Improving Frail Older Adults' Medication Management: A Multidisciplinary Deprescribing Method in Primary Care

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Abstract

Introduction: Reducing inappropriate polypharmacy in older people living with frailty presents significant challenges for primary care. Evidence suggests structured medication review (SMR) and deprescribing processes involving multidisciplinary teams could facilitate this process. This study aimed to develop a comprehensive multidisciplinary medication review and deprescribing intervention for older people living with frailty in primary care.Intervention development followed the Medical Research Council framework for complex interventions, integrating behavior change and implementation theories. The process included: 1) a realist review of 28 papers identifying 33 context-mechanism-outcome configurations for successful medication review and deprescribing, 2) qualitative research with 26 healthcare professionals and 13 older people with polypharmacy and their informal carers, and 3) co-design with key stakeholders through four iterative workshops. This systematic approach ensured the intervention addressed identified barriers while maximizing acceptability and feasibility.

Keywords: ***Polypharmacy, Frailty, Older adults, Primary care, Deprescribing, Medication review, Multidisciplinary intervention, Patient-centered care, Potentially inappropriate medications, Healthcare optimization.***

1. Introduction

Polypharmacy among older adults represents one of the most significant challenges facing modern healthcare systems. In England, nearly half of people aged 65 and over take five or more regular medicines, meeting the common definition of polypharmacy. This widespread multiple medication use creates a substantial yet largely avoidable burden of harm for patients while placing considerable strain on healthcare resources. The challenge is particularly acute for older people living with frailty, whose altered physiological state fundamentally changes how medications affect their bodies(1).

Polypharmacy in older adults is strongly associated with increased potentially inappropriate medications (PIMs), which refers to whether a drug is safe in terms of its pharmaceutical properties and encompasses assessment of older people's medications within the context of multimorbidity, complex medication regimens, cognitive status, and life expectancy. The consequences can be severe elevated risks of falls, cognitive decline, functional deterioration, hospital admissions, and even death. For those living with frailty, these impacts are often amplified due to age-related changes in drug pharmacokinetics and pharmacodynamics.

Medicines optimization offers a potential solution to these challenges. Defined as "a person-centered approach to safe and effective medicines use, to ensure people obtain the best possible outcomes from their medicines," this approach has gained significant traction in healthcare policy. In the UK, recommendations suggest that people living with frailty and those with complex polypharmacy should receive structured medication reviews (SMRs) annually from their primary care teams. The focus on frailty is warranted by growing evidence suggesting frailty may substantially impact drug efficacy and toxicity, although medication burden may also contribute to the development of frailty itself creating a potentially dangerous cycle(2).

Deprescribing represents a crucial aspect of medication review, involving tapering, dose reduction, stopping, or switching medications with the goal of improving outcomes. Research has demonstrated that deprescribing is feasible and safe across diverse conditions, medications, settings, and with various deprescribing tools. The process can lead to meaningful reductions in polypharmacy and PIMs. For frail older adults specifically, deprescribing has shown important benefits related to depression, function, and overall frailty status.

Despite international efforts to embed structured medication reviews in routine practice facilitated in the UK by expanding clinical pharmacist roles in primary care significant variation exists in implementation. Multiple barriers impede effective medication reviews and potential deprescribing. From the perspective of patients and informal

carers, there may be resistance to medication changes due to perceived benefits and fear of potential negative consequences if medicines are discontinued. Many older adults have taken certain medications for years or decades, creating powerful psychological attachments and beliefs about their necessity.

Healthcare professionals face their own set of challenges. General practitioners frequently cite time constraints, increasing workloads, and concerns about stopping medicines within a context lacking clear policies and guidelines. The complexity of the healthcare system itself poses barriers, particularly when medications are initiated by multiple specialists across different care settings. Perhaps most significantly, the clinical complexity of patients most at risk older adults with multiple conditions, frailty, and complex medication regimens creates uncertainty around the risk-benefit balance of medication changes.

One promising approach to address these barriers involves expanding the role of other prescribers in medication review processes. In the UK, clinical pharmacists and other healthcare professionals, including nurses and physiotherapists, increasingly work as independent prescribers within multidisciplinary primary care teams. This enables them to consult with and treat patients directly. The model is gaining traction internationally as healthcare systems seek sustainable solutions to workforce challenges.

Evidence indicates that multidisciplinary interventions, particularly those involving pharmacists, effectively reduce inappropriate prescribing. However, this evidence primarily derives from controlled research contexts rather than real-world clinical practice(3). A significant gap exists in understanding how responsibilities could be shared most effectively in everyday primary care settings. The integration of clinical pharmacists in UK general practice, accelerated by the Additional Roles Reimbursement Scheme since 2019, provides an opportune moment to develop and evaluate structured approaches to multidisciplinary medication review.

The unique needs of older people living with frailty demand particular consideration. Frailty represents a state of increased vulnerability to stressors, resulting from cumulative decline across multiple physiological systems. This vulnerability fundamentally changes the risk-benefit calculations for medications. Traditional clinical guidelines, typically developed for single conditions in non-frail populations, often provide inadequate guidance for managing medications in people with frailty. What constitutes appropriate prescribing for a younger adult may represent inappropriate prescribing for someone living with frailty.

Further complicating matters, older adults with frailty may prioritize quality of life, functional independence, and symptom management over longevity or disease-specific targets. These priorities may not align with standard prescribing guidelines or quality metrics. Meaningful medication reviews therefore require a holistic, person-centered approach that considers individual values, goals, and preferences alongside clinical factors.

Against this background, our research aimed to design a complex multidisciplinary medication review and deprescribing intervention for primary care, specifically targeting older people living with frailty and polypharmacy in the UK healthcare context. By developing an intervention grounded in evidence, theory, and stakeholder perspectives, we sought to address the multiple challenges to effective deprescribing while maximizing acceptability and feasibility for both patients and healthcare professionals.

This paper describes the systematic, theory-informed approach used to develop this intervention, including the synthesis of existing evidence, primary qualitative research with key stakeholders, behavioral analysis, and iterative refinement through co-design workshops. We present the resulting five-component intervention and discuss its potential to improve medication management for one of healthcare's most vulnerable populations.

2. Methods

Theoretical Framework and Methodological Foundations

This research formed part of a larger program called MODIFY (development and iMplementation Of a multidisciplinary medication review and Deprescribing Intervention among Frail older people in primarY care), which received ethical approval from the UK Health Research Authority (REC reference 22/PR/0580). Our methodological approach was anchored in the Medical Research Council's framework for developing complex interventions, which provides a structured pathway for creating and refining interventions addressing multifaceted challenges in healthcare(4).

The MRC framework guided our creation of a comprehensive program theory that articulated the intervention's key components (content and delivery mechanisms), its theorized mechanisms of action (how the intervention was

expected to produce change), and anticipated outcomes. This systematic approach helped ensure the intervention would address the complexity of medication management for older adults with frailty and polypharmacy.

We employed a complementary blend of theory-driven, evidence-based, and person-centered approaches to intervention development. The Person-Based Approach (PBA) was particularly valuable, as it grounds intervention development in deep understanding of the perspectives, needs, and contexts of those who will use the intervention. This approach helped maximize the likelihood of developing an intervention that would be acceptable to patients and carers, feasible for healthcare professionals to deliver, and ultimately effective in improving medication management.

Phase 1: Primary Research and Evidence Synthesis

The initial phase of intervention planning comprised two complementary workstreams: a realist evidence synthesis and primary qualitative research with key stakeholders.

Realist Evidence Synthesis

We conducted a realist review and synthesis of available published evidence to understand when, why, and how interventions for medication review and deprescribing in primary care involving multidisciplinary teams (MDTs) work (or fail to work) for older people. This methodological approach was particularly well-suited to our research question, as it focuses not simply on whether interventions work, but on identifying the underlying mechanisms and contextual factors that influence success or failure(5).

The review examined 28 published studies, enabling us to identify design features that would likely be acceptable to target users, feasible to implement, and effective in practice. The detailed methods and findings of this realist synthesis are published separately, providing a robust evidence foundation for our intervention design.

Qualitative Research with Involved Parties

To complement the literature-based evidence, we conducted an in-depth qualitative study with 39 participants recruited from Southeast England. This research aimed to understand what makes multidisciplinary medication review and deprescribing work effectively in primary care for older people living with frailty and polypharmacy.

The sample comprised 10 community-dwelling patients aged 65 and over living with frailty and taking five or more medications, along with three informal carers who participated in individual in-person interviews conducted in their homes. Participants were recruited through General Practices across Southeast England, representing diverse geographic settings (urban and rural) and socioeconomic deprivation levels(6).

Additionally, 26 healthcare professionals working at these same practices participated in five focus groups (n=22) and one-to-one online interviews (n=4). Each focus group included healthcare professionals from different disciplines working together at the same practice, providing valuable insights into team dynamics and multidisciplinary working. The professional sample included clinical pharmacists (n=8), general practitioners (n=7), advanced nurse practitioners (n=4), frailty practitioners/coordinators (n=3), medical students on placement (n=2), a dietician (n=1), and a physiotherapist (n=1).

The realist review and qualitative study together enabled us to develop and refine a comprehensive program theory, which formed the foundation for the intervention's guiding principles in phase two.

Phase 2: Planning for Intervention and Behavioral Analysis

Following the evidence gathering phase, we undertook rigorous behavioral analysis informed by established theoretical frameworks to translate our findings into actionable intervention components.

Analysis of Behavior Change

Two team members (ER & KI) systematically mapped the key behaviors identified in phase one onto the Behavior Change Wheel (BCW) framework. At the center of this framework is the 'COM-B system,' which posits that behavior change requires addressing capability, opportunity, and motivation. Surrounding this are nine intervention functions aimed at addressing deficits in these conditions, and seven categories of policy or practice that could enable these interventions.

This structured approach allowed us to identify which intervention functions (education, persuasion, incentivization, coercion, training, restriction, environmental restructuring, modeling, and enablement) would most effectively address the behavioral barriers to successful medication review and deprescribing that we had identified.

Integration of Implementation Theory

To ensure comprehensive consideration of implementation factors, we further mapped the behavioral aspects onto the four constructs of Normalisation Process Theory (NPT): coherence (making sense of the intervention), cognitive participation (engagement with the intervention), collective action (work done to enact the intervention), and reflexive monitoring (appraisal of the intervention's benefits and costs).

NPT provided a complementary sociological perspective to our psychological behavior change framework, helping ensure that our intervention addressed not only individual behavior change but also the broader social and organizational contexts in which the intervention would need to operate.

Development of Guiding Principles

Drawing on the findings from phase one and the behavioral analysis, we developed a set of guiding principles for the intervention. These principles articulated:

Key problems the intervention needed to address

- Relevant pathway or stage of the medication review and deprescribing process
- Specific intervention design objectives
- Key intervention features that would achieve these objectives

These guiding principles were further refined through discussion with our wider research team to maximize acceptability and feasibility. They provided a blueprint for intervention development that remained grounded in evidence and theory while prioritizing practical considerations.:

Phase 3: Intervention Development and Optimization

Co-Design Workshops and Stakeholder Engagement

The third phase of our methodological approach involved translating the guiding principles into a concrete intervention with supporting resources. We developed a preliminary intervention based on our theoretical framework and evidence synthesis, then engaged diverse stakeholders to refine this design through four online co-design workshops(7).

These workshops brought together a rich mix of perspectives: three patients and carers (members of our Patient and Public Involvement group), ten healthcare professionals working in primary care across the UK (clinical pharmacists, general practitioners, and frailty nurses recruited through the Clinical Research Network), and nine clinical and academic experts recruited through our professional networks.

During these workshops, we presented the intervention guiding principles, preliminary intervention content, format, and delivery plans for discussion. Workshop data was analyzed using the Person-Based Approach, which helped us understand participants' perspectives on the proposed intervention components and identify opportunities for refinement. This iterative process enabled us to maximize acceptability and feasibility for both the patients and carers who would receive the intervention and the healthcare professionals who would deliver it.

A key strength of these workshops was their multidisciplinary nature, bringing together individuals with diverse expertise and experiences. This approach ensured that the resulting intervention would address the needs and preferences of all stakeholders while remaining practical within the constraints of existing primary care systems and resources.

Iterative Refinement Process

Throughout Phase 3, we employed an iterative approach to intervention development, continuously refining our design based on stakeholder feedback. Each workshop built upon insights from previous sessions, allowing us to gradually hone the intervention to maximize its potential effectiveness, acceptability, and feasibility.

This iterative process was particularly valuable for resolving tensions between different stakeholder priorities. For example, while healthcare professionals emphasized the need for efficiency and integration with existing workflows, patients prioritized personalized approaches and comprehensive information. Through careful design and refinement, we developed an intervention that balanced these potentially competing priorities.

The workshop discussions led to several important modifications to our initial intervention design. For instance, our original plan to use the Patient Attitudes Towards Deprescribing (PATD) questionnaire to identify patients more amenable to deprescribing before the structured medication review was abandoned after stakeholders indicated this would be cumbersome and time-consuming for both patients and healthcare professionals.

Similarly, stakeholder feedback helped us refine our approach to healthcare professional support, confirming the

value of the PrescQIPP Improving Medicines and Polypharmacy Appropriateness Clinical Tool (IMPACT) as a key resource for the intervention while also highlighting the need for supplementary training resources and clearer guidance on multidisciplinary working patterns.

3.Results

Our development process yielded a comprehensive intervention comprising five interconnected components designed to systematically improve medication management for older adults with frailty and polypharmacy. Each component addresses specific barriers identified through our evidence synthesis and stakeholder consultation.

Component 1: Targeted Patient Identification

The intervention begins with systematic identification of high-risk patients through practice database searches. Following stakeholder input, we refined our inclusion criteria to target individuals:

- Aged 75 and over (rather than 65)
- Taking 10 or more regular medications (rather than 5)
- With moderate to severe frailty (eFI score ≥0.25)

This approach efficiently identifies those most likely to benefit from medication review while remaining feasible for administrative implementation. The search protocol excludes care home residents, patients receiving end-of-life care, those lacking capacity for informed consent, and individuals who received a structured medication review within the previous six months(8).

Component 2: Patient-Centered Preparation

This component prepares patients and carers for meaningful participation in the medication review process. Based on stakeholder feedback, we adopted an existing resource developed by the University of Leeds and Bradford Teaching Hospital NHS Foundation Trust that provides:

- Explanation of the medication review purpose
- Introduction to the clinical pharmacist's role
- Common reasons for medication changes
- Guidance for preparing questions
- Encouragement to involve family members or carers

This information is sent to patients before their appointment via their preferred communication method (post, text, or email), helping establish appropriate expectations and encouraging active participation.

Component 3: Clinician Support Resources

To address healthcare professionals' confidence and knowledge barriers, we developed a suite of resources including:

- Five evidence-based deprescribing tip sheets covering topics such as deprescribing evidence, multidisciplinary collaboration, patient communication strategies, and follow-up planning
- Integration of the PrescQIPP IMPACT tool a digital resource that prioritizes medications for potential deprescribing based on multiple evidence sources (STOPP-START, STOPPFrail, NICE guidelines)
- Brief training resources on using deprescribing tools effectively
- Workshop participants emphasized that the IMPACT tool could significantly enhance healthcare professionals' confidence in deprescribing decisions while facilitating multidisciplinary input through its patient-specific reports identifying deprescribing opportunities.

Component 4: Person-Centered Medication Review Process

The fourth component outlines a flexible approach to conducting the medication review itself. The intervention specifies that any appropriate prescribing healthcare professional (clinical pharmacist, general practitioner, or advanced nurse practitioner) may lead the review, based on practice resources and patient preferences.

Review delivery mode remains flexible face-to-face, telephone, or video consultation tailored to individual patient circumstances. The intervention emphasizes several key elements in the review process:

- Beginning with exploring patient priorities and goals ("What matters most to you?")

- Identifying medication management challenges
- Using the IMPACT tool to highlight potential deprescribing opportunities
- Employing specific communication strategies from the tip sheets
- Considering "quick wins" (simple medication changes likely to yield noticeable benefits) and "drug holidays" (temporary medication cessation with monitoring)
- Involving family members/carers in decision-making when appropriate
- Maintaining comprehensive documentation for interprofessional communication

This flexible but structured approach addresses stakeholder concerns about time constraints while ensuring comprehensive, person-centered care.

Component 5: Structured Follow-Up System

The final component addresses the critical need for continuity and monitoring after medication changes. Workshop participants emphasized that inadequate follow-up often undermines deprescribing efforts and patient confidence.

Our intervention incorporates an existing template developed for NHS England (via the Health Innovation Network) that provides patients with:

- Written documentation of agreed medication changes
- Information about potential withdrawal effects to monitor
- Instructions for managing symptoms or restarting medications if needed
- Clear follow-up arrangements tailored to individual needs

Follow-up may include scheduled appointments (face-to-face or remote), text message check-ins, or other contact methods based on patient preference and clinical factors. The intervention emphasizes maintaining continuity with the healthcare professional who conducted the review whenever possible.

Comprehensive Intervention Framework

The final intervention design integrates these five components into a coherent workflow that specifically addresses the barriers and facilitators identified in our evidence synthesis and stakeholder consultation. By combining systematic patient identification, preparatory resources, professional support tools, flexible consultation approaches, and structured follow-up, the intervention creates a comprehensive framework for medication optimization in this vulnerable population(9).

Our theoretical underpinning (Behaviour Change Wheel and Normalisation Process Theory) ensures that the intervention addresses capability, opportunity, and motivation barriers while considering the broader implementation context. This increases the likelihood of successful adoption in routine primary care.

Stakeholder co-design was particularly valuable in refining the practical aspects of the intervention, including:

Selecting appropriate targeting criteria

- Identifying existing resources rather than creating redundant materials
- Confirming the value of the IMPACT tool for clinical decision support
- Emphasizing flexibility in delivery to accommodate practice constraints
- The resulting MODIFY intervention represents a theoretically robust, evidence-informed, and stakeholder-optimized approach to addressing inappropriate polypharmacy in older adults with frailty.

4.Discussion

Key Innovations and Strengths of the Intervention

This paper describes the systematic development of a novel multidisciplinary medication review and deprescribing intervention for older people living with frailty and polypharmacy in UK primary care. Our rigorous development process, drawing on the complementary strengths of behavioral change and implementation theories, offers several advantages over previous approaches to medication optimization interventions.

The MODIFY intervention specifically addresses the complex challenges of deprescribing in frail older adults a population particularly vulnerable to medication harm. Frailty fundamentally alters the risk-benefit balance of

medications through changes in pharmacokinetics, pharmacodynamics, therapeutic efficacy, and toxicity potential. Standard medication review approaches often fail to account for these complexities, focusing instead on single-disease guidelines that may be inappropriate for people with multimorbidity and frailty. Our intervention employs a person-centered approach that considers medications through the lens of frailty, prioritizing function and quality of life alongside disease management(10).

A significant strength of our intervention lies in its multidisciplinary framework, which addresses the time and resource constraints frequently cited as barriers to effective medication review. By clarifying roles and providing structured support for non-physician prescribers, particularly clinical pharmacists, the intervention aligns with ongoing workforce transformation in UK primary care and similar international models. This approach maximizes the expertise of different team members while using resources efficiently a critical consideration in increasingly pressured healthcare systems.

The integration of the PrescQIPP IMPACT tool addresses another key barrier identified in our development work: healthcare professionals' difficulty accessing appropriate evidence on deprescribing and confidence in making deprescribing decisions. By consolidating multiple evidence sources into a single digital resource that produces individualized recommendations, the intervention supports clinicians in identifying deprescribing opportunities that might otherwise be overlooked. This approach acknowledges the challenge of navigating numerous deprescribing tools and frameworks reported in previous implementation research.

Perhaps most importantly, our intervention prioritizes patient and carer involvement throughout the medication review process. The pre-appointment information, person-centered consultation approach, and structured follow-up collectively foster trust and shared decision-making critical elements for successful deprescribing identified in our realist review and qualitative research. This patient-centered design addresses the well-documented barrier of patient reluctance to stop long-standing medications.

Comparison with Existing Evidence

Our intervention development adds to a growing body of literature on deprescribing interventions for older adults with frailty. A systematic review by Ibrahim and colleagues identified only two deprescribing studies specifically targeting frail older adults in primary care settings. One quasi-experimental study in Canada employed pharmacist-led medication reviews using STOPP-START criteria, achieving significant reductions in inappropriate medications but no change in overall medication numbers. A larger cluster randomized controlled trial in Germany testing a complex intervention including GP training, deprescribing guidelines, and non-pharmacological alternatives found no sustainable effects on hospitalization rates or medication use after 12 months.

Neither of these previous interventions incorporated the degree of stakeholder engagement featured in our development process, nor did they evaluate patient experiences of the intervention. Our stakeholder-informed, theory-based approach potentially addresses implementation barriers that may have limited the effectiveness of previous interventions. By incorporating multidisciplinary perspectives, patient and carer input, and consideration of system-level factors throughout development, we have created an intervention with greater potential for real-world implementation and sustainability.

Our intervention also aligns with recent evidence from the TAILOR evidence synthesis, which highlighted the importance of trusting relationships between clinicians and patients for successful deprescribing. By including components that specifically foster trust and continuity (pre-appointment information, person-centered consultation approach, and structured follow-up), our intervention addresses this critical success factor more explicitly than many previous deprescribing interventions.

Strengths and Limitations of the Development Process

The key strength of our development approach was the integration of multiple complementary methods: systematic evidence synthesis, primary qualitative research, theoretical behavioral analysis, and iterative co-design with diverse stakeholders. This comprehensive approach enabled us to develop an intervention grounded in both evidence and real-world constraints, potentially increasing its feasibility and acceptability.

The involvement of our Patient and Public Involvement (PPI) team throughout the study ensured that patient perspectives remained central to the intervention design. Similarly, the participation of healthcare professionals from various disciplines ensured that the intervention would be practical within existing primary care systems and

workflows.

Our theoretical underpinning, combining the Behaviour Change Wheel psychological framework with Normalisation Process Theory's sociological perspective, provided a robust foundation for addressing both individual behavior change and broader implementation factors. This dual theoretical approach is relatively uncommon in intervention development but offers significant advantages for complex healthcare interventions requiring changes at multiple levels.

However, our development process had several limitations. While we recruited participants from practices serving areas with varying socioeconomic deprivation levels, our qualitative sample lacked ethnic and cultural diversity, with most participants from White British backgrounds. This limits our understanding of potential cultural factors influencing medication attitudes and practices. Though our PPI group included more diverse representation, further research should explore the intervention's cultural acceptability and potential adaptations needed for different communities.

Additionally, our intervention was designed within the constraints of the UK healthcare system, particularly NHS England's primary care structures and resources. While the principles may be transferable to other healthcare systems, specific components might require adaptation for different contexts, especially those with different primary care workforce compositions or technological capabilities.

Implementation Considerations and Future Directions

The MODIFY intervention is currently undergoing feasibility testing across five general practices in Southeast England, accompanied by qualitative process evaluation and preliminary health economic assessment. This testing will provide crucial insights into the intervention's practicality, acceptability, and potential effectiveness before proceeding to a larger definitive trial.

Our outcome measures, developed in consultation with our PPI group and clinical stakeholders, include medication-related outcomes (number and type of medications, deprescribing recommendations implemented), clinical outcomes (treatment burden, frailty status, falls), quality of life measures, healthcare utilization, and safety indicators. This comprehensive evaluation framework will help determine which aspects of the intervention are most valuable and identify any unintended consequences.

While our intervention addresses many barriers to effective medication review and deprescribing, some system-level challenges remained beyond our scope. In particular, communication and information sharing between primary and secondary care emerged as a significant challenge in our qualitative research and other recent studies. Future research should specifically address these cross-boundary issues, which often complicate medication management for patients seeing multiple specialists.

Policy engagement will be crucial for wider implementation if the intervention proves effective. We are currently conducting complementary work consulting with policymakers to identify facilitators for implementation and integration of the intervention within primary care workflows and potentially community settings.

5.Conclusion and Future work

The development of the MODIFY intervention addresses a critical gap in primary care practice: the need for structured, multidisciplinary approaches to medication management for older people living with frailty and polypharmacy. Through our systematic application of behavior change and implementation theories, combined with extensive stakeholder engagement, we have created a five-component intervention that tackles multiple barriers to effective deprescribing in this vulnerable population. The intervention's design proactive identification of high-risk patients, preparatory resources for both patients and clinicians, person-centered review processes, and structured follow-up provides a comprehensive framework that aligns with current primary care workforce developments while prioritizing shared decision-making. Our approach demonstrates how complex interventions can be developed to address challenging clinical problems through rigorous methodology that bridges evidence, theory, and real-world practice considerations. The MODIFY intervention is currently undergoing feasibility testing, with the aim of progressing to a full randomized controlled trial to determine effectiveness. If successful, this intervention could transform how medication reviews are conducted for older adults with frailty, potentially reducing medication-related harm while making more efficient use of limited healthcare resources. Beyond its immediate clinical application, this development process offers a template for future interventions addressing other aspects of

medicines optimization across different patient populations and healthcare settings. The current variable implementation of structured medication reviews in primary care represents a significant opportunity for improvement one that the MODIFY intervention has been carefully designed to address.

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Conflicts of interest

The authors have no conflicts of interest to declare

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