INPLASY

Comparative Effectiveness of Post-Discharge Interventions for Reducing Readmission in Patients With Heart Failure: A Systematic Review and Network Meta-Analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 May 2026 and was last updated on 17 May 2026.

INTRODUCTION

Review question / Objective To compare the effectiveness of structured post-discharge interventions for reducing readmission or hospitalization among adults with heart failure. The review will include randomized or cluster-randomized trials evaluating education or self-care support, telephone or telenursing follow-up, telehealth, remote monitoring, mobile health, home-based transitional care, multidisciplinary care, medication optimization, or structured follow-up compared with usual care or another active post-discharge intervention.

Rationale Heart failure is a common cause of hospitalization and recurrent health-care use. The period after discharge is a vulnerable phase, during which deterioration may occur before patients receive timely clinical support. Various post-discharge interventions have been tested, including patient education, telephone follow-up, telemonitoring, mobile health, home visits, medication review, and multidisciplinary transitional care. However, the comparative effectiveness of these strategies remains uncertain because most previous reviews used pairwise comparisons or broad intervention categories. A network meta-analysis can compare multiple post-discharge strategies within a single analytical framework and help identify which models are most likely to reduce readmission or hospitalization.

Condition being studied Heart failure is a chronic clinical syndrome associated with impaired cardiac function, recurrent symptoms, reduced quality of life, and frequent hospitalization. Patients discharged after heart failure hospitalization remain at high risk of readmission because of congestion, medication changes, comorbidities, frailty, limited self-care capacity, and gaps between hospital and outpatient care. This review focuses on post-discharge or outpatient management strategies designed to reduce readmission or hospitalization among adults with heart failure.

METHODS

Search strategy Electronic databases will include PubMed, Embase, Cochrane CENTRAL, and Web of Science. Search terms will combine controlled vocabulary and free-text terms related to heart failure, discharge, transitional care, follow-up, disease management, telemonitoring, remote monitoring, mobile health, nursing, self-care, education, medication optimization, readmission, rehospitalization, and hospitalization. The search will not be restricted by publication year. Reference lists of eligible studies and relevant reviews will also be checked.

Participant or population Adults with heart failure, including patients recently discharged after hospitalization for heart failure, patients recovering from acute decompensated heart failure, and chronic heart failure patients receiving structured post-discharge or outpatient disease-management interventions.

Intervention Structured post-discharge interventions, including education or self-care support, teach-back training, telephone or telenursing follow-up, telehealth, remote monitoring, mobile health, home visits, pharmacist-led medication review, disease management, transitional care, multidisciplinary care, or other structured follow-up programs.

Comparator Usual care, standard discharge care, routine outpatient follow-up, no structured post-discharge intervention, or another active post-discharge intervention.

Study designs to be included Randomized controlled trials, cluster-randomized trials, pragmatic randomized trials, and stepped-wedge randomized trials.

Eligibility criteria Studies will be eligible if they meet the following criteria: (1) adult patients with heart failure; (2) randomized, cluster-randomized, pragmatic randomized, or stepped-wedge randomized design; (3) structured post-discharge or outpatient disease-management intervention; and (4) reporting readmission, rehospitalization, or hospitalization outcomes. Conference abstracts without sufficient data, study protocols, reviews, non-randomized studies, duplicate publications, retracted studies, and studies without a structured post-discharge management component will be excluded. When multiple reports described the same trial, only one parent study will contribute participant data to the primary network.

Information sources PubMed, Embase, Cochrane CENTRAL, and Web of Science will be searched from inception to May 2026. Reference lists of eligible studies and relevant systematic reviews will also be screened. Additional information may be obtained from companion publications, supplementary materials, or trial reports when necessary to clarify outcomes or intervention details.

Main outcome(s) The primary outcome will be patient-level all-cause readmission, rehospitalization, or hospitalization within 12 months after discharge or enrollment. When multiple outcomes are reported, all-cause readmission or hospitalization will be prioritized over disease-specific outcomes. Odds ratios with 95% confidence intervals will be used as the primary effect measure.

Additional outcome(s) Additional outcomes may include heart failure-related readmission, mortality, emergency department visits, days alive and out of hospital, quality of life, adherence, and intervention fidelity, depending on data availability.

Data management Search records will be exported into reference-management software for deduplication. Eligible studies will be extracted into a structured data-extraction workbook. Event counts, intervention classifications, and outcome definitions will be checked against full-text PDFs when uncertainty exists. Companion reports will be used only to clarify design, follow-up, or secondary outcomes.

Quality assessment / Risk of bias analysis Risk of bias will be assessed using the Cochrane Risk of Bias 2 (RoB 2) tool for randomized trials. The assessment will cover the randomization process, deviations from intended interventions, missing outcome data, outcome measurement, and selection of reported results. Certainty of evidence in the network meta-analysis will be evaluated using CINeMA domains.

Strategy of data synthesis A random-effects network meta-analysis will be conducted using arm-level binary outcome data. Odds ratios with 95% confidence intervals and prediction intervals will be calculated. Direct pairwise meta-analyses will be examined before interpretation of network estimates. Ranking measures will be interpreted cautiously because sparse networks may produce unstable rankings. Studies reporting recurrent-event or rate-based outcomes without patient-level binary data will not be pooled in the primary

network but may be summarized narratively. Statistical analyses will be performed in R.

Subgroup analysis Subgroup analyses may be conducted according to follow-up duration, intervention category, telemonitoring intensity, and outcome type when sufficient data are available.

Sensitivity analysis Sensitivity analyses will include exclusion of sparse intervention nodes, exclusion of small studies, and restriction to studies reporting all-cause readmission outcomes. Additional analyses may assess the impact of follow-up duration and intervention classification.

Language restriction English-language studies only.

Country(ies) involved China.

Other relevant information This review focuses on clinically defined post-discharge intervention nodes rather than broad administrative labels. Interventions will be grouped according to their dominant mechanism of care, including telehealth or remote monitoring, home-based or multicomponent transitional care, telephone follow-up, education or self-care support, and medication optimization strategies.

Keywords heart failure; readmission; rehospitalization; transitional care; telemonitoring; remote monitoring; network meta-analysis.

Dissemination plans The results of this review are intended for publication in a peer-reviewed journal and presentation at relevant academic conferences. Findings may also support clinical decision-making regarding post-discharge management strategies for patients with heart failure.

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