Research in Social and Administrative Pharmacy xxx (xxxx) xxx

Contents lists available at ScienceDirect

Research in Social and Administrative Pharmacy

journal homepage: www.elsevier.com/locate/rsap

Original Research Paper

# Equipping physicians for benzodiazepine receptor agonists deprescription in older adults: theory-based development of the BE-SAFE intervention

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ARTICLE INFO

*Keywords:*
Benzodiazepine receptor agonists
Older adults
Deprescription
Hospital physicians
Intervention development

ABSTRACT

*Background:* Benzodiazepine receptor agonists (BZRA) are still widely used for sleep problems in older adults despite an unfavourable risk-benefit ratio. The hospital setting presents an opportunity for optimising medication use in older adults. The BE-SAFE project follows a rigorous sequential approach for developing a theory-informed intervention towards BZRA deprescription initiated in the hospital setting in 6 European countries (Belgium, Greece, Norway, Poland, Spain, and Switzerland).

*Objectives:* The objectives of this paper are to describe the development of the physicians' intervention, the results of on the acceptability and perceived feasibility with physicians, and the finalised BE-SAFE intervention.

*Methods:* The intervention was built upon preliminary work and developed in four main steps: selection of behaviour change techniques; identification of existing resources and assessment of needs and preferences of hospital physicians; development of intervention components and modes of delivery; and end-users' evaluation and refinement of intervention.

*Results:* A total of 11 behaviour change techniques were selected, addressing 6 main barriers into a 6-component intervention: senior physician endorsement, training, self-monitoring, deprescription algorithm, communication to patients and other healthcare professionals. These core elements will be delivered allowing local adaptability.

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https://doi.org/10.1016/j.sapharm.2025.05.002
Received 15 January 2025; Received in revised form 28 April 2025; Accepted 6 May 2025
Available online 21 May 2025


Please cite this article as: François-Xavier Sibille et al., *Research in Social and Administrative Pharmacy*, https://doi.org/10.1016/j.sapharm.2025.05.002

Twenty-four physicians evaluated the intervention. They confirmed that the intervention effectively targets the barriers highlighted in preliminary work and provided feedback for improvement regarding clarity and time issues.

*Conclusions:* A 6-component physician's intervention to enhance BZRA deprescription initiated in hospital settings was developed by systematically addressing implementation issues in a theory informed manner. This intervention will be evaluated in a multi-country cluster randomised controlled trial.

## 1. Background

Benzodiazepine receptor agonists (BZRA) are frequently prescribed for sleep problems in adults aged 65 and older. Yet, they present an unfavourable risk (e.g., falls, hip fractures, delirium) - benefit (reduced sleep latency onset, reduced awakenings) balance.[1] Moreover, although it is widely recommended that BZRA use should be limited to a maximum of 4 weeks, long-term use is often observed.[2] Several international guidelines consider BZRAs as potentially inappropriate medications in older adults and recommend avoiding them, or, when already used, considering deprescription.[3,4] Despite these recommendations, the prevalence of BZRA use in Europe remains high.[5,6]

Deprescription is the process of cessation or dose reduction of a medication, supervised by a healthcare professional (HCP), with the goals of improving health outcomes and minimizing risks.[7] Evidence shows that BZRA deprescription can reduce the harms associated with chronic BZRA use, without significantly worsening sleep quality, anxiety, or depression.[8,9]

The hospital setting presents an important opportunity for optimising BZRA use in older adults.[10] BZRA prevalence rates in hospitals are high,[11,12] and admission or specialist consultation provides an opportunity for medication review.[13] Limited evidence supports the feasibility of deprescription initiated in the hospital. In the Canadian MedSafer study, for instance, electronic decision support for deprescription in hospitalised older adults improved BZRA deprescription at discharge with an adjusted risk difference of 22.7 % (40.0 % in the intervention versus 20.4 % in the control group).[9] However, deprescription in hospitals faces unique challenges, including high staff turnover, communication issues during care transitions, and the non-sleep-friendly hospital environment.[14] Data from Europe are limited,[15] and contextual factors may also influence effectiveness.

BE-SAFE (Implementing a patient-centred and evidence-based intervention to reduce BZRA use to improve patient SAFEty and quality of care), is a HORIZON Europe-funded project whose goal is to improve patient safety by reducing BZRA use throughout Europe (Supplementary Material 1).[16] It follows a rigorous sequential approach to develop a BZRA-specific deprescription intervention and relies on the Choosing Wisely De-implementation Framework (CWDIF).[17] The approach aims to develop an intervention that overcomes previously identified barriers and fits with the care settings in the six participating countries (Belgium, Greece, Norway, Poland, Spain, and Switzerland) where it will be implemented.

### 1.1. Objectives

The primary objective of this paper is to describe the development of the physicians' intervention. Secondary objectives are to provide the results of the evaluation on the acceptability and perceived feasibility of the planned intervention with end-users, and to present the finalised BE-SAFE intervention.

## 2. Methods

### 2.1. Overall approach

This work followed international recommendations for complex intervention development.[17,18] Specific attention was paid to several key elements highlighted by the Medical Research Council guidance: considering context, using a theory-based approach, and engaging stakeholders. The description below follows the GUIDED recommendations for intervention development reporting (Supplementary Material 2).[19,20]

The AACTT (Action, Actor, Context, Target, Time) Framework[21] helped define who needs to do what differently. The target behaviour was defined as BZRA deprescription initiated by physicians in the hospital setting (primary target for the BE-SAFE intervention). This includes several sub-actions such as identifying eligible patients, exploring the patient's preferences and values to make a shared decision, defining a tapering scheme whenever relevant, planning and performing follow-up often in collaboration with the general practitioner (GP).

The development of the intervention was built upon preliminary work performed in BE-SAFE and occurred in 4 main steps, as described below and illustrated in Fig. 1. The BE-SAFE consortium responsible for intervention development included clinicians and researchers with expertise in geriatric medicine, sleep medicine, and implementation science.

### 2.2. Preliminary work

Firstly, a qualitative study was performed to describe care trajectories and healthcare organisations relevant to BZRA deprescription in the 6 countries.[22] Those interviews provided several findings relevant to intervention development. Deprescribing is not linear or sequential, and the care trajectory of BZRA deprescribing initiated at the hospital level is unlikely to occur with one professional and in one setting. As different HCPs may have a role in BZRA deprescription, communication strategies should be improved inside and outside of the hospital setting. Many contextual factors that can influence deprescription, highlighting the need for local adaptability in delivering the intervention.

Secondly, a multicountry survey explored the main barriers to BZRA deprescription from the perspective of hospital physicians and GPs.[23] Those were sorted into several domains representing barriers to changing behaviour, using the Theoretical Domains Framework (TDF).[24] TDF is a structured framework for identifying and analysing behavioural change drivers.[25] In total, 240 hospital physicians and 96 GPs working in the 6 countries where the BE-SAFE RCT will occur answered the survey. Major barriers were found in six TDF domains: Skills, Beliefs about capabilities, Goals, Social influence, Emotion, and Environmental context and resources (Table 1). These were considered priorities to address in the BE-SAFE intervention to change physicians' behaviour regarding BZRA deprescribing. Major barriers were overall similar across countries, as well as between hospital physicians and GPs, allowing developing an intervention with common core components.

Thirdly, the MAGIC Evidence Ecosystem Foundation led the development of a trustworthy clinical guideline on BZRA deprescription in insomnia disorder. Its panel issued a guideline in three layers.[26] It suggests offering BZRA deprescription rather than usual care for patients taking BZRA (first layer) and highlights the importance of shared decision making (SDM). The guideline then issues a conditional recommendation to offer a multifaceted rather than single intervention (second layer). Finally (third layer), it suggests applying the following types of interventions: patients' education, physicians' education, tapering and cognitive behavioural therapy for insomnia (CBT-I); while it issues a conditional recommendation against pharma

cologically-assisted intervention.

Step 1: Selection of behaviour change techniques

Step 1 aimed to select behaviour change techniques (BCTs) addressing the major barriers identified for physicians in the six TDF domains. A BCT is defined as an "observable, replicable, and irreducible component of an intervention designed to change behaviour, and a postulated active ingredient within the intervention".[27,28] The TDF domains were mapped with BCTs using the Theory and Technique Tool and expertise in implementation science within the consortium.[29] Selection of BCTs was based on the APEASE criteria (Acceptability, Practicability, Effectiveness, Affordability, Side effects, and Ethics).[30] BCTs were excluded if - in all 6 countries - they could not be performed by the physician (practicability), were not acceptable, not ethical, and not replicable or had no potential for scaling up (affordability). Preselection of BCTs was validated by all BE-SAFE partners.

Step 2: Identification of existing materials, end-users' needs and preferences

Step 2 focused on identifying existing materials to support physicians in BZRA deprescription and evaluating the needs and preferences of end-users.

Firstly, existing resources were identified through several channels: materials used in trials included in the systematic review performed by MAGIC to develop the guideline[31]; request to the international community of deprescription researchers through posts on social media; request to professional organisations and personal contacts.

Then, the needs and opinions of physicians about educational materials to support BZRA deprescription were identified. A convenience sample of Belgian physicians working in hospital wards expected to participate in the BE-SAFE randomised controlled trial (RCT) and one general practice was invited. Two researchers conducted group discussions and discussions were audio recorded after consent of all participants. Participants were first asked about their expectations about the content and format of materials to support BZRA deprescription. Following this, they commented on 4 materials purposively selected to have different formats, contents and origins (Supplementary Material 3).

**Table 1**
Priority Theoretical Domain Framework domains and selected Behaviour Change Techniques.

| Priority TDF domains | Barriers identified in BE-SAFE settings | Priority BCTs for the intervention development |
|---|---|---|
| Skills | Lack of training on<br>- how to deprescribe BZRA;<br>- how to engage with patients about BZRA deprescription;<br>- how to implement alternative approaches. | 4.1. Instruction on how to perform behaviour<br>8.1. Behavioural practice and rehearsal |
| Beliefs about capabilities | - Low confidence that they can deprescribe even when limited time.<br>- Moderate confidence that they can deprescribe BZRA if they want to. | 1.2. Problem solving<br>2.3 Self-monitoring of the behaviour<br>6.1. Demonstration of the behaviour<br>8.1. Behavioural practice and rehearsal |
| Goals | - More important health problems to address than BZRA deprescribing.<br>- Not seeing BZRA deprescription as a priority for them. | 1.1. Goal setting (behaviour) |
| Social influence | - Feeling a lot of pressure from older adults to renew/extend their BZRA prescriptions.<br>- Perception that most patients are reluctant to stop their BZRA.<br>- Moderate support from colleagues. | 3.2. Social support (practical)<br>6.3 Information about others' approval |
| Environment and resources | - Lack of guidelines and tools for BZRA deprescription.<br>- Lack of time to educate and inform patients about BZRA deprescription.<br>- Lack of goals/policies in the department/institution that encourage deprescription. | 9.1 Credible source<br>12.5 Adding objects to the environment. |
| Emotion | - Frustration with challenges of BZRA deprescription<br>- Stress about BZRA deprescription | 6.3 Information about others' approval<br>11.2 Reduce negative emotions |

BZRA = benzodiazepine receptor agonist; BCT = behaviour change technique; TDF= Theoretical Domain Framework.

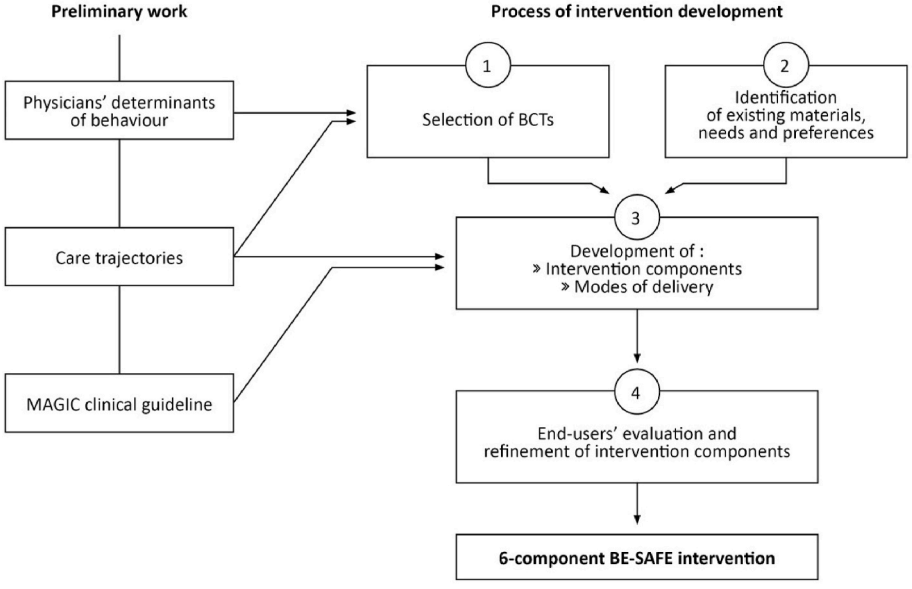


**Fig. 1.** Overview of the development of the BE-SAFE intervention.

Step 3: Development of intervention components and modes of delivery

The list of BCTs selected in Step 1 was operationalised into a set of intervention components, and the content, format and modes of delivery were defined based on results from Step 2 and from preliminary work. Intervention components were refined iteratively based on feedback from research team members.

Specific attention was given to developing intervention components that would be acceptable and practical to use in all trial sites. For example, several countries considered that an educational session longer than 30 min would not be feasible. So, to keep the intervention pragmatic and replicable, training modules do not exceed 30 min in total. On the other hand, flexibility was allowed to operationalise the modes of delivery of the intervention to fit with the local context. For instance, regarding the mode of communication with GPs, each partner was invited to decide between a phone call, a written communication (standardised online form sent by a secured health messaging system or by post or given on a paper form to the participant to be passed on to other HCPs).

Step 4: End-users' evaluation

Feedback was requested from potential end-users on an English preliminary version of the intervention components. Each partner was asked to recruit 3 to 6 participants at their site, including hospital physicians from the medical specialities that will be involved in the trial and at least one GP. Participants were asked to review each component, either by reading or watching, and provide feedback through an online survey. Initially, they were asked to comment on the length, their most and least preferred aspects, and to offer suggestions for improvement in free text. Following this, they were asked to rate on a 5-point Likert scale 9 statements which addressed key behavioural elements targeted by the intervention.

## 3. Results

### 3.1. Selected behaviour change techniques

Eleven BCTs and 1-4 BCTs targeting each of the six TDF domains were selected (Table 1): Goal setting (behaviour), Problem solving, Self-monitoring of the behaviour, Social support (practical), Instruction on how to perform behaviour, Demonstration of the behaviour, Information about others' approval, Behavioural practice and rehearsal, Credible source, Reduce negative emotions and Adding objects to the environment.

### 3.2. Existing interventions and end-users' needs and preferences

We identified 23 resources supporting HCPs in BZRA deprescription (Supplementary Material 4) They vary greatly regarding format (written document, e-learning, video), length (from a 2-page to a 12-page document), content (communication tips, rationale, alternatives), target population (physicians or pharmacists only, or HCPs in general), validation and dissemination (from one hospital to a whole country or more).

Five group discussions gathered a total of 10 hospital physicians (5 males and 5 females) and 8 GPs (4 males and 4 females). The discussions were based on a guide and lasted between 60 and 95 min. Participants agreed on easy-to-access materials in various formats (paper, online, integrated into the electronic medical record or prescription module). The deprescribing algorithm format was unanimously appreciated. Participants insisted on limiting the time for the initial training and to perform BZRA deprescribing. Participants agreed that materials should be available in the local language and that the presentation of clinical cases was interesting. On the contrary, opinions differed regarding the way of delivering the materials (live training or online and on-demand), the acceptable length of the initial training and the level of detail provided on the BZRA-related adverse effects. This work was performed in Belgium only for pragmatic reasons, but the results were discussed with the partners of the other countries.

### 3.3. Description of intervention components and modes of delivery

The BE-SAFE intervention is described following the Template for Intervention Description and Replication (TidieR, Supplementary Material 5)[20] and has 6 components (Table 2). A senior physician will encourage intervention physicians to take the training and use the other components to implement deprescription in clinical practice (Component I: senior physician endorsement). The training consists of 3 short videos (Component II: physician education) covering the importance of BZRA deprescription in older adults and how to use the algorithm, SDM and a demonstration of deprescription including SDM through clinical cases. Physicians will be encouraged to reflect on how they performed, using a one-page monitoring tool (Component III: self-monitoring). The core component is the deprescription algorithm (Component IV). The front side provides a 5-step process that guides physicians through BZRA deprescription, based on SDM. It was developed based on the format of the Canadian BZRA deprescription algorithm.[32] It guides HCPs through a flowchart on the front and provides additional information such as expected benefits and non-pharmacological support measures on the back. Expert consensus informed the approach where evidence was lacking, such as tapering pace, managing adverse effects, and the type of CBT-I (individual, group, or self-help). The Three-Talk model (Team--Option-Decision) was chosen to structure SDM.[33] When a decision has been made, to improve continuity of care, physicians should provide written communication of the discussion and the decision made to the patient or the caregiver (Component V: Patient/caregiver communication) and other HCPs, mainly the GP (Component VI: HCP communication). All components will be available online for intervention physicians and GPs.

The BE-SAFE intervention was designed as a whole: attention was paid to the alignment of the content of the components and their explicit interconnection. For instance, tips for SDM are provided in the algorithm (Component IV) but are also addressed in training modules (Component II). The expected benefits of BZRA deprescription are highlighted in training modules (Component II) and reminded in the communication form for patients (Component V). Fig. 2 summarises how the components work together.

### 3.4. End-users' evaluation and refinement of intervention components

The survey was completed by 24 respondents (14 women and 10 men, 15 hospital physicians and 9 GPs, 3 to 6 per country) over 3 weeks. The median number of years of practice was 10 (first quartile 3 years; third quartile 16 years).

The respondents globally agreed that the barriers targeted were improved (Table 3). Yet, 37.5 % of the respondents stated they would not consider BZRA deprescription for all older adults irrespective of adverse events. Moreover, free-text comments identified some opportunities for improvement in the following areas: additional content (e.g., non-pharmacological support measures), clarity, time issues, layout and audio. The components were adapted accordingly (Supplementary Material 6).

## 4. Discussion

This work describes the theory-based development of the BE-SAFE intervention that aims to support physicians from 6 European countries in BZRA deprescription in older adults. This intervention comprises core elements common to all settings but allows for some local adaptations to favour implementation. It will be used with material (brochures and

**Table 2**
Overview of BE-SAFE intervention components.

| Intervention components | Description of intervention components | Modes of delivery | Main Behaviour Change Techniques |
|---|---|---|---|
| I. **Senior physician endorsement** | At each study site, a senior hospital physician (e.g., head of the department or direct superior) encourages intervention physicians to consider BZRA deprescription in all older adults on long-term BZRA, encourages them to take the training modules and reinforces that this is an important goal for the department | Written communication (form provided, paper or e-mail) or Individual or group face-to-face discussion Also available on the website (hidden page) | 1.1. Goal setting (behaviour). 3.2 Social support (practical). 6.3 Information about others approval. 9.1 Credible source. |
| II. **Training Modules** | **Module 1** addresses the importance of considering BZRA deprescription for all older adults on long-term BZRAs; explains how to overcome initial physician and patient inertia; provides information about CBT-I; and explains how to use the deprescription algorithm. **Module 2** describes what SDM is, and why it is important; tackles myths about SDM for BZRA deprescription and gives practical instructions. **Module 3** presents 2 clinical vignettes reflecting different participant typologies; different styles of conversation; and different decisions taken. | Individual or group sessions to watch a video + Availability on the website (hidden page) | 1.1. Goal setting (behaviour). 3.2 Social support (practical). 4.1 Instruction on how to perform the behaviour. 6.3 Information about others' approval. 8.1 Behavioural practice and rehearsal. 9.1 Credible source. 11.2 Reduce negative emotions. |
| III. **Self-monitoring** | **-Checklist** of the steps proposed in the algorithm. **-Reflection** on 1 action to improve their behaviour regarding BZRA deprescription. | Paper or electronic version provided to the physician, available on the website (hidden page) | 2.3 Self-monitoring of the behaviour. 12.5 Adding objects to the environment. |
| IV. **Deprescription algorithm** | 5-step method:<br>- Check for any reason why BZRA should be continued<br>- Engage with the patient- SDM<br>- Reach a decision<br>- Plan follow-up<br>- Perform follow-up | 2-page document electronic and/ or paper version provided to the physician. Also available on the website (hidden page) | 1.2 Problem solving. 4.1 Instruction on how to perform the behaviour. 6.1 Demonstration of the behaviour. 9.1 Credible source. 12.5 Adding objects to the environment. |
| V. **Patient/ caregiver communication** | Transfer tool with information on place and time of discussion, participant values and preferences, and practical tapering scheme. Reminder of resources and potential risks. | Recording in the participant record + Paper or electronic version handled to the patient/ caregiver | 3.2 Social support (practical). 9.1 Credible source 12.5 Adding objects to the environment. |
| VI. **HCP communication** | Transfer tool with information on clinical aspects and participant values and preferences, summary of decisions taken and actions, and follow-up recommendations. Reminder of rational, expected benefits, potential risks, and tapering instructions. | Recording in the participant record + Paper or electronic version sent directly or through the participant and/ or phone call to selected HCPs | 3.2 Social support (practical). 6.3 Information about others' approuval. 12.5 Adding objects to the environment. |

BZRA = benzodiazepine receptor agonist; CBT-I = cognitive and behavioural therapy for insomnia; GP = general practitioner; HCP = healthcare professionals; SDM = shared-decision making.

videos) developed for patients.

### 4.1. BE-SAFE intervention

Our intervention tackles existing barriers and addresses communication, education, and coordination challenges identified in our preliminary work and in other researches.[34] SDM is a central concept of the intervention because BZRA deprescription is a preference-sensitive decision.[26,35] The deprescription algorithm integrates the assessment of patients' values and preferences, allowing informed decisions that may include postponing decision (e.g., after discharge) or deciding not to deprescribe. The training tackles 3 misconceptions hindering the implementation of SDM in daily practice, including the well-known perception-reality gap.[36,37] Non-pharmacological measures might be overlooked in sleep problems, but CBT-I is indisputably the first-line treatment of sleep problems because of long-term efficacy and safety.[38] The aim of the BE-SAFE intervention is not to provide extensive training, but rather to raise awareness to CBT-I in sleep problems. Specific attention was paid to care transition, often the weak link in hospital interventions but crucial for BZRA deprescription which often exceeds the hospital stay and needs the combined efforts of all HCPs.[34] Time concerns raised by the stakeholders regarding the training and the process for each patient are consistent with the evidence[34,39,40] and

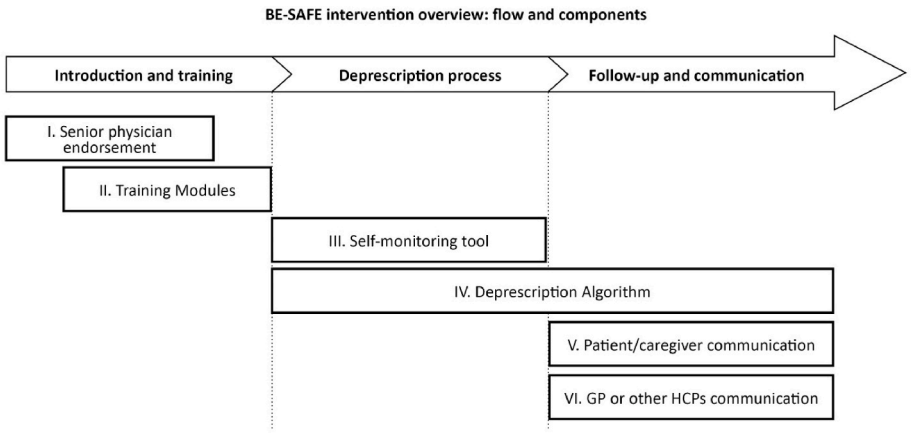


**Fig. 2.** BE-SAFE intervention overview: flow and components.

were specifically addressed.

### 4.2. Comparison with other hospital-based deprescribing intervention

Recent deprescription interventions in hospitalised older adults – although not specific to BZRA - exhibit both similarities and differences in context, development, or content. The CHARMER intervention targets geriatricians and pharmacists in English hospitals and promotes proactive deprescription.[41] It was developed using theory and extensive stakeholder involvement, and allows for adaptation through local implementation teams. Although the number of BCTs and components is similar between CHARMER and BE-SAFE, no BCT is common. CHARMER selected BCTs relating to organisational changes (such as Social comparison and Restructuring the social environment), while BE-SAFE mainly targets individual physicians.[18] The MedSafer study aimed to reduce adverse drug events among Canadian older adults with polypharmacy.[42] It relied mainly on software generated reports of deprescription opportunities, which addresses automated processes. Previous research highlights the need to address non-reflective processes including Emotions (TDF domain).[23,43,44] Like BE-SAFE, MedSafer provided tapering instructions, patient educational material, and discharge reports, but did not include physician training.

### 4.3. Strengths and limitations

This work systematically addressed implementation issues in a theory-informed manner and identified appropriate BCTs to target the context-specific barriers of BZRA deprescription in older adults. This increases the likelihood that the designed intervention will change behaviour, will likely improve scalability if the intervention is successful and also will inform the process evaluation.[45]

This work has several limitations. Firstly, the BE-SAFE intervention does not aim for healthcare or organisational changes, although raised as barriers by the participants in the preliminary work. This choice was made to provide an intervention replicable in other contexts and to limit the risk of contamination, as the RCT will be clustered at physician level. Moreover, although other HCPs such as nurses are involved in the care pathways and can influence deprescription, their role and available resources vary significantly across sites. The decision was thus made not to develop intervention components directly targeting other HCPs for the trial. Finally, the end-user evaluation was limited in scope. A feasibility study would have been preferable but was not possible to implement given project's constraints. A further assessment of the intervention is planned further in a process evaluation embedded in the trial.

## 5. Conclusion

A 6-component physician's intervention to enhance BZRA deprescription initiated in hospital settings was developed by systematically addressing implementation issues in a theory informed manner. This intervention will be evaluated in the coming cluster RCT, process evaluation and case studies in 6 European countries.

## CRediT authorship contribution statement

**François-Xavier Sibille:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Joanna Salbert:** Writing – review & editing, Validation, Methodology. **Lucy Bolt:** Writing – review & editing, Validation, Methodology. **Vagioula Tsoutsi:** Writing – review & editing, Validation, Methodology. **Enrico Callegari:** Writing – review & editing, Validation, Methodology, Conceptualization. **Olivia Dalleur:** Writing – review & editing, Validation, Methodology, Conceptualization. **Tokandji Adda:** Writing – review & editing, Visualization, Validation, Methodology, Data curation. **Thomas Agoritsas:** Writing – review & editing, Validation, Methodology. **Thomas Berger:** Writing – review & editing, Validation, Methodology, Conceptualization. **Carole E. Aubert:** Writing – review & editing, Validation, Methodology, Funding acquisition, Conceptualization. **Dimitris Dikeos:** Writing – review & editing, Validation, Methodology. **Antoni Salvà:** Writing – review & editing, Validation, Methodology. **Begoña Pascual:** Writing – review & editing, Validation, Methodology. **Ramon Miralles:** Writing – review & editing, Validation, Methodology. **Torgeir Bruun Wyller:** Writing – review & editing, Validation, Methodology, Conceptualization. **Andrea M. Patey:** Writing – review & editing, Validation, Methodology. **Jeremy M. Grimshaw:** Writing – review & editing, Validation, Supervision, Methodology, Conceptualization. **Adam Wichniak:** Writing – review & editing, Validation, Supervision, Methodology, Funding acquisition. **Anne Spinewine:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Funding acquisition, Conceptualization. **Marie de Saint Hubert:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Conceptualization.

## Ethics

Approval from the Ethics Committee was not mandatory. Physicians agreed to participate verbally to the group discussions or by connecting and answering the online survey.

**Table 3**
Results of the end-users' evaluation (N = 24).

| How much do you agree with the following statements? | Strongly disagree N (%) | Disagree N (%) | Neutral N (%) | Agree N (%) | Strongly agree N (%) |
|---|---|---|---|---|---|
| With these materials, I would be better prepared to engage in BZRA deprescription in older adults using it for sleep problems. | 0 (0.0 %) | 1 (4.2 %) | 0 (0.0 %) | 9 (37.5 %) | 14 (58.3 %) |
| With these materials, I would consider BZRA deprescription for all older adults irrespective of the presence of adverse events. | 2 (8.3 %) | 7 (29.2 %) | 2 (8.3 %) | 12 (50.0 %) | 1 (4.2 %) |
| With these materials, I would feel better prepared to select and implement a tapering plan. | 0 (0.0 %) | 0 (0.0 %) | 2 (8.3 %) | 11 (45.8 %) | 11 (45.8 %) |
| With these materials, I would be more confident that I can deprescribe with limited time. | 1 (4.2 %) | 4 (16.7 %) | 4 (16.7 %) | 11 (45.8 %) | 4 (16.7 %) |
| With these materials, I would feel better prepared to implement non-pharmacological support measures. | 0 (0.0 %) | 2 (8.3 %) | 8 (33.3 %) | 9 (37.5 %) | 5 (20.8 %) |
| With these materials, I would feel better equipped to cope with patients' reluctance to discontinue their BZRA | 0 (0.0 %) | 0 (0.0 %) | 7 (29.2 %) | 11 (45.8 %) | 6 (25.0 %) |
| With these materials, I would feel better prepared to communicate about BZRA deprescription with other healthcare professionals inside or outside my department/ practice. | 0 (0.0 %) | 3 (12.5 %) | 1 (4.2 %) | 13 (54.2 %) | 7 (29.2 %) |
| If I received that kind of e-mail from a senior physician, I would consider that BZRA deprescription in older adults is a priority in my clinical work.* | 0 (0.0 %) | 1 (4.2 %) | 5 (20.8 %) | 10 (41.7 %) | 8 (33.3 %) |
| If I received that kind of e-mail from a senior physician, I would be more prone to watch the training modules and read the tools.* | 0 (0.0 %) | 0 (0.0 %) | 4 (16.7 %) | 14 (58.3 %) | 6 (25.0 %) |

BZRA = benzodiazepine receptor agonist. *Refers only to the senior physician endorsement.

## Availability of data and materials

Complete data are not openly available due to ongoing work and are available from the corresponding author upon reasonable request.

## Funding

François-Xavier Sibille was supported by a grant "Clinical Master Specialist Applicant for a Ph.D." of the Fonds de la Recherche Scientifique – FNRS (Belgium). The funder had no role in study design, data collection, data analysis, data interpretation, or report writing. Carole E. Aubert was supported by the Swiss National Science Foundation (grant PZ00P3_201672/1).

This work is part of the BE-SAFE project supported by the European Union Horizon Europe research and innovation program under the grant agreement No 101057123, and by the Swiss State Secretariat for Education, Research and Innovation (SERI) (contract No 22.00116). Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the SERI. Neither the European Union nor the SERI can be held responsible for them.

## Acknowledgements

We warmly thank the participants in the group discussions and the survey. We are also grateful to the members of the local and international Patient Partnership Advisory Councils and the Advisory Board of BE-SAFE for their valuable input at the various steps of the intervention development.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.sapharm.2025.05.002.

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