

SHORT REPORT

A practitioner behaviour change intervention for deprescribing in the hospital setting

SION SCOTT¹, HELEN MAY², MARTYN PATEL², DAVID J. WRIGHT¹, DEBI BHATTACHARYA¹

¹School of Pharmacy, University of East Anglia, Norwich, NR4 7TJ, UK

²Older People's Medicine Department, Norfolk and Norwich University Hospitals NHS Foundation Trust, Norwich, NR4 7UY, UK

Address correspondence to: Dr Sion Scott. Tel: +44 (0)1603 593079. Fax: +44 (0)1603 592003; Email: sion.scott@uea.ac.uk

Abstract

Background: hospital deprescribing trials have demonstrated marginal increases in deprescribing activity that are not sustained beyond the trial period. The hospital deprescribing implementation framework (hDIF) links barriers and enablers of deprescribing in hospital with 44 potential intervention components. This study aimed to support geriatricians and pharmacists to select and characterise hDIF components according to affordability, practicability, effectiveness, acceptability, safety and equity (APEASE) to design a deprescribing intervention in the English hospital setting.

Methods: we convened a modified Nominal Group Technique with a panel of nine geriatricians and pharmacists representing five English hospitals. Panel members selected and characterised intervention components from the hDIF based on the APEASE criteria. We set a consensus threshold of 80% agreement per APEASE criterion in order for the intervention component to be included.

Results: the panel selected five intervention components supporting engagement with deprescribing: an organisational action plan to prioritise deprescribing, two training activities to address pharmacists' beliefs about negative deprescribing consequences, restructuring pharmacists' working patterns to facilitate their contribution to deprescribing decisions, and sharing experiences of successfully engaging patients/family in deprescribing conversations to support others to do the same. A sixth component was selected to sustain engagement with deprescribing through measuring and sharing deprescribing activity achieved between teams.

Conclusions: deprescribing interventions targeting geriatricians' and pharmacists' behaviour in the English hospital context should include the six characterised components. A component to sustain deprescribing activity is a notable omission from previously reported deprescribing interventions and may explain their failure to maintain efficacy beyond the short-term trial period.

Keywords: inappropriate medication, deprescriptions, behaviour change, secondary care, older people

Key Points

- The selection of intervention components to change deprescribing behaviour is context-specific.
- Target audience selection of intervention components is feasible and provides contextual insight to underpin intervention design.
- This study provides six components for a deprescribing intervention targeting geriatricians' and pharmacists' behaviour.

Background

Inappropriate medicines are associated with adverse outcomes including morbidity, mortality and hospitalisation [1]. Over 50% of older hospitalised patients are prescribed at least one potentially inappropriate medicine [1];

however, only 6% have any medicine deprescribed during their hospital admission [2].

Geriatricians and pharmacists perceive deprescribing to align with their generalist roles and knowledge; however, there are four main barriers and one enabler, described in Figure 2, that require addressing to facilitate routine

deprescribing within their practices [3]. A selection of 47 behaviour change techniques (BCTs) has been identified as potentially appropriate for addressing these barriers and enabler within the hospital deprescribing implementation framework (hDIF) [3]. BCTs should be selected from the hDIF for a deprescribing intervention according to contextual factors and affordability, practicability, effectiveness, acceptability, safety and equity (APEASE criteria) [4].

Historically, the selection of BCTs for interventions has been researcher-led [5–7]. The limitation of this approach is that researchers lack contextual insight relative to the target audience. However, the target audience lacks behavioural science expertise to make informed decisions about BCT selection. Given the importance of considering context when developing interventions [4], there is a need to formulate and test a strategy to support target audience selection of BCTs.

This consensus study aimed to determine the feasibility of target audience selection of BCTs for deprescribing interventions. The study also aimed to select BCTs from the hDIF for a deprescribing intervention within the English hospital context.

Methods

Design

We convened a panel of senior geriatricians and pharmacists naïve to the hDIF to select and characterise BCTs for a hospital deprescribing intervention using a modified nominal group technique (NGT) in the two stages of an initial voting round and in-person NGT [8]. A modified NGT was the most appropriate consensus method for the study objectives [8].

Participants

We purposively sampled geriatricians and pharmacists from five teaching and district general hospitals across three English counties to represent a range of contexts.

Recruitment

We invited eligible geriatricians and pharmacists via email and obtained consent via an electronic form.

Data collection

To reduce burden on the panel, we initially appraised the 47 BCTs from the hDIF (Figure 2) through discussions within the research team to remove any that were clearly inappropriate for the English hospital context. Our discussions were guided by the APEASE criteria [4]. We proposed removing 19 BCTs and presented our rationale (Appendix 1) to the study management group of geriatricians, pharmacists and patient/family representatives.

Stage 1: initial voting round

Procedure

We developed and distributed an online survey (Appendix 2) to support the panel to appraise BCTs according to the APEASE criteria [4]. Plain English descriptions of the four barriers, one enabler and the 28 BCT formed the survey. The panel was prompted to appraise each BCT according to the APEASE criterion on a four-point Likert scale (strongly disagree to strongly agree).

We piloted the online survey with geriatrician and pharmacist collaborators ($n = 3$) who were not members of the panel. The purpose of the piloting was to establish face and content validity of the survey.

Data analysis

We reported descriptive statistics for the APEASE criteria across BCTs, and a consensus threshold was set at 80% of panel members agreeing or strongly agreeing that a BCT met all six APEASE criteria [9]. BCTs meeting this threshold were accepted for the intervention and progressed to characterisation discussions in stage 2. We set a partial consensus threshold at 80% agreement that a BCT met at least three of APEASE criteria. In the absence of BCTs meeting the consensus threshold for a given barrier or enabler, all relevant partial consensus BCTs progressed to stage 2 for further consensus discussions. We excluded all other BCTs.

Stage 2: in-person NGT

Procedure

The aims of stage 2 were to facilitate discussion to achieve consensus to accept or reject partial consensus BCTs and discussion to characterise accepted BCTs for the deprescribing intervention.

We provided the panel with the stage 1 survey responses for each of the partial consensus BCTs. We facilitated one NGT cycle (silent generation, round robin, clarification, voting and discussion) [8] per BCT to reach panel consensus to accept or reject. The voting round and consensus threshold mirrored the online survey APEASE criteria appraisal.

We then facilitated a further NGT cycle per accepted BCT for the panel to characterise them in terms of how they may be operationalised in the hospital setting.

Analysis

We analysed the voting in real time using the Turning Point platform[®]. We made handwritten notes of BCT characterisation statements generated, which were refined and validated by the panel.

Results

We recruited nine geriatricians ($n=4$) and pharmacists ($n=5$), six were male and their mean (standard deviation) age was 40 (9) years.

Full responses to stage 1 online survey are provided in [Appendix 3](#). [Figure 1](#) summarises BCTs proceeding through the study.

The panel reached consensus to accept three BCTs for inclusion in the deprescribing intervention at stage 1. A further three BCTs were accepted at stage 2.

Stage 2: face-to-face NGT

NGT cycles for ‘restructuring the physical environment’ and ‘action planning’ resulted in consensus to accept. The practicality criterion for ‘Classical conditioning’ failed to achieve consensus. The panel suggested that the enabler of incentivisation may be addressed instead by ‘measuring, reporting and sharing levels of deprescribing achieved between team such as wards or hospitals’. This aligns with the BCT ‘social comparison’ [10]. The panel reached consensus to accept this newly proposed BCT.

The characterised BCTs are provided in [Figure 2](#). The panel operationalised the BCTs designed to address practitioners’ barrier of a misconception that patients and carers are resistant to deprescribing through a mentor. The two BCTs to address beliefs about negative deprescribing consequences were operationalised within one package delivered through online or face-to-face training. Whilst pharmacists attending geriatricians’ ward rounds was the desired characterisation for the BCT, this was deemed unaffordable. Pharmacists attending 30-min multidisciplinary meetings was the operationalised BCT to address working patterns limiting time to support deprescribing. Designating a geriatrician and pharmacist to engage with senior managers such as the medical and nursing directors to develop an organisational-level action plan was the operationalised BCT to address the perception of deprescribing being a low hospital priority.

For the enabler of incentivisation, the panel suggested focussing the BCT on the proportion of patients screened for deprescribing opportunities between hospital wards, hospitals and regions.

Discussion

This study demonstrates a feasible approach for operationalising the hDIF for individual health contexts. For the English hospital context, a deprescribing intervention should include organisational commitment through an action plan and restructuring of pharmacists’ working patterns. Training is also required to allay concerns about deprescribing and mentorship to address misconceptions that patients/carers are resistant to deprescribing. Benchmarking between teams will support the reinforcement of deprescribing activity.

Five of the six selected BCTs recognise that proactive deprescribing is not routine practice [2] and align with

facilitating the initiation of activity. The BCT ‘social comparison’ to incentivise deprescribing supports sustainment of activity. This aligns with calls for interventions to be developed with a view to sustainment beyond the reactivity bias generated by the trial involvement [11]. This configuration departs from previously reported interventions that have focussed on initiating activity, such as providing tools to identify inappropriate medicines. This may offer an explanation for interventions not maintaining efficacy beyond the short-term trial period [12].

‘Action planning’ at the organisational level establishes deprescribing as a priority through specifying where, when and how the hospital’s deprescribing goals will be achieved. This formal planning and endorsing new ways of working has demonstrated increased probability of implementation [13].

The panel’s characterisation of ‘restructuring the physical environment’ aligns with previous successes in achieving behaviour change in the hospital setting by enabling pharmacists to attend multidisciplinary antimicrobial stewardship rounds [14]. The two BCTs selected to enable pharmacists to assume this supportive role by addressing beliefs about negative deprescribing consequences recognise that they have appropriate knowledge regarding the risks and benefits of deprescribing and not deprescribing. The ‘salience of consequences’ and ‘pros and cons’ BCTs therefore require pharmacists to appraise and evaluate deprescribing opportunities through training [15].

Whilst there is evidence contrasting the misconception that patients/family are resistant to deprescribing [16], the provision of this knowledge was not selected by the panel. ‘Social comparison’ through observing a peer successfully agreeing deprescribing with a patient/family was rated more favourably in terms of effectiveness. This BCT aligns with the substantial body of literature demonstrating mentorship as a more effective method of knowledge translation than knowledge provision [17].

Geriatricians and pharmacists without expertise in behavioural science selecting BCTs for an intervention targeting their own behaviour is a key strength of this study. The panel’s decision to address the enabler of incentivising deprescribing with a BCT not offered by the hDIF is a limitation. This may be a result of the plain English statements for the BCTs offered by the hDIF describing them as rewards for deprescribing at the practitioner level, rather than at the organisational level, which may have been more acceptable. Our decision to initially appraise the BCTs and exclude 19 during this process is a potential limitation given that not all BCTs were therefore appraised by the panel. However, this is mitigated by the contextual insight of the authors who are themselves geriatricians and pharmacists.

Conclusion

Hospital deprescribing interventions should attend both to the barriers of initiating deprescribing activity and strategies to sustain. The target audience of a deprescribing behaviour

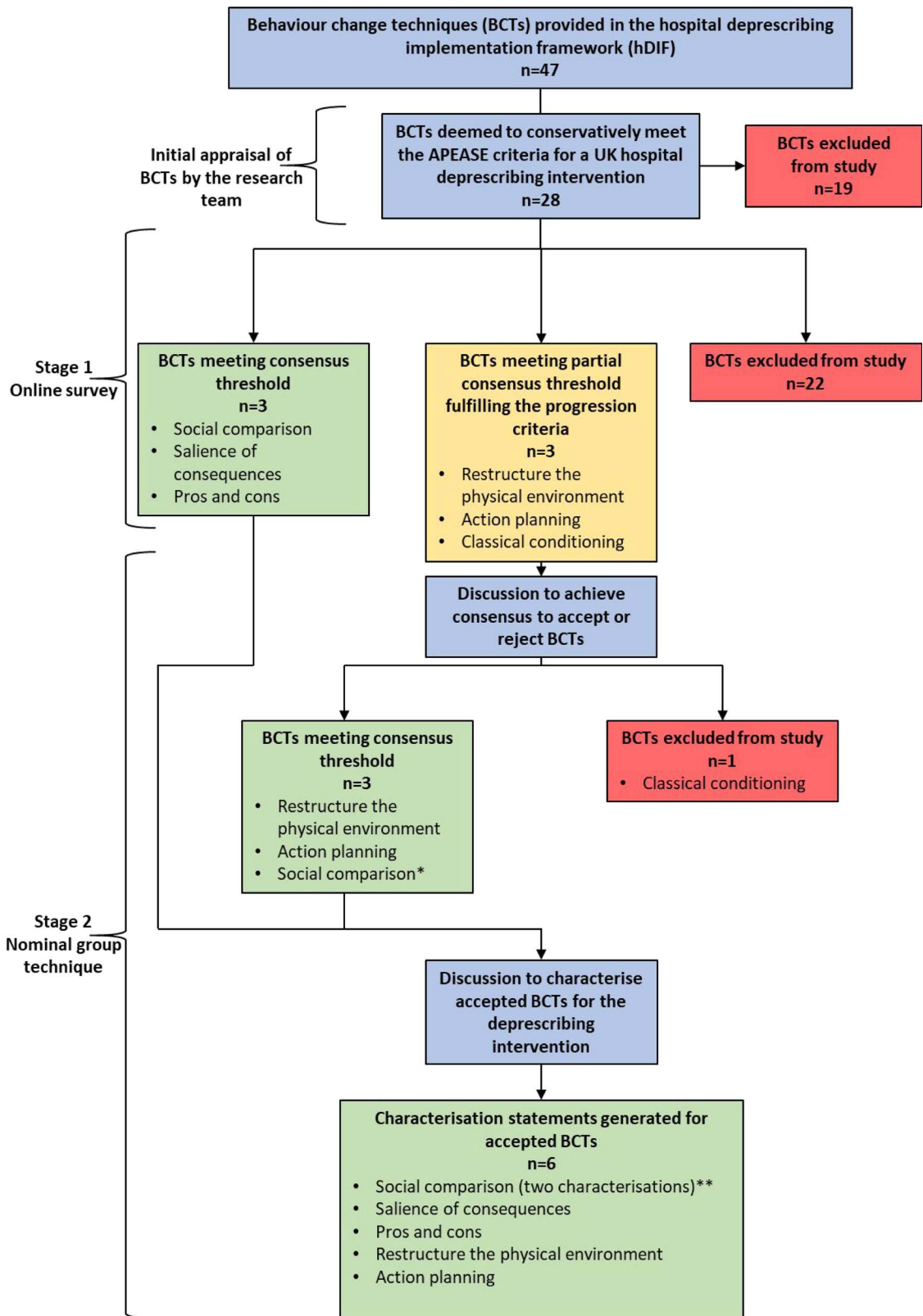


Figure 1. Summary of BCTs proceeding through the study.

*BCT) (social comparison) absent from the hDIF introduced by the panel to address the enabler of incentivisation of deprescribing.

**BCT (social comparison) selected and characterised twice.

A practitioner deprescribing behaviour change intervention

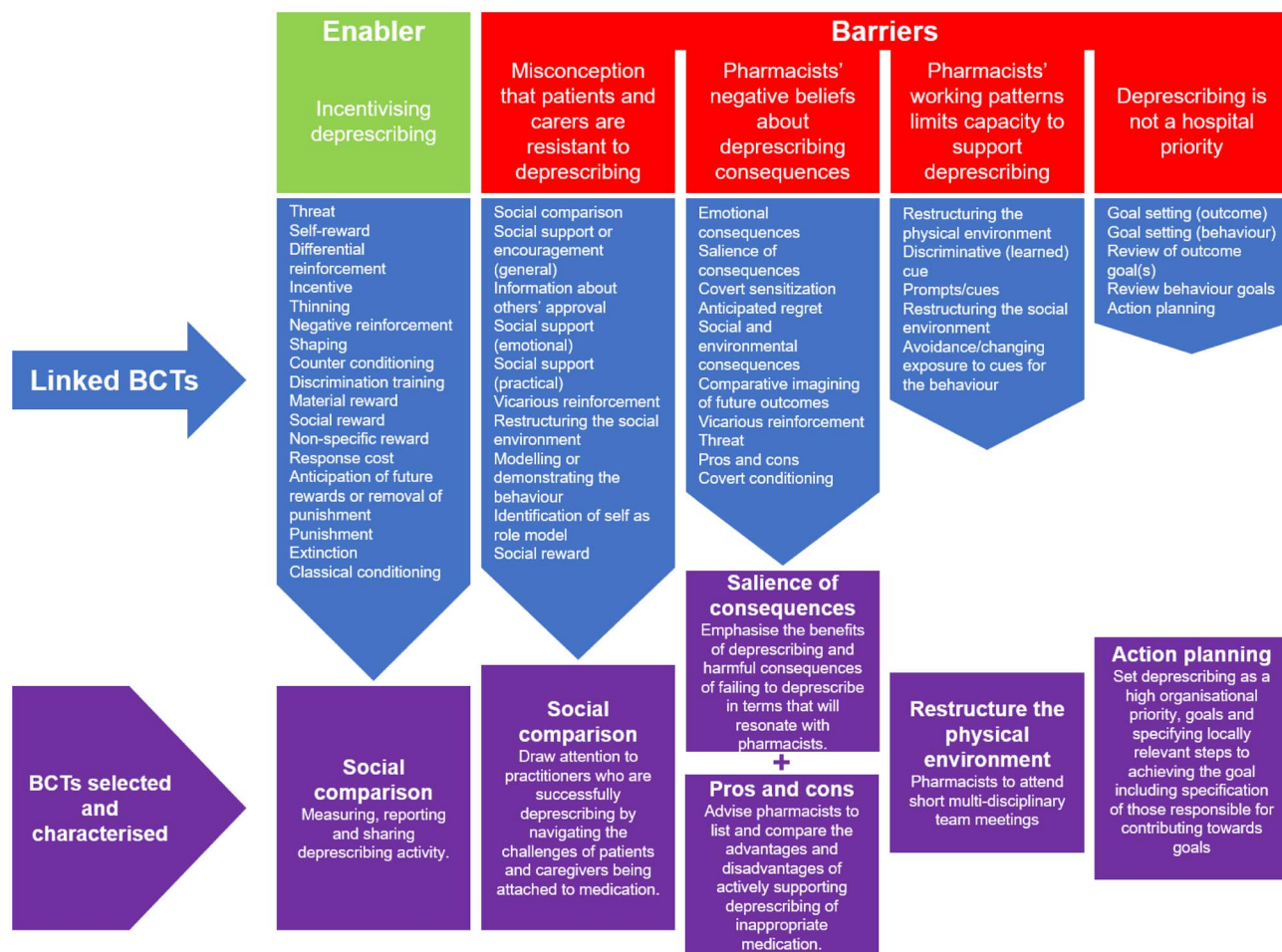


Figure 2. hDIF [3] and the six BCTs selected and characterised for operationalisation in a hospital deprescribing intervention by the panel.

change intervention has been successfully supported to use the hDIF to select and characterise six intervention components to address the barriers and enabler to deprescribing in hospital.

Supplementary Data: Supplementary data mentioned in the text are available to subscribers in *Age and Ageing* online.

Acknowledgements: We thank participating geriatrician and pharmacists participants for their contribution to this study.

Declaration of Conflicts of Interest: None.

Declaration of Sources of Funding: This work was supported by Pharmacy Research UK [grant number PRUK-2018-GA-3-SS].

Ethical Approval: We ethical approval from the Faculty of Medicine and Health Sciences Research Ethics Committee, University of East Anglia (Reference: 2018/19-009).

References

1. Gallagher P, Lang PO, Cherubini A *et al.* Prevalence of potentially inappropriate prescribing in an acutely ill population of older patients admitted to six European hospitals. *Eur J Clin Pharmacol* 2011; 67: 1175–88.
2. Scott S, Clark A, Farrow C *et al.* Deprescribing admission medication at a UK teaching hospital; a report on quantity and nature of activity. *Int J Clin Pharmacol* 2018; 40: 991–6.
3. Scott S, Twigg MJ, Clark A *et al.* Development of a hospital deprescribing implementation framework: a focus group study with geriatricians and pharmacists. *Age Ageing* 2019; 49: 102–10.
4. Michie S, Atkins L, West R. *The Behaviour Change Wheel: A Guide to Designing Interventions*. First edit. Great Britain: Silverback Publishing, 2014.
5. Cadogan CA, Ryan C, Francis JJ *et al.* Improving appropriate polypharmacy for older people in primary care: selecting components of an evidence-based intervention to target prescribing and dispensing. *Implement Sci* 2015; 10: 1.

6. Debono D, Taylor N, Lipworth W *et al.* Applying the theoretical domains framework to identify barriers and targeted interventions to enhance nurses' use of electronic medication management systems in two Australian hospitals. *Implement Sci* 2017; 12: 1–13.
7. Barker F, Atkins L, de Lusignan S. Applying the COM-B behaviour model and behaviour change wheel to develop an intervention to improve hearing-aid use in adult auditory rehabilitation. *Int J Audiol* 2016; 55: S90–8.
8. McMillan SS, King M, Tully MP. How to use the nominal group and Delphi techniques. *Int J Clin Pharmacol* 2016; 38: 655–62.
9. Diamond IR, Grant RC, Feldman BM *et al.* Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *J Clin Epidemiol* 2014; 67: 401–9.
10. Cane J, Richardson M, Johnston M, Ladha R, Michie S. From lists of behaviour change techniques (BCTs) to structured hierarchies: comparison of two methods of developing a hierarchy of BCTs. *Br J Health Psychol* 2015; 20: 130–50.
11. Rothman AJ. Toward a theory-based analysis of behavioral maintenance. *Health Psychol* 2000; 19: 64.
12. Thillainadesan J, Gnjidic D, Green S, Hilmer SN. Impact of deprescribing interventions in older hospitalised patients on prescribing and clinical outcomes: a systematic review of randomised trials. *Drugs Aging* 2018; 35: 303–19.
13. Bailey RR. Goal setting and action planning for health behavior change. *Am J Lifestyle Med* 2017;1559827617729634. <https://doi.org/10.1177/1559827617729634>.
14. Magedanz L, Silliprandi EM, dos Santos RP. Impact of the pharmacist on a multidisciplinary team in an antimicrobial stewardship program: a quasi-experimental study. *Int J Clin Pharmacol* 2012; 34: 290–4.
15. van der PJ, De Vries NK. Expectancy-value models of health behaviour: the role of salience and anticipated affect. *Psychol Health* 1998; 13: 289–305.
16. Scott S, Clark A, Farrow C *et al.* Attitudinal predictors of older peoples' and caregivers' desire to deprescribe in hospital. *BMC Geriatr* 2019; 19: 108.
17. Abdullah G, Rossy D, Ploeg J *et al.* Measuring the effectiveness of mentoring as a knowledge translation intervention for implementing empirical evidence: a systematic review. *Worldviews Evidence-Based Nurs* 2014; 11: 284–300.

Received 23 January 2020; editorial decision 14 July 2020