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Using automatic medication dispensers to improve medication adherence for older adults with long-term conditions

Submission date 14/03/2025	**Recruitment status** No longer recruiting	[X] Prospectively registered [X] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [X] Record updated in last year
Registration date 31/03/2025	**Overall study status** Ongoing	
Last Edited 11/06/2026	**Condition category** Other	

Plain English summary of protocol

Background and study aims
This study aims to evaluate the effectiveness of a new automated medication dispensing device designed for people with long-term health conditions. The device provides reminders for taking medication and sends alerts to family members or carers if doses are missed. The goal is to determine whether the device can improve medication adherence and support overall health and wellbeing.

Who can participate?
Adults with long-term health conditions who take regular medication and sometimes struggle to manage their medication routine may be eligible to participate.

What does the study involve?
Participants will be randomly assigned to one of two groups:
A group using the automated medication dispensing device for six months.
A group continuing with their usual medication routine.
Participants may be asked to provide feedback through surveys or interviews to help researchers understand how the device fits into daily life.

What are the possible benefits and risks of participating?
Benefits:
Participants in the device group may find it easier to manage their medication.
The study contributes to research that could benefit others with similar conditions.
Risks:
There are no significant risks expected. Participants may need time to adjust to using the device.

Where Is the study run from?
University of Bedfordshire (UK)

When does the study start and how long is it expected to run for?
September 2024 to February 2027.

Who is funding the study?
Bedford, Luton and Milton Keynes (BLMK) Integrated Care Research and Innovation Hub (UK)
NHS England

Who Is the Main Contact?
For further information or to express interest, individuals can contact:
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Contact information

Type(s)
Scientific, Principal investigator

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Additional identifiers

Integrated Research Application System (IRAS)
349006

Protocol serial number

IHREC1039

Study information

Scientific Title
Assessing the impact of Automated Devices for enhancing HEalth and Reducing medication Errors in older adults with long-term health conditions: a randomised controlled trial

Acronym
ADHERE

Study objectives
Current study objectives as of 03/11/2025:
Are Automated Medication Devices (AMDs) for adults aged over 50 with long term health conditions, more effective than standard care in improving medication adherence, quality of life, and health status after six months? Which groups does it work best for, and why?

Previous study objectives:
Are Automated Medication Devices (AMDs) for adults aged over 65 with long term health conditions, more effective than standard care in improving medication adherence, quality of life, and health status after six months? Which groups does it work best for, and why?

Ethics approval required
Ethics approval required

Ethics approval(s)
1. Approved 13/03/2025, East of England - Essex Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 207 104 8106; essex.rec@hra.nhs.uk), ref: 25/EE/0026

2. Approved 26/11/2024, Institutue for Health Research Ethics Committee (University of Bedfordshire, University Square,, Luton, LU1 3JU, United Kingdom; +44 1234 400 400; EthicsIHR@beds.ac.uk), ref: IHREC1039

Primary study design
Interventional

Study design
Multicentre interventional randomized controlled trial

Study type(s)
Efficacy, Quality of life

Health condition(s) or problem(s) studied
Adults aged over 50 with long term health conditions

Interventions
Current interventions as of 03/11/2025:
There are two study arms, intervention and control. Each group will complete assessments at baseline, 3 and 6 months. The intervention group will receive the AMD and the control group will

continue to take medication as normal.
We will be sequentially allocating participants to trials arms taking in to account the covariates of interest. In this case, gender (Male vs Female), age (50-65 vs 65-75 vs 75+), and the referral reason for entering the trial (Physical vs memory related) will be used to ensure that trial arms are balanced for these factors. Specially designed software will be used to manage this process called MinimPy2.

Previous interventions:
There are two study arms, intervention and control. Each group will complete assessments at baseline, 3 and 6 months. The intervention group will receive the AMD and the control group will continue to take medication as normal.
We will be sequentially allocating participants to trials arms taking in to account the covariates of interest. In this case, gender (Male vs Female), age (65-75 vs 75+), and the referral reason for entering the trial (Physical vs memory related) will be used to ensure that trial arms are balanced for these factors. Specially designed software will be used to manage this process called MinimPy2

Intervention Type
Device

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Pivotell Advance Automatic Pill Dispenser (Patent No. SE 535 462 C2)

Primary outcome(s)
1. Medication Refill Adherence (MRA) at baseline, 3 and 6 months
2. Self-report adherence data at baseline, 3 and 6 months
3. Adherence data for the intervention group will also be determined by using the Pivotell Administration Centre at 3 and 6 months

Key secondary outcome(s)
1. Quality of Life 12-item Short-Form Health Survey (SF-12) at baseline, 3 and 6 months
2. Morisky Medication Adherence Scale (MMAS-8) at baseline, 3 and 6 months
3. Self-report healthcare resource use data at baseline, 3 and 6 months

Completion date
31/12/2026

Eligibility

Key inclusion criteria
Current inclusion criteria as of 03/11/2025:
1. Adults (≥50 years)
2. Diagnosed with at least one long-term health condition
3. Prescribed a stable daily medication regime and not taking medication more than four times per day
4. Has physical and/or memory-related difficulties taking medication and/or self-reported low medication adherence
5. And /or unsuccessfully tried other compliance aids, such as dosette boxes, calendar clocks,

blister packs or talking labels.
6. Have sufficient English language skills
7. The patient provides written informed consent

Previous inclusion criteria:
1. Adults (≥65 years)
2. Diagnosed with at least one long-term health condition
3. Prescribed a stable daily medication regime and not taking medication more than four times per day
4. Has physical and/or memory-related difficulties taking medication and/or self-reported low medication adherence
5. And /or unsuccessfully tried other compliance aids, such as dosette boxes, calendar clocks, blister packs or talking labels.
6. Have sufficient English language skills
7. The patient provides written informed consent

Participant type(s)
Patient, Service user

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
50 Years

Upper age limit
120 Years

Sex
All

Total final enrolment
15

Key exclusion criteria
1. Patients on cytotoxic medications (e.g. Methotrexate)
2. Clinically unsuitable medications or medications unsuitable for the AMD used (e.g., size, storage, administration method)
3. Variable medication regime (e.g. Warfarin) and/or taking medication more than four times per day
4. Patients who are already using an AMD or other similar electronic device.
5. Patients are not responsible for taking their own medications (e.g. carer administers medication).
6. The patient does not provide informed consent.

Date of first enrolment
01/04/2025

Date of final enrolment
31/05/2026

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
The Village Pharmacy
Meiklejohn Centre Unit 3
Kingswood Way
Great Denham
Bedford
England
MK40 4GH

Study participating centre
Makan's Pharmacy
453 Dunstable Road
Luton
England
LU4 8DE

Study participating centre
Moakes Pharmacy
Unit 3
Marsh Farm Shopping Centre
The Moakes
Luton
England
LU3 3FH

Study participating centre
Hockwell Ring Pharmacy
5-7 the Green
Hockwell Ring
Luton
England
LU4 9PG

Study participating centre
Titan Pharmacy
17-18 Bedford Square
Houghton Regis
Dunstable
England
LU5 5ES

Study participating centre
Halfway Pharmacy
731 Dunstable Road
Luton
England
LU4 0DU

Study participating centre
Smarta Healthcare
5 Stephenson Court
Priory Business Park
Bedford
England
MK44 3WJ

Study participating centre
Lindleys Chemist
15 Ford End Road
Queens Park
Bedford
England
MK40 4JE

Sponsor information

Organisation
University of Bedfordshire

ROR
https://ror.org/0400avk24

Funder(s)

Funder type
Other

Funder Name
NHS England

Funder Name
Bedford, Luton and Milton Keynes (BLMK) Integrated Care Research and Innovation Hub

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be stored in a publicly available repository: https://reshare.ukdataservice.ac.uk/

Anonymised data will be made available from the end of the trial for five years. This will include individual anonymised participant data and study publications including the study protocol, statistical analysis plan, health economics plan, and case report forms. Data from this study will be available via a sponsor-controlled application process for which applicants must show that they have sound scientific reasons for accessing the data and acceptable research methods. Consent for the sharing of anonymised data will be obtained from all study participants. At the culmination of the study, we plan to apply to share our anonymised data in a public repository such as the UK Data Archive https://reshare.ukdataservice.ac.uk/ where it would be accessible to other researchers. In order to enable this, we will highlight on our Participant Information Sheets and consent forms that anonymised data may be shared in this way.

IPD sharing plan summary
Stored in publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		27/01/2026	28/01/2026	Yes	No
Participant information sheet			27/03/2025	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes