



A CHOOSING WISELY LITERATURE SYNOPSIS

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Chiolero A, Paradis G, Paccaud F. Editorial: The pseudo-high-risk prevention strategy. *International Journal of Epidemiology*, 2015, 1469–1473 doi: 10.1093/ije/dyv102

It is well understood that a weakness of high-risk prevention strategies is their inability to prevent disease in the large part of the population at a relatively small average risk and from which most cases of diseases originate. Geoffrey Rose argued that a combination of both high-risk and population-based strategies should therefore be used. This editorial notes the concerning emergence of “pseudo-high-risk approaches” which widen the diagnostic criteria (for example for hypertension, or diabetes) to apply high risk approaches to people at intermediate risk. They note that widening the criteria leads to treating, individually, ever healthier and larger strata of the population. If the treatments offered are the same as those in high-risk individuals, the benefit/harm balance of treating these people at intermediate risk will be automatically less favourable. The pseudo-high-risk prevention strategies raise similar problems as high-risk strategies, however on a larger scale, and without any of the benefit of population-based strategies. The authors express concern that these pseudo-high-risk strategies will absorb large resources because of the individual risk assessment and follow-up for a large share of the population. As such, these preventive strategies compete with other more efficient preventive interventions.

Doust J, et al. (Preventing Overdiagnosis Working Group). Guidance for Modifying the Definition of Diseases: A Checklist. *JAMA Intern Med*. 2017 Jul 1;177(7):1020-1025. doi:10.1001/jamainternmed.2017.1302.

Widening disease definitions increases the proportion of the population labelled as unwell and potentially causes unnecessary harm to people through overdiagnosis. No guidelines exist currently for guideline panels and others considering changes to disease definitions. There is concern about the vested interests of pharmaceutical companies and others in desiring to expand the number of people classified as having a certain condition. Developed by a multidisciplinary international working group, this article provides a checklist of issues, with guidance, for panels to consider prior to modifying a disease definition. The 8-item checklist considers the number of people affected, trigger, prognostic ability, disease definition precision and accuracy, potential benefits, potential harms, and the balance between potential harms and benefits. The article uses a proposed change in the definition of gestational diabetes mellitus to illustrate use of the checklist.

Nickel, B et al. Renaming low risk conditions labelled as cancer. *BMJ* 2018;362:k3322

Removing the cancer label in low risk conditions that are unlikely to cause harm if left untreated may help reduce overdiagnosis and overtreatment. Evidence is mounting that disease labels affect people’s psychological responses and their decisions about management options. The use of more medicalised labels can increase both concern about illness and desire for more invasive treatment. For example, in ductal breast carcinoma in situ, women are increasingly opting for more aggressive treatments such as mastectomy and bilateral mastectomy rather than lumpectomy, even though these treatments do not improve survival. Removing the cancer label from low risk conditions may also help shift clinicians’ perspectives and enable them to feel more comfortable recommending less invasive options to patients. For low risk lesions where there is evidence of overdiagnosis and previous calls to replace the term cancer, this article considers the potential implications of removing the cancer label and how this may be achieved.

COMMERCIAL DRIVERS OF OVERDIAGNOSIS

van Tulleken C. Overdiagnosis and industry influence: how cow's milk protein allergy is extending the reach of infant formula manufacturers. *BMJ* 2018; 363 doi: <https://doi.org/10.1136/bmj.k5056> (05 December 2018)

Allergy to cow's milk protein may be acting as a Trojan horse for the global milk formula industry to forge relationships with healthcare professionals, encourage overdiagnosis and have negative effects on breastfeeding. Between 2006 and 2016, prescriptions of specialist formula milks for infants with cow's milk protein allergy (CMPA) increased by nearly 500% in the UK, while NHS spending on these products increased by nearly 700% from £8.1m to over £60m annually. Epidemiological data give no indication of such a large increase in true prevalence and the extensive links between the formula industry and the research, guidelines, medical education, and public awareness efforts around CMPA have raised the question of industry driven overdiagnosis.

Clinical guidelines propose two main types of CMPA - IgE mediated reactions which can be confirmed with testing, and non-IgE mediated CMPA, which can only be diagnosed with a trial of dietary exclusion followed by reintroduction. This makes non-IgE mediated allergy vulnerable to industry exploitation.

There are many more milk allergy guidelines published than for other food allergies. Many have direct or indirect support from industry (for example 5 of the 11 authors of the 2011 NICE food allergy guidelines declared interests with infant formula manufacturers). The guideline content and the allergy itself are widely promoted by industry to healthcare professionals and patients using campaigns, leaflets distributed in primary care, educational courses, and information on websites, including parent forums. There is concern that this information promotes non-specific symptoms potentially indicating cow's milk allergy as a diagnosis in exclusively breastfed infants, and may lead to a concern about allergy unnecessarily in healthy babies. All of these factors threaten to undermine exclusive breastfeeding.

DETERMINING BENEFITS OF DIFFERENT CHOOSING WISELY RECOMMENDATIONS

Morden NE, Colla CH, Sequist TD, Rosenthal MB. Choosing Wisely — The politics and economics of labelling low-value services. *N Engl J Med* 2014; 370: 589—92. doi: [10.1056/NEJMp1314965](https://doi.org/10.1056/NEJMp1314965)

The article highlights the wide variation in the low-value interventions included on the US specialty societies' lists in terms of their potential impact on health, and discusses possible mechanisms to accelerate translating the lists into practice change. Good communication, public education, and more high-impact recommendations are critical for success. The Choosing Wisely campaign invites doctors to own their role as stewards of limited health care resources.

DISINVESTMENT IN PUBLIC HEALTH SYSTEMS

HealthPACT. Caring Wisely: Optimising patient care in Australia and New Zealand. Workshop report. 2015. www.health.qld.gov.au/healthpact/docs/report-caring-wisely.pdf

This report summarises a workshop to discuss what the Australian and New Zealand governments should do next in formulating effective policy around disinvestment in the public hospital system. Workshop sessions focused on identifying and prioritising interventions for disinvestment and the barriers in translating disinvestment policy into clinical practice. Key points of agreement included that identification of low-value care is important, information about current practice is a prerequisite, disinvestment information needs to be provided at a local level, and incentives for disinvestment may result in better adoption. A pre-workshop discussion paper is attached to the report. The paper gives background information about past and current

disinvestment activities, including the Choosing Wisely Australia campaign, and the challenges of disinvestment for doctors, funders and policy makers.

EMERGENCY DEPARTMENT & CHOOSING WISELY

Denny KJ et al. Is it time for a culture change? Blood culture collection in the emergency department. *Emergency Medicine Australasia* (2018) 30, 575-577

This study investigated how frequently blood cultures (BCs) were requested in a tertiary Australian Emergency Department over a 15-month period, including the incidence of true and false positive results. A total of 3617 (3.67%) patients had BCs collected. Around one (12.1%) in eight of these BCs were positive; nearly half (45.2%) of which were identified as a false positive. BCs are a common investigation in the ED with a high false positive rate. Strategies are required to reduce false positives, including reducing inappropriate collection and improving collection techniques. Yet despite an existing ACEM Choosing Wisely recommendation, the authors note that significant change in practice is unlikely to be achieved without a shared goal, supported by stakeholders from all relevant medical specialties, and with a stronger evidence base. They therefore propose a modified Choosing Wisely recommendation on blood cultures in ED, “to perform blood cultures only in patients where infection is suspected who 1) show systemic signs of infection and are likely to require hospital admission, or 2) an intravascular source of infection is likely. Ensure adequate collection of BCs (aseptic technique, appropriate volume, two or more sets) to reduce contamination and increase the yield of BCs”.

ENCOURAGING IMPLEMENTATION/ADOPTION OF CHOOSING WISELY

Denny KJ & Keijzers G. Culturing conversation: How clinical audits can improve our ability to choose wisely. *Emergency Medicine Australasia* (2018) 30, 448–449

This editorial reflects on the conversations that arose as part of an audit of blood cultures in an emergency department in Australia, as part of efforts to implement the Australasian College for Emergency Medicine (ACEM) Choosing Wisely recommendation to avoid blood cultures in patients who are not systemically septic, have a clear source of infection and in whom a direct specimen for culture is possible. The authors note that the evidence put forward for this recommendation is not strong, and the recommendation is not jointly endorsed by other relevant Colleges in the same ways as other ACEM Choosing Wisely recommendations are. These factors limit the ease of implementing such a recommendation – for Choosing Wisely recommendations to be successfully supported, all related colleagues need to be on board, and evidence needs to be strengthened for specific recommendations. The authors also recommend that audits of clinical practice should be initiated centrally to avoid small, single-site audits with differing methodologies.

Levinson W, Born K, Wolfson D. Choosing Wisely Campaigns: A Work in Progress. *JAMA*. 2018 May 15;319(19):1975-1976. doi: 10.1001/jama.2018.2202.

How can Choosing Wisely learn from the success and pitfalls of other movements in medicine? This viewpoint uses diffusion of innovation science to explore factors behind the spread of Choosing Wisely campaigns.

Compared with other health quality and safety innovations, the name “Choosing Wisely” and the statement “5 things physicians and patients should question” are plain language. This helps clinicians, patients, and the public associate addressing overuse with conversations and shared decision-making. Research demonstrates higher uptake if users can adapt or “reinvent” innovations to their own setting, so avoiding becoming a “top-down” strategy will help foster this grassroots engagement. Social and networks relying on personal influence are critical for diffusion with physicians, so maintaining physician leadership for Choosing Wisely will be critically important. Choosing Wisely offers an approach that can align physician, patient, and payer interests.

Choosing Wisely has begun to shift physician attitudes about overuse but broader adoption by individual physicians and healthcare organizations will require more evidence of the effects on outcomes. The campaign is akin to a tool that has many recommendations and a physician engagement strategy focused on leveraging professionalism to improve care. Whether there will be widespread use of that tool by delivery systems is still to be seen.

END OF LIFE CARE

Hamblin R, Minko N, Shuker C, Hill J, Merry AF. What happens at the end of life? Using linked administrative health data to understand healthcare usage in the last year of life in New Zealand. Health Policy. 2018 Jul;122(7):783-790. doi: 10.1016/j.healthpol.2018.05.011.

The end of life is often associated with increased use of healthcare services. This increased use can include over-medicalisation, or over-treatment with interventions designed to cure that are likely futile in people who are dying. This study linked NHI numbers across national health datasets to measure the use of nine healthcare services by elderly New Zealanders (65-99 years old) in their last year of life, compared to elderly New Zealanders who used healthcare in the period but did not die. They found that people do seem to use more of most health services in their last year of life. After the age of 90, this difference diminishes for most measures, except for days spent in hospital and for pharmaceutical dispensings.

Willmott L, White B. Stopping Futile Treatment- the Challenge for Doctors Health Services Research Association Australia NZ. Australian Centre for Health Law Research: 2016

A team of interdisciplinary researchers from the Australian Centre for Health Law Research, have undertaken a study, in which 96 doctors, at 3 Queensland hospitals were interviewed regarding their perceptions of provision of futile treatment to adult patients who are dying. These doctors were taken from a wide range of specialties including internal medicine, cardiology, geriatrics, surgery and emergency departments. The doctors reported their reasons for providing futile treatment fell into one of three categories; doctor related, patient related and relating to the institutional nature of hospitals. Of these, it was found that doctor-related reasons were just as, if not more important in the provision of futile end of life care. These include a medical cultural "aversion to death" and view of it as a failure to provide adequate care, wanting to satisfy patients, avoidance of difficult conversations with the dying patient and their family, and fear of legal consequences. The authors of this study stress the critical role of, and opportunity for individual doctors and the medical profession as a whole, to bring about change. They do not see that change will occur unless doctors are prepared to lead and act. The authors recommend doctors prioritize good communication with patients and family members, and undertake those difficult conversations, including patients' and families' values and goals of treatment. The importance of institutional support for doctors to do this was also acknowledged.

EVALUATING THE IMPACT OF CHOOSING WISELY

Bhatia S, Levinson W, Shortt S, Pendrith C, Fric-Shamji E, Kallewaard M, et al. Measuring the effect of Choosing Wisely: an integrated framework to assess campaign impact on low-value care. BMJ Qual Saf 2015; 0: 1–9. doi: 10.1136/bmjqs-2015-004070

The article proposes an integrated measurement framework, using the example of low back pain imaging, which may be used to assess the effectiveness of a Choosing Wisely campaign. Unintended consequences (e.g. underuse of high-value care) as well as intended consequences are included. Measurement tools, including their pros and cons, are identified for assessing doctors' awareness, attitudes and behaviour, and patient engagement and acceptance.

Chok L, Debrunner J, Jaeggli S, Kusic K, Bachli EB. An echo to Choosing Wisely® in Switzerland. *Int J Gen Med.* 2018 May 4;11:167-174. doi: 10.2147/IJGM.S155544. eCollection 2018.

This Swiss study reports the results of an initiative to reduce the number of unnecessary blood tests in patients at a hospital in Zurich. The recommendation “not to order daily routine blood tests without a specific clinical reason” was communicated through a combination of education sessions for resident doctors, teaching from medical consultants and weekly emails to staff from the medical director. When evaluated 3 months later, there had been a significant decrease in the number of blood tests after introduction of the recommendation. Before implementation, 46% of the patients had more than four blood tests per admission, which decreased to 39% after implementation. This study demonstrates that health professional behaviour can be influenced through simple educational approaches, to reduce low-value care. However this study was not designed to assess patient outcomes, and is unable to determine whether there were any positive or negative impacts on patients as a result of the decreased blood tests.

Rosenberg A, Agiro A, Gottlieb M, Barron J, Brady P, Liu Y, et al. Early trends among seven recommendations from the Choosing Wisely campaign. *JAMA Intern Med* 2015; 175: 1913—1920. doi:10.1001/jamainternmed.2015.5441

This United States study, using an insurance company’s national claims data, looked at changes in frequency of seven Choosing Wisely services over the first two to three years. There was a significant decrease in use of two services (imaging for uncomplicated headache and cardiac imaging without history of cardiac conditions). Use of two services increased significantly (human papillomavirus testing in women under 30 and non-steroidal anti-inflammatory drugs for patients with chronic conditions that can be worsened by these drugs). Use of three services was unchanged (preoperative chest X-ray without indication, antibiotics for acute sinusitis, imaging for uncomplicated low back pain). Additional interventions rather than just the provision of information may be required to affect change.

Stinnett-Donnelly JM, Stevens PG, Hood VL. Developing a high value care programme from the bottom up: a programme of faculty-resident improvement projects targeting harmful or unnecessary care. *BMJ Qual Saf* 2016; 25: 901–8. doi: 10.1136/bmjqs-2015-004546.

The article reports the first two years’ experience of reducing low-value care in a United States university medical department. Clinicians proposed projects to reduce low-value tests and procedures in their subspecialty, some of which were from Choosing Wisely lists. Opportunity for improvement was assessed from baseline data. Selected projects were implemented through education of the ordering clinicians and system-based change (e.g. electronic best practice alerts when ordering a test). Examples of success included a 90% reduction by two years in bone density scans of women under 65 years without risk factors for osteoporosis. The authors identified factors that affected project success and have developed a framework to assist future project selection based on complexity, value and controversy.

EVALUATION OF CHOOSING WISELY RESOURCES

Herrera-Perez D, Haslam A, Crain T, Gill J, Livingston C, Kaestner V, Hayes M, Morgan D, Cifu AS, Prasad V. Meta-Research: A comprehensive review of randomized clinical trials in three medical journals reveals 396 medical reversals. *eLife* 2019;8:e45183. <https://doi.org/10.7554/eLife.45183.001>

The ability to identify medical reversals and other low-value medical practices is an essential prerequisite for efforts to reduce spending on such practices. Through an analysis of more than 3000 randomized controlled trials (RCTs) published in three leading medical journals (the *Journal of the American Medical Association*, the *Lancet*, and the *New England Journal of Medicine*), we have identified 396 medical reversals. Most of the studies (92%) were conducted on populations in high-income countries, cardiovascular disease was the most common medical category (20%), and medication was the most common type of intervention (33%).

Légaré F, Hébert J, Goh L, Lewis KB, Leiva Portocarrero ME, Robitaille H, Stacey D. Do choosing wisely tools meet criteria for patient decision aids? A descriptive analysis of patient materials. *BMJ Open*. 2016 Aug 26;6(8):e011918. doi: 10.1136/bmjopen-2016-011918.

These Canadian researchers reviewed all Choosing Wisely Canada patient materials on the website, using the International Patient Decision Aid Standards (IPDAS) criteria for qualifying patient decision aids. Out of 24 patient materials, only 2 met the 6 IPDAS criteria to qualify as patient decision aids, and neither of these 2 met the 6 certifying criteria. Almost all decision aids neglected to state the decision required, none provided balanced information on option benefits/harms or cited the evidence. None of the aids included an updating policy. The researchers concluded that a number of modifications to the Choosing Wisely Canada patient materials would help to ensure that they qualify as patient decision aids and thus as more effective shared decision-making tools. This is relevant feedback for Choosing Wisely New Zealand, as many of the patient resources in New Zealand were adapted from Choosing Wisely Canada resources.

EVIDENCE OF LOW-VALUE/UNNECESSARY CARE

Abram SGF, Judge A, Beard DJ, Price AJ. Adverse outcomes after arthroscopic partial meniscectomy: a study of 700 000 procedures in the national Hospital Episode Statistics database for England. *Lancet*. 2018 Nov 17;392(10160):2194-2202. doi: 10.1016/S0140-6736(18)31771-9. Epub 2018 Sep 24.

Arthroscopic partial meniscectomy is one of the most common orthopaedic procedures worldwide, but clinical trial evidence published in the past 6 years has raised concern about its potential overuse and limited effectiveness in certain groups. This analysis of 700,000 meniscectomies performed in the UK between 1997-2017, aimed to establish the true risk of serious complications after arthroscopic partial meniscectomy, to help clinicians and patients make an informed choice about risks and benefits. Overall, while the risk associated with undergoing arthroscopic partial meniscectomy was low, some rare but serious complications still occur. The risks of pulmonary embolism and septic arthritis have not declined over time. For every 1390 (95% CI 1272-1532) fewer knee arthroscopies done, one pulmonary embolism could be prevented. For every 749 (95% CI 704-801) fewer procedures done, one native knee joint infection could be prevented. In view of uncertainty about the effectiveness of arthroscopic partial meniscectomy, an appreciation of relative risks is crucial for patients and clinicians.

Badgery-Parker T, et al. Low-value care in Australian public hospitals: prevalence and trends over time. *BMJ Qual Saf* 2018;0:1-10. doi:10.1136/bmjqs-2018-008338

This study used direct measurement of low value care - specifically identifying episodes where the care appears to be contrary to published recommendations - for 27 procedures in the NSW public hospital system in 2016-2017, and estimated the associated costs, together with trends over the preceding 7 years. For these 27 procedures in 2016-2017, there were 5079-8855 episodes (using either a narrow or broad definition of low-value) involving low-value care (11.00%-19.18% of all episodes involving these services). These episodes were associated with total inpatient costs of \$A49.9 - \$A99.3 million, which was 7.4% - 14.7% of the total costs for all episodes involving these procedures in 2016-2017, and involved 14,348-29,705 unnecessary bed-days. Of these 27 procedures, 14 accounted for 99% of low-value care in the study. Some of these low-value procedures were becoming more common over time, including colonoscopy for constipation, endoscopy for dyspepsia, sentinel lymph node biopsy for melanoma in situ. The proportion of low-value care varied widely between hospitals. It is important to bear in mind that data availability governed which recommendations this study could measure. The 27 procedures are those which could be measured, not necessarily the most important for health system efficiency or patient outcomes.

Baxi, SS et al. Overuse of Health Care Services in the Management of Cancer: A Systematic Review. Med Care. 2017 July ; 55(7): 723–733. doi:10.1097/MLR.0000000000000734

Despite a stable cancer incidence, the cost of cancer care is high and is rising more rapidly than costs in other medical sectors in the USA. These escalating costs have led to concerns about the ability of the healthcare system to pay and have led to removal of some drugs from coverage in countries such as the UK. As a result, there is a growing emphasis on improving value in cancer management. One approach to improving value in cancer care is the identification and elimination of overuse. This systemic review describes the current prevalence of overuse in cancer care (including rates of overuse of diagnostic tests, therapeutic procedures, and medications in the management of patients diagnosed with cancer). The 59 included studies assessed the overuse of 154 distinct services. Rates of overuse varied widely between 0 and 100% across services. The majority of studies focused on overuse of imaging in early stage breast cancer and low to intermediate risk prostate cancer, and despite concerns about the high cost of active cancer care only 29% of studies addressed services delivered during active treatment. Two studies evaluating overuse of newer, high-cost drugs, both of which focused on trastuzumab for patients with HER2-positive breast cancer; both reported relatively low rates of overuse. Rates of overuse of chemotherapy varied. A study from the USA found chemotherapy was overused in approximately 40% in patients with metastatic lung cancer, 36-55% in women with metastatic breast cancer. A French study reported that approximately 21% of all chemotherapy administered for any cancer at two academic centers was administered against national guideline recommendations.

Brownlee, S et al. Evidence for overuse of medical services around the world. The Lancet 2017; 390: 10090, 156 - 168

As part of the four-part Lancet *Right Care Series*¹ on medical underuse and overuse published in January 2017, this paper reviews what is known globally regarding the scope and consequences of overuse: “the provision of medical services that are more likely to cause harm than good”. Overuse is difficult to measure, as it not only includes clearly ineffective interventions, but also “grey zone” interventions for which the balance between benefits and harms varies substantially among patients.

Most studies of overuse have been done in high-income countries, for example with findings that 40% of patients in the USA with low back pain are receiving unnecessary MRIs, and 23% of low risk surgery patients have a pre-op chest X-ray, and in Poland, Sweden, and the UK, half of patients with viral upper respiratory infections receive unnecessary antibiotics. But there is growing evidence that overuse is a global problem. Inappropriate use of medication (especially antibiotics), inappropriate use of screening tests and overuse of imaging are all common. For example, South Korea’s aggressive use of ultrasound screening has led to a 15-fold increase in incidence of papillary thyroid cancer, yet the death rate from this cancer has remained unchanged, and it is estimated that 99.7–99.9% of screen-detected thyroid cancers in Korea represent overdiagnosis. In many countries, evidence exists for the overuse of aggressive care for dying patients and simultaneous underuse of appropriate palliative care. Overuse can coexist with underuse and unmet health-care needs, particularly in low and middle-income settings.

Overuse is likely to cause physical, psychological and financial harm to patients, and drain resources from other public health and social spending. In Australia for example, the rising volume of medical services, many of which are overused, has been identified as the greatest threat to the financial position of the government, and a bigger cause of health-care cost increases than population growth or ageing.

Morgan DJ et al. 2018 Update on Medical Overuse. JAMA Intern Med. 2019 Feb 1;179(2):240-246. doi: 10.1001/jamainternmed.2018.5748.

¹ <http://www.thelancet.com/series/right-care>

Overuse of medical care is a well-recognized problem in health care, associated with patient harm and costs. This review highlights original research articles published in 2017 that are most relevant to understanding medical overuse. A total of 1446 articles were identified, 910 of which addressed medical overuse. Of these, 111 articles were deemed to be the most relevant based on originality, methodologic quality, and scope. The 10 most influential articles were selected by author consensus. Findings included that unnecessary electrocardiograms are common (performed in 22% of patients at low risk) and can lead to a cascade of services, lipid monitoring rarely affects care, patients who were over-diagnosed with cancer experienced anxiety and criticism about not seeking treatment, calcium and vitamin D supplementation does not reduce hip fracture, and pregabalin does not improve symptoms of sciatica but frequently has adverse effects (40% of patients experienced dizziness). Antipsychotic medications increased the severity of delirium in patients receiving hospice care and were associated with an increased risk of death, and robotic-assisted radical nephrectomy was without benefits by being slower and more costly than laparoscopic surgery. High-sensitivity troponin testing often yielded false-positive results, as 16% of patients with positive troponin results in a US hospital had a myocardial infarction. One-third of patients who received a diagnosis of asthma had no evidence of asthma. Restructuring the electronic health record was able to reduce unnecessary testing (from 31.3 to 13.9 low-value tests performed per 100 patient visits).

Naugler, C. Wyonch, R. (2019) "What the Doctor Ordered: Improving the Use and Value of Laboratory Testing," C.D. Howe Institute Commentary, C.D. Howe Institute, issue 533, February.

https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary_533%20final%20updated.pdf

This report, from a Canadian NGO policy think-tank, investigates the use and cost of laboratory testing in Canada and finds variation across the country. To decrease the amount of unnecessary laboratory testing and the associated downstream medical costs, strategies must balance effectiveness with maintaining doctor and patient autonomy in choosing treatments. The authors propose a number of options for policymakers to reduce inappropriate laboratory testing: adjusting physician compensation to align incentives with improving appropriateness; utilization management via practice variation and feedback information; reforming requisition orders and care paths to more closely adhere to clinical guidelines; and development of provincial formularies for diagnostic testing.

HEALTH PROFESSIONALS' PERSPECTIVES

Colla CH, Kinsella EA, Morden NE, Meyers DJ, Rosenthal MB, Sequist TD. Physician perceptions of Choosing Wisely and drivers of overuse. *Am J Manag Care* 2016; 22:337—343.

This survey of doctors practising at a large United States ambulatory care provider assessed awareness of Choosing Wisely almost two years after its introduction and views on possible drivers of overuse. The response rate was 72%. Awareness of Choosing Wisely was significantly higher among primary care physicians (47%) than medical specialists or surgeons. Primary care physicians reported feeling significantly more pressure from patients for interventions than other doctors. Support for doctors in dealing with uncertainty associated with conservative management and that addresses drivers of overuse may be beneficial in reducing overuse.

Zikmund-Fisher BJ, Kullgren JT, Fagerlin A, Klamerus ML, Bernstein SJ, Kerr EA. Perceived barriers to implementing individual Choosing Wisely recommendations in two national surveys of primary care providers. *J Gen Int Med* 2016 doi: 10.1007/s11606-016-3853-5

This United States study examined primary care providers' perceptions regarding which Choosing Wisely adult primary care recommendations were difficult for them to follow, difficult for patients to accept, or both, and

particular barriers to reducing overuse. National surveys of private sector primary care physicians and federally funded primary care providers were carried out with response rates of 34% and 48%, respectively. There was variation in reported difficulty to follow and a high level (36 to 87 %) of reported difficulty for most patients to accept for recommendations related to medication use (sinusitis, insomnia/agitation/delirium) and imaging (syncope, low back pain). for symptomatic conditions. Malpractice concerns, patient requests, the number of interventions recommended by specialists, and lack of time for shared decision-making with patients were most frequently rated as major barriers to reducing overuse. Findings were largely consistent between the two groups which suggest that such concerns are not predominantly driven by reimbursement issues. Variations in attitudes across recommendations suggest implementation efforts will need to be adapted to the specific barriers in implementing each Choosing Wisely recommendation.

INDICATORS FOR LOW-VALUE CARE

Chalmers K, Badgery-Parker T, Pearson SA, Brett J, Scott IA, Elshaug AG. Developing indicators for measuring low-value care: mapping Choosing Wisely recommendations to hospital data. BMC Res Notes. 2018 Mar 5;11(1):163.

Having indicators for low-value care is critical to be able to measure the baseline of low-value care and to evaluate the impact of the Choosing Wisely Campaign. These Australian researchers sought to develop indicators of low-value care, based on selected Choosing Wisely (CW) recommendations, applicable to routinely collected hospital data.

They assessed 824 recommendations from the United States, Canada, Australia and the United Kingdom CW lists regarding their capacity to be measured in administrative hospital admissions datasets. They selected recommendations if they met the following criteria: the service occurred in the hospital setting (observable in setting); a claim recorded the use of the service (record of service); the appropriate/inappropriate use of the service could be mapped to information within the hospital claim (indication); and the service is consistently recorded in the claims (consistent documentation).

The authors identified 17 recommendations (15 services) as measurable, and developed an operational indicator for each, based on routinely available hospital datasets. It is concerning that only 17 of the 824 original recommendations were measurable in routine public hospital datasets, although this is consistent with previous research. Unfortunately, only one of these is a CW New Zealand recommendation (don't use epidural steroid injections for patients with axial low back pain who do not have leg dominant symptoms originating in the nerve roots). This means further work is needed to develop practical measures of low-value care in New Zealand, in order to assess the problem of low-value care and to evaluate the CW campaign.

INEQUITIES AND LOW-VALUE CARE

Barnett ML, Linder JA, Clark CR, Sommers BD. Low-Value Medical Services in the Safety-Net Population. JAMA Intern Med. 2017 Jun 1;177(6):829-837. doi: 10.1001/jamainternmed.2017.0401.

Using national survey data from 193 062 office visits, this study measured rates of low-value care and high-value care received by patients without insurance or with Medicaid, compared with privately insured patients, and provided by safety-net physicians vs non-safety-net physicians. Low-value and high-value care was delivered in 19.4% (95% CI, 18.5%-20.2%) and 33.4% (95% CI, 32.4%-34.3%) of eligible encounters, respectively. Rates of low-value and high-value care delivery were similar across insurance types for the majority of services examined. Among Medicaid patients, adjusted rates of use were no different for 6 of 9 low-value and 9 of 12 high-value services compared with privately insured beneficiaries, whereas among the uninsured, rates were no different for 7 of 9 low-value and 9 of 12 high-value services. Safety-net physicians provided similar care compared with non-safety-net physicians, with no difference for 8 out of 9 low-value and

for all 12 high-value services. Overuse of low-value care is common among patients without insurance or with Medicaid. Rates of low-value and high-value care were similar among physicians serving vulnerable patients and other physicians. Overuse of low-value care is a potentially important focus for state Medicaid programs and safety-net institutions to pursue cost savings and improved quality of health care delivery.

Metcalfe S, et al. Te Wero tonu - the challenge continues: Māori access to medicines 2006/07-2012/13 update. N Z Med J. 2018 Nov 9;131(1485):27-47.

This study linked prescription medicine data from the NZ Ministry of Health with burden of disease estimates by ethnicity for 2012/13 and 2006/07. After adjusting for age, population and burden of disease, large inequalities still existed for Māori compared with non-Māori, with generally no improvement over the six years. In 2012/13, Māori had 41% lower dispensings overall than non-Māori (after accounting for ethnic differences in burden of disease); this was nominally worse compared with the 37% relative gap in 2006/07, but the trend was not statistically significant. Large inequities in medicines access for Māori continue, which are unacceptable and their causes likely complex and entrenched. PHARMAC has committed to strategic action to eliminate inequities in access to medicines by 2025, recognising it needs partners to drive the necessary change.

Schpero WL et al. For Selected Services, Blacks And Hispanics More Likely To Receive Low-Value Care Than Whites. Health Aff (Millwood). 2017 June 01; 36(6): 1065–1069. doi:10.1377/hlthaff.2016.1416.

To determine the prevalence of low-value care in minority populations, this study analyzed administrative data from 2006 to 2011 to measure the receipt of 11 low-value services delivered to Medicare patients in the USA. Services included inappropriate use of imaging for lower-back pain, cardiac testing, opioids for treatment of migraines, and vitamin D screening, among others.

The study revealed that black and Hispanic patients were often more likely to receive low-value care than whites. Black patients received significantly more of 5 out of the 11 services measured, and Hispanics significantly more of six. Black and Hispanic patients with dementia faced significantly greater odds of inappropriately receiving feeding tubes (black vs. white OR 4.40, CI 4.35–4.44; Hispanic vs. white OR 3.05, 95% CI 3.00–3.09). Black and Hispanic patients were also much more likely to receive unnecessary cardiac screening and preoperative testing, as well as unneeded imaging for enlarged prostates.

These findings suggest a possible double jeopardy for minority patients in the USA: long understood to be at risk of receiving less effective care, they also appear to be at risk of receiving more ineffective care. Addressing health care disparities requires attention to the importance of improving quality relative to access, as well as the complex interplay between underuse and overuse.

Whyler N, Tomlin A, Tilyard M, Thomas M. Ethnic disparities in community antibacterial dispensing in New Zealand, 2015. NZ Med J. 2018 Aug 17;131(1480):50-60.

Antimicrobial stewardship interventions which ignore ethnic disparities may have negative effects on the health of some ethnic groups. This study analyzed ethnicity data on all New Zealand community pharmacy antibacterial dispensings (95% of antibacterial dispensing in New Zealand) during 2015. The rate of community antibacterial dispensing for the total population surveyed was 3.01 dispensings per 1,000 population per day, and was 3.49 for Pacific, 3.23 for Māori, 3.02 for European, 2.70 for Middle Eastern, Latin American and African, and 2.35 for Asian people.

The ethnic disparities in the rates of antibacterial dispensing in New Zealand are consistent with, but less marked than, the ethnic disparities in the incidence of infectious diseases in New Zealand. It is not possible to say from this analysis how much of this may be due to some persisting under-prescribing in Maori and Pacific ethnic groups and how much is due to over-use in the other ethnicities. The overall rate of community antibacterial dispensing in New Zealand is high.

Programmes to reduce community antibacterial dispensing in New Zealand need to be sufficiently nuanced so that they do not lead to reduced rates of antibacterial treatment for infections that require treatment, especially for Pacific and Māori people. Higher rates of antibacterial consumption by Pacific and Māori people (needed due to increased rates of infections) also means these ethnic groups will suffer higher rates of adverse effects, including higher prevalence of antibacterial resistance and of the metabolic consequences that are caused by alterations in the gut microbiome. This study highlights the importance of ensuring that all ethnic groups receive the appropriate amount of antibiotics – not too little and not too much.

INTERNATIONAL CHOOSING WISELY INITIATIVES

Hurley R. Can doctors reduce harmful medical overuse worldwide? *BMJ* 2014; 349:g4289. doi: 10.1136/bmj.g4289

The article reports some of the views from an international Choosing Wisely meeting and what other countries are doing. It outlines the Choosing Wisely approach of engaging doctors to identify and reduce low-value care and communicating to patients that more care is not always better. Patients need to be encouraged to ask their doctor a series of questions about a proposed intervention. The key point is shared decision-making.

Levinson W, Kallewaard M, Bhatia RS, Wolfson D, Shortt S, Kerr EA. ‘Choosing Wisely’: a growing international campaign. *BMJ Qual Saf* 2014; 0: 1–9. doi: 10.1136/bmjqs-2014-003821

The article presents the experiences from 12 countries in planning or implementing Choosing Wisely. It identifies key elements of a Choosing Wisely campaign and five principles (physician led, patient focused, evidence based, multi-professional, transparent) essential to its success that should be incorporated in a Choosing Wisely campaign in any country. The goal of a Choosing Wisely campaign is to change the culture of medical care that has historically supported overuse of unnecessary interventions to provide high-quality care, prevent harm and decrease the use of unnecessary care.

Wolfson D, Santa J, Slass L. Engaging physicians and consumers in conversations about treatment overuse and waste: a short history of the Choosing Wisely campaign. *Acad Med* 2014; 89: 990–995. doi: 10.1097/ACM.0000000000000270

The leaders of the Choosing Wisely campaign, the American Board of Internal Medicine Foundation and Consumer Reports, outline the history and purpose of the campaign, its structure and approach, lessons learned and future plans. Professional values and doctor-patient conversations to reduce unnecessary care underpin the campaign. Medical specialty societies have developed more than 250 evidence-based recommendations, some of which have consumer-friendly resources produced by Consumer Reports. Evaluation of the campaign’s impact is needed.

Malhotra A, Maughan D, Ansell J, Lehman R, Henderson A, Gray M, et al. Choosing Wisely in the UK: the Academy of Medical Royal Colleges’ initiative to reduce the harms of too much medicine. *BMJ* 2015; 350:h2308. doi: 10.1136/bmj.h2308

The article outlines the Academy of Medical Royal Colleges’ approach to introducing Choosing Wisely in the United Kingdom in collaboration with other clinical, patient and healthcare organisations. The authors suggest that guideline committees should produce decision-making tools that assist informed discussion with patients. Decisions should be made on the best match between evidence about the benefits and harms of each intervention and the goals and preferences of the patient.

Santhirapala, R. Fleisher, LA. Grocott, MPW. Choosing Wisely: just because we can, does it mean we should? *British Journal of Anaesthesia*; 122(3): 306-310

This editorial describes the approach of the Choosing Wisely campaign in the UK, in particular, how the UK campaign decided to focus on promoting shared decision-making, rather than lists of “do not do”. The authors explain the rationale for this approach, including that NICE and other bodies already published lists of recommendations for things “not to do”, the concern that a focus on what not to do could result a misperception that the campaign was merely about rationing, and that shared decision-making had been recognised as a national priority by a number of key health bodies. Instead, Royal Colleges were asked to identify five areas of evidence-based practice that could benefit from improved patient physician conversations. Choosing Wisely UK is now moving forward with a formal implementation phase. Entitled the ‘Choosing Wisely Champions Programme’, several NHS Trusts have stepped forward stating they would like to implement the recommendations. A professional education and training strategy in shared decision-making has been developed by the Academy of Royal Medical Colleges.

OLDER PEOPLE AND UNECESSARY CARE

The Best Practice Advocacy Centre New Zealand (2018). Frailty in older people: a discussion.

<https://bpac.org.nz/2018/docs/frailty.pdf>

People with frailty are more vulnerable to adverse outcomes from illness, injury or the adverse effects of medicines. Frailty is not defined by a specific chronological age, but it is more common among older people. Some groups such as Māori have higher rates of frailty and experience it earlier, often due to multiple comorbidities. Understanding how frailty impacts upon health, particularly in the context of prescribing and reviewing medicines, can help to minimise harm and improve outcomes for older people in primary care. Frailty should be considered when making treatment decisions such as prescribing a new medicine or referring for elective surgery. Polypharmacy is an especially common risk factor among people with frailty - stopping medicines that are no longer appropriate or necessary may reduce this risk. Interventions such as exercise and ensuring adequate nutrition and Vitamin D may help to slow or prevent the onset and progression of frailty in older people.

PATIENTS’ AND CONSUMERS’ PERSPECTIVES

Born KB, Coulter A, Han A, et al. Engaging patients and the public in Choosing Wisely. BMJ Quality & Safety Online First, published on 13 June 2017 as 10.1136/bmjqs-2017C-006595

While physicians have demonstrated a high degree of interest in Choosing Wisely, there is concern that the impact of campaigns will be blunted if patients and the broader public are not receptive to the messages. Also, physicians’ perceptions of the unacceptability to patients of applying Choosing Wisely recommendations appear to be a major barrier towards greater implementation. To help improve efforts of Choosing Wisely campaigns to engage with patients and the public, the authors of this viewpoint propose a framework for engagement. Their “*Partner, Engage, Inform, Empower*” framework suggests multiple approaches that can be used simultaneously. A shared challenge of Choosing Wisely campaigns is to demonstrate impact through measurement. The framework also offers suggestions for measuring progress towards the challenging aim of building patient and public awareness.

Silverstein W, Lass E, Born K, Morinville A, Levinson W, Tannenbaum C. A survey of primary care patients’ readiness to engage in the de-adoption practices recommended by Choosing Wisely Canada. BMC Res Notes 2016; 9: 301. doi: 10.1186/s13104-016-2103-6

This Canadian study of primary care patients aged 50 or more years suggests provision of patient educational materials in waiting rooms can improve knowledge around the use of unnecessary care. The response rate was 53% -- participants were highly educated, mostly female (59%) and had a mean age of 63 years. Participants chose one topic from five common unnecessary interventions (annual electrocardiogram (ECG) testing, use of

antipsychotic drugs for dementia, use of antibiotics for sinusitis, imaging for low back pain, and hypnosedative use for insomnia) and rated their agreement to knowledge and behaviour statements in relation to the topic before and after reading a Choosing Wisely brochure on the topic. A subset also later had a semi-structured interview. Knowledge improved significantly for all topics after reading the brochure, irrespective of age, sex or educational status. Forty-eight percent said that they would discuss the material with a health care provider and 45% intended to incorporate the brochure's recommendations into their future health behaviour. The majority of the (small subset of) interviewed patients already espoused or were ready to adopt the principles of Choosing Wisely.

Boyes B. Medical Groupthink: is that surgery, procedure or medication really necessary? Real KM Evidence based. Practical results. 2016. <http://realkm.com/2016/03/17/medical-groupthink-isthat-surgery-procedure-or-medicine-really-necessary/>

This article gives a patient's voice to the experience of potentially undergoing unnecessary and potentially harm causing investigations and treatments. Bruce Boyes is an Australian man in his fifties, who came close to undergoing a coronary angiogram to investigate Q wave inversion on his ECG. Dr Boyes was concerned enough at the prospect of developing complications from having this procedure, that he found and reviewed some of his earlier ECGs done some 25 years prior. These ECGs showed exactly the same Q wave inversion pattern, hence discounting the cardiologist's opinion that Dr Boyes had experienced "a silent myocardial infarction". Dr Boyes relates previous health encounters that have coloured his approach to medical consultations and advice. These include his chance-reading about the use of imiquimod for treatment for basal cell carcinomas (B.C.Cs). Bruce's facial B.C.C was successfully treated with imiquimod, despite being told by a surgeon there was no alternative to surgical excision and skin graft of his BCC. Dr Boyes's insights provide good examples of the importance of patients being comfortable questioning the advice they are given by their doctor.

POLICY DEBATE ON CHOOSING WISELY

Atkinson P, Lang E, Mackenzie M, Hirandani R, Lys R, Laupacis M, Murray H. CJEM Debate Series: #ChoosingWisely - The Choosing Wisely campaign will not impact physician behaviour and choices. CJEM. 2018 Mar;20(2):170-175.

This editorial of the Canadian Journal of Emergency Medicine debates the claim that the Choosing Wisely campaign will not impact physician behaviour and choices. Is the CW campaign simply a re-branding of common sense? Or is it a novel evidence-based program that will both save money and improve the quality of care that we deliver? Is it an attempt to remove clinical judgment, replacing it with simplistic rules that do not recognize variability in populations? Or is the aim of the campaign to empower patients to facilitate improved communication with care providers and ultimately better choices? The affirmative team make the argument that the CW campaign is well intentioned; however without significant changes to the implementation strategies, it will not impact physician behaviour and choices. The rebutting team argue that the CW campaign is the most powerful approach we have for combatting unnecessary care, and that ultimately CW will change practice because of its broad engagement and supportive tools.

The debate makes for impassioned reading, but this type of healthy debate is crucial for the CW campaign to improve. A number of issues in the critique, such as the need for better data to measure over-treatment, the importance of a rigorous evidence base behind CW recommendations, the need to better educate clinicians working in a public health system about costs of care, and the need to ensure broad engagement within Colleges to include frontline staff in the development of CW recommendations, serve as useful reflection points for how the CW campaign could be further strengthened.

REDUCING INAPPROPRIATE ANTIBIOTIC PRESCRIBING

Meeker, D et al. Effect of Behavioral Interventions on Inappropriate Antibiotic Prescribing Among Primary Care Practices: A Randomized Clinical Trial. JAMA. 2016 Feb 9;315(6):562-70. doi: 10.1001/jama.2016.0275.

This describes a cluster randomized trial conducted among 47 primary care practices in Boston and Los Angeles (248 clinicians) to assess effects of behavioural interventions and rates of inappropriate antibiotic prescribing for acute respiratory tract infections. A new diagnosis of acute respiratory infection in the electronic health record, triggered three behavioural interventions (either alone or in combination): 1) “suggested alternatives” presented electronic order sets suggesting nonantibiotic treatments; 2) “accountable justification” prompted clinicians to enter free-text justifications for prescribing antibiotics into patients’ electronic health records; and 3) “peer comparison” sent emails to clinicians that compared their antibiotic prescribing rates with those of “top performers” (those with the lowest inappropriate prescribing rates). The outcomes measured were antibiotic prescribing rates for visits with antibiotic-inappropriate diagnoses (nonspecific upper respiratory tract infections, acute bronchitis, and influenza) from 18 months preintervention to 18 months afterward. Among primary care practices, the 2 socially motivated interventions—accountable justification and peer comparison resulted in statistically significant reductions in inappropriate antibiotic prescribing, while suggested alternatives, which lacked a social component, had no significant reduction.

Commonwealth of Australia (2018). Nudge vs Superbugs: a behavioural economics trial to reduce the overprescribing of antibiotics. <http://behaviouraleconomics.pmc.gov.au/sites/default/files/projects/report-nudge-vs-superbugs.pdf>

An Australian randomised controlled trial into reducing antibiotic over-prescribing has resulted in an estimated 126,352 fewer scripts being filled over a six-month period. GPs whose antibiotic prescribing rates were in the top 30 per cent, were randomised to receive one of four types of letters from the Australian Chief Medical Officer: 1) education-only; 2) education with peer comparison; 3) peer comparison with graph; 4) peer comparison with delayed prescribing material. The peer comparison letter with graph performed best, and reduced prescription rates by 12.3 per cent over the six-month period, compared to a 3.2% reduction for the education-only letter. The results demonstrate that a peer comparison letter from a respected authority can have large impacts on antibiotic prescribing by GPs, and that letters incorporating peer comparison information outperformed education letters about antimicrobial resistance.

REDUCING PRE-OPERATIVE TESTING

Matulis J, Liu S, Mecchella J, North F, Holmes A. Choosing Wisely: A Quality Improvement Initiative to Decrease Unnecessary Preoperative Testing. BMJ Qual Improv Report 2017 6 doi:10.1136/bmjquality.u21681.w6691

This article from the United States details a quality improvement study, which aimed to reduce rates of unnecessary pre-operative testing and reduce the average time taken for pre-operative appointments. It was undertaken within the pre-operative service of a General Internal Medicine (GIM) Clinic at a rural, academic medical center over a 9-month period. Only patients undergoing low and intermediate cardiac risk surgeries were included. Of note, seven specialties participating in the American Choosing Wisely initiative recommend against performing routine pre-operative testing prior to low-risk surgery. Baseline data was extracted from the files of patients undergoing pre-operative evaluation identified that 36% of all patients received unnecessary testing. Prior to the intervention, researchers found no standardized process for either performing the pre-operative evaluation nor for the ordering of pre-operative tests. Important contributory factors leading to unnecessary testing were identifiable. These included; practice tradition, lack of familiarity with current guidelines, institutional pre-operative requirements and time constraints. The researchers

developed a templated Electronic Health Record (EHR) Tool to guide clinicians through recommended documentation format, orders, patient instructions and billing. It was hoped this tool would also be adopted by physicians outside of the pre-operative clinic, and drive wider improved rates of appropriate testing. The researchers employed Nurse Practitioners and Physician Assistants to run the pre-operative clinics, and used standardized processes. Clinical access and scheduling flexibility for these clinics was noted to be improved compared to primary care physician (PCP) run pre-operative clinics. Results: a statistically significant reduction in unnecessary pre-operative testing was found between the group of patients seen in the intervention group (4%), and the patients receiving usual care (23%). Mean scheduled appointment duration was also significantly lower (40minutes versus 48minutes).

ROLE OF CLINICAL GUIDELINES IN REDUCING LOW-VALUE CARE

O'Donnell JL. Editorial. Evolve osteoporosis and other guidelines avoiding cognitive bias. Intern Med J 2016; 1129—1132. doi: 10.1111/imj.13212

The editorial suggests that standardised critical appraisal of clinical guidelines is more likely to have an impact on low-value care than some of the Royal Australasian College of Physicians' current Evolve (Choosing Wisely) recommendations, which are directed to other specialties rather than the speciality that derived it. Cognitive bias in clinical guidelines is illustrated using the example of bone mineral density scans for monitoring the effectiveness of treatment for osteoporosis.

SHARED DECISION MAKING

Hoffmann TC, Légaré F, Simmons MB, et al. Shared decision making: what do clinicians need to know and why should they bother? Med J Aust. 2014 Jul 7;201(1):35-9.

Shared decision making enables a clinician and patient to participate jointly in making a health decision, having discussed the options and their benefits and harms, and having considered the patient's values, preferences and circumstances. It is not a single step to be added into a consultation, but a process that can be used to guide decisions about screening, investigations and treatments. The benefits of shared decision making include enabling evidence and patients' preferences to be incorporated into a consultation; improving patient knowledge, risk perception accuracy and patient-clinician communication; and reducing decisional conflict, feeling uninformed and inappropriate use of tests and treatments.

This article summarises the key misconceptions clinicians have about shared decisions making, including the evidence that refutes these myths. The article describes five simple questions that can be used to guide clinicians through the shared decision-making process: 1) What will happen if the patient waits and watches? 2) What are the test or treatment options? 3) What are the benefits and harms of each option? 4) How do the benefits and harms weigh up for the patient? 5) Does the patient have enough information to make a choice? The authors also describe the range of tools that are available to assist clinicians and patients in shared decision making.

STRATEGIES FOR REDUCING UNNECESSARY CARE

Academy of Medical Royal Colleges. Protecting resources, promoting value: a doctor's guide to cutting waste in clinical care. London: Academy of Medical Royal Colleges; 2014. www.aomrc.org.uk/wp-content/uploads/2016/05/Protecting_Resources_Promoting_Value_1114.pdf

This report by the Academy of Medical Royal Colleges makes a number of recommendations about reducing wasted clinical resources, including that colleges identify areas of waste and give leadership in tackling them through use of tools such as the National Institute for Health and Care Excellence 'do not do' database and a

Choosing Wisely list for their specialty. A cultural shift is needed – “don’t do something because it can be done; do it if it is necessary.” The report includes a waste reduction toolkit and gives examples of how health professionals can ensure that resources are used in the most effective way to provide the best possible quality and quantity of care for patients.

Colla CH. Swimming against the current — what might work to reduce low-value care? N Engl J Med 2014; 371: 1280—3.

The article discusses the pros and cons of policy tools aimed at patients (e.g. patient education) and healthcare providers (e.g. evidence-based guidelines) to reduce low-value care. Whilst the discussion focuses on the United States which has a fee-for-service system, the article includes a table summarising the various financial incentive and information policy tools that exist. More evidence of the effectiveness of these tools in reducing low-value care is needed.

Colla CH et al. Interventions Aimed at Reducing Use of Low-Value Health Services: A Systematic Review. Med Care Res Rev. 2017 Oct;74(5):507-550. doi: 10.1177/1077558716656970. Epub 2016 Jul 8.

The effectiveness of different types of interventions to reduce low-value care has been insufficiently summarized to allow for translation to practice. This article systematically reviews the literature on the effectiveness of interventions to reduce low-value care and the quality of those studies. Multicomponent interventions addressing both patient and clinician roles in overuse have the greatest potential to reduce low-value care. Clinical decision support and performance feedback are promising strategies with a solid evidence base, and provider education yields changes by itself and when paired with other strategies. Further research is needed on the effectiveness of pay-for-performance, insurer restrictions, and risk-sharing contracts to reduce use of low-value care.

Del Giorno R, et al. Multifaceted intervention to curb in-hospital over-prescription of proton pump inhibitors: A longitudinal multicenter quasi-experimental before-and after study. Eur J Intern Med. 2018 Apr;50:52-59. doi: 10.1016/j.ejim.2017.11.002. Epub 2017 Dec 20.

The multifaceted intervention was implemented over 36 months and was aimed at improving hospitals' PPI prescriptions by: i) educational interventions based on implementation of hospitals' best-practice guidelines, promoting awareness of the potential prescription inappropriateness and side effects of PPIs; and ii) continuous transparent monitoring/benchmarking of new PPI prescriptions (via a website that updated prescribing rates weekly, by unit and department). The intervention was applied in the internal medicine departments, while the data of the surgery departments were used as controls to evaluate the impact of the strategy. The educational intervention included face-to-face feedbacks and meetings, printed and electronic materials and educational outreach visits by local opinion leaders. The annual rate of new PPI prescriptions, for internal medicine showed a statistically significant decreasing trend: 19, 19, 18, 16% in years 2014, 2015, 2016, 2017, respectively ($p < 0.001$, 2014 vs. 2017; $p\text{-for-trend} < 0.001$), while an increasing rate was found in the surgery departments in the same years: 30, 29, 36, 36%, respectively ($p < 0.001$, 2014 vs. 2017; $p\text{-for-trend} < 0.001$).

Elshaug, AG et al. Levers for addressing medical underuse and overuse: achieving high-value health care. The Lancet 2017; 390: 191–202

As part of the four-part Lancet *Right Care Series*² on medical underuse and overuse published in January 2017, this paper seeks to provide an understanding of the system-level factors that drive overuse and underuse, as well as the various incentives at work during a clinical encounter. The authors classify these drivers into three clusters: (a) the flow of money and consequent effects on incentives and the integration of care; (b) gaps in

² <http://www.thelancet.com/series/right-care>

knowledge, misleading psychological tendencies, and erroneous beliefs; and (c) asymmetries in power between patients and providers, impeding proper consideration of patients' aims and preferences.

The authors propose a range of levers for eliminating medical underuse and overuse, using complementary "bottom-up" approaches, whereby patients, clinical professionals, and system leaders take a proactive lead (such as in Choosing Wisely); and "top-down" policies, where governments, medical societies, or private third-party payers take measures to improve the safety and quality of health care. They outline a list of policy options available for system leaders and government policy makers.

They note that levers that target underuse can easily have the unintended consequence of exacerbating overuse and vice-versa. For example, in Australia efforts to increase testing for vitamin D deficiency in primary care, rapidly gained popularity with a 4800% increase in testing over 10 years, much of which was clinically inappropriate and at a cost that could have achieved much greater health benefits if spent elsewhere.

Ideally, policies must move beyond the purely incremental; that is, policies that merely tinker at the policy edges after underuse or overuse arises. In this regard, efforts to increase public awareness, mobilisation, and empowerment hold promise as methods to enhance all other efforts to promote the right care.

Organisation for Economic Co-operation and Development (OECD) "Tackling Wasteful Spending on Health" (2017) http://www.oecd-ilibrary.org/social-issues-migration-health/tackling-wasteful-spending-on-health_9789264266414-en

The international Choosing Wisely initiative has been recognised by the Organisation for Economic Co-operation and Development (OECD) as an approach with significant potential to address low-value healthcare. A considerable part of health expenditure makes little or no contribution to improving people's health. This OECD report systematically reviews strategies put in place by countries to limit ineffective spending and waste. Persistent challenges include a lack of metrics to quantify wasteful care and the need to sustainably engage both clinicians and patients to change practices.

According to the OECD, sustainable change is achievable if patients and clinicians are persuaded the better option is the less harmful or least wasteful one. Choosing Wisely is highlighted as promising example of bringing together evidence with leadership from clinician groups. Promising progress from the USA's Choosing Wisely campaign is described, but the report notes that Choosing Wisely initiatives should be fully evaluated in every country, including for any unintended harmful consequences. To support this, the OECD is working with the Choosing Wisely campaign to develop 3 internationally comparable indicators on wasteful care, on: CT and MRI for low back pain; antibiotics for upper respiratory tract infections; and on sedatives for the elderly.

Soon J, et al. Effect of two behavioural 'nudging' interventions on management decisions for low back pain: a randomised vignette-based study in general practitioners. *BMJ Qual Saf.* 2018 Nov 19. doi: 10.1136/bmjqs-2018-008659.

This study investigated whether embedding nudges in a general practitioner (GP) clinical decision support display can reduce low-value management decisions. GPs were presented with clinical vignettes of patients with low back pain, and could choose from three guideline-concordant and three guideline-discordant (low-value) management options for each vignette. Participants were randomised to two possible nudge interventions: 'partition display' nudge (low-value options presented horizontally, high-value options listed vertically) or 'default option' nudge (high-value options presented as the default, low-value options presented only after clicking for more). Participants exposed to the default option nudge were 44% less likely to choose at least one low-value care option (OR 0.56, 95% CI 0.37 to 0.85; $p=0.006$) compared with those not exposed. Embedding high value options as defaults in clinical decision support tools could improve quality of care.

Wilson, A et al. Reducing inappropriate urine testing at Hutt Valley District Health Board using Choosing Wisely principles. *New Zealand Medical Journal* Vol 132:1488; 18 Jan 2019

Unnecessary treatment of asymptomatic bacteriuria is a concern. Hutt Valley District Health Board sought to reduce clinically inappropriate urine culture requests through removal of urine dipsticks from wards and education of staff using Choosing Wisely principles. There was a 28% reduction in monthly urine culture requests for inpatients, after staff education and removal of urine dipsticks, with no change in those for outpatients (the negative control). After the intervention, a higher proportion of urine cultures were positive for urinary pathogens (25.2% compared to 23.0%) and the average number of diagnoses of UTI in hospital discharges decreased 17% (from 161 to 134). This intervention produced annual savings of at least \$41,760. Removal of urine dipsticks from wards and education of staff significantly reduced the number of urine culture requests and is a useful strategy to reduce the overuse of antibiotics for asymptomatic bacteriuria without an increase in the number of UTIs.

VARIATION IN CLINICIANS' REFERRALS

Referring Wisely. The Royal College of Physicians. 2017

The Royal College of Physicians (RCP) noted a great deal of variability in the pattern of referrals between generalist and specialist physicians, and so it invited all Medical Specialties to contribute to their work on "Referring Wisely". The aim was to gain a better understanding of the referral processes between General Medical Services (GMS) and Subspecialty areas, and identify areas of less appropriate referrals. It was hoped this could reduce unnecessary referrals, reduce fragmentation of care, reduce duplication of tests, and lead to more appropriate use of services and better use of limited resources. In doing this work, RCP expected that disagreements of opinion may occur, but hoped this could fuel further discussion. Subspecialty committees were asked to provide two lists. Firstly; a list of the 5 most common referrals from other medical specialty physicians. Secondly; a list of 5 commonly referred conditions from other physicians, where it was expected that the management required was within the knowledge domain of any physician, hence the referral was not needed. Twenty-three medical subspecialties responded with providing these two lists, and they are available for review in the full article. The lists show that many of the referrals made to subspecialties are for issues, which subspecialist consider, should be able to be managed by any physician. Why does this discrepancy in opinion occur? Suggestions include; lack of clear referral guidelines, lack of appropriate generalist resource, inadequate training for general physicians on specific conditions, patients' expectations of medical health care provision i.e. generalist versus subspecialist. Of interest for Geriatricians, the greater problem is other specialties do not always recognize the potential benefits of geriatric assessment and don't refer, rather than over-refer. It is hoped that formation of these lists may help streamline services and improve the appropriateness and quality of referrals, address areas needed for further education and target knowledge gaps for general physicians, and promote conversations regarding conditions requiring generalist versus subspecialist care. The RCP takes care to note that these lists are not to be used didactically, nor to discourage discussion between generalist and subspecialty physicians.