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Active change interventions to de-implement low-value healthcare practices: a scoping review protocol

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ABSTRACT

Background There is recognition that the overuse of procedures, tests and medications strains the healthcare system financially and can cause unnecessary stress and harm to patients. In recent years, several initiatives have targeted the reduction or elimination of low-value practices in healthcare. Research suggests that passive interventions, such as the publication of guidelines, are often not sufficient to change behaviour and that active change interventions - interventions which actively implement strategies to change practices - are required to effect significant, sustained practice change. The purpose of this scoping review is to identify and characterise studies of active change interventions designed to reduce or eliminate low-value healthcare practices.

Methods We will conduct a review of MEDLINE, EMBASE, CINAHL and Scopus databases from inception. Building on previous research, 40 key terms will be used to search literature. The screening process will be conducted separately by two researchers, with discrepancies resolved by a third. Empirical studies of active change interventions used to reduce or eliminate low-value practices will be included. Descriptive statistics and thematic analysis will be used to categorise the characteristics of the studies.

Ethics and dissemination Ethics approval is not required for this study. This scoping review will provide insights into the impact of several characteristics of active change interventions, including the number of interventions (single-faceted or multifaceted) and the level of implementation (individual or organisational). These results can provide guidance and direction for future research in de-implementation. The results will be disseminated through presentations at national and international conferences and the publication of a manuscript.

Strengths and limitations of this study

- The search strategy developed for this review is comprehensive and built on an extensive review of the literature.
- A scoping review, focusing on the use of active change interventions, will offer broad, comprehensive and timely knowledge to this important field of research.
- Only English language studies will be included in this review.
- Although this review will focus on empirical studies, the included studies will not be appraised for quality.

INTRODUCTION

The reduction of low-value healthcare practices is necessary to ensure patient safety and satisfaction, reduce costs and develop a sustainable healthcare system.[1 2] It is estimated that 30% of current healthcare dollars are spent on unnecessary, wasteful or harmful tests, procedures and medications.[3] Awareness has increased regarding the prevalence of low-value care—unnecessary and potentially harmful healthcare practices—and the high frequency with which these practices are used.[3 4] In recent years, a number of campaigns have been launched, such as the National Institute for Health and Care Excellence in the UK and the international Choosing Wisely campaigns, which seek to identify and address the prevalence of low-value practices. Prior to these campaigns, healthcare providers struggled to identify low-value practices. The launches of the Choosing Wisely campaigns have significantly changed the landscape of research studies on reducing low-value practices. Gnjidic and Elshaug note that, as a result of the Choosing Wisely campaigns, research efforts to identify and prioritise low-value practices have increased exponentially and far exceed efforts to evaluate the efficacy of clinical and policy initiatives to reduce these practices.[5]

There is debate in the literature regarding the optimal characteristics of interventions to reduce or eliminate low-value healthcare practices.[2–4 6–9] Some researchers regard de-implementation or de-adoption as the reverse of implementation or adoption,[6 7 10] and decry the dearth of knowledge translation strategies and tools included in current efforts to de-implement low-value practices, advocating that implementation and de-implementation should both be part of the same agenda. Others argue that the complexities involved in reversing the often long-standing practices

are unique and can be complicated by habituation, egos and inertia.[11–14] Authors have also noted that traditional fee-for-service remuneration systems provide perverse incentives for overutilisation of procedures and medications and may add to the complexity of efforts to de-implement certain practices.[12 13 15] Numerous researchers have called for increased attention to understanding the process of de-implementation and determining the most effective and efficient strategies to create and sustain this type of practice change.[16–18]

In addition, a number of reviews of systematic reviews offer mixed results regarding the efficacy and efficiency of interventions designed to change healthcare provider behaviours. Lau *et al* report that multifaceted interventions are no more, or slightly more, effective at changing practices than single interventions.[19] Squires *et al* also report that multifaceted interventions are not more effective than single component interventions.[20] Both studies advocate for more research to develop a theoretical base for intervention selection or development and for tailoring interventions based on identified barriers and facilitators to increase their effectiveness. Recent research on the use of tailored interventions—that is, interventions that are explicitly planned taking into account identified barriers to change—to change healthcare practices note the promise of this type of intervention, but report that results are small and more research is needed.[21 22] Other researchers advocate the use of behaviour change techniques when developing and implementing practice change interventions.[9 21 23] These studies conclude that the results on the efficacy of various types and modes of interventions to change healthcare provider behaviour are inconclusive and that further research is needed.

This review seeks to address some of the gaps in knowledge of interventions to facilitate de-implementation. Specifically, we will focus on the use of active change interventions: interventions which actively implement strategies to change practices.[18] We have selected this focus since numerous studies have found that recommendations or guidelines alone—that is, more passive implementation approaches—are insufficient to change healthcare provider behaviour.[3 4 19 24–26] Rosenberg *et al* published a study in 2015 on the early trends for seven Choosing Wisely recommendations and concluded that the recommendations were not enough to produce major changes in practice and active interventions, such as data feedback, communications training, financial incentives and systems-level interventions, are needed.[27]

The science of de-implementation is a new and emerging field and little research has been conducted on this topic. In 2015, Niven *et al* published a scoping review, which provided an examination of all aspects of the de-implementation literature.[18] The scoping review by Niven *et al* offers valuable insight into the issues arising from a lack of focused terminology, and offered a synthesis model, based on the Knowledge-to-Action framework, for facilitating de-adoption. In 2017, Colla *et al* published a systematic review of interventions used to reduce low-value healthcare services. This review found that multicomponent interventions targeted at both patients and providers have the most potential to reduce low-value care.[8] The authors identified clinical decision support and performance feedback as promising, evidence-based interventions for this type of practice change. The review also identified that education, alone or as part of a complex intervention, was able to affect practice. Colla *et al* advocate an evidence-based approach to reducing low-value care, one which engages with clinicians and patients and considers the context of the system where the intervention is being implemented.[8] This review will build on the findings of these previous reviews and expand the breadth and scope of the knowledge base of this important area of healthcare practice. The objective of this scoping review is to identify and synthesise the research on active change interventions used to reduce or eliminate low-value practices in healthcare.

METHODS AND ANALYSIS

A scoping review was selected for this study as the field of de-implementation research is relatively new and little is known about how this type of practice change is being approached, executed and studied. We will also use Arksey and O'Malley's rationale for scoping reviews and follow their six-stage methodological framework: identifying the research question, identifying relevant studies, study selection, and charting data and collating, summarising and reporting results and expert consultation.[28] The Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement will also be used to guide the reporting process of this review[29] (see online supplementary file 1).

Identifying the research questions

Through an iterative process and based on the results on a preliminary literature review, the research team determined the research question for this review: What is known about the use of active change interventions to reduce or eliminate low-value healthcare practices?

Identifying relevant studies

With the assistance of a medical librarian, we will conduct a comprehensive search of MEDLINE, EMBASE, CINAHL and Scopus databases for English language studies which meet the inclusion criteria.

The search terms were selected based on the terminology findings of Niven *et al* [18] and a preliminary scan of relevant literature. Niven *et al* found that 'disinvest*' was the most common term used in their sample, but advocated the terms 'de-adoption' and 'de-implementation' to brand the process of reducing or eliminating low-value healthcare practices as they felt these terms had a more general connotation, and are natural antonyms of adoption and implementation.[18] The preliminary scan of the literature for this review revealed that a significant proportion of de- implementation studies

Table 1 Terms for database searches

Concept	Search terms
Value	inappropriat* or overus* or unnecessary or ineffective or misus* or 'do not do' or low-value or 'low value' or obsole*
Action	reallocat* or relinquish* or re-apprais* or re-prioritiz* or redeploy* or revers* or decommission or declin* or delist* or abandon* or reassess* or replac* or disadopt* or defund* or de-adopt* or deadopt* or de-implement* or deimplement* or disinvest* or decreas* or discontinu* or withdraw* or stop* or reduc*
Venue	healthcare or 'health care' or technolog* or device* or intervention* or health practi?e or medical or procedur* or drug* or medication*
	OR 'choosing wisely'

conducted since 2012 referenced the Choosing Wisely Initiative and/or used the term 'low-value'; therefore, these terms were added to the search criteria.

The 40 search terms, listed in table 1 above, were selected to maximise the search capability to facilitate a broad and comprehensive search for this review.

In addition to database searches, we will conduct searches of grey literature, reference lists, Google, websites of relevant healthcare associations and hand searches.[28]

Eligibility criteria

Empirical studies of active change interventions used to reduce or eliminate low-value practices will be included. After duplicates and out of scope citations are removed from the search results, we will exclude editorials, commentary, opinions, conference abstracts, reviews, studies focused on attitudes/perceptions/knowledge of healthcare providers or patients about low-value care, studies identifying low-value practices, and studies testing the validity of Choosing Wisely identification of a low-value practice. Studies of passive interventions, such as the impact of the publication of Choosing Wisely recommendations or trial outcomes, will also be excluded. As this is a scoping review, we want to understand the full scope of research on active change interventions used to reduce or eliminate low-value healthcare practices and, therefore, we will not limit study designs and will include experimental (eg, randomised controlled trials), quasi-experimental (controlled before–after studies, interrupted time series) and observational (eg, cohort) studies.[28]

Study selection

The title and abstract screening process will be conducted separately by two researchers, with discrepancies resolved by a third. We will use Covidence, a Cochrane technology platform, to manage the search results (https://www.covidence.org/). Three research team members will complete the full-text review. Discrepancies will be discussed and resolved collaboratively.

Data collection

We will iteratively design the data collection form to be used for the full text review. The extraction worksheet will be piloted by two members of the research team with five included articles and the worksheet will be revised based on the results of the pilot review. We will collect data on study characteristics, terminology used to describe de-implementation, use of theories or frameworks, identification of barriers and facilitators, target practice/procedure/medication, target group, target level of intervention implementation and intervention characteristics. In addition, rationale for initiating the practice change, intervention tools and intervention outcomes will also be reported. This review will also include a comparison of Choosing Wisely recommendations and select data, for example, studies initiated because of Choosing Wisely recommendations and Choosing Wisely priorities compared with actual practices targeted.

Collating, summarising and reporting results

The data will be collected and entered into an Excel spreadsheet for analysis and reporting. Descriptive statistics and thematic analysis will be used to identify and categorise the characteristics of the studies. The research team will develop the organising framework *a priori* based on the initial review of the literature and pilot review. Target practices will initially be categorised as diagnostic or therapeutic and interventions will be categorised by level (individual or organisational), by type (for example, educational, audit and feedback, Clinical Decision Support tool, modifying electronic health records, funding withdrawal), by level of implementation (individual or system/organisational) and target group (patients, providers or organisations). Intervention outcomes, including outcomes measured, will be collected irrespective of whether the study reported significant, insignificant, no change or mixed results. As this is a scoping review, the included studies will not be appraised for quality. Categorisation will be completed by two members of the research team, with discrepancies resolved independently by a third reviewer. All members of the research team will review the final summary of findings.

Consultation

The research team will consult a previously convened group of advisers and stakeholders to identify additional resources or sources of data, obtain feedback on results and identify further opportunities for knowledge translation and dissemination.

Patient and public involvement

Patients and public were not involved in the development of the research question or the design of this

study and will not be involved in the conduct of this scoping review.

ETHICS AND DISSEMINATION

Ethics approval is not required for this study.

Implications

With increased public and healthcare system attention on reducing or eliminating low-value healthcare practices, understanding the most effective interventions to achieve the desired practice change is paramount. We aim to provide insights on the impact of several characteristics of active change interventions including the use of theories or frameworks, identification of barriers and facilitators, target practice/procedure/medication, target group, target level of intervention implementation, rationale for initiating the practice change, intervention tools and intervention outcomes. In addition, we aim to add to the literature about the impact of the number of interventions (single-faceted or multifaceted) and level of implementation (individual, organisational) which have been recognised as key factors impacting the success of the intervention.[8 18 30] With potentially 30% of healthcare dollars being spent on low-value care,[3] effecting changes in these areas will provide significant, important changes for patients, providers and the healthcare system.

This study will have limitations. As this is a scoping review, included studies will not be appraised for quality. As Niven *et al*[18] and other researchers have noted, there are many different terms used to refer to the process of reducing or eliminating low-value practices; while we have developed our comprehensive search strategy to mitigate this limitation, some studies may be missed. In addition, a language bias will be inevitable as only studies published in English will be included. Finally, as we are focusing on empirical studies, it is inevitable that publication bias will occur as studies which do not produce positive results may not get published.

Dissemination

The results of this research will be of interest to hospitals, healthcare providers and researchers, in addition to organisations such as Choosing Wisely and Health Quality Ontario. The knowledge will be produced with the goal of providing insights and guidance to be leveraged by future de-implementation initiatives. The results will be disseminated through presentations at national and international conferences and in addition, a manuscript will be produced and submitted to a top-tier health services research journal.

Contributors GP and WB conceived the study. GP designed the study and drafted the protocol. WB and TR provided critical commentary on the protocol. All authors read and approved the final protocol.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

1. Paprica PA, Culyer AJ, Elshaug AG, *et al*. From talk to action: policy stakeholders, appropriateness, and selective disinvestment. *Int J Technol Assess Health Care* 2015;31:236–40.
2. Mafi JN, Parchman M. Low-value care: an intractable global problem with no quick fix. *BMJ Qual Saf* 2018;27:333–6.
3. Health Quality Ontario. Spotlight on leaders of change. Implementing choosing wisely canada recommendations in ontario to improve quality of care. 2017 http://www.hqontario.ca/Portals/0/documents/qi/choosing-wisely/leaders-of-change-cwc- report-english.pdf (Accessed 22 Dec 2018).
4. Kerr EA, Kullgren JT, Saini SD. Choosing wisely: how to fulfill the promise in the next 5 years. *Health Aff* 2017;36:2012–8.
5. Gnjidic D, Elshaug AG. De-adoption and its 43 related terms: harmonizing low-value care terminology. *BMC Med* 2015;13:273.
6. Wang V, Maciejewski ML, Helfrich CD, *et al*. Working smarter not harder: Coupling implementation to de-implementation. *Health Care* 2018;6:104–7.
7. Nielsen ME, Birken SA. Implementation science theories to inform efforts for de-implementation of urologic oncology care practices resulting in overuse and misuse. *Urol Oncol* 2018;36:252–6.
8. Colla CH, Mainor AJ, Hargreaves C, *et al*. Interventions aimed at reducing use of low-value health services: a systematic review. *Med Care Res Rev* 2017;74:507–50.
9. Shaffer VA, Scherer LD. Too Much Medicine: Behavioral Science Insights on Overutilization, Overdiagnosis, and Overtreatment in Health Care. *Policy Insights Behav Brain Sci* 2018;5:155–62.
10. Harvey G, McInnes E. Disinvesting in ineffective and inappropriate practice: the neglected side of evidence-based health care? *Worldviews Evid Based Nurs* 2015;12:309–12.
11. Davidoff F. On the undiffusion of established practices. *JAMA Intern Med* 2015;175:809–11.
12. Gunderman RB, Seidenwurm DJ. De-adoption and un-diffusion. *J Am Coll Radiol* 2015;12:1162–3.
13. Montini T, Graham ID. "Entrenched practices and other biases": unpacking the historical, economic, professional, and social resistance to de-implementation. *Implement Sci* 2015;10:211.
14. Patey AM, Hurt CS, Grimshaw JM, *et al*. Changing behaviour 'more or less'-do theories of behaviour inform strategies for implementation and de-implementation? A critical interpretive synthesis. *Implement Sci* 2018;13:134.
15. Colla CH. Swimming against the current--what might work to reduce low-value care? *N Engl J Med* 2014;371:1280–3.
16. Niven DJ, Leigh JP, Stelfox HT. Ethical considerations in the de-adoption of ineffective or harmful aspects of healthcare. *Healthc Manage Forum* 2016;29:214–7.
17. Prasad V, Ioannidis JP. Evidence-based de-implementation for contradicted, unproven, and aspiring healthcare practices. *Implement Sci* 2014;9:1.
18. Niven DJ, Mrklas KJ, Holodinsky JK, *et al*. Towards understanding the de-adoption of low-value clinical practices: a scoping review. *BMC Med* 2015;13:255.
19. Lau R, Stevenson F, Ong BN, *et al*. Achieving change in primary care—effectiveness of strategies for improving implementation of complex interventions: systematic review of reviews. *BMJ Open* 2015;5:e009993.
20. Squires JE, Sullivan K, Eccles MP, *et al*. Are multifaceted interventions more effective than single-component interventions in changing health-care professionals' behaviours? An overview of systematic reviews. *Implement Sci* 2014;9:152. 152.
21. Grimshaw JM, Eccles MP, Lavis JN, *et al*. Knowledge translation of research findings. *Implement Sci* 2012;7:50.
22. Baker R, Camosso-Stefinovic J, Gillies C, *et al*. Tailored interventions to address determinants of practice. *Cochrane Database Syst Rev* 2015:CD005470.
23. Meeker D, Linder JA, Fox CR, *et al*. Effect of behavioral interventions on inappropriate antibiotic prescribing among primary care practices: a randomized clinical trial. *JAMA* 2016;315:562–70.

24. Chamberlain CA, Martin RM, Busby J, *et al*. Trends in procedures for infertility and caesarean sections: was NICE disinvestment guidance implemented? NICE recommendation reminders. *BMC Public Health* 2013;13:112.
25. Lasser EC, Pfoh ER, Chang HY, *et al*. Has Choosing Wisely affected rates of dual-energy X-ray absorptiometry use? *Osteoporos Int* 2016;27:2311–6.
26. Admon AJ, Cooke CR. Will Choosing Wisely improve quality and lower costs of care for patients with critical illness? *Ann Am Thorac Soc* 2014;11:823–7.
27. Rosenberg A, Agiro A, Gottlieb M, *et al*. Early trends among seven recommendations from the choosing wisely campaign. *JAMA Intern Med* 2015;175:1913–20.
28. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;8:19–32.
29. Moher D, Liberati A, Tetzlaff J, *et al*. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA Statement. *PLoS Med* 2009;6(7):e1000097.
30. About. Choosing wisely Canada. 2018 http://www.choosingwiselycanada.org/about/what-is-cwc/ (Accessed 23 Dec 2018).