Moving towards high value care toolkit:

Identifying and addressing low value care

Dr Zephanie Tyack, Dr Michelle Allen,
Dr Hannah Carter, Dr Sameera Senanayake,
Professor Steven McPhail

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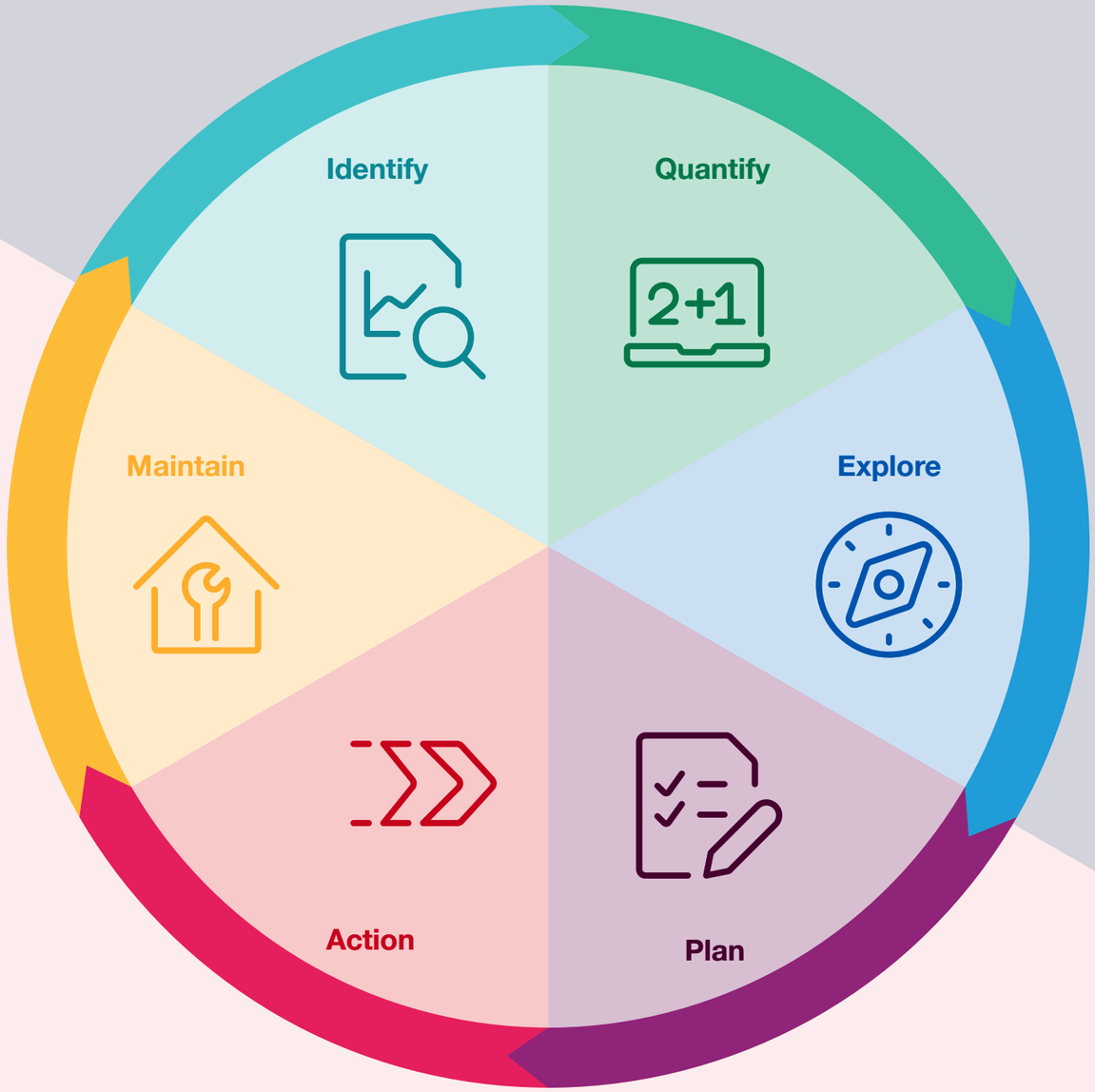
Correspondence to:

Professor Steven McPhail
Academic Director, AusHSI
steven.mcphail@qut.edu.au



Addressing low value care

Introduction

What is low value care?

Low value care in healthcare has been defined a few different ways. It can refer to any form of healthcare service which delivers *little or no benefit, may cause patient harm, or yields marginal benefits at a disproportionately high cost (1)*. It can also refer to care that is *inefficient, does not maintain a person's quality of life or that wastes time and resources (2)*. From a patient-centred care perspective, care that does not consider the patient perspective may be low value. Low value care may be best framed as moving towards high value care when introducing the concept to clinicians and managers.

When we refer in this document to healthcare services, we mean any health service delivery including practices, consumables, diagnostic tests and drugs.

Characteristics of low value care:

- **Harmful to patients**
  This could be where there is a large adverse effect, or where there is a small risk of harm but the repeated or cumulative effects of harm are larger.
- **Little or no clinical benefit**
  This could be where there is little evidence of clinical efficacy considering the risk and target group. It may be that a practice is continued out of habit rather than being aligned with evidence particularly where guidelines and evidence has moved on.
- **Too expensive or burdensome to the hospital, clinician or patient**
  This includes care that is high cost but low value. The cost should consider not only financial costs but also opportunity or social costs. The low value may only be from one perspective, for example the hospital perspective, as the clinician and patient may not be too concerned about cost if they are not responsible for paying for the care or don't get reimbursement.
- **Misconception of value**
  This includes services conducted either because clinicians are unaware of new guidance, the desire to do something instead of nothing, or when patient expectations are driving the low value care. For example, obtaining an antibiotic for a cough may be important to the patient even when it is caused by a virus and not susceptible to antibiotics.
- **Easier to access compared to alternatives**
  Low value care may continue to be delivered for the simple reason that it is easy to access. For example, a less sensitive and less effective test might be readily available, whilst the alternatives are only found in certain settings
- **Better alternatives available**
  This is where low value care is delivered despite better alternatives being available including medications, tests, or dressings.
- **Overtreatment, underuse, misuse, waste**
  This includes when an excess amount of treatment is provided (for example, 10 physio sessions when 5 sessions would be equally as effective) or undertaking treatment options that are not required. It also includes not delivering care that results in preventable complications, wrong doses or durations of treatment, or failure to provide care when a favourable outcome is likely.
- **Inefficient**
  This includes care where time and resources are used poorly (for example, accessibility of theatre lists, temporary staff with a lack of experience, equipment not available or accessible).
- **Doesn't consider patient preferences or the patient voice**
  This includes care that doesn't prioritise maintaining or improving the patient's quality of life in line with their preferences (3) and where the patient experience is not optimised (2). For example, providing a treatment that aims to cure a patient when they prefer palliative treatment (4).

Why has this toolkit been developed?

- These toolkits have been developed as part of a Health Translation Queensland initiative in conjunction with the Australian Centre for Health Services Innovation (AusHSI, QUT) to identify and address low value care in Australian hospitals. The toolkits have been developed to assist people involved in clinical decision-making and resource allocation to identify low value care, particularly team leaders and directors of services. The toolkits are also intended to engage patients in de-implementing low value care in acute care hospital settings, a strategy that has been identified as effective in reducing low value care by an average of 31% (5).
- As part of this initiative, two scoping reviews were conducted. Evidence referred to in these toolkits has drawn on these reviews. Content of the toolkits has also been developed to match features recommended in the design of toolkits (6) as well as information from interviews with clinicians, managers and health consumers of hospital services.

By identifying and addressing low value care there is the potential to:

› Reduce harm (7)
› Improve care and patient outcomes
› Free up energy, time, and resources to do things of greater value or higher quality
› Reduce stress, frustration, leave and burnout in health professionals
› Reduce the cognitive load on healthcare professionals
› Positively impact on the recruitment and retention of staff
› Avoid staff feeling professionally dissatisfied (8) or ineffective
› Reduce health disparities and inequity (2)

How should I use the toolkit?

Multiple strategies to identify and reduce low value care are included across the toolkit as more than a single strategy is likely to be needed in clinical practice to reduce low value care (9-12). This toolkit has six stages: Identify, Quantify, Explore, Plan, Action, Maintain. Each stage contains information on how to complete that stage, a list of tools that can help you, and key questions to ask yourself during that stage.

Who is this toolkit for?

- Frontline team leaders, directors of services and project managers working in hospitals or staff who are involved in setting and managing clinical priorities.
- May also be relevant for service leaders involved in care delivery prior to and after hospitalisation that impacts on the care delivered in hospitals (for example, medications prescribed by a general practitioner prior to a patient being hospitalised) as well as staff at other levels of the health service.

Types of change in de-implementation

De-implementation is not an all or nothing concept. De-implementation may need to be nuanced, as not all low value care is low value in all situations. When considering how you might address the low value care areas that you identified, it is important to first think through (4):

- The size and scale of the low value care
- The context of your low value care problem (for example, organisational structure, culture, available time, resources)
- Reasons the care is low value (for example, inefficient, ineffective, unwanted)
- Factors driving your low value care problem (for example, fear of litigation, patient expectations)

There are four types of change that relate to de-implementation (remove, reduce, replace, and revise) that have been adapted from Wang et al. (13).

Remove	**Remove** or stop delivering an inappropriate intervention.
Reduce	**Reduce** or restrict the frequency or intensity of an inappropriate intervention.
Replace	**Replace** or substitute a currently delivered inappropriate intervention with a new, evidence-based intervention targeting the same or similar patient outcomes.
Revise	**Revise**, redesign or rethink where evidence suggests that a different alternative would provide better value in terms of patient outcomes and costs than current practice

Remove

Where something is considered to be a “do not do” practice; where it is harmful, clinically inappropriate, outmoded or provides little or no benefit to most people, most of the time, then this is likely to be your desired strategy. When people think of de-implementation, they often think of this change type, but this may not suit the low value care service you have chosen. Other strategies may be more effective in your context.

Stopping or removing a service from practice may require significant effort, as humans have an aversion to loss that is considered to be stronger than our attraction to gains (loss aversion bias) (14). This strategy is likely to be most effective when the behaviour or practice that needs to be removed or stopped is not entrenched (13). Where the low value care service in question is entrenched, coupling the removal of this practice with the introduction of another higher value option, may be more likely to provide the desired result (this option is outlined in more detail in replace/ substitute below). The worldview and beliefs about the low value care may have a strong impact on the extent to which the low value care can be removed or stopped, so understanding the history may provide insight into how best to change these views (15).

Clinical example

Imaging for non-specific acute low-back pain for people presenting to ED where there are no clinical features that suggest serious or specific pathology, adds no value to their treatment or outcomes, and unnecessarily exposes patients to harmful radiation.

Arthroscopy and arthroplasty for knee pain is not only ineffective in many cases but can potentially worsen patient outcomes such as knee stability.

Reduce or restrict

Where you have a service that is only clinically appropriate in certain populations, circumstances, or with people with certain risk profiles (and therefore is low value outside of these parameters), restricting or reducing this service to only those situations where it is clinically appropriate would be the ideal course of action. When restricting the low value care, a range of strategies or interventions are likely to be needed to support clinicians to make better choices and only provide the service in a high value situation, not a low value one (13). Further, low value care may also include when a service is conducted more frequently than needed or when the risk profile for that patient doesn’t warrant another (potentially harmful or invasive) investigation. Reducing the frequency or use of that low value care reduces waste, as well as unnecessary impacts on the patient or the health system.

Clinical example

By reducing the length of time that a broad-spectrum antimicrobial can be administered without a review and subsequent change to targeted antimicrobial, you can reduce the likelihood of antimicrobial resistance.

By restricting Prostate Specific-Antigen (PSA) testing to only men aged under 75 years, you are restricting it to those patients where the test may be of clinical value, and not exposing men of this age to unnecessary testing where the evidence no longer supports its use.

Replace

You may have a situation where there is a better quality, more effective, or more appropriate test, procedure, or practice available, or where new guidelines and evidence suggest a change is needed to clinical practice. This might be a similar item that is of higher value than the current low value care service you have identified. In this process of change, much of the emphasis will be on promoting the new or better care which will be more easily accepted if you frame the change as an improvement rather than de-implementation. However, strategies to unlearn current mental models and disrupt the status quo will likely be required as well (16).

Clinical example

By replacing brand name medications with generic medications, you can provide equivalent clinical outcomes at a reduced cost.

By replacing certain technologies with more cost-effective technologies, you can achieve similar patient outcomes whilst reducing the cost to the healthcare system.

Revise

For some low value care items, there may not be an obvious substitute. Alternatively, new evidence may suggest that a vastly different alternative would provide better value in terms of patient outcomes and costs than current practice. This may include re-engineering the environment or the clinical pathway which may need to happen in collaboration with different stakeholder groups. Revise can apply when one of the other three types of de-implementation are not working (17).

Clinical example

Instead of thinking about surgical options for people with coronary heart disease, you could think about using medication, as in many cases you can provide similar patient outcomes, without the risks associated with surgery.

Revising how care for older people is provided and moving certain services into the community and the patient's home, can lead to better patient outcomes and avoid unnecessary hospital admissions.

Challenges to de-implementation

- There are several factors that make de-implementation more challenging than implementation.
- Humans do not like to give things up. We are more averse to losing something, than we are attracted to gaining something (14)
- Breaking habits is hard. Mental models and attitudes may need to be disrupted for change to occur. This change to mental models is often termed "unlearning" (16).
- Humans are not 100% rational creatures.
- Fear can be a driving force, as people may feel like their value, autonomy, identity, and professional skill may threatened by change (18).
- There may be personal, professional, or financial interests that reinforce the behaviour you are trying to change.

Identify

Where should I start?

- **Avoid** hospital areas where guidelines and best practices are changing rapidly
- **Prioritise** services that:
  - › Result in harm
  - › Are always low value for some populations
  - › Where consensus has already been achieved in identifying low value care (for example, published lists, cost-analysis, clinical guidelines, expert opinion)
  - › Where consensus can be achieved in identifying low value care
  - › Have lower cost and are equally effective as alternatives that can save money (for example, tests, medications and wound care)
  - › Are being done everyday (for example, routine pathology, radiology, the things you do before you send a referral)
  - › Involve tests, procedures, products and pharmaceuticals (for example, ordering too many blood tests, pathology, imaging, gastroenterology clips)
- **Develop a very simple message** for hospital and health service staff (for example, if you can save $30 per admission, you can save close to ten million dollars for the hospital OR there were 2 tonnes of waste generated in the hospital last year that we can do something about).
- **Prioritise listening** to patients and families before making decisions
- **Foster critical thought** about the types of care delivered by individuals and teams

Questions to ask yourself:

- Are there things we do too often or too much, or that are too harmful (for example, pathology, imaging, patient monitoring, assessment)?
- Does my patient really need this test and what will the likely outcome be?
- Are there people who receive complex risky procedures when a simple procedure may have sufficed?
- What is high value care and low value care in my context?
- What are the scenarios that are high risk or where overuse is present?
- What proportion of patients are receiving low value care?
- Are different patients or people with different risk profiles affected differently?
- How commonly does the low value care occur?
- Have you considered the relative financial impact on the health service?
- Have you thought about whether you and other professionals may have unconscious biases toward continuing some types of low value care?
- What is the potential benefit of this care for the patient and what is the potential harm?
- What will be the likely outcome of this treatment to this patient and family (valuing the outcome rather than the intervention)?

What is the problem?

In order to answer some of these questions you might need to involve others within your unit or hospital, potentially from other disciplines, as well as use data from a range of sources. As such, it is likely you will need to gather a team to help you. Think through who might be affected by this low value care as well as who might have access to data sources you need to make your decision around whether the low value care in question is a problem in your area or hospital, the extent of its use, and why it might be occurring.

You will need to gain consensus from teams delivering the low value care that it is:

a. Low value or low value in certain circumstances or settings;

b. That it is an issue worth addressing;

c. What is causing the low value care to occur; and

d. Steps that should be taken to address this low value care in your area or hospital.

Agreeing on the problem, its causes and how to address it is a cyclical process, where you will need to get consensus from those involved at multiple stages throughout the project. You may already know a lot about the low value care you have chosen, or you may need to conduct some initial information gathering, as well as creating social momentum and buy-in from those around you. Importantly, in order to quantify and qualify the low value care, you must first agree when it is low value and when it is not.

The next two sections - Quantify and Explore - outline how you go about investigating the issue (for example, the context, size and scale of the low value care use, exploring who it affects, and the reasons why this low value care is still occurring). The Plan, Action, and Maintain sections after that will work through how you go about addressing the low value care once you have consensus that it is an issue worth addressing.

Questions to ask yourself: For identifying your problem (including prioritising and consensus building):

- Who should be in my team to identify and prioritise the low value care to be addressed?
- What disciplines might be involved in using the low value care?
- Am I clear on what my problem is?
- Is the service you are targeting always low value, and if not, where do you draw the line?
- Do others agree that there is a problem that should be addressed?
- What types of information do you need to make a decision about this low value care or convince others of its importance?
- Have you considered the relative financial impact on the health service and how you might quantify those costs?
- Is there data to indicate how commonly the potential low value care service occurs?
- What is the profile of people who commonly receive this low value care?

Refer to the resources in **Appendix 1** for further information.

Quantify

Quantify the size and scale of the low value care (including cost)

Quantifying the low value care is important in prioritising efforts to address potential areas of concern, including assigning a monetary cost to low value care. By reviewing data on the size and scale of the low value care, it is possible to understand if it is a priority for being addressed, as well as where de-implementation strategies might be most effective. You may need to speak to your data team, financial costings team or do a local audit to get the information you need. Keep in mind, low value care may impact on multiple categories of resource use across the hospital setting including pharmacy, imaging, pathology, equipment use, and length of stay.

In addition, low value care may have flow-on costs beyond the immediate setting or interaction with the service provider, for example hospital readmissions or routine follow-up appointments in the outpatient setting. It is therefore important that any attempt to quantify costs of low value care should encompass the full range of relevant resource use categories.

Once potentially low value care services have been identified, the following four steps can be adopted to quantify the size and scale of the low value care (LVC), as well as estimate annual costs at the hospital level (**Figure 1**).

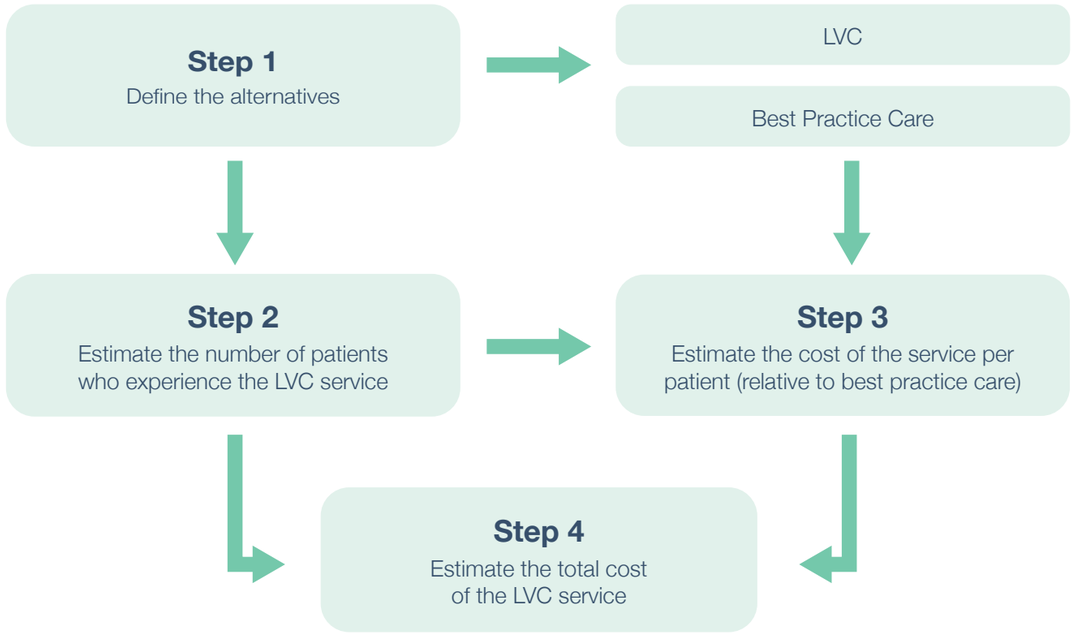


Figure 1: Steps for quantifying low value care

Step 1: Define the Alternatives

In order to estimate the impact and costs of low value care, a comparator must first be defined. The comparator should represent best practice care.

Step 2: Identify the total number of patients that would experience the low value service at the hospital each year

- The total number of patients who experienced low value care in a specific patient group within a specified time period (for example, per year) should be identified.
- In some circumstances, a service may be of low value regardless of the clinical profile of the patient who receives it. In this instance, the total number of occasions in which the service was delivered may be enough to estimate the cost of low value care.
- In other circumstances, a service may only be considered of low value in a subgroup of patients with a particular risk profile or clinical indication. Understanding which ones are low value care and which ones are not may require further investigation. It may be possible to assess this from their administrative data, for example, if the sub-group is defined by age. However, if this is more nuanced, an audit of patient records may be required. In these cases, the costing should be limited to the times the service was delivered to the subgroup of patients where it would be considered of low value.

Step 3: Quantify the costs at patient level

The aim here is to estimate only the costs that would be additional to those incurred under the comparator you have defined in Step 1 as the ‘best practice’ model of care.

Define relevant areas of resource use and categorise them as “humans”, “things” or “space”(19)

Identifying the relevant resource use items is the first step in estimating costs of care. These may be broadly categorised as “humans”, “things” and “space” (**Figure 2**).

Humans: Human costs include the time spent by hospital staff which may include clinical staff (doctors, nurses and allied health) as well as professional and administrative staff.

Things: Includes consumables, diagnostic tests, equipment, machines, and drugs.

Space: Does a service require dedicated physical space? This could range from a small clinic room to an operating theatre. Space can be more difficult to quantify in monetary terms, as it will often have an ‘opportunity cost’ associated with an alternative use.

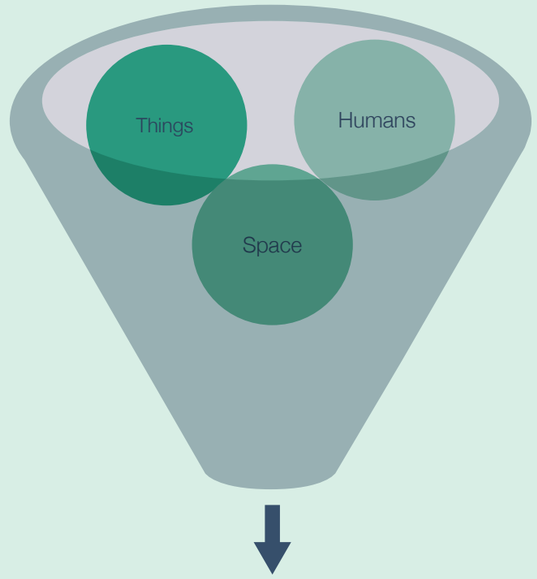


Figure 2: Humans, things and space

Decide how you will measure resource use and collect the data

- **Are the data readily available, or do they need to be specifically collected?** Identify the data source you will use for each item.
- **How accurate will the data be?** It is important to source data that is accurate, but this needs to be balanced against how feasible it will be to collect the data. Focus your resources on making sure the largest costs can be measured accurately.
- **Do you need to consider uncertainty?** If there is disagreement around specific items, you could estimate the final cost across a plausible range of values, to test the impact of this uncertainty.
- **Are costs shared?** In some cases, costs will be shared across multiple purposes. For example, a nurse might spend an average of 1 day per week on delivering a particular service, or a room may be used for approximately 2 hours per day. It is only necessary to include the cost that related specifically to the service of interest. To do this, costs can be 'partitioned' by estimating the percentage (%) of a given cost that can be attributed to the service, and only including this % in the total cost estimation.

Time-driven activity based costing is a method that has been developed to address some of the challenges of estimating costs of health care delivery (20). This approach involves the development of process maps for each activity in patient care delivery, including all relevant personnel required for each process step. The amount of time spent by each individual at each step in the process should then be estimated. Standard times estimated by experts can be used for common, short, and inexpensive activities. Actual times should be measured for complex, lengthy, and expensive activities, for example via direct observation. The cost of providing each resource for the given durations of time can then each be estimated and summed to provide a total cost of care. **Appendix 2** provides an example of a template that could be used for time-driven activity-based costing.

Attach a dollar ($) value to each cost

Where possible, monetary values may be assigned to resource use items to estimate a total cost of low value care. However, this depends on the availability of cost information. In cases where monetary values can't be readily assigned, resources can be represented in their natural units (for example, number of appointments or tests or procedures, hours of labour, units of consumables, bed days released, or clinic space used).

While it can often be difficult to access precise costings, there are some sources that can provide reasonable approximations. **Table 1** provides a summary of some of the key sources for data that can be used to assign monetary values to common hospital resource use items. A detailed inventory of the types of hospital resource use and data sources that can be used to cost them can be found in **Appendix 3.**

Table 1 Summary of key sources for data to assign monetary values to common resource use items

Resource use category	Source for assigning dollar values
Staff time	Enterprise Bargaining salary rates (available online or through Human Resource departments)
Hospital admissions	Hospital clinical costing unit National Efficient Price Determination (using relevant Diagnosis Related Groups (DRG) codes)
Length of stay	Hospital costing unit (for example, cost per bed day for a specific ward) Published literature (for example, cost per bed day for patients with a specific condition)
Outpatient procedures	Tier 2 clinic code costs
Pharmaceutical use	Hospital pharmacy data Pharmaceutical Benefits Scheme item numbers
Consumables	'Market value' based on purchase price
Equipment	Time on equipment partitioned as % of purchase price over its usable life

Step 4: Aggregate total costs of each Low Value Care service per annum

- To quantify the cost the hospital could have saved if low value care had been avoided, multiply the number of patients who experienced low value care (step 2) by the patient-level cost (step 3).
- If this same calculation is performed for all potentially low value care services, it will allow for a comparison of the relative economic burden which can be used to inform areas of priority.

Explore

You are now clear on which low value care service you are interested in changing, the scale and size of the problem, and the circumstances in which it is low value. It is important now to go on to explore and understand who is affected (for example, a particular risk profile or patient group), as well as why this low value care occurs and what is driving its current use.

You can find out more about the potential problem by talking and listening to patients and other stakeholders and observing what happens in a service. This might change the problem you originally thought was low value care or the circumstances in which the care is low value. This could be done using:

- Targeted questions to patients and families as part of usual care delivery; or
- A brief survey or meeting involving health professionals.

Framing your activities in terms of aiming for high value care means you are less likely to encounter people who are defensive or who feel threatened by the implication they might be delivering low value care when you use the word ‘low value care’. However, there may be circumstances that justify the use of the term ‘low value care’ where you want to call out a particular type of care that is clearly low value.

Questions that health professionals could be asked by their team leaders and directors include:

- What do you do in your work day that you think is a waste of time?
- What would you like to change and why?
- What did you do in your shift last night that you felt was unnecessary?
- What is a priority in your service?
- What are the top 5 most valuable things that you and your team do?

Note: Prior to these questions being asked it is highly recommended that the health professionals being targeted should be given some context. For example, we are not trying to stop you doing your job nor are we looking at changing your job or position. We just want to understand how we could improve patient care.

Questions health professionals could discuss with patients and families:

- What is the worst thing that could happen if you don’t undertake this test?
- Why do you need (or not need) this test?

Patients most affected (or at risk) of your chosen low value care

It is important to review the data you used to quantify your problem to understand which patient groups are being affected by your low value care. This might relate to your agreed definition of when the service is considered low value and when it is not (not all services/items are low value all the time). Further, disadvantaged patient populations are more often the recipients of low value care (2), so understanding who is most affected by the low value care is important in terms of equity. Some factors that you may wish to understand include:

- Sociodemographic profile
- Service location
- Co-morbidities

There are also a range of factors that might increase the risk of receiving low value care (2), such as:

- Those requiring regular tests or procedures
- Low health literacy or socioeconomic status
- Consultations where sensitive topics need to be raised
- Language barriers
- Disparate cultural values and models of health
- Doctor-patient power imbalance
- Gradients of power and influence in health services involving health professionals

Causes and drivers of the low value care

There are a range of factors that may be contributing to the continuation of the low value care. Talk to key stakeholders to understand the issue and what is driving the low value care. When discussing the low value care:

- Be really clear on what the problem is, what would you like to change, and why
- Take some time to talk with key stakeholders to understand the reasons for the problem or low value healthcare - do this with both the multi-disciplinary group you work directly with as well as others who might be affected by any change to current practice
- There is likely to be more than one reason for why a particular low value behaviour or practice is occurring. This may include:
  - An individual habit or fear of missing something
  - The behaviour or practice being part of the person or teams “normal” way of doing things (21)
  - Part of standard policy in the hospital
  - Strict adherence to consensus statements, guidelines and standards of care without understanding when they don’t apply or are inappropriate
  - A system that allows the behaviour to continue (for example, no option to remove an item from an ordering system)
  - No one knows about (or agrees with) the latest clinical guidelines (22)
  - When it is easier to order or get access to a treatment or medication than an alternative
  - Your own biases
  - Incentives for continuing to use the low value care
  - Patient expectations (patients expect to be given a specific test or treatment) (23)
  - Not keeping abreast of dynamic changes in the clinical environment (for example, where a treatment regarded historically as high value changes to being low value based on new evidence)

Context mapping

Once you have used a range of data and information sources to understand and explore the problem and who is affected you should be reasonably certain that you have identified a low value behaviour. The question box can help you double check your readiness to move to preparing for de-implementation of the low value care.

Understanding your context is a key step that needs to be undertaken, in order to know what type of de-implementation process you should undertake and which strategies or interventions would best suit your area or team or hospital. This can be done by exploring potential barriers and facilitators to changing the selected low value care, understanding the workplace culture and the potential responses of staff. For example, you might lose the goodwill of staff which often contributes to maintaining high value care if you put a microscope on people's practice so thinking carefully about the way you will approach things is important. Readiness for change can be evaluated formally or informally and should include team relationships (24). Resources on readiness for change and context assessment are included in **Appendix 1.**

Some of the key features that support a successful change include:

- A supportive culture (25)
- Leadership, engagement, sponsorship (25)
- The right training or support (25) which may involve dedicated time from a key person or people who assist in sustaining the initiative and momentum
- Teamwork particularly that involving team leaders and directors of departments
- Incentives that include meaningful rewards flowing back to the teams who direct and support the change (for example, awards that recognise staff contributions or competitions)

Questions to ask yourself:

- What is the evidence that changing a low value care practice will improve the value of care?
- Is there consensus around the low value care and the need for change?
- How will the leaders in my team, directors of my department and patients become engaged?
- Is the culture within your team or organisation supportive?
- What are the barriers to change?
- What things or people would support a change?
- What things in the local environment do you need to consider when planning for system change (for example, things at the team or hospital level)?

Plan

So now that you have the type of change (or changes) in mind, you need to consider what specific strategies are needed to support your changes. This section outlines how to select strategies for de-implementation and implementation, considerations for your de-implementation plan, and stakeholder engagement for both planning and delivery of your strategy.

Selecting strategies

Selecting which strategies are going to be most effective in your setting, and with your team, can be difficult. Change may need to happen at various levels – this may be at an individual level, team or department level, or even at an organisational or broader system level (26). By aligning strategies with the type of de-implementation change you are introducing and the drivers for the low value care (that you discovered during the **Explore** stage of the toolkit) you will increase your likelihood of successful de-implementation. **Appendix 4** is the Expert Recommendations for Implementing Change (ERIC) project strategy tool (27). This tool outlines over 100 different strategies that can be used for implementation and de-implementation and is worth reviewing when deciding on which strategy suits your context. Choosing strategies that address the barriers you have identified, or take advantage of the facilitators in your context, have a greater likelihood of success (28). Five of these strategies which emerged from interviews with clinical decision-makers have been discussed below.

Improving knowledge and awareness

Provision of information (usually in the form of training or education) about the low value care, why it is considered low value, and why it is being de-implemented is a key component of many de-implementation journeys, as improvement in awareness and knowledge is the most common starting point for change (29). You will likely need to consider both learning and unlearning components, as you may be challenging long held mental models or beliefs. Unlearning is a process of debunking current mental models, whereas learning refers to the development of new knowledge (13, 16).

Training and educational interventions are particularly useful where there is a lack of awareness of current evidence of when the service is low value and when it is not, or when current beliefs (clinician/ consumer) have been indicated as a key driver for continuing with a low value care practice. In previous stages of the toolkit you would have identified other drivers of your low value care. However, simply providing information on low value care is not sufficient for sustained behaviour change. Education and training strategies usually need additional approaches (for example, opinion leaders, audit and feedback) to support the desired change (30).

Comparative interventions

Benchmarking as well as audit and feedback are strategies that compare the behaviour of an individual clinician or group of clinicians, to guidelines or their peers (29, 31). Being able to see where you or your team compare on a particular low value care practice often provides both knowledge of the issue and motivation for change.

These types of interventions work well with those who are competitive or where there are clear social norms and a strong desire to be like the group. Most people do not like to be the outlier. Audit results can either be shared individually with each clinician or more broadly. These types of comparative interventions can also be gamified (32), whereby the people meeting a target (for example, 80% of patients followed up within 48hrs post-surgery which is in the best practice clinical guideline), win a competition for their ward or unit.

Physical and electronic restriction

These types of interventions by their very nature tend to force a change through policy or design. Physically removing a low value care item (for example, removing a dressing they should no longer use) from the immediate environment, is likely to stop people using it. Restrictions might also be introduced in the ordering process (for example, only specific people in your department being able to order a particular test or procedure). Alternatively, in order to request a particular test a prompt may require an explanation of why it is required, or a low value care intervention may require sign-off from someone else to ensure that it is clinically appropriate.

Decision support, prompts, and nudges

These strategies are designed to guide clinicians around when certain items are low value and when they are clinically appropriate. They may be explicit or subtle. Decision support tools or programs enable clinicians to decide based on current data and guidelines. Evidence based clinical pathways, as well as reminders or prompts, are other methods that can be used to guide clinician behaviour. These could include a reminder in the electronic medical record (for example, after two days a pop up says “remove catheter now unless clinically required”), or a prompt being given through the electronic medical record before you undertake a specific procedure to ensure it meets the current guideline.

Nudges are by definition subtle, and infer a particular action, without expressly requesting it (33). For example, one study found that sending a letter with an individual GP’s antimicrobial prescribing habits compared to a national average, had the desired effect of reducing antimicrobial prescribing, without explicitly suggesting that those receiving the letters should change their behaviour (34).

Cognitive huddles are another form of nudge, that can be used to discuss a particular practice in a ward setting. They can allow health professionals to challenge the current mental model that supports the status quo, by enabling clinicians to suggest alternative treatment options or ideas, and supporting positive deviance (32). Choice architecture is another nudge that is commonly used. This may be as simple as putting the low value care at the end of an ordering list instead of the top, or placing an alternative product that is better value in a more easily accessible spot on the ward (32).

Shared decision making

Shared decision making is a great way to help both patients and clinicians feel comfortable about the course of treatment and enables both parties to understand the risks and benefits (35). Shared decision making is particularly useful when stakeholders have indicated that the patient’s preference, as well as fear of litigation, have been highlighted as drivers for continuing with low value care (36).

For shared decision making to be effective, patients’ health literacy is an important consideration. Given the power differential between clinicians and patients, the onus should not be on the patient to be well informed. The onus is on the clinician to provide enough information about the risks and benefits of each option in their treatment plan to empower patients. Further, clinicians need to create a safe space where patients can feel comfortable enough to provide their honest point of view, which may require upskilling.

Disadvantaged patient populations are more often the recipients of low value care, therefore it is important for clinicians to consider language barriers, cultural differences, and their patient’s comfort with questioning authority, and try to accommodate for this (10). Ensuring you have consumer input into any shared decision-making tools you introduce is highly recommended.

Things to consider when selecting strategies (28, 37)

- Think about your context and the drivers of the behavior you are trying to change (identified in the previous sections of the toolkit). Multifaceted strategies tailored to identified barriers, facilitators, and drivers of behaviour may be needed to effectively reduce low value care (37).
- Think about the level(s) of the organisation you are targeting
- You may also need to consider both motivation and capacity for change (38)
- Does your team (or individuals within the team) want to apply the change in practice?
- Do they see the change as valid and worthwhile?
- Is there a shared view about the problem?
- Are individuals able to implement the change?
- Are the current knowledge and skills of individuals adequate to support the change?
- What modifications are needed to usual practice?
- Does the team have the necessary authority and resources to carry out the change?
- What barriers and facilitators did you identify in the previous sections of the toolkit and will the selected strategies address these?
- Is there good interpersonal collaboration?

Develop a de-implementation plan

So you now have a de-implementation plan and several interventions selected. It is now time to plan the detail around how, when, and by whom these will take place. General project management principles can be applied.

Scope, timing and resources

Consider your scope (39). This will include the number of people who are involved, whether the setting is a single ward or team, or whether you are interested in addressing low value care more broadly across wards. In addition, what are the parameters of what you are wanting to achieve?

You will also need to think through the timing. If you are introducing a technological solution, you may need to consider how long user testing might take, or make sure the IT support or infrastructure is available. If you are considering training, you might need to ask yourself:

- How long would it take to get all required staff adequately trained?
- Do you have a trainer available?
- Does the training need to be different for different professional roles?

Many de-implementation strategies use a phased approach to make the change more manageable.

Resources will be needed to action your planned de-implementation. Resources to consider include people to do the de-implementation work, materials and equipment, and even physical space like training rooms. A good way to operationalise your strategies is outlined in **Figure 3** – *name it, define it, and specify it* (40).

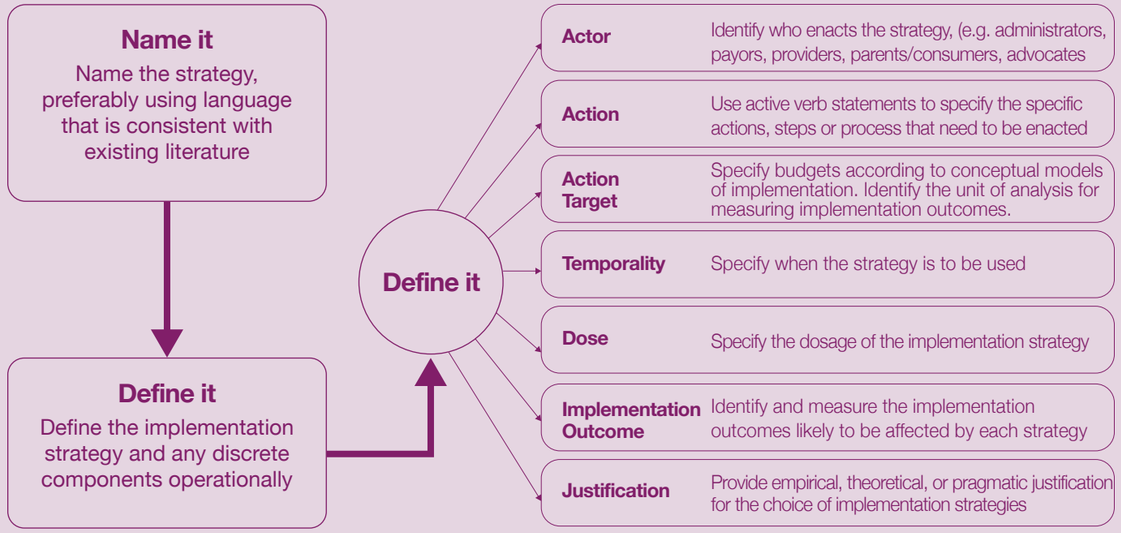


Figure 3: Implementation strategies. Adapted from Proctor EK, Powell BJ, McMillen JC. Implementation strategies: Recommendations for specifying and reporting. Implement Sci. 2013;8(139).

Questions to ask yourself when developing a plan

- What time and energy are needed for de-implementation?
- What are the priorities that need to be tackled first?
- Should this be done in a staged manner or in a specific group?
- Have you developed a clear and logical plan?
- Have you spent adequate time preparing for de-implementation?
- Have you considered the time, energy and resources required?
- What steps do you need to complete early on (for example, initial training or communications or IT support?)

Consider a theory, model, or framework

You may wish to consider a theory, model, or framework (TMF) to underpin your de-implementation plan. There are a range of theories, models and frameworks that can provide a good road map to guide your de-implementation journey (41).

Theories, models and frameworks are designed to provide information on how to assess barriers and enablers of implementation or de-implementation, as well as understand different influencing factors in relation to what you are trying to change, the people involved and their capacity and motivation. They can also help to understand the context in which you are de-implementing low value care. You will have collected information during the **Explore** stage of the toolkit, which should help you better understand the people involved and the context you are working in.

The majority of the theories, models and frameworks available were developed for implementing something new, as opposed to reducing or removing something, but there are a few theories, models and frameworks that have been developed that focus specifically on de-implementation. To date, implementation focused theories, models and frameworks have been used successfully in many de-implementation projects (37).

Common theories, models and frameworks

There are six groups of theories, models and frameworks that might be useful for de-implementation. These groupings are (41):

- **Process Models** – describe or guide the process of implementing your project. These are often more linear or temporal in structure and are very practical in terms of "how to" roll out your change.
- **Evaluation Frameworks** – focus on evaluating your project. These are used to assess what worked and what didn't, as well as to set-up your project with the right type of outcomes for evaluation.
- **Determinant Frameworks** – seek to understand or explain what factors influence the implementation of projects. Determinants frameworks, along with classic and implementation theories, all try to understand the "why", and tease out the barriers and facilitators.
- **Classic Theories** – seek to understand and explain and are drawn from disciplines such as psychology or organisational change. They often aim to explain causal mechanisms behind the change process.
- **Implementation Theories** – specific theories developed around implementation of health projects. These may discuss other implementation elements like an organisation's readiness for change or how easily new practices become normalised in usual care.
- **De-implementation Frameworks** - newer frameworks developed specifically for de-implementation. These frameworks consider the additional complexities around de-implementation and the different ways humans react to the reduction or removal of something.

Below are three determinants frameworks that have been used for reducing low value care:

- Theoretical Domains Framework (TDF) with the Behaviour Change Wheel (42-44);
- Consolidated Framework for Implementation Research (CFIR) (45,46);
- Integrated-Promoting Action on Research Implementation in Health Services (i-PARIHS)(38, 47, 48)

Using T-CaST can also help you decide which theory, model or framework to use (49) - **Appendix 5**.

This website has information on most theories, models and frameworks for implementation and de-implementation https://dissemination-implementation.org/content/select.aspx.

Questions to ask yourself when deciding on a theory, model or framework

- What stage of de-implementation are you at: planning, doing, evaluating?
- What is the focus of your project: individuals and how they behave, teams and how people work together, organisational aspects, process of change, other?
- What is the level of intervention/context you will target: individual, team, organisational level change?
- What level of guidance is required: conceptual, practical, both?
- What is your role in the project: project manager, researcher, both?
- What resources are available for data collection and analysis: electronic medical record data, clinical costing data, theatre booking timetables?

Stakeholder engagement

Stakeholder mapping

It is important to map the stakeholders who will be involved in your de-implementation, their level of participation, and how and when you will communicate with them (50). As you move from identifying low value care to planning and actioning your strategy, you may need to add people to your original working group you developed in the **Identify** part of the toolkit. Don't forget that there may be groups within your hospital that you need to engage in order to undertake your de-implementation project. These people may include people who are not immediately obvious such as data managers, costing department, medical records, human resource management department, administration, patient engagement team, and patient quality and safety, and IT departments. You may need to ask yourself (17):

- Who will be affected? To what degree will the change affect them?
- Have I spoken to staff to garner the acceptability of the change?
- How will I capture the intended and unintended consequences?

Once you have a list of stakeholders you may wish to prioritise them, as stakeholder engagement and communication can be time consuming, albeit essential.

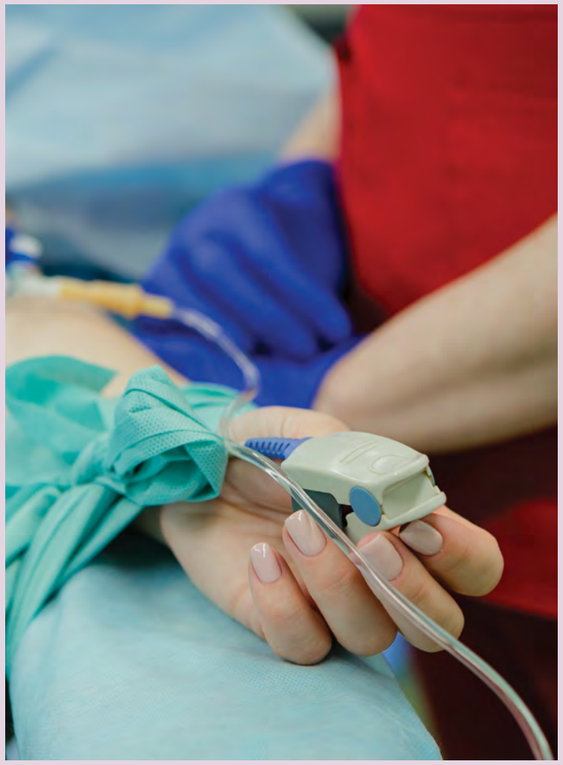
Some tools that you might find helpful include:

Stakeholder Matrix: This tool enables you to prioritise your stakeholders based on where they sit on a grid, with power over the project's success on one axis and interest in the project outcomes on the other axis. **Appendix 6** - Figure 1 (51) details the process for assessing and prioritising your stakeholders, and includes stakeholder matrix and stakeholder communication plan templates.

Engagement and communication strategy

Your engagement and communication strategy will depend largely on the number and type of stakeholders, the size and scale of your project, and the level of participation you require from each of your stakeholder groups. There is a spectrum of participation that ranges from being informed about the de-implementation project, all the way through to highly active participation and shared control (for example, co-designed or patient-led projects).

Appendix 7 provides a link to a guide to levels of participation (based on International Association for Public Participation IAP2 levels of participation) (52).



Communication is key

It is important to continue to communicate what is happening during your de-implementation project. Communication is probably the most important, but undervalued part of many project plans. You will need to bring the people involved on the journey with you and create a shared vision to work towards. It is important to keep your stakeholders abreast of progress, the motivation or reasons behind de-implementation, success stories and where they might be able to contribute support. Think about your different stakeholders as different audiences who will likely be interested in different information or differing levels of detail. Refer back to your stakeholder matrix and work through the attached communication plan (**Appendix 6 – Figure 3**) to guide you in terms of thinking through the detail and regularity of your communications (51, 53).

There are several key components of the process of communicating change with your team and broader stakeholders:

- Explain the process, decisions behind the change and outcomes – this will require a set of key messages and communication tools. Be upfront about the level of influence they have as well as when they will be asked for input.
- Use a formal consultation process and talk to staff regularly – communication may involve small- or large-scale conversations.
- Involve team leaders, directors of services and higher level managers – by enlisting the support of key individuals you can communicate key information to staff and address concerns as they arise.

Further, when communicating with different stakeholders, it is important to think through the communication mechanism as well as the message itself. This process should include how they like to be communicated with, and whether they are motivated by facts and figures or a more narrative, storytelling style of information sharing. Face to face meetings may be the preferred mechanism for some stakeholders (for example, your direct team), whereas others won't appreciate having to physically attend meetings in order to remain informed about your project. Be purposeful with your communication. Focus on what you want your stakeholder to know and subsequently do.

Questions to ask yourself when engaging and communicating with stakeholders

- Have you clearly communicated the reason behind the change?
- Have you developed tailored messages for responding to key issues?
- If there is a change being implemented, have the reasons behind this been clearly articulated?
- Does your communication plan match your stakeholders needs?
- What methods of communication will you use?
- How often will you communicate?

Action

Facilitation and leadership

Support from leadership

Vickers et al. (2021) highlight five key steps for strong leadership leading to transformational change:

- Aligned with strategic goals and leadership
- A shared vision that is inspiring and credible
- An understanding of local and systemic barriers to change
- The intervention is data-driven and contextualised
- Clear accountability and communication (54)

As part of your stakeholder engagement process you will have hopefully found key people to support your project both within your project team and beyond. In order for there to be a smooth rollout of your de-implementation strategy, you will need to have links with, and support from leadership, and accountability processes in place. Strong clinical leadership, and a receptive local culture have been identified as key facilitators to change (36).

Standard project management processes may already be in place in your organisation, or you may have to set-up a structure to support the delivery of this change. You will need to have a clear governance structure, as well as regular communication (for example, meetings) for people directly involved in your project, and a range of communication channels for your broader stakeholders. This is important for transparency, clear communication, and accountability.

Facilitating change

You as the project lead may need to take on the facilitation role to enable others to enact the key project activities. Alternatively, you might gather the support of nominated champions or other opinion leaders to help you facilitate the change.

Some common traits of good facilitators include (38):

- Having a credible knowledge base for content and processes
- Engaging and teaching others, including breaking down the process into meaningful elements
- Empowering others and promoting a learning mindset
- Having good communication skills, expressing empathy, and hearing and acknowledging others
- Being able to identify shared goals, build consensus, and identify reasons for change based on multiple values, interests, and perspectives
- Being respectful and managing conflict well
- Being realistic, yet resilient
- Problem solving and taking action as needed
- Being prepared, and having strong project and time management skills, including managing expectations
- Having adequate time, skills, and authority to undertake the role

Support for staff is important to ensure your de-implementation strategy is effective. It is important to ensure they have the skills, motivation, and capacity to make the changes that are needed. This might include upskilling, regular support or supervision, or mentoring. As noted in the communication section, a shared vision and keeping your team engaged and on the journey together with you is important to sustain change.

Addressing emotional responses to change

Not everyone may immediately agree with your project's aim. Building a shared vision is key to creating sustainable change, but persuading stakeholders is not always easy. There are a range of tools to help you address particular barriers and strategies to overcome common emotional responses to someone introducing a change into clinical practice. One example is the SCARF method (18). The SCARF method looks at the potential reason (called factors) behind the adverse emotional response and provides strategies to address that specific factor, or factors.

Questions to ask yourself when supporting staff to facilitate change

- Are you adequately supporting your de-implementation?
- How are you supporting staff who are leading the de-implementation?
- Is there enough support for those undertaking the change?
- Have you considered mentoring or support by more experienced facilitators?
- How are you managing uncertainty and emotions?

Table 2: SCARF method (18)

Factor	Threat	Strategies
Status	• Feeling their role is going to be taken or devalued • Feeling challenged or being made a fool of in public • Being compared unfavourably with others	• Show them respect • Show that you value their opinion by asking for input • Let them "win" – show them that you have heard them, be strategic • Take their feedback on board and adapt your approach where possible
Certainty	• Too much, not enough, or contradictory information • Ambiguity • Role uncertainty – short term contracts, continually changing work environment, unclear expectations	• Clear, concise, consistent information (three Cs) • Clarity about how the innovation fits within their current role • Clear about where to go for more information and support • Change as little as possible – current or future state – what stays the same? • Make it as simple as possible to implement
Autonomy	• Unable to control their circumstances or events • Being micro-managed • Overly prescriptive role or task • Using extrinsic motivation can reduce intrinsic motivation	• Develop intrinsic motivation – engage the users in design • Allow flexibility where possible – set the goal, but allow users to adapt to suit • Offer choices and opportunities
Relatedness	• Breaking up of teams/ relationships • Reduced opportunities or environments for connection • Any perceived threat to the 'in group'	• Develop 'in group' buy in – find champions for change • Foster opportunities for connection – for example in your project leadership group • Encourage opportunities for groups to connect with others outside their 'in group'
Fairness	• Feeling opportunities always go to the same people • Feeling forced to do something they perceive as unfair • Unfair distribution of work • Different standards for different people	• Transparency in decision making • Asking people to nominate if they're interested in being part of the leadership group for your project • Ensuring all groups are (and feel) represented, especially people who will be rolling out an initiative for example nurses, administrative staff

Measuring your change

So you have a clear plan of delivery, you have spoken to your key stakeholders, and now it is time to start rolling out the agreed interventions that match with your de-implementation strategy and address the drivers and barriers noted in the earlier stages of the toolkit. As you action the agreed interventions, it is important to track your progress. To do this you will need clear indicators of both the change you are trying to make (for example, reducing the use of X-rays), and the way you are trying to achieve this (for example, increasing the number of people who attend your de-implementation training).

Questions to ask yourself when measuring change?

- Is the de-implementation going as planned? How do you know?
- What effect is the de-implementation having on patients, clinicians, costs, time, the system?
- Have you included measures around delivery/implementation of your de-implementation strategy?
- What data should you collect?
- How will you access the data you need?

Intervention outcomes

In order to assess a change related to the de-implementation strategies you have chosen, you will need to select indicators that match what you are trying to change. Intervention outcomes focus on whether or not the interventions are having the desired impact (for example, reducing the use of low value care, reducing adverse events, or increasing patient satisfaction).

Groups of outcomes (from the patient to the service level) that can be measured include (55):

Clinical indictors

- Clinical Function
- Disease specific
- Symptoms
- Mortality

Patient-related indicators

- Patient satisfaction
- Patient experience
- Wellbeing
- Psychosocial functioning

Clinician related indicators

- Knowledge and attitudes
- Skill competency
- Self-efficacy

Service Outcomes

- Efficiency (including costs)
- Patient safety
- Effectiveness
- Equity
- Patient-centeredness
- Timeliness

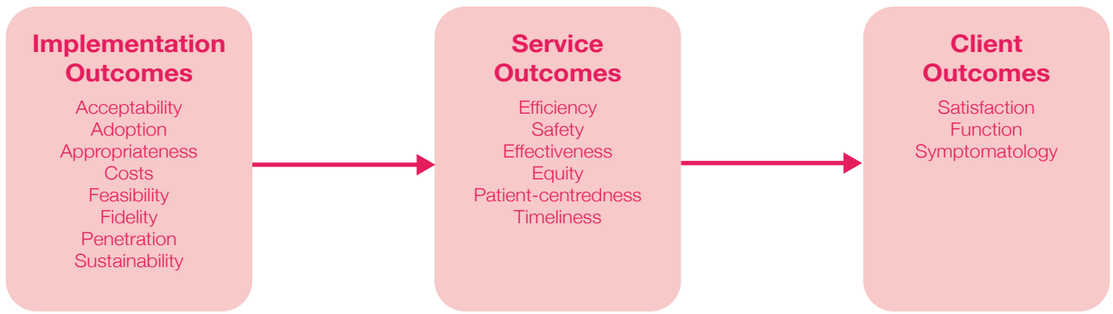
Implementation outcomes

Implementation outcomes focus on whether your delivery of the intervention to de-implement is having the desired impact (for example, have all the clinicians who are affected been trained? Was the training delivered as planned?).

Examples of implementation outcomes (55):

- **Acceptability** is the perception by stakeholders (including providers and/or consumers) that the item implemented (e.g. service, treatment, practice) is palatable, agreeable, or satisfactory
- **Adoption**, often termed uptake, is the decision, intention or action to try or test an innovation
- **Appropriateness** is the relevance, compatibility, or perceived fit of the innovation to either the specific group, patient or setting; or to address the specific problem or issue
- **Penetration**, often termed spread or reach, is the integration of the innovation into practice within the specified setting
- **Implementation** cost quantifies the cost of the implementation itself including delivery of change strategies and use of the innovation
- **Feasibility** is the extent to which the innovation can be carried out successfully in that setting
- **Fidelity** is the degree to which the innovation was implemented as planned, designed or intended
- **Sustainability** is the extent to which the innovation is maintained or becomes part of standard practice

As you can see from **Figure 4** below, making sure you consider your implementation outcomes is important in order to have the potential to improve service or client outcomes.



***IOM: Institute of Medicine Standards of Care**

Figure 4: Outcomes for Health Interventions (55)

Regular data monitoring

Regular review of your data, as well as ongoing communication with stakeholders will allow you to see what is and isn't working, and enable you to actively problem solve as you face challenges or barriers that you did not foresee. It also allows you to take advantage of opportunities as they arise such as a policy shift at the hospital or broader level.

Reasons why you might try to keep track of both your intervention and implementation measures and assess as you go include:

- Fixes problems along the way
- Identifies what works and what doesn't
- Helps you to understand if you are delivering what you said you would
- Informs the next planning cycle
- Helps inform others
- Assists in making decisions about scarce resources

This often means that you need to be able to view a snapshot of your progress in a way that enables you to understand if you are tracking in the right direction. Implementation and process related outcomes are usually the easiest to access as you are likely collecting this yourself or within your team. Intervention outcomes may be more difficult as you may need to access the medical records or hospital system information. Cost outcomes can be estimated using the same process that was outlined under the **Quantify** section. Having a good relationship with your data manager or IT team will make this process easier.

- Have you got regular meetings organised?
- Are you collecting the right kind of data needed for decision making?
- Have you got data available in a format that you can review easily?
- Are the desired outcomes being achieved?

Evaluation

It is important to think about how you are going to evaluate your project from the beginning. This will allow you to collect the right data to answer your evaluation questions. A logic model is a graphical representation of your project. It helps you think through your project in terms of people and resources needed, activities you will undertake, and what you expect to happen in terms of short- and longer-term outcomes. A logic model also outlines the relationships between different parts of your project.

A great guide (and website) has been developed by the Centers for Disease Control and Prevention (CDC), to help you to understand the evaluation process. This guide has multiple checklists (and some videos) to guide you through the different steps including developing a logic model, and choosing indicators (outcomes measures) (56). Better Evaluation is also a really useful website that details the different types of evaluation types (for example, process evaluation, impact evaluation), how to go about data collection and what methods to use (for example, focus groups, gender analysis), as well as a range of background information and resources (57).

Maintain

Keeping up momentum

Keeping up momentum and engaging staff and stakeholders throughout the project is important. Some common ways to help staff stay engaged include:

- Celebrating your successes, even the small ones. Each success makes the next one more likely.
- Sharing regular updates to keep your team on track. By seeing that your team or ward or organisation are progressing towards your goal, staff can feel that their actions are leading to positive results.
- Thinking about fresh ways to talk about your de-implementation strategy. Personal stories (both clinician and consumer), and audio-visual mediums can be powerful motivators (58-61).
- Having a non-threatening way for people to provide feedback on how they feel the de-implementation is going and potential improvements. Regularly ask for new ideas.
- Having a mechanism for active problem solving – check where there are issues, make tweaks, implement any adjustments, then share how those improvements have made a difference.
- Making staff and stakeholders accountable for their individual and collective progress.
- Aligning practice and policies with the de-implementation strategy.
- Mentoring staff, so they can help others undertake de-implementation projects.

Questions to ask yourself when considering maintaining your change

- Is there an ongoing plan to support staff?
- Have you identified rewards for positive behaviour?
- Are you regularly sharing lessons learnt?
- Are you celebrating the wins?
- How are you incorporating feedback?
- If you have made improvements based on feedback, how are you communicating this?

Revise or adapt

De-implementation is a complex process, and you may find at some point during your project, your data is telling you that the change you want is not going as planned. You may need to adjust your interventions, the delivery of those interventions, or the overall de-implementation strategy. Gather your team together to problem solve and try to tease out what needs to be adjusted.

Common issues:

- Not reaching your intended audience
- You are unable to deliver activities as planned
- A new policy or change in the broader environment has impacted either the low value care or new practice
- Some of the drivers for behaviour have shifted or changed

These are all good reasons to re-assess what you are doing and adjust accordingly. This can be done at set intervals throughout your project or as issues arise. You may need to re-visit some aspects you undertook in the **Explore** section.

Re-assess:

- Look at your data – what is working and what isn't?
- Re-visit the drivers – check with stakeholders if this information is still correct. You may need to do a deeper dive to find out what else is at play.
- Re-visit the context assessment you conducted – what has changed in your context that requires you to adjust what you are doing?
- Re-visit the interventions chosen – do they still match? What could be done differently? What else could be done instead or as well?

Sustainability

Sustaining a practice change is one of the hardest parts of de-implementation. Sustainable health care means that (62):

- Program activities or benefits are continued beyond initial funding OR
- Activities sustaining health benefits after the program has ended are continued OR
- Capacity of a group or organisation to develop and deliver health programs are maintained OR
- Attention to an issue is maintained

Planning for sustainability is important, and consideration of how to ensure the de-implementation continues after the project has been completed will likely lead to a more successful strategy (66). Assessing sustainability can identify risks, and prompt discussion and action to enhance sustainability over time.

Sustainability tools that you may wish to use are the:

- Program Sustainability Assessment Tool (64)
- NHS Sustainability Model (65, 66)
- Long-Term Success Tool – this tool recognises that sustainability is affected by factors related to the people involved, the practice that is being implemented and the setting (or context) in which is being implemented (67)

Questions to ask yourself when thinking about sustainability

- What does it take to make something sustainable?
- What are our maintenance requirements?
- Can this continue after the project is finished or does it need recurrent funding or resources?
- Are new systems or policies in place to replace those that supported the low value care?
- Do you need staff, infrastructure, repeated training (staff turnover), a change in policy?
- Have you assessed whether de-implementation has been normalised?
- What is sustainable in your context?

Scaling up or moving on?

You have come to a particular point in which you are either finding that your de-implementation strategy:

- Is successful and it is sustainable;
- It has been so effective that the low value care issue no longer exists, or is now only being used to a limited extent;
- You have made sufficient adaptations that you are now seeing progress; or
- You have decided to re-think the whole process or strategy.

The question now posed is should you scale-up de-implementation of the low value care in another area in your facility or move onto another low value care of interest? Even if you are scaling up or spreading a tried and tested de-implementation strategy, remember every context is different. It is worth repeating some of the steps in the **Identify** part of the toolkit. These steps include quantifying the issue in the new place, talking to stakeholders to gain an understanding of whether the drivers are the same, as well as engaging stakeholders in a process where consensus is reached. You should also agree that collectively de-implementing the low value care in question is still a priority (collective sense making). It is important to also assess whether the current interventions still suit the new context and then repeat the plan, deliver, and next stages.

If you no longer need to address the original low value care practice, you should also repeat the steps in the **Identify** part of the toolkit, but this time with some experience of de-implementation, and all the benefits of hindsight and the lessons learnt.

Conflicts of interest

The authors declare they have no conflicts of interest. Potential conflicts of interest include the adjunct appointment held by Professor McPhail at one of the hospitals where interviews were conducted with clinicians and health consumers to inform the toolkit development, and past research positions held by Dr Tyack in two of the hospitals where these interviews were conducted.

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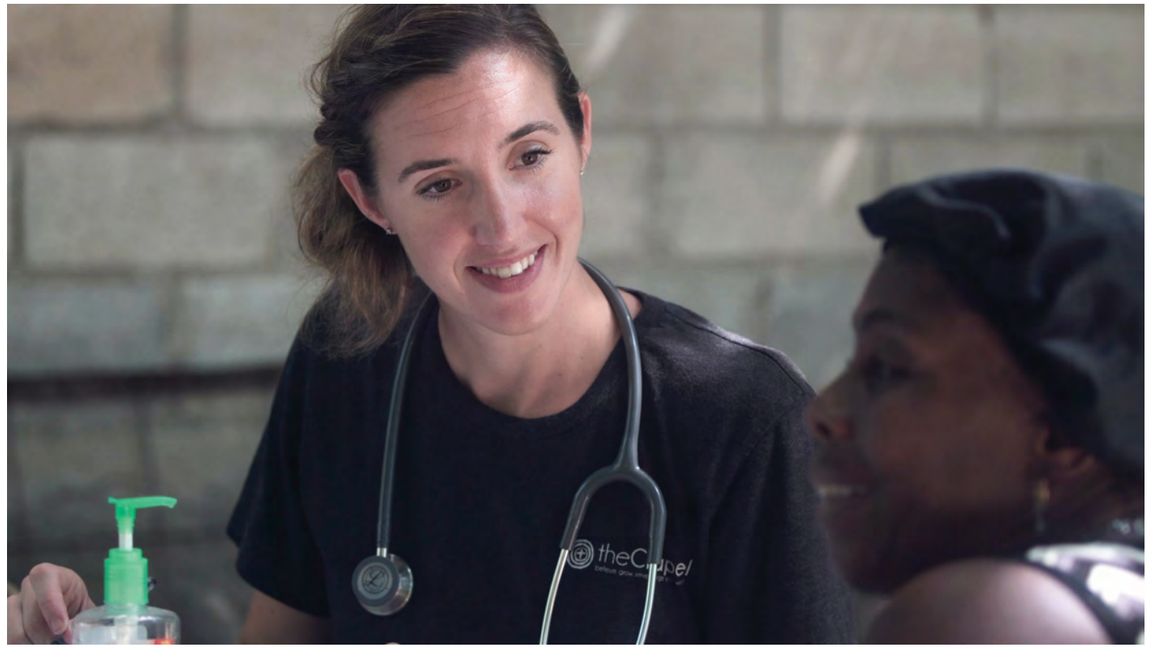

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Appendix 1: Additional resources: problem identification, readiness for change, context assessment

Resource on how to identify the problem

U.S. Department of Health & Human Services. Centers for Disease Control and Prevention, Office of the Associate Director for Policy and Strategy. Problem Identification [internet]. Available from: https://www.cdc.gov/policy/polaris/policyprocess/problem-identification/index.html#:~:text=What%20is%20Problem%20Identification%3F,effect%20on%20a%20population's%20health (Accessed 24.11.2021)

Resource to examine readiness for change

Miake-Lye IM, Delevan DM, Ganz DA, Mittman BS, Finley EP. Unpacking organizational readiness for change: An updated systematic review and content analysis of assessments. BMC Health Serv Res. 2020; 20:106. Available from: https://doi.org/10.1186/s12913-020-4926-z

Context assessment resources, references and links

Harvey, G and Kitson, A. Implementing Evidence-Based Practice in Healthcare: A facilitation guide. Abingdon, Oxon: Routledge, 2015.

Kononowech J, Hagedorn H, Hall C. Helfrich CD, Lambert-Kerzner AC, Miller SC et al. Mapping the organizational readiness to change assessment to the Consolidated Framework for Implementation Research. Implement Sci Commun. 2021; 2:19. https://doi.org/10.1186/s43058-021-00121-0

Finch TL, Girling M, May CR, Mair FS, Murray E, Treweek S, Steen IN, et al. NoMad: Implementation measure based on Normalization Process Theory. [Measurement instrument, internet]. Available from: http://www.normalizationprocess.org (Accessed 24.11.2021)

Huijg JM, Gebhardt WA, Crone MR, Dusseldorp E, Presseau J. Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research. Implementation Sci. 2014; 9:11. Available from: https://doi.org/10.1186/1748-5908-9-11 (see additional file 1)

University of Ulster and University College Cork. Context Assessment Index and Guide to Using the Context Assessment Index. Available from: https://www.ualberta.ca/nursing/media-library/knowledge-utilization-studies-program/knowledge-utilization-colloquia/kt08/caiinstrumentpack.pdf (Accessed 24.11.2021)

Appendix 2: Time-driven activity-based costing

Process step	Actions	Actors	Action frequency	Action duration (hours)	Total time spend on action (hours)	Actor wage rate t($)	Total cost ($)
Pre-operative	New patient scheduling	Administration officer	1	0.25	0.2	45	11.25
	Pre-surgical consult	Orthopaedic consultant	1	0.5	0.5	120	60
	Billing	Administration officer	1	0.25	0.2	45	11.25
	Pre-operative testing	Pathology unit staff	2	0.25	0.5	60	30

Appendix 3: Example inventory for estimating hospital resource use and costs

Cost items	How it can be measured	How to collect the data	How will dollar values be assigned?
HUMANS			
• Inpatient staff time • Doctors • Nurses • Allied health staff • Administrative staff	Minutes spent per patient to provide the service	Hospital databases Patient notes	Average salary rate of staff members based on Enterprise Bargaining salary rates (available online or through HR departments)
Outpatient appointments	Occasions of service	Hospital databases	Clinic reimbursement/billing information (e.g. Tier 2 clinic code costs from the Independent Hospital Pricing Authority)
THINGS			
Pharmaceuticals	Dosage and number of times administered	Patient notes Hospital pharmacy database	Hospital pharmacy purchase price PBS item numbers
Imaging procedures	Number and type	Patient notes	Clinical costing unit data MBS item numbers
Pathology items	Number and type	Patient notes	Clinical costing unit data MBS item numbers
Consumables	Number and type	Hospital databases	Purchase price
Equipment	Time spent on machine	Hospital databases Patient notes	Time on equipment partitioned as % of purchase price over its usable life
Hospital admissions	Number of admissions	Clinical costings unit	Clinical costing unit data DRG-based estimate using National Efficient Price Weight Tables
Length of stay	Number of days (could be split between general wards and ICU/high dependency wards)	Clinical costings unit	Clinical costings unit data Published literature on cost per bed day in a comparable patient cohort
SPACE			
Time spent in a particular room (e.g. operating theatre)	Time in the room and size/ location of the room	Hospital databases	Clinical costings unit price

Appendix 4: ERIC paper

Powell BJ, Waltz TJ, Chinman MJ, Damschroder LJ, Smith JL, Matthieu MM, et al. A refined compilation of implementation strategies: Results from the Expert Recommendations for Implementing Change (ERIC) project. Implement Sci. 2015;10:21.

DOI: 10.1186/s13012-015-0209-1

Appendix 5: T-CaST

Birken SA, Rohweder CL, Powell BJ, Shea CM, Scott J, Leeman J, et al. T-CaST: An implementation theory comparison and selection tool. Implementation Science. 2018;13(1):143.DOI: 10.1186/s13012-018-0836-4

Appendix 6: Stakeholder management – 10 minute guide

Swift C. Stakeholder management: Winning support for your projects - 10 minutes guide 2019 [Available from: https://mindtoolsbusiness.com/getmedia/c717d56f-ed3c-454b-b66d-f394f0dd0910/10-Minute-Guide-Stakeholder-Management-Jan2019. (Accessed 24.11.2021)

Appendix 7: Levels of participation

Appendix 7 is a guide to levels of public participation from the International Association for Public Participation IAP2 (55). Available from www.iap2.org/resource/resmgr/foundations_course/IAP2_P2_Spectrum_FINAL.pdf

The guide was designed specifically with the general public in mind, but can be applied to a range of other stakeholders within your project setting.