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Barriers and facilitators to reduce low-value care: a qualitative evidence synthesis

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ABSTRACT

Objective To assess barriers and facilitators to de-implementation.

Design A qualitative evidence synthesis with a framework analysis.

Data sources Medline, Embase, Cochrane Library and Rx for Change databases until September 2018 were searched.

Eligibility criteria We included studies that primarily focused on identifying factors influencing de-implementation or the continuation of low-value care, and studies describing influencing factors related to the effect of a de-implementation strategy.

Data extraction and synthesis The factors were classified on five levels: individual provider, individual patient, social context, organisational context, economic/political context.

Results We identified 333 factors in 81 articles. Factors related to the individual provider (n=131; 74% barriers, 17% facilitators, 9% both barrier/facilitator) were associated with their attitude (n=72; 55%), knowledge/skills (n=43; 33%), behaviour (n=11; 8%) and provider characteristics (n=5; 4%). Individual patient factors (n=58; 72% barriers, 9% facilitators, 19% both barrier/facilitator) were mainly related to knowledge (n=33; 56%) and attitude (n=13; 22%). Factors related to the social context (n=46; 41% barriers, 48% facilitators, 11% both barrier/facilitator) included mainly professional teams (n=23; 50%) and professional development (n=12; 26%). Frequent factors in the organisational context (n=67; 67% barriers, 25% facilitators, 8% both barrier/facilitator) were available resources (n=28; 41%) and organisational structures and work routines (n=24; 36%). Under the category of economic and political context (n=31; 71% barriers, 13% facilitators, 16% both barrier/facilitator), financial incentives were most common (n=27; 87%).

Conclusions This study provides in-depth insight into the factors within the different (sub)categories that are important in reducing low-value care. This can be used to identify barriers and facilitators in low-value care practices or to stimulate development of strategies that need further refinement. We conclude that multifaceted de-implementation strategies are often necessary for effective reduction of low-value care. Situation-specific knowledge of impeding or facilitating factors across all levels is important for designing tailored de-implementation strategies.

Strengths and limitations of this study

► A strength of this study was the broad search that resulted in a high number of included articles.
► Factors were categorised in different levels and sub-levels based on an existing framework.
► A limitation is the exclusion of articles on disinvestment.
► The results were not specified according to different diseases or medical interventions.

INTRODUCTION

Healthcare with no or little benefit for the patient given the available alternatives, costs and preferences is an increasingly recognised problem that affects costs, patient safety and satisfaction.[1 2] Several recent initiatives identified such low-value care practices, including the National Institute for Health and Care Excellence do-not-do list and Choosing Wisely.[3–6] However, simply identifying low-value care is not sufficient for its abandonment.[7 8]

The active process of reducing low-value care has various names such as de-adoption, disinvestment or de-implementation.[9 10] While de-implementation has several parallels to implementation, many have argued that stopping or changing an existing practice is likely to be more difficult than starting a new one.[11–16] Interventions to reduce low-value care should be targeted at the factors influencing de-implementation or the continuation of low-value care.

Increasing our understanding of the active process of de-implementing low-value care will help such interventions to become more efficient and sustainable manner. Recent reviews have described the effectiveness of interventions to reduce low-value care and the current approaches and challenges to such processes.[2 9] For example, a review by Colla et al[2] found that effectiveness of strategies varied widely and concluded that it is important to

consider the context of the system in which the intervention is implemented. A scoping review by Niven *et al*[9] identified knowledge gaps in the field and pointed to the need for a systematic exploration of the barriers and facilitators to de-implementation of low-value care. In their framework, they classified facilitators and barriers to de-adoption of low-value care, as many experts consider this as a key step prior to designing and tailoring an effective de-implementation strategy. Niven *et al*[9] concluded that a systematic exploration of the barriers and facilitators to de-implementation of low-value care is an important knowledge gap.

The aim of our qualitative evidence synthesis is to identify and categorise the existing evidence on barriers and facilitators for de-implementation of low-value care. The results of this overview contribute to the knowledge base on de-implementation and might create awareness on the identification of barriers and facilitators for de-implementation. This can be used by healthcare professionals and researchers in developing tailor-made de-implementation strategies aimed at reducing low-value care.

METHODS

Study design and search strategy

A qualitative evidence synthesis was performed with a framework analysis,[17 18] based on a predefined framework developed by Grol and Wensing for grouping barriers and facilitators for change.[19] The synthesis included articles that identified barriers and facilitators for de-implementation of low-value care. We performed a systematic search to identify relevant studies in using synonyms for de-implementation and low-value care. The search was run in Embase, Medline and Rx for Change databases on 12 September 2018. Websites of healthcare quality improvement organisations were also searched and reference checking was performed. Details of the search strategy can be found in the online supplemental appendix.

Study selection

We included articles published in English, German, French or Dutch published after 1990 that identified barriers or facilitators for de-implementation or the presence of low-value care in an original study. Studies that primarily focused on identifying factors influencing de-implementation or the continuation of low-value care were included. We also included studies in which the authors reflected on potential barriers and facilitators related to the effect of the intervention, for example, in the Discussion section (expert-based factors). For protocols and conference abstracts, we checked whether the study had been published as a full text. Articles on guideline adherence were only included when the aim of the study was explicitly stated as reducing low-value healthcare practices. Articles on disinvestment, in which the motivation for reduction or removal is primarily financial, were excluded. We also excluded studies evaluating the effect of a de-implementation strategy, in which determinants related to the effect of the intervention were measured.

Review articles were also excluded because they have often a broader scope than factors related to de-implementation of low-value care.

Any type of care practice was eligible, including diagnostic and therapeutic practices. No judgement was made whether the particular test or treatment was indeed of low value; we relied on authors' statements.

Titles and abstracts were screened by two authors, and for selected articles, eligibility was based on full text and judged by two authors (CAN, JW, PH, EWV, LH and SAvD). A third author was consulted to resolve discrepancies.

Data extraction

Data extraction, including categorisation of the factors in (sub)categories as described below, was performed by one author and a second author was consulted when there were doubts (CAN, JW, PH, EWV, SAvD and LH). We used a predesigned electronic form that was pilot tested using a random sample of 15 articles by all reviewers. The data extractors categorised the factors in the (sub)categories and discussed this with a second author in case of doubts. Uncertainties or difficulties in data extraction were discussed during face-to-face sessions to ensure consistent extraction and handling of the data.

Categorisation of factors

The factors were classified based on a framework developed by Grol and Wensing,[19 20] which contains five levels: individual provider, individual patient, social context, organisational context, economic and political context. The levels of individual provider and patient are divided in four subcategories[20]: knowledge and skills, attitudes, behavioural and individual characteristic factors. The category social context is divided in professional development, professional teams and professional networks. The level of organisational context consists of three subcategories: structures and work routines, organisational processes and available resources. The economic and political context is divided in financial incentives, legal regulatory measures and segment of target groups.

If possible, we distinguished barriers from facilitators. Many factors were explicitly described as a barrier or a facilitator. An example of a barrier is when providers indicate 'that their time with the patient is too limited to talk to them about the merits of the treatment plan or what options they have'.[21] In some cases, however, it was not clear from wording whether a factor was perceived as a barrier or a facilitator. For example, one article reported that 'multidisciplinary structure of teams and quality of interaction among group members are factors related to de-implementation'.[22] These were categorised as 'both a barrier and a facilitator'. The results are reported, in so far as relevant, according to the guidelines for reporting of synthesis of qualitative research; Enhancing Transparency in reporting the synthesis of qualitative research (ENTREQ) guidelines.[23]
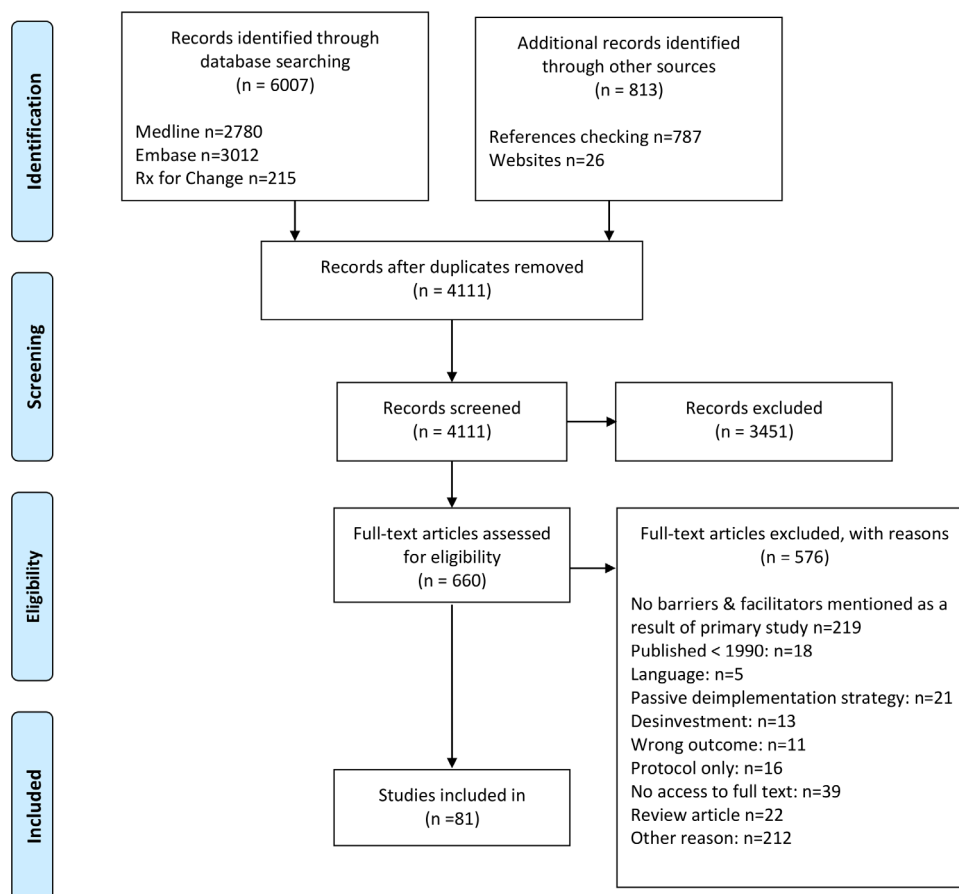
Figure 1 Flow diagram.

Patient and public involvement
No patient involved.

RESULTS
Search results
The search resulted in 4111 titles and abstracts to screen. After exclusion of 3451 articles based on title and abstract screening, 660 articles were full text screened, of which 81 were included. Details of the search and selection process are presented in figure 1 and a list of the included articles can be found in the online supplemental appendix.

Characteristics of included articles
In terms of study design, 33 articles were quantitative studies. Five randomised controlled trials (RCTs) were found; the others were observational articles, most without a parallel control arm. Forty-eight articles had a qualitative component: only interviews or focus groups (n=22), survey (n=13) or a combination of quantitative and qualitative methods (n=13).

The study characteristics of the included articles are described in table 1. The primary aim of 49 (60%) articles was to identify factors influencing de-implementation or the continuation of low-value care, and 32 (40%) aimed to evaluate the effectiveness of a de-implementation strategy. The majority of the articles (n=56; 69%) focused on therapeutic low-value care practices. Antibiotics (n=27;

33%) were by far the most commonly studied therapeutic practice, followed by gastric acid suppressants (n=7; 9%). Of the articles that focused on diagnostic tests (n=26; 32%), imaging and laboratory tests were the most studied (both n=11).

Factors
In total, 333 unique factors were identified across the 81 included articles. Of the 333 factors, 225 were classified as barriers (68%), 70 as facilitators (21%) and 38 as both barrier and facilitator (11%).

Figure 2 shows the percentage of factors related to the different levels: 39% (131 factors; 74% barriers, 17% facilitators and 9% both barrier/facilitator) at the level of the individual provider; 18% (58 factors; 72% barriers, 9% facilitators and 19% both barrier/facilitator) at the level of the individual patient; 14% (46 factors; 41% barriers, 48% facilitators and 11% both barrier/facilitator) at the level of the social context; 20% (67 factors; 67% barriers, 25% facilitators and 8% both barrier/facilitator) at the organisational context level; and 9% (31 factors; 71% barriers, 13% facilitators and 16% both barrier/facilitator) at the level of the economic and political context. See table 2.

Individual provider (n=131; 39%)
In terms of factors related to the individual provider, the most often identified factors were related to the attitude

Table 1	Characteristics of included articles (n=81)		
		No of studies	**% of studies**
Study design			
	Randomised controlled trial	5	6
	Non-randomised controlled trial	1	1
	Before after design/interrupted time series	23	28
	Cohort study	2	3
	Chart review	2	3
	Qualitative research design	22	27
	Survey	13	16
	Mixed methods	13	16
Aim of the article			
	Identify factors influencing de-implementation or the continuation of low-value care	49	60
	Measure the effectiveness of de-implementation	32	40
Low-value care practice under study*			
	Therapeutic	**56**	**69**
	Drug	41	51
	Antibiotic	27	33
	Gastric acid suppressives	7	9
	Polypharmacy	3	4
	Benzodiazepine, opioids, analgesic, psychotropic	4	5
	Blood or albumin transfusion	3	4
	Other	6	7
	Device or surgical procedure	2	3
	Referral and hospital stay	4	5
	Diagnostic	**26**	**32**
	Imaging	11	14
	Laboratory	11	14
	Screening	2	3
	Other	2	3
	Both diagnostic and therapeutic interventions	**5**	**6**

*Percentages do not add up to 100% in these categories because categories are not mutually exclusive.

of the provider (n=72; 55%), followed by knowledge and skills (n=43; 33%).

Identified factors related to attitude included beliefs and opinions of healthcare providers, fear of medical errors, defensive attitude, motivation and commitment to restrict unnecessary care, and awareness of an agreement with guidelines. Among attitudes, the desire to meet expectations of the patients plays a major role. Facilitators to positive attitudes towards change that were named are a sense of ownership and participation in the project, a desire to restrict unnecessary care and public commitment to change. Other articles noted a more overall general defensive attitude towards medicine. For example, a study on reducing the use of antibiotics concluded that 'When there is uncertainty in any potentially infectious condition physicians tend to be cautious and prescribe an antibiotic if it could be at all beneficial'.[24]

Even if a provider has the necessary knowledge and attitudes for stopping with low-value care, behaviour may still be difficult to change.[25] A few articles noted healthcare provider behaviour as a factor, which is related to routines and habits. As with any type of behavioural modification, routines and habits in clinical practice can be difficult to change. Additionally, practical constraints, such as their workload and lack of time, play a role in a provider's ability to change their behaviour.

Closely related to knowledge are experience and skills, which can be influenced by prior education and training. The most commonly reported skill was the provider–patient communication. Lack of communication skills needed to convince the patient that a test or treatment is not necessary and may be harmful, can pose a barrier. For example, while healthcare providers may have the knowledge that it is better to withhold from antibiotics for symptomatic relief of respiratory tract infections in children, changing their prescribing behaviour may be difficult if they lack specific consulting skills to reassure patients without a prescription.[26]

Individual patient (n=58; 17%)

Factors related to patient knowledge were the most frequently reported patient-related factors (n=33; 56%), followed by patient attitude (n=13; 22%). For all subcategories of factors related to the individual patient, the majority of the factors were identified as barriers (n=42; 72%) and a few facilitators (n=5; 9%). Nineteen per cent of the factors were identified as both a barrier and a facilitator.

Patient knowledge, including patient expectation, was reported in the majority of the articles as a barrier (n=26; 45%), indicating that a lack of knowledge of the patient can pose a serious barrier to de-implementation. A study of Lin et al reported that patient information plays an important role in the unnecessary treatment for patients with chronic low back pain; 'until we can communicate that well, we are stuck with a group of people who are absolutely sure that every time they move their back in a certain way they are injuring their back'.[27] In addition to the role of the provider in giving adequate information on treatment options, some articles noted that patient knowledge can be influenced through media, internet and advertisement from drug or medical device companies.[28 29]

In terms of patient attitude, some papers showed that patients express a preference for defensive medicine, perhaps stemming from anxiety, a false perception that
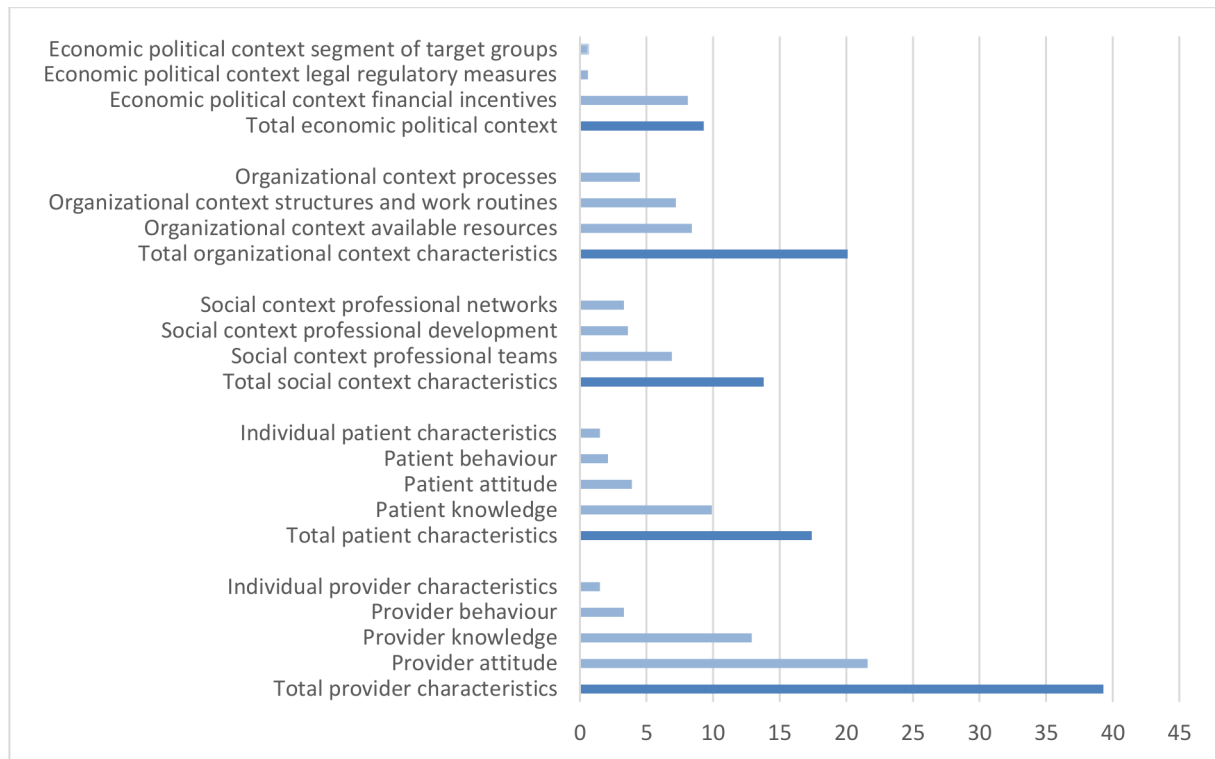
Figure 2 Percentage proportions of factors.

they are at high risk, fear of complications of not intervening, or desire for diagnostic certainty and perceived control. One study noted that when offered a choice, many patients opt for more aggressive care than needed.[30] It was also identified that patient attitude can be influenced by prior experiences with the care practice. For example, reduction in symptoms after starting medication (whether it was related to the medication or not) may lead one to believe in the efficacy of medication.[31] Facilitating patient factors are social influences from family and friends, for example, in their views and attitude towards a restrictive use of antibiotics. Another influencing factor is a consumer confidence in the professionalism of the healthcare provider and an open discussion on treatment options.[32]

Social context (n=46, 14%)
In terms of social context, the majority of factors were related to professional teams (n=23; 50%), followed by professional development (n=12; 26%) and professional networks (n=11; 24%). Medical leadership was the most frequently recorded social context factor in the success of de-implementation.[33–37] These articles suggested that individuals who take an active role in quality improvement projects can positively influence the attitude of the team towards de-implementation, creating a positive culture where there is collaboration and good communication. A team approach is important to de-implementation as clinicians reported to be influenced by the expectation or requests from colleagues or to have been influenced by the knowledge, opinion and action of their peers. Agreement on the appropriateness of interventions and

the availability of clear guidelines at the level of medical associations can foster success of reducing agreed on low-value care. Finally, healthcare providers may be influenced by pharmaceutical and medical device companies who have vested interests in seeing that their product is used.

Organisational context (n=67; 20%)
Available resources appeared to be the most important factor in the organisational context (n=28; 41%), followed by organisational structures and work routines (n=24; 36%) and organisational processes (n=15; 22%). Mainly barriers were identified in the organisational context (n=45; 67%), followed by facilitators (n=17; 25%) and factors that could be both barriers and facilitators (n=5; 7%).

Time was the most commonly reported resource factor, mainly as a barrier. Lack of time was often mentioned in reference to short consultation times, which pose a challenge to the in-depth provider–patient communication required for shared decision-making. Another factor was the availability of resources. The ease of access to or simply the availability of interventions can influence their use. For example, the simple act of removing a checkbox for a specific blood test from a form results in less requests.[38 39]

In terms of organisational processes, several articles concluded that hospital or clinical practice databases play a key role in supporting quality improvement. The technical constraints of the database and the ease at which databases could be combined might either hinder or facilitate the ability to build in reminders into the system or monitor the quality of care and progress

Table 2 Barriers and facilitators classification (n=333)

	Total, n	%	Barriers, n	%	Facilitators, n	%	Both barrier and facilitator, n	%
Total provider characteristics	**131**	**39.3**	**97**	**43.2**	**22**	**31.2**	**12**	**32.3**
Provider attitude	72	21.6	53	23.7	11	15.7	8	21.6
Provider knowledge	43	12.9	34	15.1	7	9.9	2	5.4
Provider behaviour	11	3.3	6	2.6	4	5.6	1	2.7
Individual provider characteristics	5	1.5	4	1.8	0	0.0	1	2.6
Total patient characteristics	**58**	**17.4**	**42**	**18.8**	**5**	**7**	**11**	**29.5**
Patient knowledge	33	9.9	26	11.6	3	4.2	4	10.8
Patient attitude	13	3.9	8	3.6	2	2.8	3	7.9
Patient behaviour	7	2.1	4	1.8	0	0.0	3	8.1
Individual patient characteristics	5	1.5	4	1.8	0	0.0	1	2.7
Total social context characteristics	**46**	**13.8**	**19**	**8.4**	**22**	**30.9**	**5**	**13.5**
Social context professional teams	23	6.9	5	2.2	14	19.7	4	10.8
Social context professional development	12	3.6	7	3.1	5	7.0	0	0.0
Social context professional networks	11	3.3	7	3.1	3	4.2	1	2.7
Total organisational context characteristics	**67**	**20.1**	**45**	**20.0**	**17**	**23.9**	**5**	**13.4**
Organisational context available resources	28	8.4	22	9.8	4	5.6	2	5.3
Organisational context structures and work routines	24	7.2	11	4.9	10	14.1	3	8.1
Organisational context processes	15	4.5	12	5.3	3	4.2	0	0.0
Total economic political context	**31**	**9.3**	**22**	**9.8**	**4**	**5.6**	**5**	**13.5**
Economic political context financial incentives	27	8.1	20	8.9	3	4.2	4	10.8
Economic political context legal regulatory measures	2	0.6	0	0.0	1	1.4	1	2.7
Economic political context segment of target groups	2	0.6	2	0.9	0	0	0	0.0
Total	**333**	**100**	**225**	**100**	**70**	**100**	**38**	**100**

Framework according to Grol and Wensing[19 20] was used for classification.

of de-implementation. Similarly, the right information needs to be available in the database (eg, current prescriptions) to support the decision to withhold low-value care. Additionally, de-implementation was more difficult when it requires a change to the existing workflow or referral patters. Already existing automatic processes, such as the scheduling of (unnecessary) follow-up appointments or referrals, can pose barriers.

Economic and political context (n=31; 9%)

Under the category of economic and political context, financial incentives were the largest group (n=27; 87%) followed by legal and regulatory measures and segments of the target group (both n=2). The latter included barriers related to involving diverse stakeholders and dealing with conflicting interests. The majority of the factors were barriers (n=22; 71%), whereas four factors (13%) were facilitators and five factors (16%) were both barriers and facilitators.

Financial incentives were found to be significant factors in the success of de-implementation. Financial incentives directed at the care provider were often mentioned, such as payment models which reward volume of care rather than those which hold them accountable for unnecessary care. Financial incentives directed at the patients were also mentioned, such as high co-payments and extensive insurance coverage leading patients to expect the providers to do something, such as run a diagnostic test, prescribe a medication, or referring them instead of sending them home. Factors related to the legal regulatory measures included barriers because of, for example, governmental reimbursement policies.

DISCUSSION
Key findings
This evidence synthesis fills the knowledge gap on barriers and facilitators related to de-implementation or reducing

of low-value care. In the 81 studies included in this review, over 300 factors are identified, spread over different subcategories. In addition to healthcare provider factors, many other factors are identified related to the patient, social context, organisational context and economical/political context.

Almost 40% of the factors identified were related to the individual healthcare provider and those were mainly related to attitude. This suggests that a de-implementation strategy based on provider education (focusing on knowledge) alone may be insufficient in many situations. Patient–provider communication and the desire to meet expectations of the patients play a major role.[40] When faced with an uncertain outcome, clinicians prefer to avoid a greater unlikely loss than to incur a certain, but lesser, cost.[41]

The social, organisational, economic and political context in which de-implementation takes place can also influence its success. Behavioural change is easier in a supportive environment; medical leadership and supervision on the de-implementation, as well as positive constructive attitudes of the team towards de-implementation, were facilitators.[42] Time was also a factor often mentioned; it may take longer to convince a patient that it is better to refrain from action than to request or prescribe low-value care. Focused patient information might help the healthcare provider in the consultation room.[43 44] Also of relevance to reducing low-value care is the problem of supplier-induced demand; financial incentives may encourage (or at least not dissuade) the provider to continue providing unnecessary treatment.[45]

The Choosing Wisely initiative has increased awareness of low-value care among clinicians and therefore might have played a facilitating role in de-implementation studies. Also, many studies included in this review were explicitly aimed at identifying factors influencing the Choosing Wisely recommendations of different specialties.[46–48] For clinical practice, it is relevant to analyse the differences between factors influencing de-implementation and those influencing implementation. Although future research should investigate this more specifically, it seems plausible that several factors are more frequently encountered in de-implementation than in implementation. Many studies addressing the implementation of evidence and guidelines focus on physician-related factors, guideline-related factors and external factors.[49 50] Many articles in our review mentioned that patient preference, expectation or request in combination with the physicians' communication skills and the time constraints of the consult were major barriers. These results indicate that patient–provider interaction, the fear of consequences of withholding a test or treatment, and financial incentives are important factors in de-implementation. De-implementing care is often associated with loss of revenue, something that implementing a new innovation is not. Due to cognitive dissonance, physicians and patients alike may find it difficult to accept that a care practice which they believed to be effective is

actually not.[12] De-implementation may therefore require longer and more difficult conversations with the patient compared with implementation. This is supported by a theoretical model that showed that physicians will adopt new treatments more readily than they abandon existing ones.[51]

Low-value care is closely related to overdiagnosis. Overdiagnosis is inherent to the modern practice of healthcare, which seeks to diagnose and mitigate disease before it is clinically evident. A study on drivers of overdiagnosis noted that fears of uncertainty, ageing, death and disease contribute to a culture of excess in medicine.[52] This is in line with the results of our review, in which we found several references to fear, both at the patient level (defensive attitude) and at the provider level (eg, fear of consequences for patients' health, medical error, litigation). Emotional or extreme cases tend to stay in the memory and cause us to misjudge the actual frequency and magnitude of events.[12] Therefore, it is reasonable to infer that fear is a more prominent barrier to removal of excess (eg, de-implementation) than implementation of a new test or treatment. This implies that stronger evidence is needed to convince healthcare providers that there is no harm in stopping with a certain care practice. In terms of financial incentives, all three above-mentioned reviews did not find as much evidence of financial incentives as playing having a role in evidence-based medicine as we found in our review on de-implementation. This argues that supplier-induced demand in healthcare poses a major challenge to the reduction of low-value care.[45]

Strengths and limitations

A strength of this evidence synthesis was the broad search that resulted in a high number of included articles. Articles on de-implementation are difficult to find due to lack of consistent terminology; 43 different terms have been identified for de-implementation[9 10] and de-implementation articles are often described as articles on implementation of guidelines in which the guideline is to stop the low-value care. We believe that despite the possibility of missing relevant articles, a high degree of knowledge saturation has been reached.

An important limitation of this review is the exclusion of articles on disinvestment in which the motivation to stop or change practice was primarily financial. As a consequence, some macrolevel factors, such as financial incentives, may be under-represented. Although we missed studies that contained interventions focused on disinvestment, the majority of the included studies were aimed at identifying influencing factors for providing low-value care or de-implementation. In those studies, financial incentives were found to be factors as both a barrier or facilitator for discontinuation of low-value care. Another limitation of our study could be the choice to use a predefined classification for barriers and facilitators to categorise qualitative data instead of a bottom-up approach in which a new framework was developed based on the data.[53] On the other hand, using such classification

designed for implementation provided us insights into what might be specific to de-implementation. We also excluded articles that measured the effect of a de-implementation strategy, in which determinants related to the effect of the intervention were measured. Although one argue that these determinants could also be classified as a barrier or facilitator, such subgroup analysis or multivariable models might only include variables that are easy to measure (such as age and gender). This may result in an over-representation of specific variables, as you can only analyse the factors you have measured, whereas in other research designs, such as interviews or surveys, a broader range of factors were inventoried. Finally, we have not performed a quality appraisal of all included studies.

Implications for practice

Once a service has been identified as low-value care, a first step towards reducing it should be to identify reasons why it (still) exists and to identify potential challenges to changing the current situation. The results of this study might help in identifying barriers and facilitators, thereby facilitating the development or refinement of a targeted strategy to reduce low-value care. One should be aware that there is potential overlap among the different categories and a factor in one category may play a role in others. In this overview, we used a narrow definition of barriers and facilitators with the intent to focus only on factors that could be targeted in de-implementations strategies. Several additional elements can influence the success of de-implementation, such as characteristics of the de-implementation strategy itself, the strength of the evidence against a clinical practice,[54] whether low-value care is only inefficient or if it also has negative health consequences[55] or the type of change (eg, removal, reduction or replacement). Identifying factors that affect the influence of the effect of the de-implementation or the continuation of low-value care should be identified for each specific practice. This can be done through several methods including searching the literature, evaluating quantitative data on practice variation and surveying or interviewing different stakeholders involved. Thereafter, a tailored strategy can be developed which takes into consideration who (patient or healthcare provider) or what level of organisation (individual, context or system) to target, and how behavioural change will be encouraged. A frequently identified facilitator was the social context of a team (eg, medical leadership, positive constructive attitude and an open team culture) in which the de-implementation efforts took place. Attention towards team attitude and culture, and using medical leadership, can help to successfully reduce low-value care.

CONCLUSIONS

This evidence synthesis provides insight into the range of factors affecting the potential success of de-implementation strategies. As most articles report factors on different levels, we conclude that multilevel de-implementation strategies might be necessary for effective reduction of low-value care. There is no one-size-fits-all solution: situation-specific knowledge across all levels is importantly necessary for tailor-made de-implementation strategies.

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