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# The COVID-19 Pandemic Can Help Us Understand Low-Value Health Care

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### Editor's Note

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The COVID-19 pandemic has upended every sector of the economy. Within health care, the pandemic has prompted dramatic innovation but also deeply disrupted the practice of medicine. To meet the demands of the initial COVID-19 surge, and to protect patients and staff, health care facilities across the country [canceled elective procedures](#) and [outpatient visits](#). Patients, fearful of contracting the virus, also [avoided care](#) for emergent and urgent conditions.

Patients have been harmed by this reduction in access and use, and they continue to suffer and die at home from conditions for which they would [ordinarily seek care](#). While deferred high-value care increases morbidity and mortality, the unanticipated pause in care delivery also provides an opportunity to revisit entrenched health care practices that may not be effective or efficient. In addition to the decrease in the delivery of high-value services that improve health, the delivery of low-value care has decreased. This period presents researchers with a unique opportunity to answer fundamental questions about low-value health care.

The COVID-19 pandemic has changed the health care landscape. It has created a novel sense of scarcity, which has forced health systems to cut profitable services and prioritize seriously ill patients. At the same time, it has revealed a previously unseen counterfactual: a health system in which there is no low-value care.

These circumstances can be leveraged to advance the low-value care research agenda. First, the resource-limited environment should motivate diverse stakeholders to measure and eliminate low-value services use. Second, the forced reductions in low-value service use, as well as the abrupt changes to the structures and processes of care delivery, have created the right conditions to test hypotheses about both the consequences of low-value care and its drivers. We describe how this natural experiment can expand our understanding of low-value care and inform the development of policies to permanently reduce it.

## Background

Health care [overuse is defined as](#) the provision of care in which the potential for harm exceeds the potential for benefit. More expansively, a service may be labeled as low value or wasteful when it does not provide proportional [benefit relative to its costs](#). It has

been estimated that [42 percent of Medicare beneficiaries](#), [15 percent of Medicaid patients](#), and 11 percent of commercially insured patients—about 50 million people in total—experience one or more overuse events per year, [amounting to \\$106 billion in wasteful spending](#).

Additionally, overuse causes diverse harms, both [from the overuse event itself](#) as well as from the [cascade of services that might ensue](#). Identifying and understanding the drivers or determinants of overuse is essential to the development of effective strategies to combat it. Regional differences in overuse persist over time, suggesting that they are the result of [systematic, local differences in care delivery](#). Pinpointing the most important drivers of this phenomenon remains an emerging area of research, as complex clinician factors, patient factors, and characteristics of the health care system and environment [interact to contribute to overuse](#).

Few interventions have been shown to durably reduce low-value care. However, [most policies and interventions remain untested](#), including pay-for-performance initiatives, value-based insurance design, clinical decision support, provider feedback, and risk-sharing contracts.

One of the principal challenges of studying low-value care is [its measurement](#). At least three approaches for measuring low-value care have emerged. One, developed by researchers for the Dartmouth Atlas Project, indirectly measures overuse by comparing use and spending across different geographical regions. These researchers expect that, after adjustment for regional differences in patient characteristics, excess regional per-capita service use or spending provides an [estimate of the magnitude of low-value care](#). This approach provides a method for approximating the universe of low-value care; however, it can be biased by underuse and cannot account for widespread overuse.

In contrast, the additive approach and indicator approach use direct measurement to identify episodes of care in which patients had a test or treatment that was contrary to published recommendations. The [additive approach](#) counts [each episode of overuse](#). While applying direct measures comprehensively is challenging, the additive approach can be used to develop and test strategies that target the inappropriate use of discrete services.

Alternatively, the [indicator approach](#) aggregates a market basket of direct measures [into an index](#) that approximates global overuse. Here, the combination of indicators is meant to capture the latent tendency to overuse diverse health care services, but the indicators may not be individually informative. Despite the challenges involved in measuring low-

value care, the disruption caused by COVID-19 presents an unexpected opportunity to learn about this phenomenon: its presence, consequences, and determinants.

## Need To Better Quantify Overuse

### **Identify Additional Low-Value Services**

Overuse is increasingly recognized as a significant problem in the US health care system, yet the problem is incompletely understood. A [2012 systematic review](#) of the prevalence of overuse noted that existing studies focused on a limited number of services, such as antibiotics for upper respiratory tract infections, coronary angiography, carotid endarterectomy, and coronary artery bypass grafting. Relatedly, [a 2013 review](#) identified only 37 fully specified overuse measures, concluding that an expanded pool of valid measures would drive new research toward understanding how provider, patient, organizational, and payment factors influence overuse.

In the years since, researchers have continued to develop new measures that include other clinical areas, such as cancer screening, imaging, diagnostic testing, and surgery. However, we still directly measure only a fraction of the low-value services that are delivered. With quasi-experimental approaches that are enabled by the pandemic, as described below, researchers should be able to identify and operationalize additional low-value service measures.

### **Quantify Low-Value Services Use Before, During, And After COVID-19 Pandemic**

Few studies have examined trends in overuse over time. Emerging evidence suggests that while [there are heterogenous trends for individual low-value services](#), the broad, systemic overuse of health care is [a persistent, regional issue](#). The scarcity induced by the pandemic (for example, reduced personnel, limited personal protective equipment, and limited intensive care beds) will require good stewardship; this makes understanding trends in overuse more important than ever. Preventing the reemergence of low-value care should allow for re-allocation of limited resources toward more effective health services (and non-health services) to maximize population health.

We propose that examining trends in overuse nationally, regionally, and across health systems before and during the COVID-19 pandemic would be informative and would establish the methodology for prospective monitoring of the reemergence of overuse in real time. This could create the foundation needed to incorporate overuse as a standard

component of quality reporting for hospitals or as a [typical part of performance measurement](#).

## Need To Measure Harms Of Overuse

### **Measure Causal Effect Of Low-Value Services On Immediate Health Outcomes And Spending**

The full burden of overuse on patients and the health system is yet to be quantified. Low-value care is often discussed in terms of money, but it is also a significant [patient safety and equity issue](#). Framing overuse as harmful may increase both physician and patient buy-in to reduce low-value care, particularly at this time when equity issues are gaining attention. Generating the evidence to support a [more holistic approach to low-value care](#) requires researchers to examine multiple types of harms: physical, psychological, social, financial, treatment burden, and dissatisfaction with health care. This is amenable to study with quasi-experimental designs.

### **Measure Causal Effect Of Low-Value Service Use On Downstream Cascades**

Beyond the harms associated with the index low-value service, downstream consequences are an important component of the low-value care research agenda. Just one low-value service can trigger [a cascade of further testing](#), treatments, office visits, hospitalizations, and new diagnoses. Like the index event, each of these additional services comes with its own set of patient, physician, and societal harms. Measuring these downstream harms is the only way to fully quantify the impact of low-value care. Researchers should be able to observe if low-value care cascades declined during the pandemic.

### **Opportunities**

We see a unique methodological opportunity to evaluate the harms of low-value care. Historically, it has been challenging to assess outcomes associated with low-value service use because use of observational data is susceptible to issues of selection bias and confounding; however, the COVID-19 pandemic has created a natural experiment by essentially randomizing patients to treatment or no treatment.

In many health systems, [elective procedures were discontinued](#) on the second Wednesday in March. Because elective procedure shutdowns occurred suddenly, patients who were scheduled for and received a low-value treatment in the days before



these mandates can be compared to individuals who were scheduled for days later but did not receive the same low-value treatment. These individuals should be alike in all observable and unobservable dimensions: They simply fall on either side of the date in which restrictions were imposed.

Consider the example of low-value screening colonoscopy in people older than age 85 years. Comparing 30-day outcomes for older people scheduled for colonoscopy the first week of March with those scheduled for colonoscopy the third week of March allows for isolation of the causal effect of colonoscopy on adverse patient outcomes (including costs, bleeding, burden, downstream cascades). This approach could be applied to any number of low-value services within and across different health systems.

Relatedly, as some policies were tied to regional rates of SARS-CoV-2 infection, with cutoffs imposed that have little scientific meaning, researchers might conduct experiments using the variation induced by these cutoffs. In these models, it would be assumed that patients in health systems in regions with seven-day case rates of 101 cases of COVID-19 per 100,000 would not be importantly different than the patients in regions with 99 cases of COVID-19 per 100,000. However, as policy decisions were based on these arbitrary cutoffs, service delivery might be drastically different in such regions. This too presents an opportunity to learn about harms from services that were delivered in some regions and withheld in others.

This approach to harms measurement may then also allow for classification of additional services as low-value care. For example, patients with type 2 diabetes mellitus rarely had measurement of hemoglobin A1c during the early months of the pandemic—thus their interval between tests stretched from three months to five or six months. Were patients harmed by this extended interval? If not, this may support that testing stable patients every three months may be lower value than testing at a longer interval. Similarly, semi-elective surgeries, such as knee arthroscopy for articular cartilage repair, were postponed—did patients suffer from the delay or did they improve without intervention and avoid unnecessary harm? This is an opportune time for new measure development.

There is the chance to use surveys or qualitative methods to compare the diverse harms experienced by patients who did and did not receive a low-value service because of the COVID-19 pandemic. It will be important to examine harms both across and within potentially high-risk or vulnerable subpopulations, as the distribution of harms may differ by demographics, social determinants, and presence of comorbid illnesses.

## Identify Determinants Of Overuse

## Causal Effect Of Hypothesized Determinants

Although many factors are associated with overuse (for example, health policy, availability of services, organizational culture, financing, knowledge, and beliefs), it has been challenging to identify which factors are causal and to determine their relative importance. Before COVID-19, changes in health care delivery evolved incrementally; in contrast, the pandemic triggered a sequence of instantaneous changes to the health care structures and processes that impact private and public payers, health care systems, clinicians, and patients (see exhibit 1). We can leverage these changes and the varied timing of the changes to better understand the drivers and determinants of overuse.

### Exhibit 1: Framework to integrate changes created by COVID-19 with low-value care research

Level of Analysis		Changed by COVID-19
Policies	Federal	<b>Federal emergency declaration *            Coronavirus Aid, Relief, and Economic Security (CARES) Act *            Coronavirus Preparedness and Response Supplemental Appropriations Act * Paycheck Protection Program and Health Care Enhancement Act * Allocation of COVID-19 relief funding * CMS regulatory waivers and new rules (e.g., telehealth payment parity, Hospitals without Walls initiative)</b>
	State, Local	<b>State emergency declarations *            Mandatory stay at home orders *            Elective surgery recommendations and prohibitions * Face mask</b>

		<p>mandates * Extended special enrollment periods in state-based health insurance marketplaces * Relaxed prior authorization and utilization review processes</p>
<p><b>Delivery System</b></p>	<p><b>Availability</b></p>	<p>Decreased in-person ambulatory care, emergency department use, elective inpatient procedures * Variation in access to supply-side resources * Increased telemedicine, home-based care, remote patient monitoring * Paused clinical trials * No medical tourism</p>
	<p><b>Organization</b></p>	<p>Heterogeneous organizational responses to COVID-19 * Redeployment of staff to high need roles, furloughing and dismissal of other staff * No visits by drug and device manufacturers * Hospital visitation restrictions * Variation in organizational ability to identify and track deferred services * Heterogeneous implicit and explicit prioritization strategies post-COVID-19 * Impact on culture of professional medicine</p>
	<p><b>Financing</b></p>	<p>Decreased hospital, health system, primary care practice revenues * Possible increased acquisition of independent provider groups and</p>



		<p>hospitals * New capitated payment programs * New value-based payment programs * Variation in receipt of relief funding</p>
Population	<p>Characteristics, knowledge, attitudes, beliefs</p>	<p>Impact on culture of health care consumption * Increased awareness of potential harms * Altered beliefs about essential care * Fear of contact with the health care system * More end-of-life care planning (e.g., use of advanced directives)</p>
	<p>Need</p>	<p>Changes to perceived need for services * Increased evaluated need for some * Decreased state of health for some</p>
Environment	<p>Physical</p>	<p>Increased food insecurity * Decreased travel * Heterogeneous effects on diet and exercise</p>
	<p>Social</p>	<p>More social isolation * School closures * Challenging work life balance * Exposure to domestic violence</p>
	<p>Economic</p>	<p>Unemployment * Sudden loss of</p>

		<b>health insurance coverage *</b> <b>Increased proportion of uninsured *</b> <b>Increased health insurance plan switching</b>
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Source: Authors' analysis.

## Opportunities

We see valuable opportunities to use the variation induced by the implementation of new policies, structures, and processes to better understand determinants of low-value care. Given that the timing of implementation of policies and practices varied across states and hospitals, there are natural experiments to exploit. Researchers might allow each health system to serve as its own control in pre-post studies or in interrupted time series analyses.

The policies that were implemented during COVID-19 resulted in changes in practices that might be evaluated as drivers of overuse. For example, the Centers for Medicare and Medicaid Services's sudden coverage of telemedicine provides a remarkable opportunity to learn of the impact of telemedicine on low-value care delivery. It is conceivable that telemedicine could drive certain types of low-value care (for example, unnecessary antibiotics) for some patient populations. At the same time, however, [increased access to primary care](#) appears to be associated with less overuse [more broadly](#). Many policies might be evaluated for such impact.

In contrast, the financial strain caused by the COVID-19 pandemic [has differentially](#) impacted [hospitals](#) and provider organizations. Many believe this will result in accelerated market consolidation and even the closure of numerous independent primary care practices. The different timing of these events can be exploited to evaluate the impact of market consolidation and acquisition on low-value care delivery. How does market concentration impact overuse? Do acquired practices change their pattern of low-value service use to reflect the culture of the larger organization? Alternatively, do doctors who join new practices modify their wasteful behaviors? The different timing of these events can also be exploited to understand if there are interactions among these market dynamics and other changes occurring at other levels of the health care delivery system, such as state or federal policies.

Despite the hardships of the pandemic, we see an opportunity to learn from this experience and to think purposefully about the future of the US health care system. A

rare proposition, the identification and elimination of overused services could address issues of effectiveness, efficiency, and equity. We can leverage the circumstances created by the pandemic to advance our understanding of low-value care with the goal of better measurement, appreciation of its harms, and a deeper understanding of its drivers and determinants, so that interventions can be implemented. Low-value care harms patients; there has never been a better time to push toward eliminating hurtful practices.

## **Authors' Note**

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