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# Low-value care: an intractable global problem with no quick fix

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Low-value care, or patient care that provides no net benefit in specific clinical scenarios, remains one of the most pressing problems in healthcare across the world—namely because it raises costs, causes iatrogenic patient harm, and often interferes with the delivery of high-value care. Many have argued that above all else the primary cause of low-value care lies in an unchecked fee-for-service payment system, which creates a pervasive culture that rewards providers for delivering more care, not necessarily the right care. Results reported by McAlister *et al* in this issue of *BMJ Quality & Safety* seem to up-end this belief.<sup>1</sup> In their analysis of 3.4 million beneficiaries in the globally-budgeted health system of Alberta, Canada, they found that low-value care commonly occurred—at a rate of approximately 5% of beneficiaries seeking care, and as high as 30% among those aged >75 years. Notably, these rates are comparable to rates in America's largely unrestrained fee-for-service system for both commercially insured (~8%) and older Medicare beneficiaries (~25-42%) seeking care, even while McAlister and colleagues used fewer low-value care measures (10) than the latter two American studies (28 and 26 respectively).<sup>2,3</sup> Moreover, similar to the USA, the extent of the problem also varied substantially across frequently presumed examples of overuse. For instance, carotid artery imaging in adults without symptoms of cerebrovascular disease occurred in only 0.3% of patients, whereas 55.5% of men 75 years or older without a history of prostate cancer underwent prostate-specific antigen testing.

Although both Canadian and US physicians operate in fee-for-service payment models, Canadian physicians practice within a broader system of strict global budgets for hospitals and regional health authorities.<sup>4</sup> Such financial restrictions

may reduce the overall volume of certain services: for instance, researchers found higher overall rates of CT utilisation in the USA compared with Canada.<sup>5</sup> While global budgets may broadly reduce the overall volume of some (though not all) services, they provide too blunt an instrument to selectively reduce low-value care. In other words, all care may go down, not just low-value care.

This phenomenon of reducing both appropriate and inappropriate care has a long literature dating back to the RAND Health Insurance Experiment, which found similar rates of low-value care (but lower overall volume of services) in low-cost-sharing versus high-cost-sharing benefit plans, global-budgeted Health Maintenance Organizations (HMOs) compared with unrestricted fee-for-service providers.<sup>6,7</sup> Similarly, other work found high rates of overuse among US safety-net physicians (usually practising within global budgets), as well as in globally-budgeted England's National Health Service (NHS), and equivalent rates of inappropriate coronary angiography in Canada and the USA.<sup>8-10</sup> McAlister's study therefore reinforces an important lesson in health services research: while global budgets might be able to bluntly reduce the overall volume of some services, they are by themselves insufficient in changing a broader culture of medical practice that results in the delivery of low-value care, a theme we will return to later in this editorial. Low-value care is more complex than a simple financial incentive problem alone—and it remains globally pervasive and stubbornly intractable. Very few interventions have been shown to durably reduce it—and clearly as the authors argue, it is time to transition into a new era of experimentation and discovery of scalable interventions that reduce low-value care and recent research is beginning to point the way.



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While technology such as information-based computerized clinical decision support has demonstrated limited results in reducing low-value care,<sup>11</sup> behavioural economics, or the field that posits that human beings (including physicians) predictably make irrational decisions due to known cognitive biases, has been heralded as an important new field of psychology and economics to apply to quality improvement. Low-cost and light-touch behavioural economic interventions (such as ‘nudges’)<sup>12</sup> hold obvious appeal. Early results show promise, with Patel and colleagues demonstrating the power of the default in computerised order entry and Meeker and colleagues publishing two rigorous, well-designed cluster-randomised controlled trials leveraging physicians’ intrinsic motivation to maintain a professional reputation and conform with peers in 2014 and 2016.<sup>13–16</sup> While no panacea for fixing all aspects of healthcare delivery, these approaches showed how elegant and low-cost interventions such as displaying poster-sized commitment letters in physician exam rooms or prompting physicians to public accountable justification of low-value decisions can substantially reduce low-value antibiotic prescribing.

In this issue of *BMJ Quality & Safety*, Kullgren and colleagues continue this line of inquiry in an impressive stepwise wedge cluster randomised control trial evaluating a ‘light-touch’ behavioural economic intervention across several primary care practices in Michigan. They employed pre-commitment letters in an attempt to appeal to professionalism as an intrinsic motivator of clinicians’ behaviour.<sup>17</sup> They trained medical assistants to prompt physicians with paper-based decision support and Choosing Wisely™ materials, sent weekly resources and Choosing Wisely™ materials to physicians, and used injunctive norms (a moral norm from an authoritative source strongly indicating how someone *ought* to behave)<sup>16</sup> by appealing to professionalism. Despite these efforts, the intervention produced modest (at best) and unsustainable reduction in low-value care, along with an unintended increase in specialty referrals.

Why did they see no substantial reductions in low-value care while the study by Meeker and colleagues did? Not all interventions labelled with ‘behavioural economics’ are the same. For example, commitments used by Meeker *et al* were *public* and poster-sized, in the exam room, while Kullgren and colleagues used *private* signed letters. Public pre-commitments in public policy seem to have a richer literature and intuitively may be more likely to influence behaviour.<sup>15</sup> Another important consideration is that Kullgren *et al* did not provide clinicians with suggested alternatives to providing low-value care. Meeker and colleagues offered decongestants as alternatives to unnecessary antibiotics, and the intervention by Patel and colleagues offered generic medications instead of brand name prescriptions. Such alternatives hold

intuitive merit because patients may be quite averse to losing something they expect to gain (eg, a prescription) from the doctor.

While offering an alternative may not always be necessary,<sup>15</sup> it may aid clinicians in convincing patients to forgo low-value care—and importantly, lacking explicit alternatives in the study by Kullgren *et al* might have unintentionally led to rises in specialty care. That said, other possible explanations for the limited impact of this intervention include the attempt to reduce multiple services (Meeker and colleagues targeted just one service), and a far lower baseline rate of low-value care than did the study by Meeker *et al* (10% vs 43% of visits, and the lower the baseline, the harder it is to reduce it). Moreover, Kullgren and colleagues studied a ‘light touch’ pilot compared with more expensive initiatives such as computerized clinical decision support, which have also been unable to make large reductions in low-value care.<sup>11</sup> We look forward to future work building on their pilot study, and we congratulate them for identifying an important unintended consequence of increased use of specialty referrals, which may increase unnecessary spending.<sup>18 19</sup>

So where do these studies leave us? Whether applying rational or behavioural economic models to behaviour, one stubborn yet often overlooked item that often comprise the magic sauce or the hidden cause for a behavioural intervention failing to go to scale is *culture*. Culture, that measurable yet unmeasurable ingredient, is one of major reasons we still have not (and almost certainly never will) discovered a fundamental law for human behaviour that can be applied in any context.<sup>20</sup> Yet, as it turns out, medical practice culture seems to matter. A recent mixed-methods quasi-experimental study found that prompting hospitals to foster a culture of diversity of engagement from all levels in quality improvement is associated with lower patient mortality.<sup>21</sup> Other work by Gupta *et al* has found that cultural characteristics such as leadership messaging, data transparency and a blame-free environment are associated with higher-value care.<sup>22</sup> While these are non-randomised studies, they underscore the importance of incorporating efforts to change the local culture of how medicine is practised within the context of where interventions are tested in order to move the needle on multiple fronts. Some insights about how to create conditions for change when tackling low-value care services can be found in the Taking Action on Overuse Framework.<sup>23</sup> More importantly, this framework suggests that the key to culture change may be ongoing sense-making conversations between clinician peers and team members about the potential for harm from overused services and deidentified current rates of use of these services. Howard Beckman’s work on engaging clinicians to reduce low-value care has been pioneering in this arena.<sup>24</sup> And while conversing with front-line clinicians, focusing on reducing iatrogenic

patient harm from low-value care seems to be a particularly favourable way to engage physicians.<sup>25</sup>

Low-value care remains an intractable problem for a wide array of interrelated reasons, including clinician factors (eg, training, fear of lawsuit, time pressures, intolerance of uncertainty), patient factors (lack of knowledge or financial consequences) and healthcare system factors (institutional culture, pricing, fee-for-service payment models).<sup>26–39</sup> Rather than implementing myopically top-down interventions (eg, mandating overly specific pay-for-performance policies), which may be virtually impossible to execute safely and effectively in complex, non-linear systems,<sup>40–42</sup> we might instead propose an alternative strategy. It likely will require a combination of ‘light-touch’ top-down policies (eg, capitated payment arrangements that preserve clinician autonomy and access to care)<sup>43 44</sup> as well as encouraging simultaneous bottom-up, pragmatic/trial-and-error-type local pilot initiatives that addresses multiple drivers of low-value care.<sup>24</sup> Starting with rigorous measurement of clinician performance,<sup>45 46</sup> these interventions (ideally randomised) should simultaneously pull multiple levers of intrinsic motivation while also monitoring and adapting to unintended consequences<sup>47</sup> as Kullgren and colleagues astutely did. Not surprisingly, a recent meta-analysis found that multicomponent interventions are more effective than single-component interventions to reduce low-value care.<sup>30</sup> For example, Vivian Lee and colleagues demonstrated that top-level leadership on value improvement, fostering a culture of continuous improvement and providing clinicians with education and electronic cost transparency and patient outcome data, led to improvements in costs and quality and reductions in low-value daily inpatient labs.<sup>48</sup> While such pragmatic and multicomponent approaches may reduce national reproducibility, they may enhance local effectiveness and sustainability, particularly if they are shown to be cost-effective, seamlessly integrated into clinician workflow and free of iatrogenic harm (eg, unintentionally reducing necessary care). In an ideal world—one united in reducing harmful and unnecessary care—bottom-up, multicomponent initiatives are adaptively combined with education, ‘light-touch’ financial alignment, careful surveillance of unintended consequences and softer yet equally powerful cultural levers—all harmonising to finally tackle the problem of low-value care.

**Correction notice** This article has been updated since publication to correct a minor spelling mistake in the opening sentence.

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