

How can routine colorectal cancer screening in the USA be considered low value in other countries?

Kelsey Chalmers , Shannon Brownlee, Vikas Saini

Lown Institute, Needham, Massachusetts, USA

Correspondence to

Dr Kelsey Chalmers, Data Research, Lown Institute, Needham, MA 02494, USA; kchalmers@lowninstitute.org

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Low-value services and healthcare overuse are tests, treatments or other medical interventions that provide little to no benefit to patients relative to their risk of harm, their costs and the availability of alternatives.¹ Researchers investigating overuse usually base their measures on compliance with some defined standard of care, which can be country or region specific. In some countries, these standards might be based on trade-offs between population costs and outcomes. However, this is often not the case in the USA.² For example, colonoscopy for the screening of colorectal cancer is routine care in the US, while other countries' national standards of care recommend against its use due to the availability of alternative methods that are less invasive and less costly. In this editorial, we consider why differences exist in what is considered overuse in light of a recently published US-based measure of colonoscopy screening overuse.

In this issue of *BMJ Quality and Safety*,³ Adams and colleagues outline a lengthy process to develop and validate a measure for identifying overuse of screening colonoscopy in the US Department of Veterans Affairs (VA) health system. The VA system covers retired military personnel, who receive most of their care from VA facilities and clinicians. In a collaborative effort with clinicians and medical coders, the authors updated a previous screening colonoscopy overuse algorithm from the 9th edition of the International Classification of Diseases (ICD) to the 10th edition. ICD-10 has been used in US insurance claims since 2015, and includes many more codes than the ninth edition, and therefore more specificity in described conditions. After creating the electronic algorithm, the authors selected a random sample of cases to validate it using chart

review and found very good agreement between the algorithm and chart review results. Adams and colleagues encourage use of their algorithm in other systems interested in measuring colonoscopy overuse.

There were 88 143 screening colonoscopies performed in the VA health system in 2017. Using the new algorithm, 13.3% of these screening colonoscopies met the definition of probable overuse and 11.2% the definition of possible overuse (a total of 24.5%). Adams and colleagues developed these two definitions (probable and possible) to capture a range of low-value instances based on the coding specificity and the evidence strength for the definitions. For example, a clear case of overuse would be a colonoscopy performed within 9 years after a previous colonoscopy, while a more borderline case would be a colonoscopy performed in a patient aged between 40 and 49 years, which is outside the US guideline-recommended age range. The 24.5% rate found by Adams and colleagues is in line with the results from a recent systematic review of studies measuring overuse of screening colonoscopy in the USA.⁴ This review included studies after 2001 that compared colonoscopy screening for low-risk or average-risk patients, and defined overuse based on national guidelines like the Adams and colleagues' measure.

These overuse measures provide a 'service-centric' perspective of low-value care, in that they measure the proportion of low-value instances out of all instances of the service provided.⁵ The overuse found using these measures represents resources that could otherwise have been redirected to more beneficial and needed care. Adams and colleagues mention the long waiting times for colonoscopy in the VA health system and that these



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could be reduced for VA beneficiaries who receive necessary colonoscopies if overuse of colonoscopy were addressed. This ‘opportunity cost’ argument will be familiar to readers outside the USA working in systems with national government-funded healthcare coverage, like the VA health system in the USA. Savings produced by reducing overuse can (at least in theory) be reinvested back into the system and directed toward higher-value care.

However, the overuse measure developed by Adams and colleagues would not be applicable in many other healthcare systems, and not only because data sets and diagnosis classification codes may be different. In many other countries, practice guidelines recommend against using colonoscopy for screening purposes in healthy people in preference for less invasive, although more frequent, faecal tests. Colonoscopy is expensive, requires more preparation for the patient, has a higher risk of harm and risks overdiagnosis through incidental findings.⁶ Although colonoscopy is arguably more sensitive for detecting colorectal cancer than other modes of detection, it has not been shown to be a superior first-line test in national screening programmes.⁶ In fact, the recent NORDICC randomised control trial of a screening programme in Europe found no evidence that participants invited for colonoscopy had improved mortality compared with a control group without screening.⁷ The Australian screening programme invites people between the ages of 50 and 74 years to complete a faecal occult blood test (FOBT) every 2 years with a colonoscopy recommended only after a positive result.⁸ The Royal Australian College of General Practitioners even lists ordering a screening colonoscopy in average-risk individuals as one of their Choosing Wisely do-not-do recommendations.⁹ Similarly, Ontario’s screening programme invites people in the same age group to complete a faecal immunochemical test every 2 years, again with a colonoscopy recommended only after a positive result (people may also choose to have a flexible sigmoidoscopy every 10 years).¹⁰

Imagine if, as an example, an Australian group developed a colonoscopy overuse measure based on the above Choosing Wisely recommendation and then applied that measure to the US VA healthcare data. It is likely that far more than 25% of colonoscopies would be labelled overuse since any average-risk patient would have required an initial FOBT. Adams and colleagues based their measure on the US Preventive Services Task Force (USPSTF) recommendation that screening colonoscopy is appropriate for patients between 45 (50 during the study period) and 75 years of age once every 10 years. Although the USPSTF recommends any one of several screening approaches (including faecal tests), they do not make any distinction about which should be used first line, unlike in Australian and Canadian guidelines. In the USA, colonoscopy is the most frequently used screening test for

colon cancer¹¹ due to several factors, including pecuniary interests and a belief that the procedure’s greater sensitivity will lead to superior results.

So, which version, the Adams and colleagues’ measure, the imagined Australian measure or indeed any other measure, reflects the true overuse rate of colonoscopy? In other words, which measure would estimate the number of colonoscopies a system could theoretically cut and still provide high-value care to patients, given the availability of appropriate alternatives? As long as the goal of overuse measurement is to estimate non-compliance with local guidelines, we are not really answering how much low-value care actually exists. Guidelines are different due to the priorities set by regulators and/or payers and their assessment of the available evidence. The lack of high-quality evidence on the benefit of colonoscopy for first-line screening has meant that Australian and Canadian guidelines advise against it, while the USA does not have this threshold. Perhaps more evidence generation will one day align international practice guidelines, but in the meantime could we ever consider these US colonoscopies as overuse?

Consider last year’s public discussion following the publication of the negative results of the NORDICC trial on screening colonoscopy. In the US media, we saw critics of the trial argue that colonoscopy in the USA was superior to that performed in other countries and that it was still the ‘gold standard’ for the screening of American patients.¹² These points focus on the perspective of an individual patient. Regardless of whether a colonoscopy for an individual patient by an individual practitioner is appropriate or not, the discussion could instead have focused on the systemic level, where the question is whether the cost of a policy of providing colonoscopies as first-line screening to people at average risk of colorectal cancer would be better invested elsewhere.

The USA is a notorious outlier among high-income countries both for the amount it spends per capita on healthcare and the proportion of its total health expenditures devoted to medical treatment versus such social determinants of health as housing and income support.¹³ One step toward curbing healthcare costs while maintaining quality would be to make value-based decisions across the entire population. This would be a radical shift in how value and overuse are defined in the USA. Such a change in definition would lead to excessive use of high-cost and at most marginally better care for some, in the service of high-value care for all. Reorienting payment schemes and standards of care based on this definition of value would of course require profound changes to the US healthcare system and culture.

Among the barriers to change is the absence of a central US body for coverage rules based on population cost-effectiveness.¹⁴ Prior attempts at establishing such a body have not been successful in the

past. The Affordable Care Act provided support for comparative effectiveness research led by the Patient-Centered Outcomes Research Institute (PCORI) but limited the use of PCORI's work due to the politicised debate concerning supposed care rationing. There is no authority to mandate coverage decisions based on the institute's findings, and PCORI by statute cannot develop or use cost per quality adjusted life-year to assess interventions.¹⁵

While American patients might be willing to consider broader system costs in their care decisions, another barrier is that there is not an obvious mechanism in a private, fragmented delivery system for translating savings from reducing overuse to a concrete benefit for patients; Americans are therefore likely to be sceptical of being offered low-cost treatment options to save private health insurers' money.¹⁶ In fact, until recently, insured American patients had to pay an average of \$100 out of pocket for a colonoscopy done after a positive faecal test, which may have been an incentive to not choose this approach.¹⁷ The US federal government now requires private insurance (from May 2022) and Medicare (from December 2022) to fully cover colonoscopy after a positive colorectal cancer screening test.¹⁸

Patient attitudes about cost-savings are further reinforced by clinicians' recommendations, which is a key factor in patient participation in screening and choice of approach. A recent survey of US providers found that 76% of 779 primary care providers recommended colonoscopy and 97% of 159 gastroenterologists did; only five of the gastroenterologists surveyed recommended an alternative test for an average-risk patient.¹⁹ Compare this with the Royal Australian College of General Practitioners Choosing Wisely recommendation, chosen by consensus of a working group of its members, not to 'order colonoscopy as a screening test for bowel cancer in people at average or slightly above average risk'.⁹ Even the Ontario Association of Gastroenterology's position statement regarding the Canadian colon cancer screening recommendations acknowledged there is a lack of high-quality evidence demonstrating that colonoscopy is superior in a screening programme.²⁰ Given the heterogeneity of healthcare payers and coverage in the USA, clinicians, like patients and communities, may have little incentive to consider costs if they have no control over reinvestment in other healthcare services.

There is a substantial opportunity for US health systems to reduce colonoscopy overuse based on the definition and results of overuse by Adams and colleagues. Overuse measures such as these are important to track overuse rates within a system and to encourage compliance with national standards of care. However, the contrast between US standards for colorectal cancer screening and those of other countries provides insight into different nations' consideration of costs and outcomes. In the USA, colonoscopy

is widely adopted as routine care because it is argued to be the most sensitive method for detecting cancer for an individual patient, yet other countries with national screening programmes recommend against colonoscopy as a first-line approach. Countries with limited healthcare resources or single-payer systems may be readier than the USA to define overuse based on the societal harms of delivering high-cost, high-profit care to some, while others go without beneficial care. Should the USA ever adopt this perspective, the current estimates of colonoscopy overuse produced by researchers such as Adams and colleagues would likely be much higher and could lead to more high-value care.

Twitter Kelsey Chalmers @lowninstitute

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ORCID iD

Kelsey Chalmers <http://orcid.org/0000-0001-7291-8898>

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