CHAPTER 1

Why Should We Reduce Medical Overuse?

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IT STARTED WITH QUALITY IMPROVEMENT

The idea that poor quality and patient safety harms are unacceptable and can be measured and improved was introduced into mainstream medical and public culture in the United States nearly 25 years ago and subsequently spread around the globe. This can be traced to the release of a ground-breaking report, *To Err is Human*, published by the Institute of Medicine (Donaldson et al. 2000). This report was part of a multi-year effort led by the Institute of Medicine to change the discourse around patient safety and quality in the United States. *To Err is Human* focused on the issue of medical errors and safety issues. It highlighted systemic drivers that lead to errors and established a patient safety

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agenda with a focus on enhancing leadership, measurement, and systems to identify and decrease medical errors. It also highlighted that harm to patients from healthcare is a chronic threat to public health and is pervasive and preventable. This publication was followed shortly thereafter by the report, *Crossing the Quality Chasm*, which laid out an ambitious agenda for improving healthcare quality in the United States (Institute of Medicine 2002). This included establishing a six-dimensional framework to measure health system performance: safety, effectiveness, patient-centredness, timeliness, efficiency, and equity. In addition, *Crossing the Quality Chasm* offered three major categories for healthcare quality problems: overuse, underuse, and misuse. Overuse relates to healthcare services that have no benefits or for which harms outweigh benefits, underuse to healthcare services that offer benefits to patients but are not provided to relevant patients, and misuse to healthcare services that offer benefits in certain contexts but not others.

Subsequently, quality improvement collaboratives, campaigns, and efforts swept across the United States and other countries with wide variations in results and outcomes. About 14 years after the publication of *To Err is Human*, experts in quality and patient safety expressed frustration at the slow pace of change. In particular, decreasing overuse was rarely addressed by quality improvement efforts. The Institute of Medicine's report, *The Healthcare Imperative,* highlighted the shocking figure that nearly 30% of all healthcare costs in the United States were wasted or unnecessary (Yong et al. 2010). The report estimated that this unnecessary care, or overuse, costed upwards of $750 billion in 2009. The problem of overuse began to achieve more prominence as a quality problem, which necessitated further efforts to change. This figure of 30% of all healthcare being low-value has been reported in other high-income countries, including Canada (Canadian Institute for Health Information 2017). One commentary bemoaning the lack of change since the publication of the landmark reports over a decade earlier stated, in 2013, that, 'alongside important efforts to eliminate preventable complications of care, there must also

be an effort to seriously address the widespread overuse of health services. That overuse, which places patients at risk of harm and wastes resources at the same time, has been almost entirely left out of recent quality improvement endeavours' (Chassin 2013).

This sentiment was supported by evidence that overuse is difficult to change. A United States study compared the quality indicators of overuse, misuse, and underuse in outpatient visits in 1999 and 2009 (Kale et al. 2013). The study found that during this period, 6 of the 9 underuse indicators improved, 1 of the 2 misuse indicators improved but only 2 of the 11 overuse indicators improved, with one getting significantly worse.

Chapters 2 and 3 will delve into why overuse is such a stubborn and challenging problem. And why strategies to reduce overuse need to be multi-pronged to be effective and supported by efforts to change the culture driving overuse, as well as systems that can drive overuse.

THEN CAME A FOCUS ON OVERUSE

Overuse was originally defined in the Institute of Medicine reports, and since that time, there has been a proliferation of terminology to define and describe waste and overuse in healthcare. Common terminology includes low-value care, unnecessary care, appropriateness, overdiagnosis, de-adoption, and de-implementation. Table 1.1 offers four categories to classify key descriptions for overuse. Note that positive language, such as appropriate care, high-value care or right care, has been used to contrast with overuse and to emphasis quality problems associated with underuse and misuse, as well as overuse, and as such are not included in the table.

This book will use the terms overuse and low-value care as they are consistent with the broader language used in the quality and patient safety literature. However, clarity regarding terminology can help to communicate the complex topic of overuse to various audiences.

TABLE 1.1 Overuse language and meanings.

Category	Common terms	Application	Example
Processes of care which are not effective or cost effective	Unnecessary care Low-value care Waste Inappropriate care	Processes of care that are not effective or cost-effective, delivery marginal clinical value or benefit to patients, and where harms outweigh benefits clinically	Annual or routine blood screening tests in asymptomatic patients
Overuse of a test, treatment of procedure	Overuse Overprescribing Overdiagnosis Overtreatment	Variation in a practice across settings with additional use not delivering benefit	Overprescribing of antibiotics for respiratory tract infection in some settings or regions with similar case mix and population characteristics
Treatments which are no longer beneficial	Obsolete Outdated technologies/care	A treatment which was once perceived to be beneficial but has been replaced with a better process of care, or now has strong evidence showing it does not work	Transfusing more than one red cell unit at a time when transfusion is required in stable, non-bleeding patients

OVERUSE AS A GLOBAL HEALTHCARE QUALITY CONCERN

In the chapter thus far, we have covered key American reports and data associated with the quality and patient safety movement. This movement spread globally, and with increased awareness of overuse came several key publications, which sought to describe and measure overuse in a global context. In 2017, *The Lancet* published a landmark special series of the journal with a focus on *Right Care* (Berwick 2017). The series emphasised the importance of the coexistence of overuse and underuse globally, offering evidence for overuse not just from high-income countries such as the United States, but also evidence of overuse in low- and middle-income countries. Also, the Organisation for Economic Cooperation and Development (OECD) released a report on overuse *Tackling Wasteful Spending on Health* in 2017. It began with a powerful statement contrasting spending pressures on healthcare systems globally with evidence that one-fifth of healthcare expenditures have no or minimal contribution to good health outcomes (OECD 2017). The OECD report linked the imperative to reduce overuse with the interconnected goals of spending less on healthcare while improving health. The OECD now includes overuse indicators, for example, antibiotic volumes, benzodiazepine prescriptions in older adults, and imaging tests in their annual *Health at a Glance* report (OECD 2021). The accumulation of evidence of overuse and presence of measures at the system level helped to articulate a case globally for the harms of overuse as a quality problem moving beyond costs. Importantly, these measures helped to emphasise a broad range of the harms of overuse to individuals to health systems.

It is important to frame and shape a narrative about overuse as going beyond wasteful healthcare spending to engage and motivate various stakeholders to take action. These include patients, clinicians, and the general public who may not be motivated to change due to government or payor concerns, but instead are concerned with individual safety and quality care (Born et al. 2017; Levinson et al. 2018).

Harms to individual patients from overuse include side effects from and medication interactions with unnecessary treatments, and incidental findings and testing cascades from unnecessary tests that can expose patients to risk. Overuse can also harm patients by wasting time or financial resources through delays in access to care, needless stress or worry, and wasted time and money pursuing follow-up appointments.

Harms to providers and organisations can be associated with wasted time, resources, and broader inefficiencies driving up wait times for patients and increasing inefficiencies for organisations. Inefficiencies in care, like pursing unnecessary test results, take up clinician time and can lead to excess workload and provider stress.

Overuse can harm healthcare systems at the regional, provincial, national, and indeed global level. Overuse wastes scarce healthcare resources. Public health crises, such as the opioid epidemic and antimicrobial resistance, are associated with and accelerated by the overuse and overprescribing of these medications. These can drive social and socioeconomic harms.

Finally, healthcare overuse is increasingly seen as harmful to human health and the environment (Barratt et al. 2022). There is a growing recognition of healthcare's climate footprint, the majority of which is driven by the complex supply chain of the manufacturing and distribution of healthcare goods such as pharmaceuticals, as well as service delivery in hospital and community settings (MacNeill et al. 2021). Recent reports suggest that healthcare sector emissions are responsible for nearly 5% of global net emissions (HCHW 2019). A key strategy to reduce healthcare emissions is to avoid overuse. The sustainability of any healthcare system depends on using resources to maximise benefit and avoiding wasteful spending that does not add value to patients or the public.

WHAT CAN BE DONE TO ADDRESS OVERUSE?

With the accumulating evidence of overuse, as well as clear demonstration of the harms of overuse, increasingly efforts are being directed towards interventions to reduce overuse. Systematic

reviews have highlighted that given the complexity of overuse, multi-component interventions that target both clinician and patient drivers of overuse are most likely to be effective (Colla et al. 2017). Components at the individual clinician and patient level, which draw from quality improvement approaches, include clinical decision support, performance measurement, and feedback, in addition to patient and provider education that is necessary but not sufficient to drive change. While health systems have explored policy initiatives to reduce overuse, including pay for performance, payment restriction, and risk sharing, there is limited evidence of effectiveness. Top-down approaches of payers to reduce overuse are often limited in scope and can meet resistance from both clinicians and patients if they are perceived as rationing healthcare.

Choosing Wisely

National approaches to reduce overuse have been driven by various actors and groups, including payers and healthcare systems. However, the most well-known movement in the past decade has been a clinician-led approach to reduce overuse in nearly 30 countries globally (Born et al. 2019). *Choosing Wisely*® was initially launched as a campaign in the United States led by the American Board of Internal Medicine Foundation in 2012 (Cassel and Guest 2012). The campaign was aimed at galvanising physician leadership around ballooning domestic healthcare costs in the United States and lagging efforts to address overuse as an important quality problem. *Choosing Wisely* campaigns bring together national clinician specialty societies, which develop lists of recommendations identifying overused tests, treatments, and procedures within a clinical specialty.

Choosing Wisely campaigns share a core set of principles to ensure that clinician-led efforts to address overuse are not co-opted by government or other stakeholders. The campaigns should stay firmly associated with efforts to reduce harms to patients and improve quality at the individual, organisational, and health system levels. First, campaigns must be clinician-led (as opposed to

payer- and/or government-led). This is important to building and sustaining the trust of clinicians and patients. It emphasises that campaigns are focused on the quality of care and harm reduction, rather than cost reduction. Second, campaigns must be patient-focused and involve efforts to engage patients in the development and implementation process. Communication between clinicians and patients is central to *Choosing Wisely*. Third, campaigns should be multi-professional, where possible, including physicians, nurses, pharmacists, and other healthcare professionals. Fourth, campaigns should be evidence-based wherein recommendations issued by campaigns are based on strong and high-quality evidence and reviewed on an ongoing basis to ensure credibility. Finally, campaigns must be transparent, so processes used to create the recommendations must be public and any conflicts of interest should be be declared (Levinson et al. 2015).

Choosing Wisely campaigns have been present for nearly a decade in some jurisdictions and the key question is whether these campaigns have an impact on reducing overuse. A measurement framework for *Choosing Wisely* campaigns was established which we will discuss in more detail in Chapter 7 on measuring low-value care. The framework suggests that campaign impact can be measured at three levels: first, awareness of overuse among relevant stakeholders; second, changes to processes in care; and third, changes to outcomes of care (Bhatia et al. 2015). These changes take time and involve changes to individual practice, as well as system drivers of overuse. A recent systematic review considering efforts to implement *Choosing Wisely* recommendations in the United States found that the publication and dissemination of recommendations through *Choosing Wisely* campaigns are necessary but not sufficient. Raising awareness and developing evidence-based recommendations will not address the complex drivers and factors associated with overuse; however, interventions by health systems and providers to implement campaign recommendations into practice using multiple components that target clinicians specifically, such as audit and feedback, changing order sets and education can reduce overuse (Cliff et al. 2021).

Efforts to reduce overuse need multi-component interventions due to the complex drivers of overuse. Overuse has been built into the culture of medicine for clinicians, and patients often believe that 'more is better' and underappreciate risks and harms of low-value tests, treatments and procedures (Kerr et al. 2017). Providers have developed long-standing practice patterns of the ways they typically investigate or treat particular conditions, often including exhaustive testing to rule out any potential but rare condition. Physicians learned to practice a particular way during their training, and changing these longstanding practice patterns is very challenging. Hospitals or clinics have systems that drive overuse, including order entry systems, routine order sets for hospital admissions or nursing directives for care, or routine annual visits and testing in primary care (Morgan et al. 2017). Healthcare systems create inefficiencies often due to the lack of integrated information systems, so redundant tests are done without providers knowing they had already been conducted. We will discuss all these mechanisms that operate on different levels in Chapter 2. Reducing overuse requires understanding the cause of the overuse in a particular situation and harnessing the appropriate mechanisms to drive change (Born et al. 2019). Changing the culture of overuse that pervades medicine is going to take years, and this journey is only in its early stages. This book gives readers a view of the present status of the problem, the opportunities and challenges of reducing overuse, and helps readers to start reducing overuse themselves.

WHAT CAN YOU EXPECT IN THE FOLLOWING CHAPTERS?

This book consists of 14 chapters. In this first chapter, we have introduced 'overuse' and why it should be reduced. Chapter 2 describes why overuse exists. It is a multifactorial challenge with causes on several levels. Chapter 3 discusses the reasons why changing clinicians' and patients' behaviours, that is necessary for reducing overuse, is so hard.

In Chapter 4, we introduce a framework to reduce overuse that can help you to develop, evaluate, and scale up de-implementation interventions. In Chapter 5, we emphasise the importance of engaging patients in all the phases of the framework: designing an intervention and realising, spreading, and preserving the change.

In Chapter 6, we describe how healthcare professionals can start with reducing overuse by identifying potential areas of low-value healthcare and assessing the volume of low-value care to be de-implemented (see Chapter 7).

In Chapter 8, we describe how healthcare professionals can choose a specific strategy to reduce overuse by identifying the barriers for de-implementation and choosing the appropriate intervention for their identified problem (see Chapter 9). It is also important to evaluate the effects of an intervention to determine whether it was successful (see Chapter 10).

Then, we discuss the sustainability and spread of de-implementation interventions: how to increase the likelihood that interventions are sustainable and can be disseminated (see Chapter 11) and how to leverage professional education for sustainability and dissemination (see Chapter 12).

Finally, we present cases of de-implementation strategies from different countries through all abovementioned phases (see Chapter 13) and summarise how you can take steps to reduce overuse in your own practice (see Chapter 14).

REFERENCES

Barratt, A.L., Bell, K.J., Charlesworth, K. et al. (2022). High value health care is low carbon health care. *Medical Journal of Australia* 216: 67–68.

Berwick, D.M. (2017). Avoiding overuse – the next quality frontier. *The Lancet* 390: 102–104.

Bhatia, R.S., Levinson, W., Shortt, S. et al. (2015). Measuring the effect of Choosing Wisely: an integrated framework to assess campaign impact on low-value care. *BMJ Quality and Safety* 24: 523–531.

Born, K.B., Coulter, A., Han, A. et al. (2017). *Engaging Patients and the Public in Choosing Wisely*. BMJ Publishing Group Ltd.

Born, K., Kool, T., and Levinson, W. (2019). Reducing overuse in healthcare: advancing Choosing Wisely. *BMJ* 367.

Canadian Institute for Health Information (2017). *Unnecessary Care in Canada: Technical Report*. Ottawa, ON: Canadian Institute for Health Information.

Cassel, C.K. and Guest, J.A. (2012). Choosing Wisely: helping physicians and patients make smart decisions about their care. *JAMA* 307: 1801–1802.

Chassin, M.R. (2013). Improving the quality of health care: what's taking so long? *Health Affairs* 32: 1761–1765.

Cliff, B.Q., Avancena, A.L., Hirth, R.A. et al. (2021). The impact of Choosing Wisely interventions on low-value medical services: a systematic review. *The Milbank Quarterly* 99: 1024–1058.

Colla, C.H., Mainor, A.J., Hargreaves, C. et al. (2017). Interventions aimed at reducing use of low-value health services: a systematic review. *Medical Care Research and Review* 74: 507–550.

Donaldson, M.S., Corrigan, J.M., Kohn, L.T. et al. (2000). *To Err Is Human: Building a Safer Health System*. Washington DC: National Academies Press (US).

HCHW (2019). Health care's climate footprint. How the health sector contributes to the global climate crisis and opportunities for action. In: *Climate-Smart Health Care Series* (ed. H.C.W. Harm). Healthcare Without Harm.

Institute of Medicine, C.O.Q.H.C.I.A (2002). *Crossing the Quality Chasm*. Washington, DC: National Academy Press.

Kale, M.S., Bishop, T.F., Federman, A.D. et al. (2013). Trends in the overuse of ambulatory health care services in the United States. *JAMA Internal Medicine* 173: 142–148.

Kerr, E.A., Kullgren, J.T., and Saini, S.D. (2017). Choosing Wisely: how to fulfill the promise in the next 5 years. *Health Affairs* 36: 2012–2018.

Levinson, W., Kallewaard, M., Bhatia, R.S. et al. (2015). 'Choosing Wisely': a growing international campaign. *BMJ Quality and Safety* 24: 167–174.

Levinson, W., Born, K., and Wolfson, D. (2018). Choosing Wisely campaigns: a work in progress. *JAMA* 319: 1975–1976.

Macneill, A.J., Mcgain, F., and Sherman, J.D. (2021). Planetary health care: a framework for sustainable health systems. *The Lancet Planetary Health* 5: e66–e68.

Morgan, D.J., Leppin, A.L., Smith, C.D. et al. (2017). A practical framework for understanding and reducing medical overuse: conceptualizing overuse through the patient-clinician interaction. *Journal of Hospital Medicine* 12: 346–351.

OECD (2017). *Tackling Wasteful Spending on Health*. Paris: OECD Publishing.

OECD (2021). *Health at a Glance 2021: OECD Indicators*. Paris: OECD Publishing.

Yong, P.L., Olsen, L., and Saunders, R.S. (2010). *The Healthcare Imperative: Lowering Costs and Improving Outcomes: Workshop Series Summary*. National Academies Press (US).