ISRCTN83948874 https://doi.org/10.1186/ISRCTN83948874

Impact of a 30-day post-discharge telepharmacy program on hospital readmission, medication discrepancies, adherence and patient satisfaction in Jordan

Submission date
24/02/2026

Recruitment status
No longer recruiting

Registration date
26/02/2026

Overall study status
Completed

Last Edited
26/02/2026

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Hospital discharge is a high-risk transition period in which medication discrepancies, inadequate follow-up care, and early adverse drug events can contribute to non-adherence and avoidable readmissions. Telepharmacy may offer a potential solution to extend pharmacist-led transitional care in settings where in-person follow-up in Jordan remains under-evaluated. The aim of this study is to evaluate the impact of a structured 30-day “3-touch” post-discharge telepharmacy program on 30-day all-cause hospital readmission, medication adherence, and patient satisfaction/usability in Jordan.

Who can participate?
Adults (≥18 years) discharged home from medical or surgical wards, prescribed at least one chronic medication, with access to a WhatsAppenabled mobile phone (personal or caregiver’s), and who provide written consent for followup.

What does the study involve?
Control group (usual care)
Participants in the control group received standard discharge processes routinely delivered by the hospital ward team, including resident physicians, floor nurses, and the dispensing pharmacist (e.g., usual discharge counseling and routine outpatient follow-up pathways), without the structured 30-day telepharmacy schedule. Participants were contacted solely at Day 30 to collect outcome data (medication adherence and record self-reported utilization). No medication counseling, clinical advice, or visual verification were provided during this call.

Intervention group: The "3-Touch" Telepharmacy Program
Participants in the intervention group received a structured post-discharge support program consisting of three structured pharmacist contacts delivered by five clinical pharmacists via telephone, with optional WhatsApp® support if explicitly consented.
• Touch 1 (within 72 hrs post-discharge): The pharmacist compared the discharge list against the

medications the patient actually obtained. Patients were encouraged to send photographs of medication boxes/blister packs via WhatsApp® to verify medication possession and access and to support identification of medication discrepancies. Patient understanding of the indication and dosing instructions was confirmed using a verbal teach-back approach. For participants prescribed administration devices (e.g., inhalers, insulin pens) or those demonstrating marked confusion, the pharmacist used recorded videos or a live video-call function to conduct a visual teach-back, enabling direct observation of technique and immediate corrective coaching. This approach is consistent with global priorities emphasizing medication safety during transitions of care, when discrepancies, misunderstanding, and early non-adherence are common contributors to preventable harm. Teach-back is also a recognized strategy for confirming comprehension and improving safe medication use, particularly when health literacy barriers are present.
• Touch 2 (Day 14 ± 3 days): The pharmacist screened for emerging non-adherence, behavioral barriers, and the need for technique reinforcement (e.g., inhaler/device use). Participants were also assessed for potential adverse drug events or adverse drug reactions (ADEs/ADRs).
• Touch 3 (Day 30 ± 5 days): The pharmacist reassessed adherence, evaluated telepharmacy usability and satisfaction, captured 30-day healthcare utilization (exploratory), and obtained brief qualitative feedback. Standardized adherence and usability instruments were administered and the intervention loop was closed.
In order to ensure fidelity and inter-rater reliability of intervention, five clinical pharmacists with a minimum of three years of experience in a hospital setting completed a structured two-day training workshop covering the protocol, documentation tools, discrepancy classification, and recognition of red-flag symptoms. As far as the feasibility of assessing outcomes, the instruments used to collect data at Day 30, which included the Arabic version of the ARMS and the Telehealth Usability Questionnaire, were piloted using a sample of 10 patients who were discharged to assess the clarity of questions and the flow of the telephone survey. Role-play cases were repeated until full agreement in classifying discrepancies was achieved. When a medical emergency or severe suspected ADE/ADR was identified, pharmacists applied standard clinical judgment to advise urgent medical evaluation or direct contact with the treating physician, consistent with institutional policy and professional scope.
Standardized scripts and documentation templates were used to ensure consistent support program delivery. To align with local privacy expectations, WhatsApp® was used only for scheduling and visual verification; clinical decisions were not documented in chat, and all clinical interventions were recorded in the official study database. This is particularly important given that WhatsApp's use in clinical contexts raises record-keeping and jurisdictional storage considerations despite end-to-end encryption, and because Jordan's Personal Data Protection Law emphasizes consent-based processing and data-subject rights.

What are the possible benefits and risks of participating?
Benefits and risks not provided at time of registration

Where is the study run from?
University of Petra, Jordan.

When is the study starting and how long is it expected to run for?
July 2025 to December 2025.

Who is funding the study?
University of Petra, Jordan.

Who is the main contact?
Dr Derar Abdel-Qader, d.balawi@igec.com.au

Contact information

Type(s)
Principal investigator, Scientific, Public

Contact name
Dr Derar Abdel-Qader

Contact details
University of Petra, Airport Rd. 317
amman
Jordan
0000
+962 7 9556 3555
d.balawi@igec.com.au

Additional identifiers

Study information

Scientific Title
Impact of a 30-day post-discharge telepharmacy program on hospital readmission, medication discrepancies, adherence and patient satisfaction in Jordan: a randomized controlled trial

Study objectives
Telepharmacy may offer a potential solution to extend pharmacist-led transitional care in settings where in-person follow-up in Jordan remains under-evaluated. The aim of the study is to evaluate the impact of a structured 30-day “3-touch” post-discharge telepharmacy program on 30-day all-cause hospital readmission, medication adherence, and patient satisfaction/usability in Jordan.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 11/11/2024, Research Ethics Committee of the Ministry of Health (Ministry of Health, Amman, 0000, Jordan; +962 7 65200230; diwan@moh.gov.jo), ref: MOH/REC/2025/604

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Active

Assignment
Parallel

Purpose
Health services research

Study type(s)

Health condition(s) or problem(s) studied
Telepharmacy during hospital discharge to prevent medication discrepancies, inadequate follow-up care, and early adverse drug events contributing to non-adherence and avoidable readmissions.

Interventions
Recruitment and Enrollment Procedures
Potentially eligible patients were screened near the time of discharge using the ward discharge list. Sampling continued iteratively until the desired sample size, with a 15% attrition allowance, was achieved. After confirming eligibility, data collection and consent were completed. A baseline discharge assessment measured demographic information, diagnostic category, discharge medication number, and baseline adherence.

Randomization, Allocation, Blinding and Implementation
Once informed consent and baseline data collection were completed, participants were randomized on a (1:1) basis to the intervention or control arm using a computer-generated randomization list prepared daily by an independent researcher not involved in recruitment.

Allocation was masked using sequentially numbered, opaque, sealed envelopes (SNOSE), which were opened only after the consent and baseline data processes. This minimizes foreknowledge of allocation at the point of consent and baseline data collection as recommended by the CONSORT guidelines regarding transparent reporting of allocation procedures.
Due to the nature of the behavioral intervention, participants and the research pharmacists could not be blinded. However, data analysts and outcome assessors (reviewing hospital readmission records) of the research team were blinded to group allocation where feasible.

An independent research assistant, who was blinded to the block size, opened the envelope to reveal the group assignment and scheduled the initial contact for participants allocated to the telepharmacy arm.

Control group (usual care)
Participants in the control group received standard discharge processes routinely delivered by the hospital ward team, including resident physicians, floor nurses, and the dispensing pharmacist (e.g., usual discharge counseling and routine outpatient follow-up pathways), without the structured 30-day telepharmacy schedule. Participants were contacted solely at Day 30 to collect outcome data (medication adherence and record self-reported utilization). No medication counseling, clinical advice, or visual verification was provided during this call.

Intervention group: The "3-Touch" Telepharmacy Program
Participants in the intervention group received a structured post-discharge support program consisting of three structured pharmacist contacts delivered by five clinical pharmacists via telephone, with optional WhatsApp® support if explicitly consented.

• Touch 1 (within 72 hrs post-discharge): The pharmacist compared the discharge list against the medications the patient actually obtained. Patients were encouraged to send photographs of medication boxes/blister packs via WhatsApp® to verify medication possession and access and to support identification of medication discrepancies. Patient understanding of the indication and dosing instructions was confirmed using a verbal teach-back approach. For participants prescribed administration devices (e.g., inhalers, insulin pens) or those demonstrating marked confusion, the pharmacist used recorded videos or a live video-call function to conduct a visual teach-back, enabling direct observation of technique and immediate corrective coaching. This approach is consistent with global priorities emphasizing medication safety during transitions of care, when discrepancies, misunderstanding, and early non-adherence are common contributors to preventable harm. Teach-back is also a recognized strategy for confirming comprehension and improving safe medication use, particularly when health literacy barriers are present.
• Touch 2 (Day 14 ± 3 days): The pharmacist screened for emerging non-adherence, behavioral barriers, and the need for technique reinforcement (e.g., inhaler/device use). Participants were also assessed for potential adverse drug events or adverse drug reactions (ADEs/ADRs).
• Touch 3 (Day 30 ± 5 days): The pharmacist reassessed adherence, evaluated telepharmacy usability and satisfaction, captured 30-day healthcare utilization (exploratory), and obtained brief qualitative feedback. Standardized adherence and usability instruments were administered and the intervention loop was closed.

Intervention Type
Other

Primary outcome(s)
1. 30-day hospital readmission, defined as any unplanned all-cause admission to an inpatient unit within 30 days of the index discharge, measured using the hospital’s electronic health record (EHR), Hakeem®, system and verified via patient self-report to capture admissions to non-participating or private sector hospitals at day 30

Key secondary outcome(s))

Completion date
31/12/2025

Eligibility

Key inclusion criteria
1. Aged ≥18 years
2. Discharged home from an adult medical and surgical wards
3. Prescribed ≥1 chronic medication at discharge
4. Possess a functional mobile phone with WhatsApp® capability (personal or caregiver’s)
5. Written informed consent for follow-up contacts

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 years

Upper age limit
65 years

Sex
All

Total final enrolment
281

Key exclusion criteria
1. Discharged to a long-term care facility or another hospital (Referral)
2. Severe cognitive impairment or hearing deficits that precluded telephone/video communication (unless a dedicated caregiver was available)
3. No reliable phone access for the 30-day follow-up period
4. Refused to give consent

Date of first enrolment
01/07/2025

Date of final enrolment
30/11/2025

Locations

Countries of recruitment
Jordan

Sponsor information

Organisation
Petra University

ROR
https://ror.org/039d9es10

Funder(s)

Funder type

Funder Name
University of Petra

Alternative Name(s)
Petra University, , UOP

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Jordan

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available