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Improving medication adherence and satisfaction with pharmacist-provided services for heart failure patients using a risk management dashboard

Submission date 02/09/2024	**Recruitment status** No longer recruiting	[X] Prospectively registered [_] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [X] Record updated in last year
Registration date 03/09/2024	**Overall study status** Completed	
Last Edited 23/10/2026	**Condition category** Circulatory System	

Plain English summary of protocol

Background and study aims
Heart failure with reduced ejection fraction (HFrEF) is a severe health issue, leading to frequent hospital visits and high death rates. Although there are effective treatments available, many patients do not take their medications as prescribed, which worsens their condition. This study aims to see if using an interactive patient-centered dashboard during pharmacist consultations can help patients better understand their condition, stick to their medication schedule, and be more satisfied with the services provided by pharmacists.

Who can participate?
Adults aged 20 years or older diagnosed with HFrEF can participate and receive care at the National Taiwan University Hospital (NTUH), including its pharmacist-led heart failure clinic, cardiology department, or cardiology ward. Participants need to be able to give consent and complete some simple questionnaires.

What does the study involve?
Participants will be randomly assigned to receive either standard care from a pharmacist or standard care with the addition of an interactive dashboard. The dashboard will show personalized risk and survival information to help patients understand their health better. Participants will complete short questionnaires at the start and after 3 and 6 months to measure how well they follow their medication plan and how satisfied they are with the pharmacist's help.

What are the possible benefits and risks of participating?
Participants may become more actively involved in their treatment process. By better understanding their current health status and medications, they are more likely to improve their medication adherence. This increased engagement and understanding can lead to better health outcomes and greater satisfaction with the pharmacy care they receive. The study may also help

develop better tools for managing heart failure.
The risks are very low, but some participants might feel anxious or uncomfortable seeing their health information on the dashboard.

Where is the study run from?
National Taiwan University Hospital (Taiwan)

When is the study starting and how long is it expected to run for?
May 2025 to March 2026.

Who is funding the study?
National Taiwan University (Taiwan)

Who is the main contact?
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Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Study information

Scientific Title
A pragmatic improvement for medication adherence and patient satisfaction with pharmacist services with an interactive dashboard for heart failure with reduced ejection fraction

Acronym
PRIME PharmD-HFrEF

Study objectives
Integrating a dashboard within pharmacist-led interventions can improve medication adherence among patients with heart failure with reduced ejection fraction (HFrEF).

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 20/03/2025, Research Ethics Committee of National Taiwan University Hospital (No.7, Chung Shan S. Rd. Zhongshan S. Rd., Zhongzheng Dist., Taipei, 100, Taiwan; +886 (0)2 2312 3456 ext. 263417; ntuhrec@ntuh.gov.tw), ref: 202501197RINC

Primary study design
Interventional

Study design
Single-center pragmatic two-arm crossover randomized controlled trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Heart failure

Interventions
Before conducting the education sessions, the pharmacists will review the patients' medical records, including medications and laboratory data, using the portal system. This review is part of their standard routine before patient education into which dashboard interventions will be pragmatically integrated. After the screening, potential participants will first be invited by their attending pharmacist. The researchers will allocate participants to treatment groups using permuted block randomization to ensure a balanced distribution across the groups, with permuted blocks of size 4. Eligible and consenting participants randomly assigned to Group A will receive standard pharmacist-led education (e.g., regular follow-ups and medication education) along with the dashboard intervention, while those in Group B will receive only standard pharmacist-led education, with a crossover occurring after 3 months. The dashboard intervention is pragmatically incorporated into patient education.

Intervention Type
Other

Primary outcome(s)
Medication adherence will be assessed using the Morisky 8-item Medication Adherence Scale (MMAS-8) at baseline (T0), 3 months (T1), and 6 months (T2) after randomization.

Key secondary outcome(s)
Current key secondary outcome(s) as of 22/10/2026:

1. Medication knowledge (Medication Understanding Questionnaire) at baseline (T0), 3 months (T1), and 6 months (T2) after randomization
2. Patient satisfaction with pharmacist-provided services (adapted Chinese version of the Patient Satisfaction with Pharmacist Services Questionnaire 2.0) at baseline (T0), 3 months (T1), and 6 months (T2) after randomization
3. New York Heart Association functional class at baseline (T0), 3 months (T1), and 6 months (T2) after randomization

Previous key secondary outcome(s):

1. Patient satisfaction with pharmacist services will be evaluated using the adapted Chinese version of the Patient Satisfaction with Pharmacist Services Questionnaire 2.0 (C-PSPSQ 2.0) at baseline (T0), 3 months (T1), and 6 months (T2) after randomization
2. Facilitators and barriers to the implementation: To explore potential facilitators and barriers to the implementation of the dashboard, a subgroup of pharmacists and patients will complete the Acceptability of Intervention Measure, Intervention Appropriateness Measure, and Feasibility of Intervention Measure (AIM-IAM-FIM) questionnaire at 6 months (T2) after randomization

Completion date
31/03/2026

Eligibility

Key inclusion criteria
Patients with heart failure and a documented left ventricular ejection fraction (LVEF) <40%

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Total final enrolment
120

Key exclusion criteria
1. Patients unable to provide full informed consent
2. Patients unable to comply with study procedures
3. Patients unable to complete the required questionnaires in person on three occasions or return for follow-up visits
4. Patients who cannot understand or respond to the required questionnaires

Date of first enrolment
06/05/2025

Date of final enrolment
22/08/2025

Locations

Countries of recruitment
Taiwan

Study participating centre
National Taiwan University Hospital
No.7, Chung Shan S. Rd.
Zhongshan S. Rd.
Zhongzheng Dist.
Taipei
Taiwan
100

Sponsor information

Organisation
National Taiwan University Hospital

ROR
https://ror.org/03nteze27

Funder(s)

Funder type
University/education

Funder Name
National Taiwan University

Alternative Name(s)
, NTU

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
Taiwan

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available