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Multicomponent processes to identify and prioritise low-value care in hospital settings: a scoping review

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ABSTRACT

Objectives This scoping review mapped and synthesised original research that identified low-value care in hospital settings as part of multicomponent processes.

Design Scoping review.

Data sources Electronic databases (EMBASE, PubMed, CINAHL, PsycINFO and Cochrane CENTRAL) and grey literature were last searched 11 July and 3 June 2022, respectively, with no language or date restrictions.

Eligibility criteria We included original research targeting the identification and prioritisation of low-value care as part of a multicomponent process in hospital settings.

Data extraction and synthesis Screening was conducted in duplicate. Data were extracted by one of six authors and checked by another author. A framework synthesis was conducted using seven areas of focus for the review and an overuse framework.

Results Twenty-seven records were included (21 original studies, 4 abstracts and 2 reviews), originating from high-income countries. Benefit or value (11 records), risk or harm (10 records) were common concepts referred to in records that explicitly defined low-value care (25 records). Evidence of contextualisation including barriers and enablers of low-value care identification processes were identified (25 records). Common components of these processes included initial consensus, consultation, ranking exercise or list development (16 records), and reviews of evidence (16 records). Two records involved engagement of patients and three evaluated the outcomes of multicomponent processes. Five records referenced a theory, model or framework.

Conclusions Gaps identified included applying systematic efforts to contextualise the identification of low-value care, involving people with lived experience of hospital care and initiatives in resource poor contexts. Insights were obtained regarding the theories, models and frameworks used to guide initiatives and ways in which the concept 'low-value care' had been used and reported. A priority for further research is evaluating the effect of initiatives that identify low-value care using contextualisation as part of multicomponent processes.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The current study reviewed evidence related to identification processes that extended beyond use of pre-existing list-based low-value care initiatives as specific tests, services or procedures may not be of low-value in all settings or circumstances and contextualisation is required.

⇒ The focus on multicomponent processes to identify low-value care, methodology and framework synthesis of findings was guided by process theories and a framework of health service overuse adding to the rigour of the review.

⇒ Unclear reporting in some original studies meant authors were contacted for clarification.

INTRODUCTION

It has been estimated that 10%–30% of healthcare worldwide is wasteful, of little or no value, or harmful to patients.[1 2] Using scarce resources to deliver low-value care is an important health system concern with opportunity cost implications, whereby resources could have been allocated to alternative care with potentially greater benefit.[3] Identifying areas of low-value care is an important first step that must be taken prior to implementing strategies to address this issue.[4]

While a range of interventions for reducing or deimplementing low-value care has been the focus of prior studies, including literature reviews,[5–7] there has been considerably less focus on processes to identify low-value care practices that should be addressed. List-making initiatives to identify low-value care have included Choosing Wisely lists of low-value tests and procedures,[8] Royal Australasian College of Physicians (RACP) Evaluating Evidence, Enhancing Efficiencies initiative (EVOLVE) campaigns[4] and National Institute for health and Care Excellence (NICE) guidelines.[9] However, recent studies and commentaries have indicated the need to explore identification beyond list-based initiatives[10 11] as specific tests, services or procedures may not be of low value in all settings or circumstances.[1 12]

In the context of a healthcare system or improvement being 'a process; dynamic, fluid and constantly moving' and the most complex of human environments,[13 14] identification processes are not static and ideally should be conducted as part of cycles that include identifying factors contributing to the problem, deimplementing low-value care or implementing better care.[15 16] Actions to deimplement low-value care include removing, reducing, replacing or revising that care.[17 18]

Multiple essential components of processes have been reported as key for identifying and prioritising low-value care services: evidence that a service is of low value; the extent of actual use of the lower value service; and stakeholder engagement.[14 19] The latter two components have been considered essential for contextualising identification and prioritisation processes to determine whether care is low value or not in the host environment in which the intervention is implemented.[4 19 20] Using multicomponent processes to identify and address low-value care, defined as those with two or more components, aligns with frameworks on health service overuse and deimplementation,[19 21] and also with theory regarding identification and prioritisation in process models and theories of deimplementation.[22–24]

As part of processes to identify the extent of the low-value care, defining and understanding harms, resources, waste and prevalence of the potential low-value care has been considered important[7 25] but has received minimal attention in published literature.[25] Of these concepts, only harms are included in a commonly used definition of low-value care which is any form of healthcare service and/or intervention which confers little or no benefit, may cause patient harm, or yields marginal benefits at a disproportionately high cost.[3]

Healthcare systems have common broad contextual features that extend across settings that may influence low-value care such as hospitals, primary care and communities. However, there are also narrower subsets of contextual features that differ between these settings. For this reason, we chose to focus on hospital settings, which include a different make-up of teams, more frequent social interactions, social status hierarchies that revolve around medical specialisation and arguably fewer opportunities to develop patient–clinician relationships than other settings.[26–28] These differences in hospital settings have implications for changing healthcare professional behaviours that may differ to other settings.[27]

Contextualisation in healthcare settings refers to the processes involved in adapting, delivering and monitoring healthcare. Common contextual factors, for example, barriers and enablers influencing the delivery and deimplementation of low-value care in healthcare include culture, lack of agreement regarding terminology or optimal approaches, evidence of the low-value care and clinician resistance to change.[19 29]

A scoping review was chosen to map and synthesise evidence, which in turn was used to develop a user-friendly toolkit to assist clinicians in identifying low-value care in hospitals. Consistent with the objectives of a scoping review, we also intended to clarify the concept of low-value care and to identify knowledge gaps to inform subsequent research to deimplement low-value care.[30]

Building on previous literature and conceptual work, our specific areas of investigation related to the identification of low-value care in hospitals were: (1) defining low-value care; (2) contextualisation; (3) components of processes used to identify and address low value; (4) elements used in identification processes (including frequency, costs, harms and waste); (5) theories, models and frameworks; (6) resources and tools to support identification; and (7) study outcomes and the effect of multicomponent processes involving identification.

METHODS

The primary research question was: what are the key concepts and gaps in the evidence regarding multicomponent processes used to identify low-value care in hospital settings with a view to deimplementing that low-value care? For the sake of brevity the phrase 'identifying low-value care' will include prioritisation processes throughout the paper. Joanna Briggs Institute methodology for scoping reviews[30] was used in deciding to undertake the review, guiding Population Concept, Context elements of the inclusion criteria, and data extraction. Study sources included original empirical studies and reviews with an original process component (eg, a prioritisation exercise). The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) extension for Scoping Reviews[31] was used for reporting. The five key steps of the Arksey and O'Malley methodological framework for conducting a scoping review were followed and have been used to structure reporting of the methods: identifying the research question and relevant studies; study selection; charting the data and collating, summarising and reporting results.[32] A review protocol was completed prior to commencement of the review but was not published.

Patient and public involvement

Patients or the public were not involved in the design, conduct or reporting of this review.

Identifying relevant studies

Electronic databases of EMBASE, PubMed, CINAHL, PsycINFO and Cochrane CENTRAL were searched with no language or date restrictions. Three sources of grey literature recommended for systematic reviews[33] were also searched to identify relevant clinical practice guidelines, reports and papers: (1) grey literature databases (Canadian Agency for Drugs and Technologies in Health, Agency for Healthcare Research and Quality, WHO, World Bank, Creating Value Based Healthcare, Maastricht University); (2) a customised google search using google advanced and (3) websites on low-value care (RACP EVOLVE, UK NICE 'do not do' recommendations, Choosing Wisely).

The first 10 pages of google searches were screened for potentially relevant titles and text to ensure the most relevant items were captured but that the search results remained manageable.[33] Handsearching the reference lists of included records was also conducted to identify relevant documents.[34] The search strategy was developed with the input of two medical librarians and consisted of terms pertinent to a single theme of "low value" using the terms "low value" OR "low-value" OR "low-added value" for databases (detailed in online supplemental file 1) with database searches last updated 11 July 2022 and grey literature 3 June 2022. A medical librarian removed most duplicates using duplicate detection settings in EndNote (V.20), with remaining duplicates removed by hand by the authors.

Study selection

Six authors screened studies for selection, initially each screening the same 100 consecutive records to ensure selection consistency. This was followed by discussion of the rationales for study selection and revision of the selection criteria to improve clarity. Following this, author pairs independently screened titles and abstracts for eligibility. In cases of conflict or ambiguity, full-text articles were independently examined by two to four authors. Discrepancies after review of full-text articles were resolved by consensus of five authors. Study eligibility criteria are detailed in table 1. Studies where the low-value care was identified using a list-based initiative alone, such as Choosing Wisely, were excluded except where there was evidence of contextualisation of the list as the care listed may not be generalisable to all settings or circumstances. Limitations to generalisability may be due to the lack of representation of diverse resources, infrastructure and people at multiple levels of hospital settings in the development of the list.[35] We had initially thought that if we detected many non-English studies that would otherwise be eligible, that it would not be possible to translate each of these articles into the English language due to the limited resources we had available to complete this review. However, given only one study was found for which a full English translation was not readily available, and that study had an English title and abstract readily available we did not exclude any studies on the basis of language. Furthermore, we were later able to access an English translation of that article which confirmed the accuracy of the initial extraction. Records with only abstracts available were also included to capture recent research that might only be available as a conference abstract. Inclusion of these abstracts will permit future review authors to investigate these papers or studies in full if available.[36] Definitions of terms related to inclusion criteria and the rationale for these criteria are detailed in online supplemental file 2.

Identifying low-value care as part of a multicomponent process, defined as two or more components, was the focus of the current review. The rationale for the focus on two or more components was theory informed, as two or more components of identification and prioritisation have been included in process models and theories of deimplementation,[22–24] and frameworks on health service overuse and deimplementation.[19 21] Broader human-centred design methods using the discover, design, build and test framework and the multiphased optimisation strategy framework also support the need for multiphased process components to identify or design intervention components in preparation for subsequent optimisation and evaluation, to achieve the best-possible outcomes.[37]

Charting data

A data extraction form was developed by two authors (ZT and MA) using a standardised template in Microsoft Excel that was piloted by two authors (SN and MA) who each extracted data from three relevant articles and two web pages. The extraction form was then revised to include explanations of each of the fields and examples of data to be extracted. Further data was extracted by one author (ZT) using the revised spreadsheet, after which minor revisions to the explanations were made. Data from each included paper were then independently extracted by one of seven authors (ZT, SS, HC, MA, KW, BA and SN) and was verified by a different author (ZT and HC). Disagreements were resolved through consensus of those involved in extraction. Authors of records were contacted to seek clarification where information presented was unclear to the review authors and could not be inferred from other information provided in the record.

Collating, summarising and reporting of the results

A framework synthesis[38] was used to structure the reporting, mapping what is known and not known in the review and allowing the complexity of low-value care to be explored using theory-informed frameworks in the literature.[38 39] The framework synthesis was structured using the seven research areas of focus of the review (defining low-value care; contextualisation; components of identification processes; elements used in identification or prioritisation including harms and waste; theories, models and frameworks; resources and tools developed for identification; study outcomes and effect of multicomponent processes involving identification). In addition, a framework of transdisciplinary approaches to identify overuse in health services, developed from a critical interpretive synthesis and stakeholder engagement process, was used for the framework synthesis that targeted: (1) four groups of contextual factors facilitating overuse (culture at multiple levels; lack of agreement on framing or terminology such as disinvestment; health-system arrangements such as lack of awareness of evidence and lack of evidence regarding optimal approaches to reduce overuse); and (2) three components of a process to identify overused health services (using the best available data, research evidence and guidelines; conducting jurisdictional scans to identify services overused in other health systems and whether those services are used locally; and engaging stakeholders and people with lived experience

Table 1 Inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
Population	1. Human participants involved in identifying low-value healthcare. 2. No restrictions based on the age, diagnosis or condition of the target population.	Nil
Concept	1. Identification and prioritisation of low-value care as part of a multicomponent process with two or more components (eg, where more than one component was involved in identifying the low-value care or where components covered both identifying and addressing low-value care). 2. The multicomponent process being one that was applied as a model of care in clinical practice or had the potential to be applied as a model of care if implemented in practice. 3. Identification of low-value care as defined in the included record but could include: quantifying the size and scale of the problem and why the problem was happening; determining the profile of patients at risk and the profile of services and clinicians where the low-value care is happening; contextualisation including understanding the local context; understanding the drivers and determinants of processes to identify low-value care so that reduction strategies could be targeted at these drivers; mapping empirical evidence of effectiveness and efficiency; methods of identification and prioritisation including consensus involving experts and people with lived experience; or combinations of these methods. 4. Records referring to identification of low-value care or another term (eg, overuse) that aligned partly or fully with the definition of identification of low-value care used for the current review were included.	1. Studies solely investigating factors associated with, indicators of or driving low-value practices. 2. Studies focused on the quality or certainty of evidence or psychometrics of measures of low-value care alone (eg, validity, sensitivity, specificity). 3. Studies where the low-value care was identified using a list-based initiative such as Choosing Wisely alone rather than as part of a process that included contextualisation or where it was unclear how the low-value care had been identified.
Context	1. Hospital settings including public or private hospitals, outpatient clinics, rehabilitation centres, clinical measurement departments and pharmacies in those settings. Studies were included if they referred to a hospital or if it was clear that healthcare delivered included a hospital setting (eg, reference to admissions, inpatients, or specialist care that pertained to hospital settings). 2. Part of the intervention or healthcare may also be delivered in general practices, primary care or community health centres. Where primary care alone was referred to but the care delivered was considered relevant to a hospital setting, the study was included as it was recognised that differences in services within hospital settings may exist across countries.	All other settings
Restrictions	1. No date restriction 2. No language restriction.	Nil
Types of sources	1. Original empirical research including conceptual, quantitative, qualitative or mixed-methods studies. 2. Reviews that systematically review original studies (eg, systematic reviews, scoping reviews) with an original process element (eg, mapping or prioritisation exercise).	1. Opinion pieces, letters to the editor, editorials, narrative reviews, umbrella reviews, case studies of individual patients. 2. Reviews or papers that focus solely on framework development or conceptual work as the focus is on applied implementation.

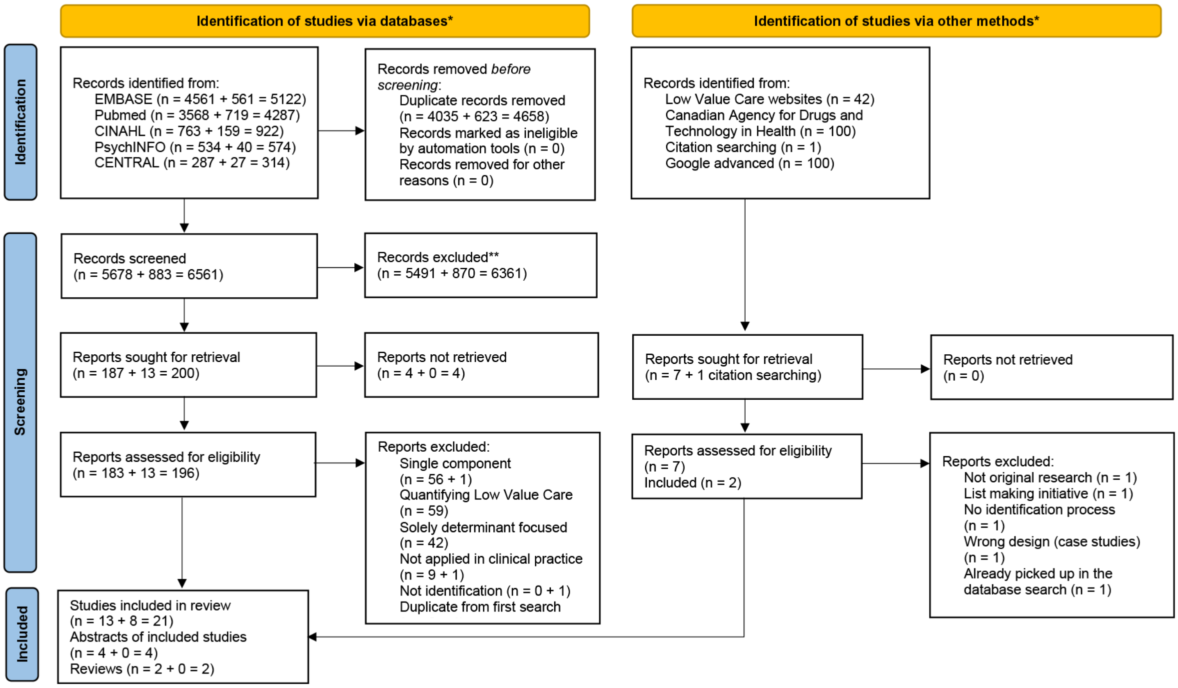


Figure 1 PRISMA diagram. *Numbers in brackets for database records is provided as number from the initial search+number from the updated search=total number. **Duplicate records removed by hand during screening (n=62 initial search, n=1 updated search).

to prioritise services for deimplementation).[19] The intervention categories by Colla *et al*[7] were used to summarise the deimplementation components of interventions (patient cost sharing and value-based insurance design, patient education, provider report cards, pay-for performance, insurer restrictions, risk sharing, clinical decision support, clinician education, provider feedback or a combination of these components). Results are reported using narrative and descriptive summaries in visual and table display formats.

RESULTS

Description of included studies

Of the 6804 records (6561 and 243 grey literature) records screened, 27 records published between 2014 and 2022 met our selection criteria (figure 1).

Table 2 outlines the characteristics of included studies which comprised 21 original research articles, 4 conference abstracts and 2 review papers. All included records originated from high income countries, with the USA (seven records), Canada (four records) and Australia (four records) being the most represented countries. Nine records were from countries where the primary language spoken was not English. Two authors of included records were contacted to clarify the relevance of the record to care in hospital settings, one of whom responded.

A diverse range of clinical settings were targeted, spanning specific wards or services through to whole of hospital, health system and global approaches. Three of 27 studies targeted paediatric hospitals or health services specifically.[40–42] The entire continuum of care (primary care to specialist care or healthcare system) was covered by six records.[19 43–47] Four of 27 records focused on practice by a specific profession or discipline[40 48–50] with two records targeting practice by the allied health disciplines of nutrition[50] and physical therapy.[49] The majority of records (23 of 27 records) focused on the preimplementation phase of research. Four of 27 records examined evaluation, either by developing evaluation measures[8] or evaluating intervention effectiveness.[41 51 52]

Defining low-value care

Nearly half of the included studies (11 records) included an explicit definition of low-value care[8 15 19 43 45 47 49 53–56] (online supplemental file 3). Some studies failed to apply the explicit definitions or key concepts of low-value care to their study methods (two records) or applied different definitions or key concepts to those explicitly stated (nine records). Of the records that explicitly defined low-value care or articulated key concepts aligned with low-value care (25 records), most used concepts of benefit or value (11 records), risk or harm (10 records) or overuse (6 records). Five of the 11 records using an explicit definition of low-value care defined it in terms of cost; 2 targeted the patient level and 3 the service level with the latter referring to cost exceeding benefit.

Contextualisation

Of the 25 records with evidence of contextualisation of identification processes, the most common focus was on a national health system in 14 records (online supplemental file 4). Five records focused on a single centre or single integrated healthcare delivery system. Using the 2

Table 2 Study characteristics

Author	Year	Study country	Article type	Topic	Clinical setting, area of practice	Phase of research
Basharat & Born[43]	2021	Canada	Original research report	Using Health Care Resources Wisely After the COVID-19 Pandemic: Recommendations to Reduce Low-Value Care	Canadian healthcare system	Preimplementation
Chalmers[8]	2018	Australia	Original research article	Developing indicators for measuring LVC	Hospital	Preimplementation and evaluation development
Chien[45]	2020	Taiwan (ROC)	Original research article	Group payment to reduce low-value services in Taiwan	Inpatient surgical admissions in Taiwan	Preimplementation, implementation and evaluation
Cho[53]	2022	USA	Original research article	Cocreation of new recommendations for improved healthcare value	Hospital	Preimplementation
Dalton[40]	2017	Australia	Conference abstract	Top five priorities to reduce LVC for Australasian paediatricians	General paediatrics (all public and private settings relevant to paediatricians)	Preimplementation
Daniels[41]	2019	USA	Original research article	Optimising drug-drug interaction alerts	Drug–drug interactions in a children's hospital	Implementation and evaluation
Dora[73]	2021	Brazil	Original research article	Recommendations of the Thyroid Department of the Brazilian Society of Endocrinology and Metabolism	Thyroid care in tertiary care	Preimplementation
Ellen[19]	2018	Canada	Review (critical interpretive synthesis) and stakeholder engagement process	Overuse of health services in health systems	Patient, health system and global levels	Preimplementation (framework development)
Ena[74]	2018	Not stated	Original research article	Experiences of a single centre in preparing Choosing Wisely lists	Internal Medicine in a hospital outpatient clinic	Not stated
Latino[75]	2022	Kazakhstan	Original research article	Prioritising systemic cancer therapies applying European Society for Medical Oncology tools and other resources to assist in improving cancer care	Cancer care (setting not specified)	Preimplementation
Ibargoyen-Roteta[58]	2017	Spain	Conference abstract	Surgical procedures of no or low added value	Not specific to any condition or setting	Preimplementation
Malik[44]	2018	UK	Original research article	Savings from reducing low-value interventions	General surgery relevant to primary, secondary and specialist care services	Preimplementation
McBride[76]	2014	Ireland	Conference abstract	Quality checking process for treatment plans	Outpatient radiation oncology	Preimplementation (including checklist refinement)
Moes[45]	2019	Netherlands	Original research article using ethnography	Practices for disinvestment related to waste in the social health insurance system	National healthcare system	Preimplemention and implementation (monitoring)
Moore[54]	2019	Canada	Scoping review+original research (survey)	Low-value practices in injury care	Hospital-based acute care	Preimplementation
Morrisroe[48]	2018	Australia	Original research article	EVOLVE top five list of interventions and investigations doctors and patients should question	Rheumatology	Preimplementation
Pablo[55]	2021	Spain	Original research article	«Do Not Do» recommendations for retinopathies: A mixed consensus study	Retinopathy care involving multiple disciplines (pharmacy and opthamology)	Preimplementation

Continued

Table 2 Continued

Author	Year	Study country	Article type	Topic	Clinical setting, area of practice	Phase of research
Pozo-Rosich[46]	2020	Spain	Original research article	Low-value care practice mixed-methods study	Headache care related to the entire care process including four university public hospitals	Preimplementation
Reis[49]	2021	Brazil	Original research article	Top five low-value practices that should be avoided in musculoskeletal physical therapy	Musculoskeletal physical therapy (no specific setting mentioned)	Preimplementation
Radomski[47]	2022	USA	Original research article	Developing a metric to detect and decrease low-value prescribing in older adults	Prescribing in older adults covering primary prevention to hospital care	Preimplementation
Rushton[50]	2021	Australia	Original research article	Low-value malnutrition care and alternatives	Dietetics nutrition care in hospitals	Preimplementation
Schuur[57]	2014	USA	Original research article	Top five list of little value emergency care	Emergency department	Preimplementation
Soril[10]	2018	Canada	Original research article	Prioritising low-value health technologies for reassessment using administrative data	Hospital, low-value care lists	Preimplementation
Tchou[42]	2021	USA	Original research article	Choosing Wisely in Paediatric Hospital Medicine: five New Recommendations to Improve Value.	Paediatric hospital medicine	Preimplementation
Wammes[15]	2016	Netherlands	Original research article	Identifying and prioritising LVC services from Dutch specialist guidelines & comparison with UK Do-Not-Do list	Low value healthcare in hospitals	Preimplementation
Wong[56]	2017	USA	Conference abstract reporting original research	Quality improvement initiative to reduce low-value red blood cell transfusions	Inpatient oncology ward	Preimplementation and implementation
Zanotti[52]	2019	USA	Original research article	Impact of an educational curriculum incorporating graduate accreditation competencies for physicians, nurses and gynaecological oncology fellows	Outpatient gynaecological oncology service	Implementation and evaluation

EVOLVE, Evaluating Evidence, Enhancing Efficiencies initiative; LVC, low-value care.

components of contextualisation applied in the current review (evidence of actual use of the targeted low-value care, and engagement of relevant stakeholders), over half (15 records) applied both criteria fully or partially. The extent to which stakeholders were relevant to the context or represented those involved in the targeted low-value care was not reported or supported in 16 records.

Barriers to the identification of low-value care were discussed in four records,[15 19 42 57] enablers in three records[10 42 45] and other contextual factors in two records.[15 41] Some contextual factors aligned with the four factors driving overuse that were used for the framework synthesis.[19] The barrier from included studies that aligned with this framework was difficulty applying what were deemed ideal prioritisation criteria (ie, availability of evidence a service is ineffective or harmful, patient safety, health and cost impacts of deadoption and use of the low-value service) due to the lack of detailed information available thus the need to apply alternative criteria.[15] Enablers were reported as engagement, expertise and leadership roles of an expert advisory committee from the outset of the study, which was reported as ensuring relevancy within the study context[10]; a Delphi method which enabled a range of expertise to be included and decision-making when working with low level or limited evidence[42]; and the participation of stakeholders as a means of including their knowledge and addressing trust.[45]

Factors that did not align with the framework synthesis[19] but which were reported as barriers to identification processes were the lack of: diversity of working group members including non-physicians[42]; local stakeholder involvement to ensure relevance in the local context[15] and an arbitrary cut-off for services included in a top five list of low-value services based on consensus, which may miss important low-value services.[57]

Components of processes used to identify and address low-value care

All included records examined identification using two to seven components of multicomponent processes (online supplemental file 5). The most commonly described components used as part of processes to identify low-value care included initial consensus, consultation, ranking exercise or list development (16 records) and reviews of evidence (16 records). There was variability in the order of the components applied across studies. Of the records that included expert consensus, committee member or stakeholder engagement activities, participants were mostly clinicians and sample sizes ranged from n=6[46 55 57] to n=22.[48] Where reported, sample sizes in studies that accessed patient record data to identify the extent of the low-value care ranged from 1012 records in four participating hospitals[55] to 62 314 admissions.[51] Only two records involved engagement with patients.[43 47] In one of these records findings from three qualitative studies of focus groups with patients and caregivers and semistructured interviews with primary care physicians were used to obtain varied perspectives on low-value prescribing.[47] In the other record, a 10-member panel including 2 patient representatives was formed to prioritise and assess a short list of 45 Choosing Wisely Canada recommendations.[43]

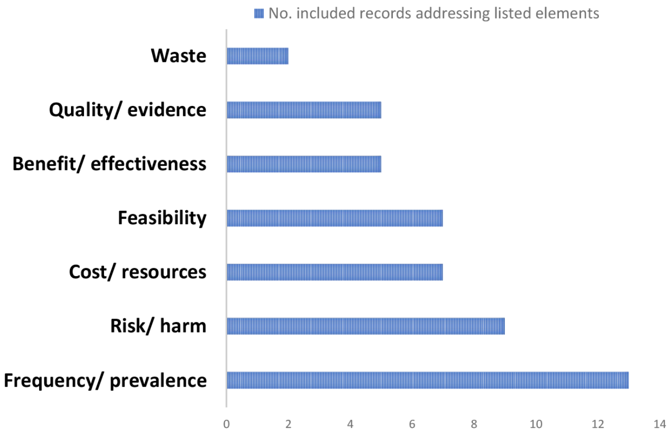


Figure 2 Most commonly used elements to identify or prioritise low-value care.

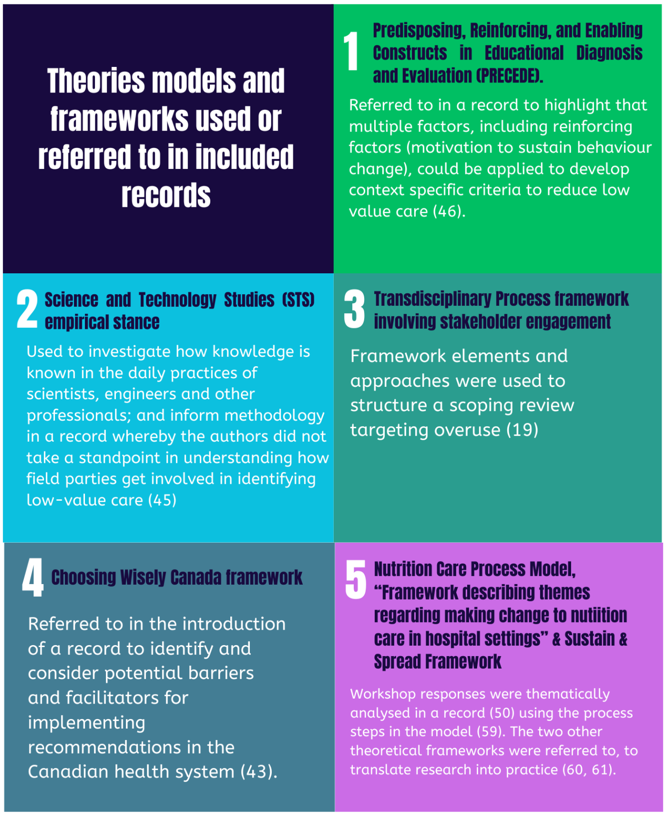
Three records (11% of included records) included components of deimplementation processes following identification processes that targeted drug–drug interaction alerts (clinical decision support component),[41] implementation of a diagnosis-related group payment scheme policy under the Taiwan National Insurance Scheme to reduce low-value preoperative surgical testing (pay-for-performance component),[51] and implementing value-based medical education curriculum competencies with gynaecology oncology fellows (clinician education component).[52]

Elements used in identification processes (including frequency, costs, harms and waste)

The most common element used to identify or prioritise low-value care was the frequency of low-value care (14 records, 52%), followed by risk or harm to patients or quality and safety (9 records, 33%) and cost or resources (9 records, 33%) (figure 2, detailed in online supplemental file 6). In addition to cost, one record[11] also used a budgetary impact filter to prioritise candidate technologies. Benefit, waste, acceptance (eg, foreseeable acceptance by the professional community),[46] burden of disease (years lived with disability and disability-adjusted life-years)[15] and variability[58] were rarely considered as part of processes to identify low-value care.

Using theories, models and frameworks and developing resources and toolkits

No theory, model or framework was mentioned, or used for contextualisation of identification or prioritisation processes. Further, no articles reported developing resources or a toolkit as part of the multicomponent process that involved identifying low-value care. Five records used, or made reference to potential use of, seven theories, models or frameworks[19 45 46 50 59–61] as shown in figure 3.



Theories models and frameworks used or referred to in included records

1 Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation (PRECEDE).

Referred to in a record to highlight that multiple factors, including reinforcing factors (motivation to sustain behaviour change), could be applied to develop context specific criteria to reduce low value care (46).

2 Science and Technology Studies (STS) empirical stance

Used to investigate how knowledge is known in the daily practices of scientists, engineers and other professionals; and inform methodology in a record whereby the authors did not take a standpoint in understanding how field parties get involved in identifying low-value care (45)

3 Transdisciplinary Process framework involving stakeholder engagement

Framework elements and approaches were used to structure a scoping review targeting overuse (19)

4 Choosing Wisely Canada framework

Referred to in the introduction of a record to identify and consider potential barriers and facilitators for implementing recommendations in the Canadian health system (43).

5 Nutrition Care Process Model, "Framework describing themes regarding making change to nutiition care in hospital settings" & Sustain & Spread Framework

Workshop responses were thematically analysed in a record (50) using the process steps in the model (59). The two other theoretical frameworks were referred to, to translate research into practice (60, 61).

Figure 3 Theories, models or frameworks used or referred to in included records.

Study outcomes and effect of multicomponent processes involving identification

Only three included studies were designed to evaluate outcomes as opposed to developing priorities, an intervention or evaluation plan, all of which included two or three components.[41 51 52] The outcomes measured related to the frequency or predicted probability of low and high value care[41 51 52] and patient outcome safety event data.[41] Two studies reported findings in support of the processes[41 52] and one study reported short-term somewhat positive outcomes but these were not sustained thus did not support the processes.[51] The process components in these studies involved: consultation and a survey of clinicians[41]; a three-stage educational intervention, group process and implementation into practice as part of a quality improvement initiative[52]; and a reimbursement policy implementation process with identification involving a review of evidence, use of existing guidelines (eg, Choosing Wisely) and data audit.[51]

DISCUSSION

Applying and reporting systematic contextualisation of identification and subsequent deimplementation processes was identified as a research gap. Over two-thirds of the included studies investigated actual use of the targeted low-value care and/or engagement of relevant stakeholders in identification processes at least partially; criteria deemed essential to contextualise the identification of low-value care in relevant theory and frameworks,[19 20] which was encouraging. However, the extent to which relevant stakeholders represented those involved in the targeted low-value care was not reported or supported in over half of included records which is an area requiring further investigation. Without contextualising identification processes, deimplementation efforts may be wasteful or target the wrong care. The potential for transferability to other contexts may also be unclear.

Across the 27 included records, the most common process elements used to initially identify low-value care were a review of evidence and initial consensus, consultation, ranking or list development exercises. The frequency or prevalence of the low-value care was the element commonly used to determine the magnitude of the low-value care or to prioritise low-value care in the included studies, although as pointed out by others there may be challenges when relying solely on administrative data to determine actual use of the low-value care based on these elements.[7] These challenges include administrative data not including the detail needed to identify some low-value care[7] although relying solely on stakeholder processes such as a consensus meeting or survey to identify low-value care may also present challenges including recall and sampling biases.

There was at least some evidence of effect from the three included studies that evaluated multicomponent processes that included identification of low-value care. However, no information was reported regarding the components that were most effective. This finding corresponds to evidence regarding multicomponent interventions of low-value care more broadly from systematic reviews, whereby multicomponent interventions have been identified as more effective than single component interventions.[6 7 62–65] In a systematic review of low-value medical services, higher complexity components in multicomponent interventions (eg, targeting organisational system change or involving multiple healthcare providers) were reported as most likely to achieve intended outcomes,[6] which warrants investigation in relation to the identification of low-value care. No studies formally evaluated patient outcomes (except for safety events) or implementation outcomes including the sustainability and spread of effective programmes.

In the current review the involvement of people with lived experience of accessing health services in only 1% of studies indicates this is a research gap. People with lived experience of accessing healthcare could be engaged in identifying their values and preferences which could then be communicated to other levels of health systems.[19] The public could also be involved in prioritising low-value care using forums like community juries at the policy level.[64] However, stakeholder uncertainty about the role of the public in policy-making regarding disinvesting from low-value care has been reported.[64]

Approaches based on the theories, models or frameworks referred to in the included studies and process theories, models or frameworks may offer important guidance for future efforts to implement multicomponent approaches covering identification, prioritisation and deimplementation. These approaches have the potential to advance an understanding of, and develop, interventions to address the complexity of low-value care[19] and ensure evaluations are robust.[66]

Two frameworks captured in the current review may be particularly useful to guide future studies to identify low-value care. One framework was developed based on a critical interpretive synthesis and stakeholder engagement on identifying overuse.[19] Identification approaches detailed as part of this framework included the need for leaders to coordinate transdisciplinary approaches to identify and diagnose overuse and prioritise low-value care for removal,[19] moving beyond list making initiatives. It is also worth mentioning a framework included in a record that was excluded from our review as it was not an original study. In that record the 'Choosing Wisely De-Implementation Framework' (based on behaviour science) was presented as a framework to develop, evaluate and scale up deimplementation interventions. The authors based the framework on a process to develop theory-informed interventions for health professional behaviour change.[20] The first two phases of the approach involve identifying local priorities and barriers to implementing Choosing Wisely recommendations[20] demonstrating recognition of the need for contextualisation of the identification.

Frameworks that did not arise from the review may also offer an important lens to capture the contextualisation of processes to identify low-value care, as part of a broader dynamic processes that aim to reduce or deimplement low-value care. Complex adaptive systems theory and dynamic explanatory theories could assist. Complex adaptive healthcare systems theory highlights the role of teams and leadership in identifying local needs and innovations based on those needs[67] and suggests that key agents (brokers, boundary spanners and influencers) in systems such as hospitals should be identified alongside activities for improvement such as addressing low-value care.[68] The process of identifying low-value care as part of a multicomponent process that begins with 'labelling' the value of care aligns with dynamic explanatory theory in that this process can be viewed as beginning the work of organising and identifying potential actions.[14]

Strengths, limitations and future directions

Our two contextualisation criteria were theory-informed but may have been too simplistic to pick up the complexities of contextualisation in identification processes, for example, the power, legitimacy and urgency of stakeholders that have been highlighted by others.[69] While guidelines are lacking for reporting and conducting contextual assessments,[70] future research to identify and prioritise low-value care and subsequent deimplementation efforts would benefit from contextual assessment with attention to matching the level of interest (eg, international, national, state, single centre) with data and stakeholder perspectives that represent that level or service, with careful consideration and reporting of power, equity and urgency that has been discussed by others.[69 71] One included record could be used as an exemplar of methods that could be used in future research and evaluation efforts to obtain an in-depth understanding of context in relation to identifying low-value care.[45] In that study ethnography identified the importance of engaging stakeholders in problem definition to avoid stakeholder feelings of disempowerment, and developing trust through data analysis that involved clinical experts.[45]

There were challenges identifying relevant records for reasons like titles and abstracts not always reflecting whether the identification of low-value care was included. However, systematic search guidance was followed including broadening the initial search strategy for sensitivity and consultation with a medical librarian experienced in conducting systematic reviews.[72] In addition, several approaches were used to identify unpublished papers as recommended.[33 34] Thus, we are reasonably confident that most relevant articles were included. A team of authors was involved in resolving any discrepancies regarding whether or not papers met eligibility criteria which assisted in ensuring consistency in our decision-making. Inconsistency in the application of, or lack of, explicit definitions or key concepts of low-value care in the methods of included studies indicates further work is required in elucidating and reporting of key concepts which would assist identification of relevant studies and comparison across studies.

Unclear reporting within original studies meant authors were contacted for clarification where it was difficult to make inferences from other details reported, for example, records referring to future implementation were interpreted as meaning the study was in the preimplementation phase. The evidence included in our review largely pertained to high-income countries (eg, the UK, the USA, Canada, Australia) thus may not generalise to dissimilar healthcare systems.

CONCLUSIONS

Gaps identified in this review were the lack of use and reporting of contextualisation, and involvement of people with lived experience of a health condition in identifying low-value care. Most multicomponent processes for identifying low-value care were limited to the preimplementation phase and few studies evaluated the effectiveness of implementing these processes in clinical settings. No studies evaluated the impact of the multicomponent processes on patient outcomes apart from patient safety. Therefore, a priority for further research is evaluating the effectiveness of initiatives that identify low-value care as part of multicomponent processes in clinical practice on patient, clinical and implementation outcomes. Other gaps identified in this review were the lack of initiatives in resource poor settings and countries, and application of clear definitions or key concepts to identifying low-value care. Few models, theories or frameworks were used to guide initiatives in included records, but guidance is offered for theories, models and frameworks that may assist in planning and implementing future multicomponent initiatives that involve identifying low-value care.

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