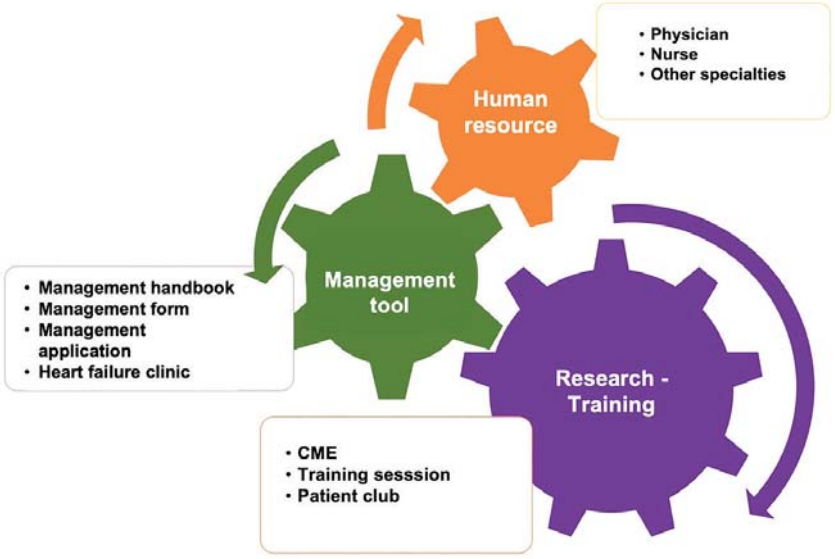

***Figure 1**. Key components of the heart failure management program at University Medical Center Ho Chi Minh City*

prognosis and quality of life. Among them, nurses are the core force, playing the role of directly connecting patients and doctors, being the main communication channel for patients, listening to their feelings as well as sharing and advising necessary information about daily living and treatment. Understanding the important role of nurses, University Medical Center Ho Chi Minh City has organized basic to advanced training courses for nurses. In basic training, nurses are provided with overview knowledge about heart failure, nutrition, home exercise regimen for heart failure patients, as well as signs to monitor at home, lifestyle modification methods, and palliative care for this population (Figure 2).

***Figure 2**. A basic nurse training session in the heart failure management program at University Medical Center Ho Chi Minh City*

In advanced nurse training, nurses are trained on medication precautions for heart failure patients; instructed on how to care for patients with acute heart failure, as well as provided health education skills - situational management, while exchanging information and supporting decision making when patients have questions related to their condition (Figure 3).

***Figure 3**. An advanced nurse training session in the heart failure management program at University Medical Center Ho Chi Minh City*

b. Management tools

Heart failure patient handbook

The heart failure patient handbook was created with the goal of improving patients' knowledge about their own condition, while also having a more proactive attitude by directly recording blood pressure, heart rate values, as well as any daily complaints (if any). This handbook will be given and instructions on its use as well as basic knowledge to note at home explained by the nurse directly caring for the patient in the hospital before the discharge date (Figure 4). This will help make the follow-up process continuous from inpatient to outpatient.

***Figure 4**. Overview of the heart failure patient handbook at University Medical Center Ho Chi Minh City*

Heart failure clinic

In August 2022, the heart failure clinic at University Medical Center Ho Chi Minh City was established (Figure 5). This is a solid step to follow up patients in the early period after discharge, adjust medications and monitor side effects if any, while also being a place for heart failure patients to feel more assured, helping maintain adherence and pay more attention to their own condition.

+ The nursing system will be assigned to remind patients about follow-up appointments by directly calling or through smartphone apps. They are also the ones who directly communicate with and inquire about patients, assist patients with daily questions; as well as monitor patient medication adherence. During this period, nurses will also enter patient information into the REDCap software, including current status, events if any, symptoms and complaints, outpatient lab tests, and current medications.

+ Doctors examining at the Heart Failure Clinic will record symptoms, any side effects, and directly assess the patient's condition to optimize guideline-directed medical therapy accordingly.

+ At home, patients will self-monitor blood pressure, heart rate, their own symptoms, and any questions if any. From there, patients can contact the nursing system via smartphone apps, directly call the cardiology department switchboard, or come to the heart failure clinic for consultations on their questions as well as treatment adjustments if necessary.

***Figure 5**. Inauguration day of the Heart Failure Clinic at University Medical Center Ho Chi Minh City*

Heart failure management variables: EUROHeart and REDCap

The heart failure management program at University Medical Center Ho Chi Minh City also follows global trends by promptly updating the necessary variables in patient management as well as appropriate variables for the hospital's actual situation to synchronize and smoothly operate heart failure management. The variables based on the EUROHeart data standards will also be a valuable data source on the real-world epidemiology and management status of heart failure in Vietnam. From there, we will have meaningful research projects and high value scientific papers that connect with organizations worldwide. The EUROHeart model in heart failure management is divided into 9 components (Figure

6), with variables classified into 3 levels according to increasing depth; with level 1 having 84 mandatory variables; level 2 having 79 additional variables; and level 3 being country or center-specific variables. At University Medical Center Ho Chi Minh City, the heart failure management program collects data based on 84/84 level 1 variables, 42/79 level 2 variables, and 47 level 3 variables. These variables are included in 4 forms: HF0 for inpatient data collection, HF1 for data collection at 1 month after discharge, similarly HF2 and HF3 correspond to 3 months and 12 months after discharge. Currently, with this management approach, inpatient data at University Medical Center Ho Chi Minh City has enrolled over 230 patients after 7 months of implementation.

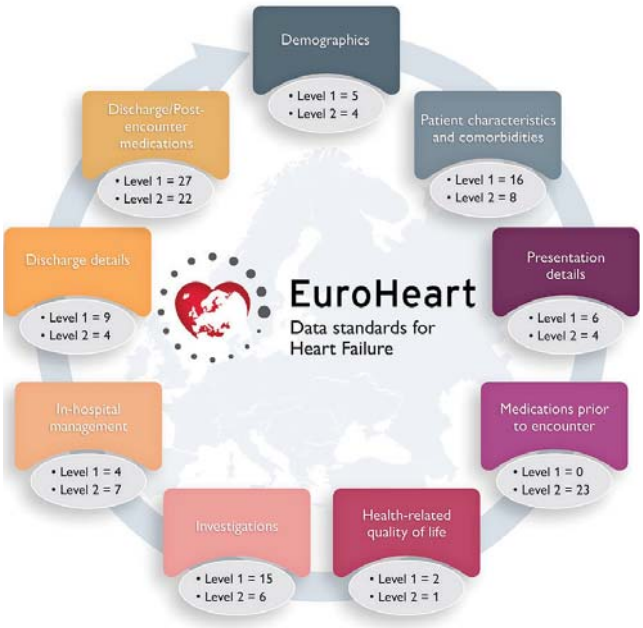

***Figure 6**. Overview of EUROHeart in heart failure management assessment and basis for randomized trials*

The collected data will be directly entered into the REDCap platform. REDCap is a secure web application for building and managing online surveys and databases. REDCap was specifically designed to support data capture and management for research studies and scientific programs; thus, REDCap is now used in over 150 countries, and is the main tool for the heart failure management program at University Medical Center Ho Chi Minh City. With REDCap, entered data will be directly statistically analyzed on this platform in real time. This enables more seamless and meticulous management. From REDCap, data can be easily retrieved into suitable formats for analysis and reporting. At the same time, through REDCap, different cardiovascular centers can together collect and store data from their own centers within the same management program. Currently, the REDCap-based heart failure management program at University Medical Center Ho Chi Minh City has the participation of Thong Nhat Hospital and An Giang Cardiovascular Hospital (Figure 7). The centers will perform data entry and jointly attend a monthly online meeting to share achievements as well as difficulties each center encountered in the past month; thereby helping improve data quality and the management program itself. This is the premise for this program to spread, enrolling a large number of patients, reflecting the overall picture of heart failure and heart failure management in Vietnam.

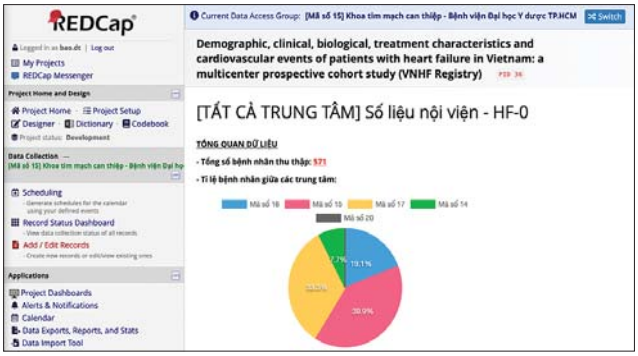

***Figure 7**. Real-time monitoring of heart failure management data on the REDCap application*

c. Research training

The successful establishment of a heart failure management program along with a large, reliable data source forms the foundation for organizing training courses, continuous medical education activities, as well as forming patient clubs. Exchanging and sharing difficulties, challenges as well as experiences and solutions to overcome these obstacles have been maximized at conferences, enabling centers to learn from each other and bring the greatest benefits to heart failure patients

(Figures 8 and 9). In addition, the heart failure patient club established at University Medical Center Ho Chi Minh City is also a bridge to make the bond between healthcare staff and patients stronger (Figure 10). Patients' questions and concerns are answered; their thoughts and aspirations listened to and acknowledged; at the same time, each activity is an opportunity to share knowledge and skills to help heart failure patients improve their quality of life after discharge and work with healthcare professionals on the path of reducing mortality from this common disease.

***Figure 8**. Representatives from participating hospitals at the Heart Failure Management Workshop, held during the New Trends in Cardiovascular Therapeutics Conference (NTCC 2023)*

***Figure 9**. Sharing experiences in heart failure management between University Medical Center Ho Chi Minh City and An Giang Cardiovascular Hospital*

***Figure 10**. Heart failure patient club at University Medical Center Ho Chi Minh*

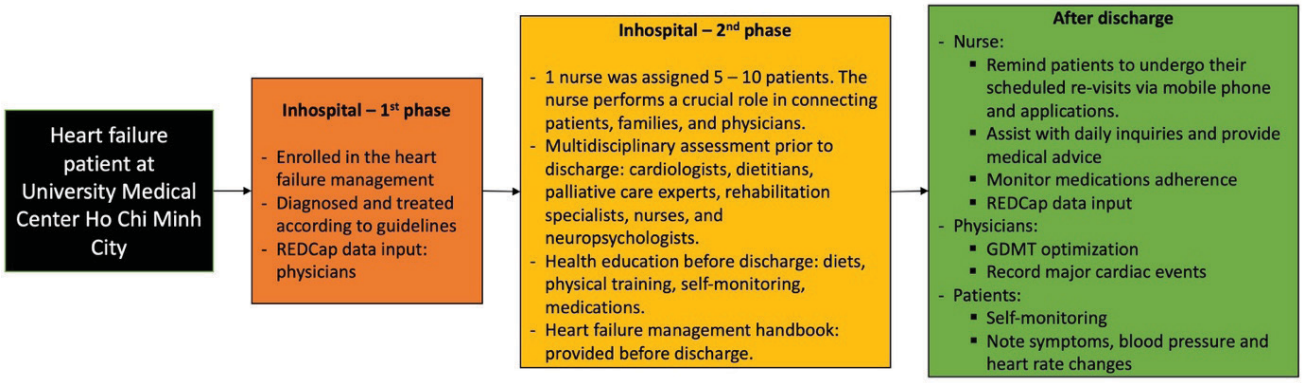

***Figure 11**. Summary of the basic structure and functions of the heart failure management model at University Medical Center Ho Chi Minh City*

CONCLUSION

Heart failure patients have poor long-term prognosis. There are many effective medications and treatments for heart failure, but optimizing medications and heart failure support devices remains a major issue in heart failure management. Close connection between heart failure patients and healthcare professionals is a classic problem in current heart failure management worldwide.

Standardized heart failure management models will help many patients benefit from advances in heart failure treatment, strengthen the bond between healthcare staff and heart failure patients. Thereby, contributing to reducing mortality, reducing hospitalizations for heart failure, and improving quality of life for heart failure patients. Standardized, multi-center heart failure management models will provide valuable real-world statistics in each region, from which clinical trials can be conducted to adjust and impact heart failure management models to continuously improve them, bringing practical benefits to patients and the healthcare system.