

Tackling the Epidemic of Low-Value Spending and Medical Overuse: Opportunities for Purchasers and Carriers

Draft Document

Contents

- 1. INTRODUCTION..... 2**
- 1-A. TYPES OF WASTE 3**
 - CLINICAL WASTE – LOW-VALUE CARE/OVERUSE 3
 - CLINICAL WASTE – OPERATIONAL WASTE 4
 - ADMINISTRATIVE WASTE 4
 - Sidebar: Choosing Wisely 4
- 1-B. SALIENCE AND SIGNIFICANCE OF LOW-VALUE CARE ACROSS STAKEHOLDERS 6**
 - PATIENTS 6
 - PAYERS, PURCHASERS, AND CARRIERS 15
 - PROVIDERS 18
 - Sidebar: Tort Reform and Defensive Medicine 19
- 2. IDENTIFYING AND MEASURING LOW-VALUE CARE 24**
- 2-A. GEOGRAPHIC VARIATION IN PATTERNS OF PRACTICE 24**
- 2-B. PATIENT-LEVEL MEASUREMENT 27**
 - Sidebar: Clinical Nuance and Claims-Based Estimation of Low-Value Care 27
- 3. ADDRESSING NO-VALUE/LOW-VALUE CARE 30**
- 3-A. INADEQUACY OF INFORMATION-ONLY STRATEGIES 30**
- 3-B. PAYER-DELIVERED, PROVIDER-FACING EFFORTS 32**
 - PROVISION OF PROFILING DATA 32
 - Sidebar: Clinical Decision Support 34
 - COVERAGE POLICIES AND PAYMENT RATES 36
 - PAYMENT MODELS 38
- 3-C. PATIENT-FACING INCENTIVES AND EDUCATION 42**
 - VALUE-BASED INSURANCE DESIGN 42
 - UTILIZATION MANAGEMENT 48
 - Sidebar: New Medicare Requirements for Consultation of Appropriate Use Criteria Before Ordering of Advanced Imaging Services 51
 - Sidebar: Referral Management 54

NETWORK DESIGN 55

3-D. ADDITIONAL STEPS 57

4. DRIVING THE LOW-VALUE CARE REDUCTION AGENDA FORWARD 59

4-A. ASSEMBLING A LIST 60

4-B. CONCLUDING THOUGHTS 61

This report follows from a meeting in April 2017 focused on the role of purchasers and carriers in addressing low-value care. Meeting participants and sponsors are listed in the appendix. To encourage free and frank discussion, it was agreed that particular viewpoints would not be attributed to particular individuals or organizations. The views expressed in this report do not necessarily reflect those of any particular attendee or organization.

1. INTRODUCTION

Between 1999 and 2015, employer-paid premiums for employee-only commercial coverage increased 176 percent – far outpacing inflation of 44 percent.¹⁻³ Over this same period, state spending on Medicaid programs increased by 164 percent, while Medicare spending grew 204 percent. Despite the high and growing burden of health care expenditures, Americans do not achieve the value that might reasonably be expected from a system spending nearly \$10,000 per person per year.⁴ While some of this spending produces impressive returns in improved health, a substantial share – between 10 and 14 percent of all-payer health care spending, according to some experts⁵ – represents failures of care delivery and overtreatment. This care results in harm, or at best, no benefit over less costly alternatives. Despite decades of decrying the widely recognized waste in the system, insufficient progress has been made in reducing this low-value spending.

To date, many of the most important cost containment efforts in health care have been broadly oriented. Alternative payment models by and large encourage efficiency in all health care spending; higher deductibles similarly discourage receipt of high- and low-value care alike.⁶ Efforts focused specifically on eliminating the delivery of low-value care have tended to receive less attention from purchasers.

New action in this area is urgently needed. Americans experience quantifiable harm – up to and including mortality – every day in association with medical services that should never have been rendered in the first place, all while displacing funds that could be used for more productive purposes. New efforts can eliminate spending that produces harm or no improvement in patient outcomes. In the words of Donald Berwick:

with the magnitude of waste so high, and the risks to patients from ineffective care so grave, it behoves health-care leaders worldwide to name the problem of overuse clearly, and to support changes in payment, training, and, when needed, regulation to reduce it.

Vigorous purchaser-led efforts can help build a high-value health system that delivers only the right care, at the right place, at the right time.

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1-A. TYPES OF WASTE

Health system waste can be conceptualized as being either clinical or administrative in nature. In turn, clinical waste can be further divided into low-value care/overuse and operational waste.

CLINICAL WASTE – LOW-VALUE CARE/OVERUSE

In the context of health care, the economist Victor Fuchs defined a wasteful clinical service as “any intervention that has no possible benefit for the patient or in which the potential risk to the patient is greater than potential benefit.”⁷ The Organization for Economic Cooperation and Development (OECD) adds that, in addition to care without net-benefit, health system waste includes those costs that could be avoided by substituting less expensive alternatives with identical or superior benefits.^{a,8} As described by Donald Berwick and Andrew Hackbarth, low-value care is:

the waste that comes from subjecting patients to care that, according to sound science and the patients’ own preferences, cannot possibly help them – care rooted in outmoded habits, supply-driven behaviors, and ignoring science.⁵

Among these are the services designated by the U.S. Preventive Services Task Force (USPSTF) with Grade D recommendations. Grade D recommendations discourage service provision when there is moderate or high certainty that the service (a) has no net benefit or (b) has harms outweighing any benefit. Examples includes screening for prostate cancer in men age 70 and older (latest draft recommendation),⁹ screening for abdominal aortic aneurysm in women age 65-75,¹⁰ screening for cervical cancer in women under age 21,¹⁰ and many others.¹⁰ The *Choosing Wisely* campaign has also identified about 500 services that are commonly overused (see text box). In the vast share of instances,

^a Some analysts also include care with unfavorable cost-effectiveness ratios to be a type of clinical waste. This white paper does not focus on care that is effective but not cost-effective.

these services are harmful in only the context-specific situation in which they are provided; appropriate use of the underlying service may also be common (see “Sidebar: Clinical Nuance and Claims-Based Estimation of Low-Value Care”).

CLINICAL WASTE – OPERATIONAL WASTE

Operational waste occurs when clinically indicated services are produced inefficiently. This may take the form of unduly cumbersome processes, inadequate communication and information flow, inefficient supply chains, inefficient use of capital-intensive equipment, delivery of services by expensive providers when less expensive professionals could capably provide the service, and errors (e.g., defective devices, patient safety “never events”).¹¹ Duplicative services – for instance, redundant use of advanced imaging due to lack of cross-provider communication – may also be considered a type of operational waste.

ADMINISTRATIVE WASTE

Administrative tasks are essential in order to ensure quality, provide for access and patient choice, minimize fraud, finance the provision of services and the collection of contributions, and achieve many other important goals of a high-performing health system.¹¹ Wasteful administrative spending in health care – be it among provider organizations, public and private payers, or regulators – is often due to unnecessary redundancies and complexities that do not add value.^b Incentives to “upcode” that do not improve patient care, but prove advantageous in risk adjustment schemes are one such example. Other examples include variations in credentialing, claim submission, and prior authorization processes that differ across payers without good reason.

Low-value care – the first of the three types of waste described here – is the emphasis of this report. The following sections discuss the costs, identification, and measurement of low-value care, as well as strategies for reducing its burden.

Sidebar: *Choosing Wisely*

Amid the debate over health reform in 2010, the physician and ethicist Howard Brody wrote:

A profession that has sworn to put the patient's interest first — to conduct itself as a profession and not merely as a business — cannot justifiably stand idly by and allow legislation that would extend basic access to care to go down to defeat while refusing to contemplate any meaningful

^b Some analysts consider unduly high, supracompetitive prices to be a form of administrative waste. This type of waste is not discussed here.

measures it might take to reduce health care costs.¹²

Brody then proposed that each medical specialty society develop specialty-specific top five lists detailing tests and treatments that are common, costly, and lacking in meaningful benefit for many or all patients who receive the service.¹²

The *Choosing Wisely* effort was launched soon thereafter by the American Board of Internal Medicine Foundation and Consumer Reports. In April 2012, nine specialty societies released top five lists of commonly overused services. Considerable momentum followed, with more than 70 additional US societies having since released top five lists under the banner of *Choosing Wisely*.¹³ Each society's list is presented as a set of recommendations intended to prompt conversations between clinicians and patients around appropriateness. The most commonly included services in these lists relate to imaging, cardiac testing, medications, and laboratory tests. A range of *Choosing Wisely* services are listed in the figures and tables below.

Throughout the *Choosing Wisely* efforts, the initiative has appealed to providers' sense of professionalism, and the duty to act against care that is "disrespectful of patients' time and money and puts them unduly at risk for harm."¹⁴ Concerns about perceptions of rationing have been noticeably muted, perhaps because messaging tends to respect the "preeminence of physician judgment, patient choice, and the therapeutic [relationship]."¹⁵ Initiative leaders have intentionally avoided discussion of payment or benefit design changes that might drive reductions in low-value care. Leaders believe this decision has helped garner widespread support of the campaign from organizations in 20 countries, including societies representing more than 800,000 US physicians.

Observers have pointed out that the services identified by societies vary considerably in their prevalence, significance, and potential to reduce income for the specialists issuing the recommendations. Morden et al. (2014) noted that the *Choosing Wisely* recommendations of the American Academy of Orthopaedic Surgeons avoid mention of *all* major surgeries, focusing instead on a nutritional supplement, durable medical equipment, ultrasound, and a rare, minor procedure.^{15,16} Almost certainly, the absence of orthopedics-related recommendations does not reflect an absence of orthopedics-related overuse.¹⁷ Similarly, in a letter subtitled, "so many recommendations, so little overuse," Kerr and colleagues (2015) found that seven unique *Choosing Wisely* recommendations advise against use of routine stress testing before low-risk surgeries.¹⁸ Yet even in the most wasteful

region, less than 3.2 percent of Medicare and VA patients undergoing low-risk surgery actually receive stress testing.^{c,18}

On the other hand, many societies have offered recommendations that could meaningfully reduce revenue for affiliated providers. For example, the Society of General Internal Medicine has recommended against routine annual physicals for otherwise healthy adults.¹⁹ Similarly, three of the five *Choosing Wisely* recommendations of the American College of Radiology relate to avoiding unnecessary computed tomography (CT) and/or magnetic resonance imaging (MRI).²⁰ The American Society for Clinical Pathology has identified 15 commonly overused tests – including some high-cost services – in three different top-five lists.²¹

The various professional societies have approached the *Choosing Wisely* campaign with differing levels of seriousness of purpose. Yet, with thousands of mass media articles making reference to the *Choosing Wisely* initiative, millions of website visits, and the partnership of societies representing hundreds of thousands of clinicians in the US and beyond, the campaign has clearly had an impressive impact on the broader public dialogue about the quality and affordability of health care.^{13,22} Section 3-A discusses the limited peer-reviewed evidence on the impact of *Choosing Wisely* on the provision of low-value services.

1-B. SALIENCE AND SIGNIFICANCE OF LOW-VALUE CARE ACROSS STAKEHOLDERS

Low-value care affects the patients and families who receive care and share in its costs; the purchasers and carriers who finance care; and the providers who deliver services.

PATIENTS

EXPOSURE TO PHYSICAL HARM

By definition, low-value medical services expose patients to risk of harm without commensurate benefit.

The burden of overused services can range from inconvenient to catastrophic; costs may vary substantially as well. Four examples of commonly overused services include receipt of screening colonoscopy too frequently, inappropriate provision of cardiac catheterization and coronary

^c Especially in light of the harm from cascading downstream procedures that might follow from inappropriate stress tests – such as unneeded cardiac catheterizations – this 3.2 percent is nevertheless salient. See Section 1-B, “Patients: Exposure to Physical Harm.”

angiography, prostate-specific antigen (PSA) testing in older men, and use of computed tomography (CT) in children with suspected appendicitis.

Figure 1: Recommendations for Screening Interval Among Veterans Receiving a Screening Colonoscopy at 25 VA Systems (FY 2008)

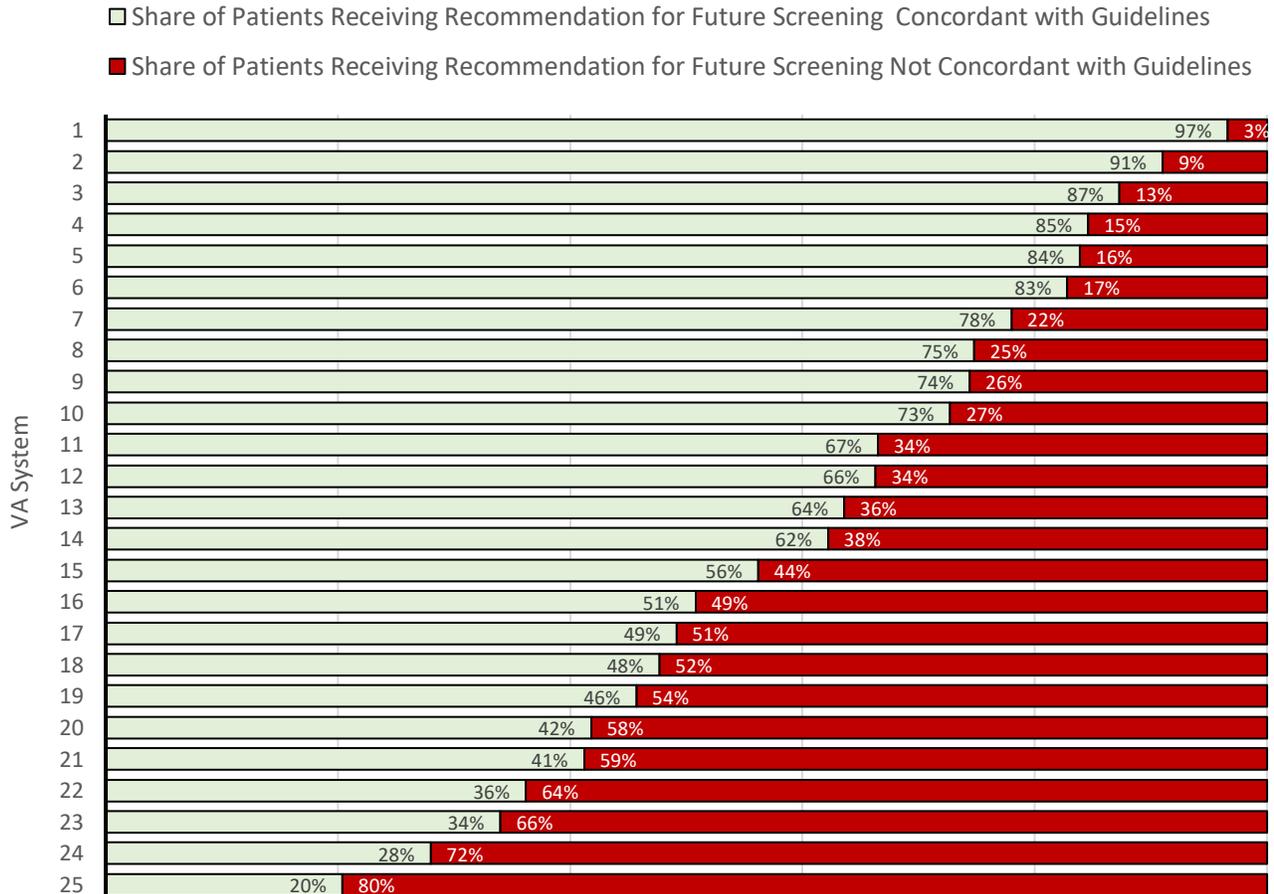


Figure derived from: Johnson MR, Grubber J, Grambow SC, et al. Physician Non-Adherence to Colonoscopy Interval Guidelines in the Veterans Affairs Healthcare System. *Gastroenterology*. 2015;149(4):938-951.

Screening colonoscopy

Expert guidelines state that patients without a diagnosis of colorectal adenoma or cancer should receive a screening colonoscopy every ten years between the ages of 50 and 75 (or alternative evidence-based screening method).²³ When used in alignment with evidence-based recommendations, the benefits of colorectal cancer screening with colonoscopy clearly outweigh the harms.²³ However, receipt of colonoscopy more frequently than recommended exposes patients to the potential harms associated

with the procedure without commensurate benefits. Rare but serious harms include perforation, laceration, or infection of the bowels as well as cardiac complications related to use of sedatives.²³

Given the discomfort of the procedure, overuse of screening colonoscopy is surprisingly common. A 2010 study by Schoen et al. found that more than a quarter of patients with unremarkable surveillance colonoscopies received a follow-up screening colonoscopy within five years of the index screening;²⁴ other studies also report substantial overuse.²⁵

Patients frequently receive recommendations for follow-up colonoscopy at too short an interval even when physicians do not have financial incentives to generate additional volume. Johnson and colleagues (2015) examined physician recommendations for repeat colonoscopy in 25 Department of Veterans Affairs (VA) health systems.²⁶ Examining the medical records of 1,455 veterans receiving a surveillance colonoscopy in fiscal year 2008, the researchers found that recommendations for future screening were aligned with evidence-based guidelines in less than two-thirds of cases. Of the 36 percent of veterans receiving a recommendation *not* concordant with established guidelines for follow-up screening, 95 percent received guidance recommending too short a surveillance interval. As shown in Figure 1, performance on delivering evidence-based recommendations varied dramatically across VA systems, ranging from a high of 97 percent concordance in one system to a low of 20 percent concordance in another.²⁶

Examination of actual patterns of care delivery in the VA – i.e., not just recommendations – has found similarly varying performance across VA systems. Saini et al. (2016) identified 17 percent of screening colonoscopies in a large sample of VA medical records as probably inappropriate. There was an eight-fold difference between the highest performing and lowest performing facilities (interquartile range: 18 percent to 29 percent),²⁷ and facility tendency to overuse screening colonoscopy was relatively stable over time. Conservatively supposing that 10 percent of the 300,000 colonoscopies performed by the VA (or VA-contracted providers) each year are inappropriate screening colonoscopies,²⁸ and presuming that the VA incurs 75 percent of typical Medicare-fee-for-service costs for each colonoscopy performed (\$815),²⁹ the VA probably spends more than \$18 million annually on this single type of overuse.

Diagnostic cardiac catheterization and coronary angiography

Cardiac catheterization with angiography entails the insertion of a thin tube into the heart and injection of contrast material to study the blood flow within the heart and the function of its components.³⁰ The patient is typically under light anesthesia. Catheterization is often performed after myocardial infarction (MI, or heart attack); the procedure is a necessary precursor to certain potentially time-sensitive

coronary interventions, such as insertion of a stent or balloon to open a blocked artery. Including both emergent and non-emergent services, about 1,030,000 diagnostic catheterizations took place in 2010.³¹

Major complications of catheterization with angiography are rare, but potentially severe (Table 1).^{32,33}

The potential for adverse event suggests the importance of avoiding the procedure when a patient would be a poor candidate for coronary intervention irrespective of catheterization/angiography findings. Using chart reviews for patients undergoing catheterization at a major academic medical center following suspected MI, a 2016 study by Patel et al. found that 18 percent of all catheterization lab activations between 2005 and 2013 were inappropriate as judged against standardized criteria for appropriate use.³⁴ Previous research has found that between 14 percent and 36 percent of catheterization lab activations in similar emergency situations are inappropriate.³⁴ Examining diagnostic catheterization for suspected coronary artery disease in New York State, a 2014 study by Hannan et al. reported that 25 percent of patients undergoing catheterization were not appropriate candidates for the procedure given standard guidelines.³⁵

Table 1 shows the harm that might reasonably be estimated to result from inappropriate catheterization. Assuming 90 percent appropriateness, inappropriate use of catheterization is associated with more than 100 deaths.

TABLE 1: ADVERSE EVENTS ASSOCIATED WITH
DIAGNOSTIC CARDIAC CATHETERIZATION AND CORONARY ANGIOGRAPHY

Adverse Event	Share of Patients Experiencing (Percent) ³⁷	Estimated Adverse Events Occurring Among Patients <i>Not</i> Appropriate for Catheterization (Per Year, Number)*		
		Assuming 80% Appropriateness	Assuming 90% Appropriateness	Assuming 95% Appropriateness
Mortality	0.11	227	113	57
Myocardial infarction	0.05	103	52	26
Cerebrovascular accident	0.07	144	72	36
Arrhythmia	0.38	783	391	196
Vascular complications	0.43	886	443	221
Contrast reaction	0.37	762	381	191
Hemodynamic complications	0.26	536	268	134
Perforation of heart chamber	0.03	62	31	15
Other complications	0.28	577	288	144

* Assumes 1,030,000 diagnostic cardiac catheterizations per year.³¹

Diagnostic cardiac catheterization covered by Aetna, Humana, Kaiser Permanente, and United are reimbursed at an average of \$13,696.³⁶ Assuming 95% appropriateness and reimbursement at 80 percent of average commercial rates, more than \$560 million is spent annually on unindicated cardiac catheterizations. This figure does not include the costs of treating any downstream complications associated with these unindicated procedures.

Prostate specific antigen (PSA) testing

Differing recommendations for prostate cancer screening have been put forward by the USPSTF,⁹ the American Cancer Society,³⁷ the American College of Physicians,³⁸ and the American Urological Association.³⁹ Crucially, however, no reputable organization or society recommends routine PSA testing among men age 75 or older given limited life expectancy, the indolent nature of most prostate cancers, and potential harm from follow-up testing, radiation, and surgery. For example, biopsies of the prostate to follow-up on concerning PSA results are in turn associated with twice the risk of hospitalization in the subsequent 30 days.⁴⁰ Researchers have estimated that one additional hospitalization – often for serious infections – occurs for every 24 biopsies.⁴⁰

Contrary to evidence-based practice, more than 18 percent of male Medicare fee-for-service beneficiaries age 75 and older received a screening PSA test in 2014.⁴¹ More than 32 percent of Medicare Advantage beneficiaries age 70 and older received a PSA test in 2015.⁴² While the risks of biopsy and other complications associated with follow-on testing might be reasonably assumed by younger men, experts generally agree that the iatrogenic harm associated with screening in this population – especially those 75 and older – dwarfs whatever benefits might be reasonably anticipated through early detection and treatment.⁹ While 59 percent of men age 80 and older are thought to have some type of prostate cancer, overwhelmingly, these men will die with – not of – this condition.⁴³

In 2014, Medicare spent \$79 million on PSA screening tests for fee-for-service beneficiaries age 75 and older. Previous work by Ma and colleagues (2014) suggest that these costs probably represent less than 30 percent of all screening/diagnosis-related expenditures.⁴⁴ Extrapolating, it would be reasonable to assume that biopsy, pathology, and hospitalization costs account for another \$200 million in screening/diagnosis-related expenditures among Medicare fee-for-service beneficiaries.

It is difficult to estimate total costs of follow-up care after diagnosis of low-risk prostate cancer, but the aggregate expense is undoubtedly substantial given the high costs associated with a course of treatment. According to research by Eldefrawy et al. (2013), typical per-patient five-year cumulative

costs for managing prostate cancer range from \$8,761 (active surveillance) to \$12,209 (radical prostatectomy) to \$22,043 (external beam radiotherapy).⁴⁵

Computed tomography (CT) in suspected pediatric appendicitis

There are about 70,000 US cases of appendicitis in children annually.⁴⁶ According to a 2012 *Choosing Wisely* recommendation from the American College of Radiology, CT in suspected pediatric appendicitis should only be used after consideration of ultrasound.⁴⁷ If ultrasound results are inconclusive, then a CT may be appropriately ordered.⁴⁷ According to a 2016 analysis by the Washington Health Alliance, 24 percent of children with appendicitis in Washington State had potentially unnecessary CT.⁴⁸ Separate research has found that between 33 percent and 59 percent of children hospitalized for this condition receive CT in any given year.⁴⁹ This percentage is almost certainly too high.

Limiting use of CT to cases where the service is truly needed is important for avoiding serious harm. According to the National Cancer Institute, CT scans account for about half of the US population's collective exposure to medical x-rays.⁵⁰ Children are more vulnerable to adverse effects from radiation, in part because their longer life expectancy means a longer time horizon over which radiation exposure can lead to cancer.⁵⁰ Extrapolating from the experience of the survivors of the atomic bombings of Hiroshima and Nagasaki, experts believe the radiation of a typical CT is responsible for one extra case of cancer for every 500 to 1,000 individuals scanned.⁵⁰

Abdominal ultrasounds covered by Aetna, Humana, Kaiser Permanente, and United are reimbursed at an average of \$333,⁵¹ while abdominal CTs are reimbursed at an average of \$751.⁵² (These figures are likely conservative in pediatric appendicitis given the higher prices that children's hospitals often command.⁵³) Conservatively estimating that 15 percent of the 70,000 children with appendicitis each year receive an inappropriate CT rather than an ultrasound, this would suggest that about \$4.4 million is spent annually on this potentially harmful and easily avoidable service.

PATIENT TIME AND MONEY

In an era of high consumer cost-sharing, overuse also means exposure to financial harm for patients. With 40 percent of commercially insured Americans enrolled in a high-deductible health plan,⁵⁴ an unindicated cardiac stress test – which may cost \$300 or more depending on site of service⁵⁵ – imposes a meaningful financial burden on families. In some cases, exposure to “financial toxicity” may displace funds that could be used on high-value health care. Chau et al. (2016) found that family-paid cost-sharing accounted for about one-third of all spending on pediatric low-value services.⁵⁶ An analysis of 2014 data from the Minnesota All-Payer Claims Database examining use of unindicated imaging,

screening, and pre-operative testing services found that about 17 percent of low-value service costs were borne by patients.⁵⁷

Apart from out-of-pocket burden, experts have also drawn attention to the bother and hardship associated with seeking care that is unnecessary or harmful.⁵⁸ Drawing on nationally representative survey data, Ray and colleagues (2015) estimated that every dollar spent on ambulatory medical visits costs patients an additional \$0.15 in opportunity cost – i.e., the patients’ value of the time foregone.⁵⁹ By this measure, the average ambulatory visit and its travel time has \$43 in opportunity costs for the patient. Of course, for receipt of high-value care, foregone time is almost certainly a worthwhile investment. But the time-related burden of receiving medical care is especially pernicious when the care itself is of little or zero value. This challenge may be particularly salient for individuals without paid leave and those with caregiving responsibilities.

It is not uncommon for patients to experience substantial waits before receiving high-value care; historically, many Americans have experienced multi-month delays to receive needed screening colonoscopies, for instance.⁶⁰ Greater wait time before colonoscopy is significantly associated with lower odds of receiving this service.⁶¹ To the extent gastroenterologists are not available to offer high-value colonoscopies due to time spent providing low-value endoscopies – a commonly overused procedure, especially for patients with gastroesophageal reflux disease (GERD)⁶² – patients are harmed.

Similarly, patients are exposed to harm when their own receipt of unneeded services delays needed care. Sheffield et al. (2013) found that about 3.8 percent of Medicare patients undergoing elective, noncardiac, non-vascular surgery receive unindicated cardiac stress testing in the two months prior to surgery.⁶³ As the authors observe, “Unnecessary testing may lead to further testing and surgical delay or cancellation.”⁶³ It is inherently harmful to delay needed care so unneeded services can be performed.

PREVALENCE OF RECEIPT

Receipt of potentially harmful care is common. Table 2 presents findings from a scan of the academic literature. Depending on the particular population, set of measures, and assumptions about the share of instances in which a commonly overused service is, in fact, inappropriate, between 10 percent and 42 percent of insured individuals receive a service that is of low-value in a given year.

TABLE 2: STUDIES OF RECEIPT OF LOW-VALUE CARE

Study	Population	Approach	Share of Population Receiving One or More Low-value Services	Comment
(1) Chua et al. (2016) ⁵⁶	Children with commercial coverage	20 claims-based measures	10% [more specific] 14% [more sensitive]	<ul style="list-style-type: none"> • Most commonly received low-value services: antibiotics for upper-respiratory infection, testing for group A streptococcal pharyngitis in children under age 3, Vitamin D screening • Measures pertaining to antibiotic use especially sensitive to narrow vs. broad definitions
(2) Charlesworth et al. (2016) ⁶⁴	Adult Oregon Medicaid beneficiaries	16 claims-based measures	15%	<ul style="list-style-type: none"> • Most commonly received low-value services: imaging for uncomplicated headache, imaging for nonspecific lower-back pain, imaging for syncope • Relative to commercially insured, more likely to receive imaging for back pain, headache, and syncope
	Adult Oregon adults with commercial coverage		11%	<ul style="list-style-type: none"> • Most commonly received low-value services: T3 testing for hypothyroidism, imaging for nonspecific lower-back pain, imaging for uncomplicated headache • Relative to Medicaid beneficiaries, more likely to receive T3 tests and imaging for plantar fasciitis
(3) MedPAC (2017) ⁶⁵	FFS Medicare beneficiaries	31 claims-based measures	23% [more specific] 37% [more sensitive]	<ul style="list-style-type: none"> • Using broad definitions, between 11 and 19 percent of beneficiaries receive an unindicated cancer test in a given year (5 percent if using narrow definitions) • Most commonly received low-value services: imaging for nonspecific low back pain, PSA screening in men 75 or older, and colon cancer screening in older adults • Measures pertaining to imaging account for about 30-35 percent of volume of low-value services • Measures pertaining to colon cancer screening in older adults and imaging for low back pain especially sensitive to narrow vs. broad definitions • Results very similar to findings from previous year's MedPAC analysis⁶⁶ • Measure definitions draw on prior work by Schwartz et al. (2014, 2015)^{67,68}

(4) Reid et al. (2016) ⁶⁹	Adults with commercial coverage	28 claims-based measures	8%	<ul style="list-style-type: none"> • Most commonly received low-value services: T3 testing for hypothyroidism, imaging for nonspecific lower-back pain, imaging for uncomplicated headache
(4) Mafi et al. (2017) ⁷⁰	Virginia residents with Medicare, Medicaid, and commercial coverage	44-claims based measures	About 20%*	<ul style="list-style-type: none"> • Study used Virginia’s all-payer claims database • Most commonly received low-value services: baseline labs in low-risk patients prior to surgery, annual cervical cancer screening in women 21-65 • Relatively low-cost low-value services (i.e., those costing \$538 or less) were administered 13 times more frequently than costlier low-value services examined

* Exact figure not provided

Some populations are at greater risk of receipt of overused service than are others. Examining receipt of 11 commonly over-used services among Medicare fee-for-service beneficiaries, Schpero and colleagues (2017) found that black and Hispanic beneficiaries had significantly higher odds of receipt of seven of the services studied – potentially exacerbating health disparities.⁷¹ Figure 2 displays the full set of findings. Ultimately, the authors conclude that the failures of the US health systems to consistently provide high-value care to racial minorities at the same rates as whites⁷² – that is, the substantial amount of undertreatment – does not protect against receipt of low-value services. In other words, lack of engagement in high-value elements of the health care system does not imply lack of engagement in low-value elements of the health care system.

More than 19 percent of all office visits examined resulted in the delivery of at least one low-value service.

While black race or Hispanic ethnicity *is* often correlated with receiving low-value care, a separate 2017 study from Barnett and colleagues found that, after adjusting for race/ethnicity, having Medicaid coverage or being uninsured was generally *not* associated with a significantly greater likelihood of receiving a low-value service (relative to the commercially insured).⁷³

Receiving narcotics for headache (uninsured and Medicaid) and receiving narcotics for back/neck pain (uninsured and Medicaid) were among the only exceptions. Receipt of care from a safety-net was not associated with greater receipt of low-value care. But perhaps most importantly, *all* patients in the study were at substantial risk of receiving low-value care. More than 19 percent of all office visits examined resulted in the delivery of a service that was likely of low-value.

Figure 2: Receipt of 11 Low-Value Services Among Medicare Beneficiaries, By Race/Ethnicity (2006-2011)

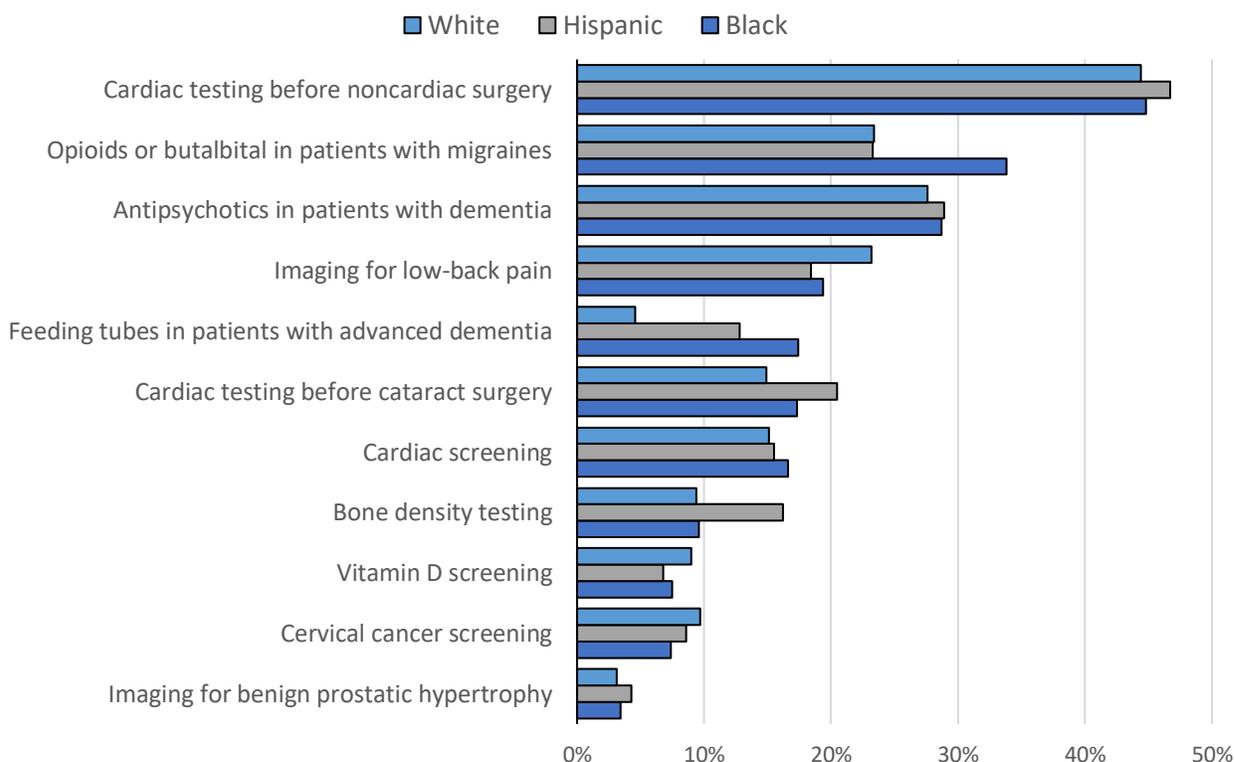


Figure derived from: Schpero WL, Morden NE, Sequist TD, Rosenthal MB, Gottlieb DJ, Colla CH. For Selected Services, Blacks and Hispanics More Likely to Receive Low-Value Care than Whites. *Health Aff.* 2017;36(6):1065-1069.

PAYERS, PURCHASERS, AND CARRIERS

Berwick and Hackbarth (2012) estimated that between \$158 billion and \$226 billion is spent on overtreatment every year (2011 dollars). Private payers and the commercially insured shoulder a majority of this amount (between \$91 and \$139 billion);⁷⁴ the balance is paid by public purchasers and beneficiaries of those programs (Figure 3). Lyu et al. (2017) reported that 25 percent of tests, 22 percent of prescription drugs, and 11 percent of procedures are perceived as unnecessary by a panel of 2,106 surveyed physicians.⁷⁵ Funds spent on overuse are not available for more socially useful purposes.

As discussed in Section 2, there is a large gap between the estimations used by Berwick and Hackbarth – which are grounded in comparative analysis and extrapolation – and the low-value care that can be detected through analysis of claims data. Claims-based techniques must recognize that most commonly overused services are low-value in only a certain proportion of the instances when they are delivered.

Assumptions must be made regarding the proportion of services delivered that are, in fact, inappropriate. Much of this literature uses data for patients covered by Medicare fee-for-service.

Table 3 displays findings from four recent studies that used claims data to measure the delivery of select low-value services. The data suggest that Medicare fee-for-service (FFS) alone spent \$2.4 and \$6.5 billion on 31 low-value services.⁶⁵ Supposing the all-payer hospital and professional experience of Virginia could be roughly generalized nationally, between \$30 billion to \$35 billion in all-payer US health care spending is attributable to just 44 low-value services.^{d,70}

Figure 3: Midpoint Estimates for Burden of Financing Health System Overuse (2011 dollars)

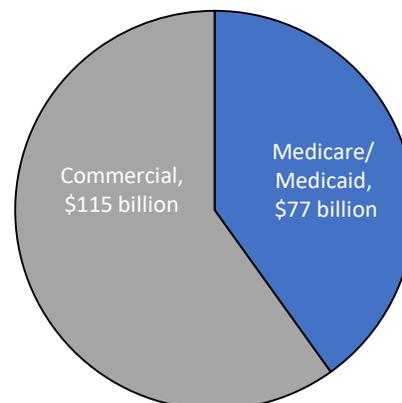


Figure derived from: Berwick DM, Hackbarth AD. Eliminating Waste in US Health Care. *JAMA*. 2012;307(14):1513.

TABLE 3: STUDIES OF SPENDING ATTRIBUTABLE TO LOW-VALUE SERVICES

Study	Population	Approach	Estimated Annual Spend	Comment
(1) Chua et al. (2016) ⁵⁶	Children with commercial coverage	20 claims-based measures	\$227 million [more specific] \$445 million [more sensitive]	<ul style="list-style-type: none"> Overall, family-paid cost-sharing accounted for about one-third of expenses associated with low-value services Imaging for headache and oral antibiotics accounted for largest share of spending
(2) Mafi et al. (2017) ⁷⁰	Virginia residents with Medicare, Medicaid, and commercial coverage	44-claims based measures	\$586 million (\$9.90 per person per year, 2.1% of spending)	<ul style="list-style-type: none"> Study used Virginia’s all-payer claims database In the aggregate, most expensive low-value services: baseline labs in low-risk patients prior to low-risk surgery, cardiac imaging in low-risk patients, annual cardiac screening for low-risk patients Relatively low-cost services (i.e., those costing \$538 or less) accounted for 65% of potentially avoidable spending

^d Upper estimate obtained by multiplying approximate 2014 US health care spending on hospitals and non-dental professional services by 2.1 percent.⁷⁶ Lower estimate obtained by extrapolating from number of lives covered in the Virginia all-payer claims database to number of Americans insured in 2014.⁷⁷ See Table 2 and Mafi et al. (2017).⁷⁰

(3) MedPAC (2017) ⁶⁵	FFS Medicare beneficiaries	31 claims-based measures	\$2.4 billion [more specific] \$6.5 billion [more sensitive]	<ul style="list-style-type: none"> • Estimates are \$200 million (narrow definitions) to \$600 million (broad definitions) lower than prior year’s figures⁶⁶ • Cardiovascular testing and procedures accounted for about 71 percent of all low-value spending, despite comprising less than 8 percent of low-value services by volume (broad measures) • Measure definitions draw on prior work by Schwartz et al. (2014, 2015)^{67,68}
(4) Reid et al. (2016) ⁶⁹	Adults with commercial coverage	28 claims-based measures	\$22.32 per person per year (0.5% of total spending)	<ul style="list-style-type: none"> • Greatest share of identified low-value spending attributable to spinal injections, imaging for uncomplicated headache, and imaging for nonspecific low back pain

These claims-based estimates are almost certainly conservative in nature for multiple reasons. First, the academic studies have reported results that draw on, at most, 44 measures of low-value care derived from claims.⁷⁰ Low-value care takes far more than 44 forms, and many types of low-value care are not suitable for claims-based analysis (e.g., needed data to ascertain appropriateness is not reported for billing purposes and/or data with which to calculate a “waste index” (see sidebar) are not available). Many high-cost, potentially overused services – such as unneeded inpatient stays or sub-specialist visits – have not been included in this literature.

Second, the available claims-based research on overuse has not taken into account the cascading nature of low-value care delivery, whereby an unindicated service may beget other downstream services as incidental findings are studied and potentially treated. This can result in anxiety, cost, and iatrogenic harm – without worthwhile health gains. For example, suppose a man with slow-growing prostate cancer – an indolent case that he would almost certainly die with, not of – receives a PSA screening test. If an abnormal PSA level is detected through screening, he may well undergo a prostate biopsy. Depending on the resulting Gleason score, the man may undergo a range of treatments, such as prostatectomy, radiotherapy, or brachytherapy. Significant side effects – especially in the form of sexual, urinary, and bowel dysfunction – are common. Currently available low-value care quantification tools count only the cost of the initial PSA test in estimating low-value care; the costs in dollars of the biopsy, the cancer treatment, biopsy- and treatment-associated complications, and supportive care to ameliorate side effects are not included (see discussion above). Importantly, this extra spending may

not buy improved patient-reported outcomes: a recent study found that men receiving surgery or radiotherapy for prostate cancer were about twice as likely as those receiving conservative care to express treatment decision regret.⁷⁸

Third, the research on low-value care does not account for the lost productivity that employers bear when employees are absent for purposes of receiving care that is harmful or ineffective. Literature suggests that this cost is significant.⁷⁹

PROVIDERS

Providers deliver low-value care for a range of reasons. Drawing on a review by Saini et al. (2017), drivers of poor care include:

- *Money and finance:* These factors pertain to reimbursement systems, delivery system organization, and provider- and patient-facing incentives. Also included in this category are the supply of health care facilities, the mix of primary care providers/specialists in a given area, physician ownership of ancillary services, and the extent to which delivery systems are integrated versus fragmented.⁸⁰
- *Knowledge, bias, and uncertainty:* A wide range of biases – for example, “[m]ore is better, new is better, more expensive is better, and technology is good” – influence patient and clinician judgement, as do psychological shortcuts (i.e., heuristics).⁸⁰ Many have implications for the delivery of low-value medical care. Common contributors to overuse among clinicians in this category include placing greater weight on regret of omission versus regret of commission, overweighting the probability of a recent adverse outcome repeating itself (i.e., “rear-view mirror” bias), and innumeracy.⁸⁰
- *Relationships, power, and law:* Defensive medicine and fear of malpractice litigation fall into this category (see “Sidebar: Tort Reform and Defensive Medicine”), as do state regulations requiring coverage of certain technologies. More generally, the nature and quality of the provider/patient relationship has implications for the extent to which clinician advice will be viewed as trustworthy and the extent to which patients are able to engage in meaningful shared decision making.⁸⁰ Patient care seeking decisions may also be heavily influenced by the experiences of friends and families. The advertising campaigns of well-intentioned advocacy groups – at times, campaigns that run contrary to the best available science⁸¹ – can impact patient care seeking as well, as may the marketing efforts of less scrupulous players.

Sidebar: Tort Reform and Defensive Medicine

Defensive medicine is the “ordering of treatments, tests and procedures primarily to help protect the physician from liability rather than to substantially further the patient’s diagnosis or treatment.”⁸²

Reviewing the available research, Saini and colleagues (2017) conclude that fear of litigation resulting in defensive medicine is a small but significant contributor to medical overuse.⁸⁰ Three particularly noteworthy studies released over the last decade support this conclusion.

First, Avraham et al. (2012) analyzed the experience of 10 million Americans with commercial coverage between 1998 and 2006.⁸³ Drawing on state-by-state differences in timing and implementation of various types of tort reform, the authors conclude that caps on non-economic damages and collateral source reforms in particular can avert some health care spending. Savings of about one to two percent were observed, but only for self-insured plans. Premiums for fully insured health maintenance organizations (HMOs) did not appear to respond to changes in tort law. This was taken as suggesting that to some extent, more intensive managed care serves to reduce defensive medicine.

Second, research by Carrier et al. (2013) linked Medicaid fee-for-service claims with physician responses to survey questions ascertaining personal concern regarding malpractice liability.⁸⁴ The authors found that high levels of physician concern about malpractice liability were associated with significantly greater likelihood of imaging for patients with lower back pain and headache, as well as significantly greater likelihood of an emergency department visit for patients with chest pain. Perception, not actual risk, was most salient: “No consistent relationship was seen. . . when state-level indicators of malpractice risk replaced self-rated concern.”⁸⁴

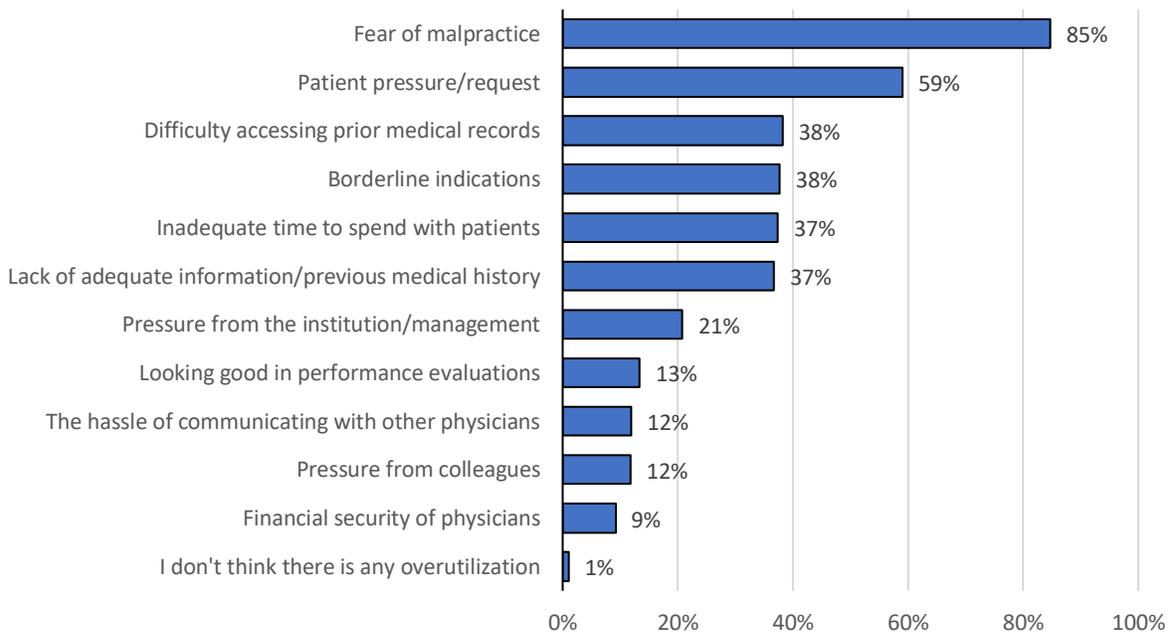
Third, Xu et al. (2013) studied the relationship between state medical malpractice laws and specialty visits.⁸⁵ Theorizing that defensive medicine could lead primary care providers to “to build a record of care covering every possible contingency” through unwarranted referral visits, the investigators analyzed nationally representative data reflecting clinician visits.⁸⁵ Findings suggested that state laws capping noneconomic damages at \$250,000 are associated with reduced likelihood of specialist referrals. This suggests that the medicolegal environment may have implications for continuity of care, the intensity of care rendered, and ultimately, premiums.

Despite physician perceptions to the contrary (see Figure 4), the best available research suggests that tort reform might modestly impact defensive medicine and overuse. But even if all states were to

implement the most restrictive types of tort reform contemplated, it is near-certain that a great deal of overuse would remain.

Surveying physicians, Lyu and colleagues (2017) found that physicians commonly identify drivers of overuse that fall into each of the Saini et al. (2017) categories.⁷⁵ Fear of malpractice, perceived patient pressure, and inadequate information sharing are among the most commonly cited drivers of overtreatment (Figure 4). While income security ranked comparatively low, elsewhere Lyu et al. reported that 60 percent of responding physicians believe that new financial incentives could decrease health care utilization by 20 percent or more. While the true weight of these factors as contributors to overuse is unclear, some factors – particularly problematic financial incentives – are more amenable to purchaser-led reform efforts. They are therefore emphasized here.

Figure 4: Physician-Reported Reasons for Overtreatment



Results reflect physician responses (n=2,106) to the following question: "Nationally, what do you think are the top reasons for overutilization of resources, if any?" Respondents selected three top reasons. Figure derived from: Lyu H, Xu Lyu H, Xu T, Brotman D, Mayer-Blackwell B, Cooper M, Daniel M, Wick EC, Saini V, Brownlee S, Makary MA. Overtreatment in the United States. PloS one. 2017 Sep 6;12(9):e0181970.

Low-value care is often profitable for providers operating under fee-for-service arrangements. The move to alternative payment models (see Section 3-B, “Payment Models”) provides an opening for new efforts to remove low-value care.

CLINICIANS

The decades-long shift away from solo practice and the rise in physician employment may support efforts devoted to the reduction of low-value care, especially if incentives for productivity are eliminated or reduced in importance and replaced by measures of quality. However, according to a 2015 study by Ryan et al., 46 percent of compensation for primary care providers participating in accountable care organizations (ACOs) was tied to measures of productivity – little different from practices without substantial risk for primary care costs not participating in an ACO.⁸⁶ Primary care physicians with substantial risk for primary costs received an average of 32 percent of total compensation tied to productivity.⁸⁶

Primary care providers are often gatekeepers to the most expensive services that are inappropriate or commonly overused. The manner in which primary care providers are compensated – even if compensation systems encourage overuse of services delivered by primary care providers themselves – may pale in importance relative to referral practices. For instance, avoiding referrals to spine surgeons before an adequate trial of physical therapy for back pain has greater implications for cost avoidance than patterns of practice around antibiotic prescribing for upper respiratory infections.

HOSPITALS

In the context of acute care, elimination of some types of low-value care within a given admission can produce savings – in the form of avoided use of disposable supplies, services purchased, staffing required, or new capital investments – that accrue to a hospital or health system. Accordingly, some leading provider systems have focused on avoiding delivery of low-value services within an episode of care that is typically reimbursed under a diagnosis-related group (DRG) payment, such as telemetry and laboratory work during inpatient stays (clinical decision support tools can be valuable to this end, see sidebar). Yet unless admissions are avoided, it is unlikely meaningful savings will accrue to purchasers.^e

Financial impacts aside, all providers stand to gain if reduced delivery of unnecessary care reduces workload and burnout, perhaps favorably impacting recruitment and retention. Especially in primary

^e Assuming that hospitals are not pure profit maximizers, it is conceivable that negotiated rates with commercial carriers might grow more slowly as wasteful costs are eliminated. However, this proposition is controversial.⁸⁷

care settings, time spent on the delivery of low-value care might be replaced with work that is more professionally satisfying.

VARIATION IN TENDENCY TO DELIVER LOW-VALUE CARE ACROSS PROVIDERS

The tendency to deliver low-value care varies substantially across providers. Schwartz et al. (2016) examined tendency to deliver low-value care by provider among Medicare fee-for-service beneficiaries between 2007 and 2011.⁸⁸ On average, the researchers found that organizations provided 45.6 low-value services per 100 beneficiaries per year.⁸⁸ Variation in use of low-value care was substantial, with the 90th percentile of provider organizations delivering 1.8 times as many low-value services as provider organizations in the first decile of low-value care delivery (Figure 5).⁸⁸

Figure 5: Distribution of Provider Organizations by Count of Low-Value Services Delivered per Medicare Beneficiary Per Year

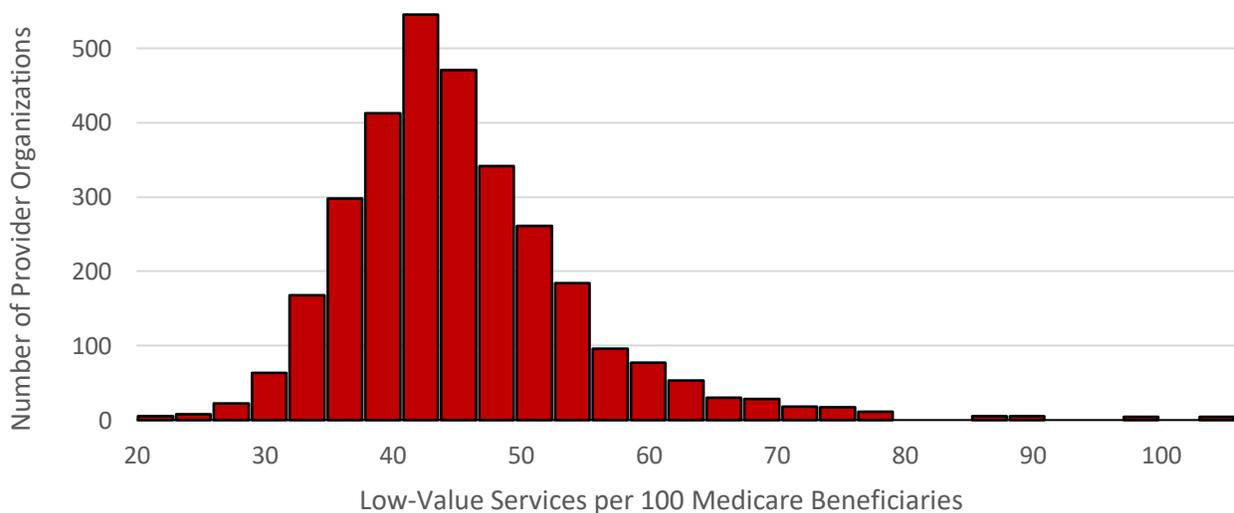


Figure derived from: Schwartz AL, Zaslavsky AM, Landon BE, Chernerw ME, McWilliams JM. Low-Value Service Use in Provider Organizations. *Health Serv Res.* November 2016.

At the level of the hospital referral region, a 2015 study by Colla and colleagues found substantial variation in the tendency to deliver low-value services as well. Across regions, provision of low-value services to patients at risk of receipt varied by 20 percentage points or more for seven of the ten conditions examined.⁸⁹ Region-level factors associated with increased low-value care delivery included higher spending per capita, a higher ratio of specialists to primary care providers, and greater shares of patients reporting fair or poor health.

In sum, the root causes of overuse are varied, complex, and persistent. The existence of great variation in tendency to deliver low-value care across providers suggests the possibility of improvement.

Organizations such as the MacColl Center for Health Care Innovation and its Taking Action on Overuse project – as well as many regional grantees of the *Choosing Wisely* campaign – are seeking to address some of the non-financial drivers that contribute to overuse. As is discussed in Section 3, payers, purchasers, and carriers can complement these efforts by addressing provider-facing reimbursement-related drivers of low-value care delivery.^{90–92}

2. IDENTIFYING AND MEASURING LOW-VALUE CARE

2-A. GEOGRAPHIC VARIATION IN PATTERNS OF PRACTICE

Analyses based on patterns of practice across geographies offer compelling evidence on the prevalence and significance of low-value care. The fundamental premise of much of this work is as follows: if communities deliver vastly different amounts of medical care but achieve comparable outcomes on measures of morbidity, mortality, and patient experience, some or all of the additional spending in higher-cost communities is likely of low-value. Since at least the 1970s,⁹³ the work of researchers at Dartmouth and elsewhere has illustrated the magnitude of variation in patterns of practice across communities. Great differences in utilization are commonly observed across a range of conditions for discretionary services.⁹⁴ For example:

- Use of prostatectomy in Medicare beneficiaries *over age 75* with diagnosed prostate cancer is sufficiently rare that data is unavailable for many hospital referral regions (HRRs). For those HRRs with data available, use of prostatectomy in this population varies by a factor of seven across regions.⁹⁵
- Prescribing of opioids varies by a factor of six across high-prescribing and low-prescribing counties in the US. Residents of the highest prescribing county received 8.6 times as many morphine milligram equivalents of opioids than did residents of the average county.⁹⁶
- Rates of elective percutaneous coronary interventions vary by a factor ten across California.⁹⁷

Greater service provision is often observed without corresponding improvements in health status.⁹⁸ In fact, one 2004 study found an inverse relationship between spending and quality in Medicare.⁹⁹

In work for the Institute of Medicine, Fisher and Bronner (2010) estimated potential savings if the patterns of care delivery for all Medicare beneficiaries were to reflect the patterns of care delivery in the most efficient regions.⁹⁸ Were all care consistent with patterns of the most efficient quintile of regions, inpatient days would be reduced by 23 percent, specialist visits by 37 percent, and primary care visits by 12 percent. The researchers projected that 18 percent of Medicare spending would be averted if all US regions were as efficient as the most efficient quintile of regions. The oft-cited 2012 work of Berwick

and Hackbarth, “Eliminating Waste in US Health Care,” drew on this and other variation-related work, to arrive at a midpoint estimate of \$192 billion in US spending on overtreatment per year (2011 dollars).^{f,74}

While estimates of this variety based on variation are important for illustrating the magnitude of opportunity for care improvement, macro-level measurements of this sort are not inherently actionable. Knowledge of the magnitude of an opportunity within a broad category of care or service type does little to make clear which interventions may be best suited for eliminating the most salient, specific types of low-value care. To know that Region A uses far more specialist visits than does Region B is usually insufficient for focused action.

Estimates of low-value care grounded in analysis of geographic variation have several additional limitations. First, many providers in high-cost regions may be highly efficient, while providers in low-cost regions may be highly inefficient; a 2013 IOM report found that this is in fact frequently the case.¹⁰⁰ Accordingly, the IOM Committee on Geographic Variation in Health Care Spending advised that payment reform is best applied at the level of the clinical decision-making unit, not the region.¹⁰¹

Second, variations in patterns of practice within one population (e.g., Medicare beneficiaries) may or may not persist when examined within other populations (e.g., those covered by commercial carriers or Medicaid). The vast share of research on geographic variation has been focused around fee-for-service Medicare beneficiaries. Research by Chernew et al. (2010) has observed a modest level of consistency in inpatient utilization across large commercial firms and Medicare (correlation of 0.59);¹⁰² research specific to low-value care by Colla et al. (2017) has shown a modest level of consistency with respect to practice patterns across payer types by service (Figure 6).¹⁰³ But caution is needed when generalizing beyond the specific population studied.

Third, some of the difference in spending across regions is attributable to differing patterns of practice for medical decisions where evidence for optimal care is unclear; a substantial share of medicine falls into this category.^{104,105} Sirovich and colleagues (2008) surveyed primary care physicians on their hypothetical tendency to use more intensive care in various clinical scenarios lacking clear guidelines for evidence-based practice (e.g., care for an 85-year-old man with exacerbation of end-stage congestive

^f Numerous payment reform and delivery system redesign efforts have taken place since the Berwick and Hackbarth analysis, and low-value care has been a frequent target of these efforts. But progress notwithstanding, there is reason to believe that the midpoint Berwick and Hackbarth estimate was low: as discussed above, the ability of a claims-based tool to identify about 2 percent of all-payer spending as low-value would imply that just 44 services account for 14 to 17 percent of *all* low-value spending system-wide.⁷⁰ That seems unlikely. See Section 1-B, “Payers, Purchasers, and Carriers.”

heart failure).¹⁰⁶ Analyzing responses across high-spending and low-spending regions in Medicare, the authors found a strong relationship between regional spending and the intensity of care that physicians reported they would provide in these hypothetical situations (e.g., inpatient admission versus discussion of palliative care).¹⁰⁶ In fact, together across the several clinical scenarios examined:

Compared with physicians practicing in the lowest quintile of spending, those in the highest quintile would recommend an additional eighty hypertension follow-up visits per year, fourteen spiral CT scans, twenty-five echocardiograms, twenty-four cardiac care unit admissions, and twenty-nine gastroenterology referrals (per 100 patients in each clinical category).¹⁰⁶

Efforts to reduce low-value care are best targeted at services that are unambiguously low-value.

But these types of “gray zone” services are not necessarily appropriate targets for efforts to reduce low-value care. Efforts to reduce low-value care are best targeted at services that are unambiguously low-value.

Figure 6: Mean Annual Prevalence for Seven Commonly Overused Services, By Payer Type (2009-2011)

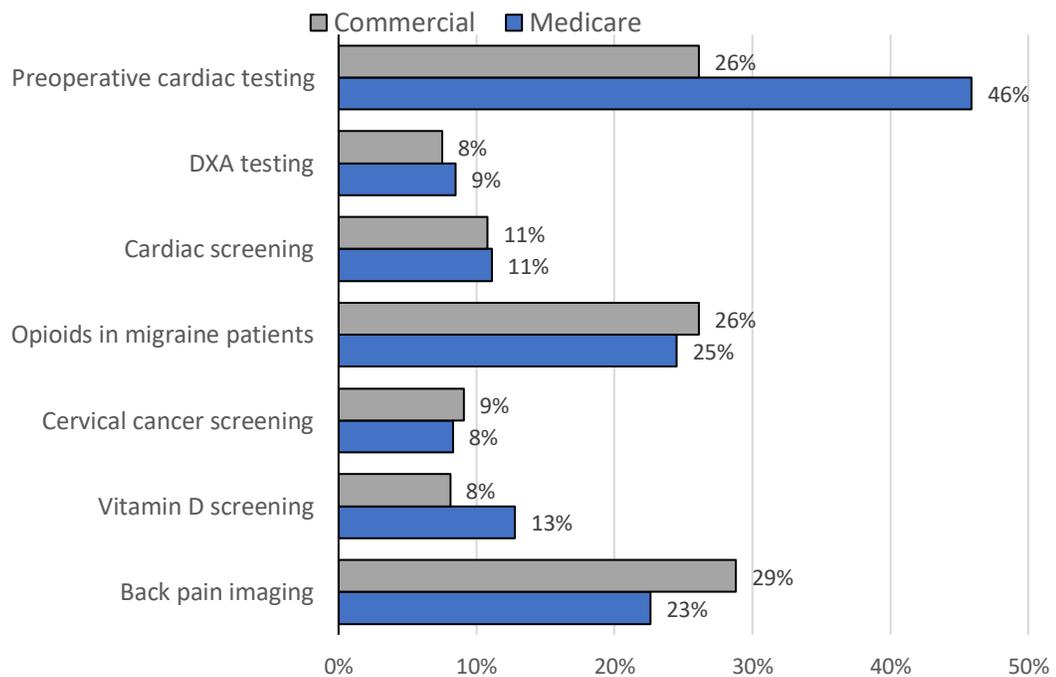


Figure derived from: Colla CH, Morden NE, Sequist TD, Mainor AJ, Li Z, Rosenthal MB. Payer Type and Low-Value Care: Comparing Choosing Wisely Services across Commercial and Medicare Populations. Health Serv Res. February 2017.

With some exceptions, the strategies discussed in the following chapter require more nuanced data in order to share useful information with providers, target utilization management strategies appropriately, select the most actionable conditions for bundled payments, customize benefit designs with maximum effect, and more. Nevertheless, estimates of low-value care grounded in variation across regions serve as unambiguous calls to action, and illustrate the magnitude of the opportunity to do better by doing less.

2-B. PATIENT-LEVEL MEASUREMENT

Measurement of overuse at the level of the patient generally relies on analysis of administrative information, i.e., claims or encounter data combined with information on enrollee age and sex. Yet few services are “ineffective, unsafe, or both for all patients and indications.”¹⁰⁷ (See “Sidebar: Clinical Nuance and Claims-Based Estimation of Low-Value Care.”) Rather, appropriateness is most often a function of who receives a service, the particulars of his or her condition, who provides a service, and where and when the service is delivered. Given this need for clinical nuance,¹⁰⁸ some low-value services can be translated into logic that flags a service as low-value on the basis of the patient’s clinical history (to the extent previous claims are available), patient comorbidities (as reported through old and new diagnosis codes that accompany claims), sex, and age. Depending on the particular recommendation and the quality and completeness of the administrative data, it is increasingly possible to craft claims-based specifications with reasonably high levels of precision. The granularity offered through ICD-10 coding might further improve these capabilities going forward, provided practitioners code with completeness.

Measurement of overuse at the level of the patient generally relies on analysis of claims data. Yet few services are ineffective, unsafe, or both for all patients and indications.

Sidebar: Clinical Nuance and Claims-Based Estimation of Low-Value Care

With very few exceptions, services are never high-value or low-value in all instances. Accordingly, care is required to ensure that estimations of low-value care are neither too broad – flagging appropriate (or potentially appropriate) care as low-value – nor too narrow – failing to identify inappropriate care as low-value. That is, estimates should be as clinically nuanced as possible. Purchasers, clinical

champions, researchers, and others interested in measuring low-value care can use multiple strategies to account for limitations inherent in claims data.

One strategy is to offer both liberal (more sensitive) and conservative (more specific) estimates to account for the lack of detailed clinical information. For example, Schwartz and colleagues (2014) used the following definitions to arrive at high and low estimates of inappropriate use of CT of the sinuses for uncomplicated acute rhinosinusitis:

- Broader: “Maxillofacial CT study with a diagnosis of sinusitis in the imaging claim”
- Narrower: “No complications of sinusitis, immune deficiencies, nasal polyps, or head/face trauma noted in claim; no patients with chronic sinusitis, defined by sinusitis diagnosis between 1 y[ear] and 30 d[ays] before imaging.” Complications were defined to include “eyelid inflammation, acute inflammation of orbit, orbital cellulitis, and visual problems.”⁶⁷

The broader version of this measure estimated about \$42 million in annual low-value Medicare spending attributable to inappropriate use of CT; the narrower version of this measure identified \$23 million in low-value spending on this service.⁶⁷ For other services, the choice of definitions matters more. For example, using a broad definition, Schwartz et al. (2014) estimated \$2.8 billion in annual low-value Medicare spending on percutaneous coronary interventions/stenting for stable coronary disease. Using a narrower definition resulted in an estimate of only \$212 million. Many of the studies presented in Tables 1 and 2 provide both liberal and conservative estimates of prevalence of receipt and associated spending respectively.

A second strategy to arrive at clinically nuanced estimates of low-value care delivery is to use a “waste index.” This entails arriving at a service-specific assumption around the share of instances in which a given service is delivered inappropriately. The Milliman/V-BID Health MedInsight Health Waste Calculator, for example, assumes that 98 percent of brain imaging studies for evaluation of simple syncope are low-value, but that only 14 percent of stress tests after coronary artery revascularization are low-value.¹⁰⁹ When possible, estimates can be grounded in research based on rigorous chart reviews, etc. However, given limitations associated with the available research, expert opinion must sometimes suffice.

Ideally, estimates of waste would draw on the data available in electronic health records (EHRs) – including both structured and free-text information – to arrive at more nuanced estimates. By and large, measurement approaches have not yet harnessed this information. However, some leading health systems are using structured EHR data to enable real-time clinical decision support (see sidebar below). Use of EHR data for these purposes can help minimize “alert fatigue” and thereby increase the impact of best practice advisories when displayed.

Yet at present, some commonly overused services do not easily lend themselves to claims-based measurement. For example, the American College of Radiology recommends against “imag[ing] for suspected pulmonary embolism (PE) without moderate or high pre-test probability of PE.”¹¹⁰ Clinical information, such as heart rate and physical exam findings, are necessary to judge the probability of a pulmonary embolism, and this information is rarely present on claims.^{67 (supp)} Even with the benefit of richer information from electronic health records, the lack of structured data fields for many relevant clinical findings may make the development of e-measures difficult.¹¹¹

Irrespective of decisions around specificity/sensitivity and service inclusion, measures of low-value care are often conservative for at least three additional reasons. First, automated tools cannot provide estimates of the share of the time a given intervention is not aligned with the true preferences of a patient, if he or she could have had the benefit of full information and meaningful shared-decision making. Second, the downstream costs of follow-up care after receipt of a test that should not have been performed are generally not included (see Section 1-B, “Payers, Purchasers, and Carriers”). Third, currently available tools generally do not include the cost of duplicative care (e.g., receipt of two MRIs in short proximity to one another due to lack of information sharing).

Ultimately, even the most conservative approaches still show substantial use of low-value care. As discussed below, these measures can prove valuable for payer/purchaser efforts to remove low-value care from the healthcare system.

3. ADDRESSING NO-VALUE/LOW-VALUE CARE

3-A. INADEQUACY OF INFORMATION-ONLY STRATEGIES

There is often a profound gap between evidence-based medical practice and the medical care that Americans actually receive.¹¹² Guidelines are frequently disregarded,^{113,114} and de-implementation of once routine care in particular is often very slow.¹¹² Accordingly, it would be unreasonable to expect the educational components of an initiative such as *Choosing Wisely* to dramatically reduce the provision of commonly overused services absent other types of interventions.

Indeed, the existing literature is unclear on the magnitude of the impact of the greater awareness of low-value care engendered by the *Choosing Wisely* campaign. Rosenberg et al. (2015) examined the experience of 25 million Anthem members at risk of receiving seven commonly overused services before and after the release of related *Choosing Wisely* recommendations. The authors found small but statistically significant decreases in use for two of the low-value services examined (1.5 percentage point reduction in imaging for headache, 1.1 percentage point reduction in cardiac imaging), small but statistically significant increases for two other low-value services (1.8 percentage point increase in use of NSAIDs in certain conditions, 1.2 percentage point increase in appropriate HPV testing in younger women), and no statistically significant changes in trend for three other low-value services (preoperative chest x-rays, antibiotics for sinusitis, and imaging for low back pain, Figure 7).¹¹⁵

More recent work from Hong et al. (2017) took advantage of a longer time horizon and employed a stronger study design to assess the extent to which *Choosing Wisely* recommendations impacted low-value imaging for low back pain.¹¹⁶ Drawing on commercial claims data, Hong et al. reported no statistically significant change in use of high-value imaging, but a decrease of 0.9 percentage points – corresponding to a relative decrease of 3.8 percent – in use of low-value imaging in conjunction with office visits for back pain. Nevertheless, rates of inappropriate imaging remained high in absolute terms: 22 percent of all episodes of back pain were associated with imaging that was likely of low-value.

Dissemination of the *Choosing Wisely* recommendations – intended to create dialogue and cultural change – has not been sufficient to reduce low-value care to acceptable levels. In the words of one expert, these findings show that “QI and system change are needed to change behavior. Proclamations don’t change behaviors.”

This section discusses six distinct approaches that purchasers and carriers can use to advance systems change for low-value care avoidance. Both supply-oriented (i.e., provider-facing) and demand-oriented (i.e., patient-facing) interventions are discussed, with an emphasis on strategies that payers, purchasers, and carriers can implement directly. Pairing complementary supply-oriented and demand-oriented low-value care reduction strategies will likely achieve more success than either approach in isolation.

Pairing complementary supply-oriented and demand-oriented low-value care reduction strategies will likely achieve more success than either approach in isolation.

Figure 7: Prevalence and Trends for Six Commonly Overused Services (2010-2013)

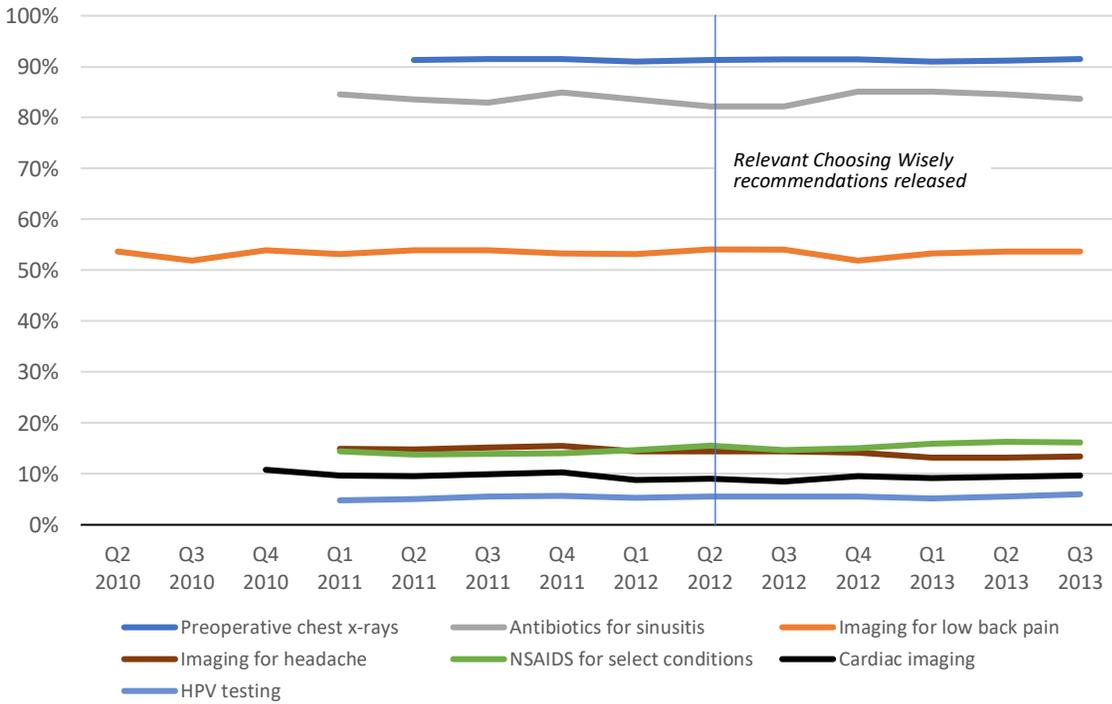


Figure derived from: Rosenberg A, Agiro A, Gottlieb M, et al. Early Trends Among Seven Recommendations from the Choosing Wisely Campaign. *JAMA Intern Med.* 2015;175(12):1913-1920.

3-B. PAYER-DELIVERED, PROVIDER-FACING EFFORTS

PROVISION OF PROFILING DATA

Many payers have sought to prompt or support provider action on overuse through “report cards” that benchmark the practice patterns of a clinician, practice, or provider group with those of peers and/or regional/national standards. Published research is mixed on whether offering retrospective feedback to clinicians – be it at the level of the individual provider, practice, or provider group – on use of low-value services can impact future clinical decision-making. As identified in a 2016 review of the peer reviewed literature by Colla and colleagues,¹¹⁷ studies of provider profiling efforts have included:

- Chinnaiyan et al. (2012) found that a Blue Cross Blue Shield of Michigan-sponsored continuous quality improvement (CQI) effort decreased inappropriate use of coronary computed tomography angiography. Feedback to sites on rates of appropriate use was a key component of this effort, which also included the cultivation of site-specific clinical champions, the provision of continuing medical education, and warnings of further payer restrictions on coverage if appropriateness were not addressed. The multi-component intervention was associated with a 60 percent decrease in the use of inappropriate scans. The study lacked a comparison group.¹¹⁸
- Miyakis et al. (2006) found that sharing findings from audits of the appropriateness of 25 tests resulted in meaningful reductions in inappropriate ordering (from about 2 to about 1.6 inappropriate orders per day). However, these improvements proved transient. Provider behavior returned to its original form after the intervention concluded. The study lacked a comparison group.¹¹⁹
- Verstappen et al. (2003) found that feedback to Dutch primary care physicians on compliance with evidence-based guidelines for test ordering was associated with reductions in appropriate cardiac and abdominal testing. The intervention was unsuccessful for physicians receiving information on COPD, asthma, general complains, and degenerative joint complaints, however. Primary care physicians were randomized to the intervention.¹²⁰
- Wong-Beringer et al. (1999) found that simply providing results from a previous city-level audit on the appropriate use of endarterectomy audit in Edmonton was associated with a significant reduction in community-wide use of low-value endarterectomy (decrease from 18 percent to 4 percent). The study lacked a comparison group, however.¹²¹

- Wong-Beringer et al. (2009) tested a pharmacist-led stewardship program to reduce inappropriate use of fluoroquinolones. The intervention entailed feedback to providers, as well as education and point-of-care clinical decision support. Fluoroquinolone prescribing was reduced by 30 percent, and mortality associated with *P. aeruginosa* infections decreased two-fold. The study lacked a comparison group.¹²²

The findings reported above should be interpreted with caution since all but the Verstappen et al. (2003) study had severe methodological limitations.

Some profiling efforts have provided data explicitly intended to accompany new risk-sharing arrangements (see “Payment Models” below). For example, Blue Cross Blue Shield of Massachusetts (BCBSMA) compiles and distributes clinician-level reports on variation in patterns of practice to Alternative Quality Contract (AQC) groups. Each AQC group faces down-side financial risk as well as incentives to improve or maintain performance on a set of agreed-upon quality measures. BCBSMA distributes reports to champions at each AQC group detailing clinician-by-clinician practice patterns for a variety of commonly overused services, including use of advanced imaging, use of branded medications when a generic is available, appropriate use of antibiotics, treatment of low-back pain, and use of endoscopy for GERD. Data are presented as to permit each AQC group to compare its performance against those of the BCBSMA network.

After four years, the AQC was associated with a reduction of \$249 per member per year in overall medical spending relative to a control group (not including bonus payments).¹²³ Some savings were achieved through shifts in provider referral practices to lower priced sites of service, but at least some overuse was likely eliminated: reductions in volume accounted for 60 percent of the savings attributable to reduced spending on procedures, 25 percent of savings related to imaging, and 60 percent of savings for all tests.¹²³ Improvements in clinical quality generally surpassed the improvements observed in comparison groups.¹²³ AQC leaders report that profiling reports have been valuable in improving patterns of care delivery, even if it is not possible to isolate the impact of low-value care profiling reports from the other supports and incentives of the AQC.

In isolation, it is not clear that provider feedback can consistently improve provider performance with respect to the ordering and provision of low-value care – especially if changing practice patterns could threaten significant revenue streams. But it is reasonable to believe that provider feedback can be a valuable component of broader interventions.

In addition to aligning profiling with other provider-facing work, potential enablers of success include:

- *Ensuring timeliness.* Provider-specific performance data that is six months old is less likely to impact performance than data with only a one-month lag. This may require relying on data other than fully adjudicated claims.
- *Providing feedback that is all-payer (or nearly all-payer).* Especially in markets where a given payer may command only a small share of a clinician or provider group's panel, all-payer data can provide the statistical power needed to detect and present variations that are meaningful and trustworthy. Dedicated registries (as with the Blue Cross Blue Shield of Michigan intervention discussed above) or all-payer claims databases (see Section 3-D) may be valuable to this end.
- *Empowering clinical champions within provider organizations to act on the information provided.* This may mean ensuring champions have the resources needed to ensure that information is conveyed with urgency amid the many initiatives that compete for clinician attention.

Sidebar: Clinical Decision Support

Some health care delivery systems have made noteworthy strides in reducing low-value care, even without the direct support of payers and purchasers. Cedars-Sinai in California and Christiana Care in Delaware are among the many leaders in this area.

Cedars-Sinai^{124–126}

Cedars-Sinai began addressing overuse through real-time clinical decision support in 2013. As of March 2017, the organization had integrated alerts for about 180 *Choosing Wisely*-identified recommendations into the health system's electronic health record (Epic). An alert is now displayed when a clinician enters an order for any of these commonly overused services. Targeted services include:

- Ordering a screening Vitamin D test;
- Using more red blood cell units than necessary during transfusions;

- Prescribing an antipsychotic to a patient with dementia, a benzodiazepine to a patient age 65 or older, or an opioid or butalbital to a patient with a diagnosis of migraine; and
- Ordering imaging for low-back pain or uncomplicated headache.

A clinician may proceed with ordering the service, test, or medication in question, but must supply a patient-specific justification to override the alert.

Care is taken to ensure these alerts are as nuanced as possible given the structured data available in the electronic health record; leaders place an emphasis on keeping “false positives” and accompanying alert fatigue to a minimum. Hundreds of alerts are displayed per day system-wide. Clinicians accept between 8 percent and 27 percent of recommendations, however the impact of the decision support program is thought to be larger given increasing provider awareness around best practices. In addition to displaying point-of-care alerts, reports are issued every month to physicians on adherence with *Choosing Wisely* recommendations.

The results have been impressive, with reductions in inappropriate use of greater than 30 percent for certain targeted services. Altogether, clinical decision support for the *Choosing Wisely* recommendations is reported to have saved more than \$6 million per year. Some of this savings accrues to the health system (especially the targeted inpatient services); some accrues to payers and purchasers. Cedars-Sinai’s embrace of risk-based contracting is viewed as a critical enabler of this effort.

Christiana Care^{127–129}

Cardiac telemetry allows continuous monitoring of a patient’s heart rhythm, heart rate, and blood oxygen levels. When indicated, telemetry is a valuable tool for the care of inpatients. When used outside of intensive care units (ICU), however, telemetry may provide little value per beep; cardiac irregularities detected in these non-ICU inpatient settings are rarely clinically meaningful. In addition, a substantial amount of nursing time is spent on telemetry-related tasks. Christiana Care calculated that telemetry-related nursing effort and direct costs amounted to \$53 per patient per 24-hour monitoring period.

The American Heart Association (AHA) has released guidelines for appropriate use of telemetry, but these guidelines often go unfollowed. In 2013, Christiana Care incorporated the AHA guidelines in

their electronic ordering system by removing telemetry from three-quarters of existing order sets and defaulting to shorter durations for others. Providers were free to override defaults based on context-specific clinical judgement.

After implementation, hours of telemetry use per patient were cut by 47 percent. No increase in adverse events was observed, while the system achieved estimated savings of nearly \$5 million annually. Related efforts at Christiania Care are underway to decrease unnecessary use of high-cost imaging, ensure daily laboratory testing is used only when needed, and avoid unnecessary blood transfusions.

COVERAGE POLICIES AND PAYMENT RATES

Within the confines of state and federal requirements, purchasers generally maintain the prerogative of establishing and enforcing policies governing the coverage of services and reimbursement amounts. There are many potential approaches under each of these umbrellas that can serve to reduce low-value care, above and beyond current efforts to date.

COVERAGE POLICIES

Health plans of all types generally only provide coverage for “medically necessary” services. Provider contracts and billing forms typically also require that claims only be submitted for medically necessary services. Yet there is often a substantial gap between the services that are, in fact, medically necessary and the services that are routinely paid for by third-party payers.

Payers can and do establish claims processing edits to reject claims for services that are almost certainly billed erroneously in light of available administrative data. For instance, many claims processing systems would automatically reject a claim for a cervical Papanicolaou exam supposedly administered to a male beneficiary. Claims processing edits also routinely reject claims for services that are not covered benefits (e.g., cosmetic surgeries) and procedure codes that are bundled with other procedures.

Yet many potential edits are not implemented. For example, Medicare continues to reimburse for prostate cancer screening for men of all ages – including those age 70 and older – notwithstanding the many guidelines advising against PSA screening in this population (see above). Medicare also reimburses for colorectal cancer screening after age 85, despite the recommendation for avoidance from the USPSTF.¹³⁰ A recent *Lancet* article called for payers to avoid paying for percutaneous vertebroplasty (a procedure in which cement is injected into the spine) under all or nearly all

circumstance given evidence showing the procedure is ineffective and risky.¹⁰⁵ Without taking into account health care costs, similar arguments could also be advanced against coverage of arthroscopic surgery for degenerative knee changes.^{131,132} Vitamin D screening might also be a worthy service for coverage restrictions through claims-based edits,¹⁰⁵ as could surgery for obstructive sleep apnea in the absence of previous experience with more conservative options.

Other approaches may be used to implement medical necessity restrictions as well. Alberta Health – the entity responsible for financing health care services for residents of Alberta, Canada – established a new system for ordering Vitamin D tests in April of 2015.¹³³ To curb overuse, physicians seeking to order Vitamin D testing were required to indicate which of five evidence-based criteria for testing applied to the request (metabolic bone disease, abnormal blood calcium level, malabsorption, liver disease, and/or chronic renal disease). Orders for tests not meeting criteria were simply not processed. The changes in service provision that followed were dramatic. Ferrari and Prosser (2016) found that Vitamin D testing decreased by 235,418 unique orders to just 20,609 over the nine months following implementation of the new restriction – a reduction of 92 percent. About \$3 million (USD) in low-value spending was averted in this province of 4.5 million residents. The relevant *Choosing Wisely* recommendation alone – issued in 2013 – was insufficient to curb overuse; payer restrictions were required.¹³⁴

The relevant *Choosing Wisely* recommendation alone was insufficient to curb overuse; payer restrictions were required.

Yet often, even when formal carrier policies may cast doubt on the medical necessity of a given procedure, the service may continue to be reimbursed in practice. In general, commercial purchasers are often reluctant to deny coverage for services that:

- Have historically been reimbursed by the carrier;
- Continue to be commonly performed by providers, evidence-based guidelines notwithstanding; and
- Continue to be reimbursed by Medicare fee-for-service.

While carriers were more comfortable denying coverage for questionable care during the heyday of the managed care revolution of the 1990s,¹³⁵ denying claims in these circumstances in more recent years is often viewed as unduly risky to the maintenance of good relations with customers, providers, and regulators. As one purchaser noted, “a simple plan design has allowed us to forge trust with our

members.” Establishing certain additional claims-based restrictions on service receipt may conflict with other important purchaser priorities.

The political risks notwithstanding, the ACA amended the Social Security Act to make plain that:

if the Secretary [of Health and Human Services] determines appropriate, the Secretary may . . . provide that no payment shall be made under this title [pertaining to the Medicare program] for a preventive service. . . that has not received a grade of A, B, C, or I [from the US Preventive Services] Task Force. (42 USC § 1395m(n))

To date, this authority has not been explicitly cited in Medicare coverage determinations.

An additional limitation pertains to the use of separate claims processing systems and/or carriers for adjudication of prescription drug benefits and medical benefits. Technical changes to allow implementation of certain reasonable claims-based edits – such as automatically rejecting claims for upper endoscopy for patients who have not trialed anti-reflux medication – may be cost prohibitive.

PAYMENT RATES

The fee schedules negotiated or set by payers typically have the effect of making some services more profitable (often more intensive procedural services) and other services less profitable (often cognitive services and less intensive procedural services). Payers can consider the risk of overuse across services in negotiating or setting allowed amounts.

For example, recognizing the profound national variation in use of cesarean section – use of cesarean section across hospitals varies by a factor 15 across hospitals for low-risk deliveries¹³⁶ – the Minnesota Department of Human Services established a blended rate for all Medicaid deliveries, assuming that a reduction in cesarean deliveries of five percent could be safely accomplished. Minnesota estimated savings of more than \$2 million through this equalization of facility fees for cesarean and vaginal deliveries.¹³⁷ Other states reduce fees for elective caesarean deliveries to the rate that paid for a vaginal delivery.¹³⁸ Such an approach recognizes that a large share of cesarean deliveries are medically necessary. Many additional uses of blended fees are possible as well.

PAYMENT MODELS

Apart from “how much,” the “how” of reimbursement varies considerably across payers’ negotiated arrangements with providers. It is tempting to believe that improved payment models will lead to dramatic reductions in low-value care. As discussed below, the evidence does not suggest that

alternative payment models are panaceas in this respect. Nevertheless, payment reform can be a valuable enabler of low-value care reduction.

The Health Care Learning and Action Network has mapped payment reform as ranging from fee-for-service with no link to quality/value (Category 1) to fee-for-service with bonuses/penalties for achievement on measures of quality and value (Category 2) to alternative payment models built on a fee-for-service chassis (Category 3) to population-based payment (Category 4).¹³⁹ While Category 3-4 payments are likely the models most conducive to reducing the provision of low-value care, there are opportunities to reduce the provision of low-value care under each model.⁸

PAY-FOR-PERFORMANCE (CATEGORY 2)

There is a wealth of US and international experience with pay-for-performance; evaluations of effectiveness are generally mixed.¹⁴⁰ Overwhelmingly, these initiatives have focused on under-provision of high-value care, not over-provision of low-value care. The Colla et al. review (2016) identified only one study of a purely pay-for-performance program intended to reduce low-value care, which reported on a successful hospital-led effort offering financial incentives to residents to avoid use of low-value laboratory testing.¹⁴¹

While formal evaluation is lacking, some pay-for-performance programs have incorporated measures of low-value care. For example, the 2016 physician quality reporting system (PQRS) included National Quality Forum-endorsed measures related to avoidance of inappropriate antibiotic use, overuse of bone scan staging for low-risk prostate cancer patients, inappropriate cardiac stress testing, and overuse of advanced imaging services.¹⁴²

A June 2017 report from the Medicare Payment Advisory Commission (MedPAC) suggested that a new and improved Merit-based Incentive Payment System (MIPS, the successor to PQRS) for Medicare's professional providers might include a composite measure of low-value care.^{143(p167)} MedPAC proposed that a MIPS quality incentive pool be funded through a withhold of regular Part B fee-for-service revenue. The Commission further proposed that providers earn bonuses based on the rates with which their attributed beneficiaries receive commonly overused services, among other measures of performance.

⁸ The approaches discussed under "Coverage Policies and Payment Rates" above are relevant to Category 1.

EPISODE-BASED PAYMENT (CATEGORY 3)

The diagnosis-related group (DRG) prospective payment system – in use, with significant updates, by Medicare since 1983 – replaced a previous system of reimbursement under which hospitals were paid on the basis of cost.¹⁴⁴ Under the inpatient prospective payment system, most hospitals are paid a set fee for a given admission, usually on the basis of the most significant diagnosis during the inpatient admission and/or the use of certain high-cost procedures.¹⁴⁴ With exceptions, longer stays or use of more intensive services within the admission do not bring about greater reimbursement.

Implementation of the DRG system was associated with a decrease in patient days of 25 percent over the first two years of implementation.¹⁴⁴ While other types of care *not* bundled in the DRG PPS increased after implementation (e.g., skilled nursing days, rehabilitation admissions), it is commonly accepted that the DRG PPS brought about meaningful reductions in unnecessary care.¹⁴⁴

The DRG PPS for inpatient admissions included only facility reimbursements; professional providers continue to generally be paid on a FFS basis. In recent years, CMS has begun to bundle facility and professional payments for certain procedures, establishing a target for per-episode spending and reconciling spending regularly. According to a 2016 study by Dummit et al., participation in the CMS Bundled Payments for Care Improvement initiative resulted in a statistically significant reduction of \$1,166 for each lower extremity joint replacement relative to a matched comparison group.¹⁴⁵ This represented savings of about 4 percent (net of the savings achieved by the comparison group). No deterioration in quality was observed, strongly suggesting that providers were able to remove low-value care, especially in the form of unneeded post-acute care.¹⁴⁵

While Medicare and some commercial payers continue to innovate in this area, there remains considerable use of reimbursement methods that are fundamentally at odds with the elimination of low-value care. For example, continued use of per diem payment – common, according to a large-scale 2016 analysis from the New York State Health Foundation¹⁴⁶ – discourages hospitals from achieving efficiencies that could result in shorter stays.

ACCOUNTABLE CARE ORGANIZATIONS (ACOS, CATEGORY 3)

ACO-type arrangements typically allow for provider groups to share in savings when per member, per year (PMPY) spending falls below an agreed-upon benchmark (i.e., upside risk). In some ACO models, providers must repay a specified share of spending that is greater than the agreed-upon benchmark (i.e., downside risk). The benchmark, in turn, is typically based on historical performance. Typically, funds continue to flow through traditional fee-for-service reimbursement arrangements, with retrospective

reconciliation annually. The Blue Cross Blue Shield of Massachusetts AQC (see “Provision of Profiling Data” above) was an early example of an ACO model.

Schwartz et al. (2015) investigated use of 31 low-value services among ACOs participating in the Pioneer Demonstration, a Medicare initiative requiring participating ACOs to assume downside risk.⁶⁸ Relative to a control group, the researchers found modest statistically significant differential reductions in the number of low-value services rendered (decrease of 1.9 percent) as well as spending attributable to low-value services (decrease of 4.5 percent) in the first year of the program. This translated to a differential reduction in spending on low-value services per year of approximately \$460 per 100 attributed Medicare beneficiaries per year. ACOs with histories of delivering more low-value care compared to other local providers in their market were able to achieve considerably greater reductions than other ACOs. Cardiovascular testing and procedures accounted for a large share of the averted services.⁶⁸ Together, the Pioneer ACOs achieved modest but statistically significant savings in both year one^{147,148} and year two of the pilot.¹⁴⁸

Unlike the Pioneer ACOs, organizations participating in the Medicare Shared Savings Program (MSSP) were not required to assume downside risk. According to a 2016 study by McWilliams et al., MSSP ACOs led by primary care providers achieved statistically significant decreases in annual spending; MSSP ACOs integrated with hospitals did not.¹⁴⁹ In contrast to the Pioneer ACOs, ACOs participating in MSSP did not significantly reduce the provision of 31 low-value services in the first full year of the initiative.¹⁴⁹

ACO programs typically include quality performance standards as “gates”; provider performance on these measures controls the share of savings received or share of losses repaid. At present, CMS includes a variety of measures related to key processes, receipt of evidence-based screenings, patient experience, and intermediate clinical outcomes in ACO quality performance standards.¹⁵⁰ Even though ACOs already have an incentive to avert acute care utilization, another set of ACO quality measures pertain to avoidable utilization – serving to further emphasize areas of high-priority to CMS (e.g., unplanned admissions for attributed beneficiaries with diabetes). At present, however, only one ACO measure is specific to low-value care (use of imaging for low back pain).

Payers and purchasers should consider selectively including high-priority measures of low-value care as ACO quality measures – especially those services associated with patient harm (e.g., radiation exposure). Many already do. In the AQC, for instance, BCBSMA included HEDIS measures pertaining to antibiotic avoidance.¹⁵¹ New composite measures of low-value care have been proposed that might also be

employed to this end.^{152,153} Of course, the merit of maintaining alignment with other measurement efforts (which do not include these composites at present) should always be considered.

ACO and global payment arrangements have a key advantage over many of the other approaches discussed in this report. While coverage policies, utilization management, provision of profiling data, and adjustment of fee-for-service rates require the ability to identify and target particular services that are often low-value – therefore requiring reliance on administrative data – ACOs and global payments do not require that carriers have the ability to observe and specifically target low-value care. With suitable incentives, provider-driven effort to eliminate low-value care – including low-value care that is difficult to identify through administrative data – can be supported.

3-C. PATIENT-FACING INCENTIVES AND EDUCATION

VALUE-BASED INSURANCE DESIGN

Value-based insurance design (V-BID) entails aligning patients' out-of-pocket cost-sharing with the value of the underlying service – i.e., lowering cost-sharing for high-value services and/or increasing cost-sharing for low-value services. Such an approach encourages the use of high-value care while maintaining or strengthening incentives to avoid low-value spending.¹⁵⁴ V-BID incorporates clinical nuance, “recognizing that the clinical benefit of a specific service or therapy depends on who receives it, who provides it, and where and when in the course of disease the service or therapy is provided.”¹⁵⁵

A 2012 systematic review published in *Health Affairs* by Lee and colleagues identified thirteen studies of V-BID for drugs from the peer-reviewed literature, generally finding modest but meaningful improvements in medication adherence in association with reductions in cost-sharing. Most V-BID implementations were cost-neutral, or nearly so, from the purchaser perspective given the ability of evidence-based outpatient therapy to avert downstream utilization for certain conditions.¹⁵⁶ Since the release of the Lee (2012) review, at least four additional peer-reviewed studies have reported improvements associated with V-BID, including reductions in disparities across race/ethnicity in cardiovascular health,¹⁵⁷ reductions in acute care spending for patients with hypertension,¹⁵⁸ increases in adherence across a range of cost-effective medications,^{159,160} improvements in receipt of evidence-based preventive care,¹⁶⁰ and decreases in emergency department utilization.¹⁶⁰

EXAMPLES OF V-BID FOR LOW-VALUE CARE

Most payers and purchasers implementing V-BID have limited their efforts to promoting access to high-value services.¹⁵⁶ The use of higher cost-sharing to reduce low-value service use has received far fewer

trials. The Oregon Public Employees Benefit Boards (PEBBs) are exceptional in this respect. Since 2010, the plans available to Oregon’s public employees have provided for additional cost-sharing tiers intended to encourage public employees to “think twice” before receiving certain commonly overused services.¹⁶¹ For example, full-time Oregon employees enrolled in the Providence Health Plan receiving in-network care would be subject to the following additional cost tiers:

- A copayment of \$100 plus coinsurance of 15 percent for the following services: MRI, CT, PET and single-photon emission computed tomography (SPECT) scans; sleep studies; spinal injections; upper endoscopy; bunionectomy; surgery for hammertoe and Morton’s neuroma; and knee viscosupplementation.¹⁶²
- A copayment of \$500 plus coinsurance of 15 percent for the following services: surgical procedures for hip or knee replacement or resurfacing, knee or shoulder arthroscopy, bariatric surgery, spine procedures, and sinus surgery.¹⁶³

Services related to cancer care are exempt from the added \$100 or \$500 copayment, as are services received in emergency settings.

Gruber et al. (2016) published an evaluation of the Oregon program. Overall, the researchers found a reduction in utilization of about 13 percent for services subject to these additional copayments over the 36-month period after V-BID implementation. Figure 8 shows changes in use by service relative to a control group. All of the reported decreases were statistically significant, with the exception of the decrease in use of endoscopy.

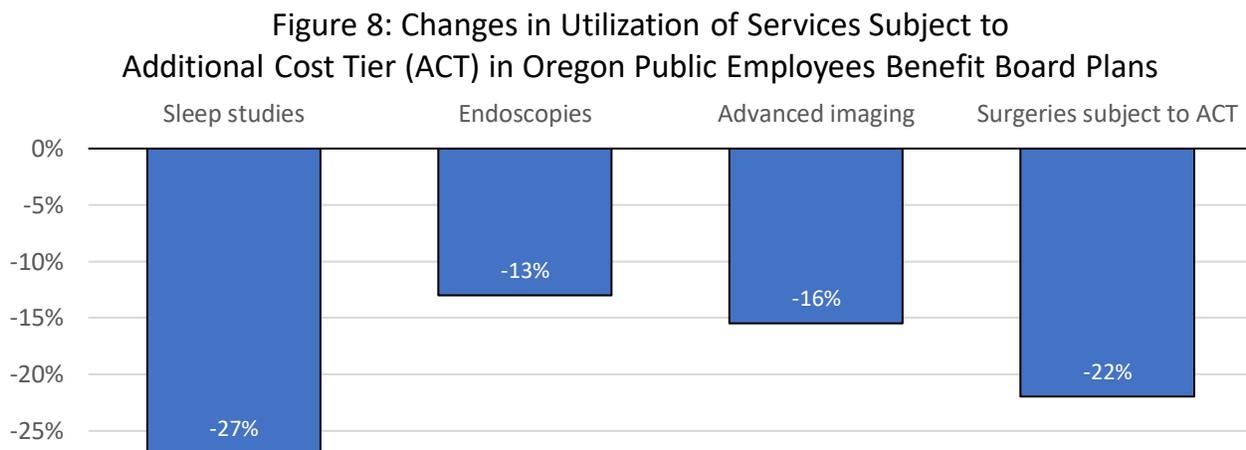


Figure derived from: Gruber J, Maclean JC, Wright BJ, Wilkinson ES, Volpp K. The Impact of Increased Cost-Sharing on Utilization of Low Value Services: Evidence from the State of Oregon. National Bureau of Economic Research; 2016.

Other efforts have been somewhat less nuanced, but still served to distinguish between services of different importance where this distinction had historically not been reflected in patient cost-sharing. In 2004, most employees of the Mayo Clinic saw their cost-sharing for specialty care office visits increase from \$0 to \$25 per visit.¹⁶⁴ Cost-sharing for primary care visits was set at \$0.¹⁶⁴ Coinsurance for most non-office visit procedures increased from 0 percent to 10 or 20 percent (depending on plan option selected).¹⁶⁴ Researchers found that beneficiaries experiencing benefit changes decreased use of specialty care by 0.7 visits per person during the year after the benefit change.¹⁶⁵ Use of primary care did not decrease. After four years, the number of specialist office visits remained lower than predicted given baseline trends. Testing, imaging, and outpatient procedures also declined compared to baseline trends.¹⁶⁵

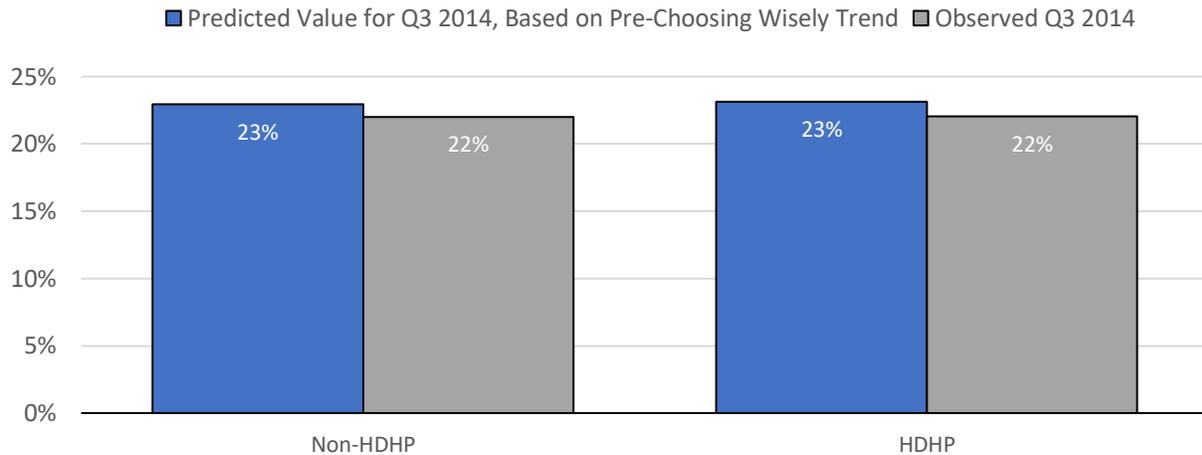
Connecticut's Health Enhancement Program for state employees paired reductions in cost-sharing for certain high-value services and chronic disease management medications with a new surcharge on emergency department (ED) visits when a reasonable alternative exists. (ED visits resulting in an inpatient admission were excluded.) Hirth et al. (2016) found that the likelihood of an ED visit decreased by 0.7 percentage points two years after program implementation, even as the likelihood of an ED visit increased by 0.4 percent in a comparison group (difference-in-differences of one percentage point).¹⁶⁰ This represented a differential reduction of 25 visits per 1,000 enrollees per year in year two. Both results were statistically significant. A new contract negotiated by the State of Connecticut with state employees will build on this work, pairing a higher ED surcharge and higher cost-sharing for some more expensive in-network providers with lower cost-sharing for more preferred in-network providers (see discussion under "Network Design" below).¹⁶⁶

ONE-SIZE-FITS-ALL INCREASES IN COST-SHARING AND LOW-VALUE SERVICE USE

Evidence does not support the notion that patients in "one-size-fits-all" plans with high deductibles will specifically forgo *low-value* care rather than *all* care.⁶ The *Choosing Wisely* campaign does not appear to have changed this tendency. The study by Hong and colleagues (2017) discussed above (see Section 3-A) examined changes in use of low-value imaging for back pain by plan type in conjunction with the *Choosing Wisely* campaign.¹¹⁶ As shown in Figure 9, patients enrolled in high-deductible plans were no more likely to reduce use of low-value imaging than were patients enrolled in plans with lower

deductibles.¹¹⁶ High deductibles and broadly targeted education are inadequate to bring about smarter shopping.

Figure 9: Receipt of Low-Value Imaging for Low Back Pain in Conjunction with *Choosing Wisely* Campaign Recommendations



Data derived from: Hong AS, Ross-Degnan D, Zhang F, Wharam JF. Small Decline in Low-Value Back Imaging Associated with the “Choosing Wisely” Campaign, 2012–14. *Health Aff.* 2017;36(4):671-679.

IMPLEMENTING V-BID FOR LOW-VALUE CARE: CHALLENGES

V-BID to reduce use of low-value care is commonly perceived as politically difficult and potentially operationally challenging.¹⁶⁷ Even if there is a will to promote plan designs with disincentives for low-value care, lack of consensus on services that should be targeted is commonly cited as a barrier. A June 2017 report from The Urban Institute on benefit designs in commercial coverage reports a key stakeholder stating:

No one has ever come up with a list of . . .the low-value things that we’re going to charge more for. . .The people who get and provide those services think they’re high-value.¹⁶⁸

Indeed, Oregon’s use of V-BID to slow use of knee surgeries drew a critical research article funded by the American Academy of Orthopaedic Surgeons arguing that the policy imposed undue societal costs.¹⁶⁹ Beyond public perceptions, stakeholders interviewed for the Urban report also emphasized the need for, “expertise and resources to conduct the kind of medical evidence review needed to make value judgments about which services should be subjected to higher cost-sharing.”¹⁶⁸ The *Choosing Wisely* recommendations themselves – designed to spark conversations, not serve as a roadmap for insurance redesign – are seen as insufficient.

In addition to a lack of consensus on services to be targeted, Neumann and colleagues (2010) describe several additional challenges specific to V-BID for low-value services.¹⁷⁰ As with payment coverage policies (see Section 3-B, “Coverage Policies and Payment Rates”), the information needed to ascertain appropriateness is often unavailable in administrative data. Even when appropriateness can be deduced through some combination of current and historical procedure codes, diagnosis codes, and enrollment data, payers should beware of changes in coding practices that could complicate determinations.¹⁷⁰

Manual review of clinical information to determine appropriate cost-sharing might be reasonable for specific expensive services that may be overused. For example, suppose a patient wishes to receive proton beam therapy for a malignancy when evidence is clear that intensity-modulated radiotherapy would be equally effective. In such a scenario, the patient might be required to pay the difference in price out-of-pocket.¹⁷¹ A judgement regarding appropriate cost-sharing might be incorporated within existing prior authorization processes.

Work in other contexts suggests that manual review to arrive at patient-specific judgements of clinical value may be worthwhile outside of binary (i.e., covered or not covered) prior authorization determinations: a pilot underway by the carrier Priority Health and the pharmaceutical manufacturer Genentech relies on the use of rich clinical data to ascertain the patient-specific value of an oncology agent (bevacizumab, Avastin) in patients with non-small-cell lung cancer.¹⁷² This information is used for purposes of arriving at a mutually acceptable outcomes-based price.¹⁷² However, the administrative burden of any similar process for determining cost-share might be greater given the need for contemporaneous (rather than retrospective) determinations. Appeals might be frequent and burdensome.

Fundamental differences in beliefs around what is fair may be another challenge to use of V-BID for low-value care. Some have argued that it is simply wrong to charge patients extra for receiving low-value care that their provider has ordered.¹⁷³ After all, patients do not order inappropriate MRIs, but physicians do. On the other hand, constraints faced by many purchasers may ultimately dictate a need for increased patient financial contributions in one form or another. V-BID for low-value services may be less bad than simply increasing required premium contributions or bluntly raising deductibles on all services. As Fendrick, Smith, and Chernew (2010) write: “naturally, no value-based insurance design program will be perfect. However, the question is not whether the system is perfect, but whether it is better than the alternative, which is typically high cost sharing for all services.”¹⁶⁷

Using V-BID for low-value care means navigating a range of challenges, many of which do not apply to V-BID for high-value care (e.g., reduced cost-sharing for high-value screenings, chronic disease management medications, etc.). One exception is the horizon over which benefits accrue. V-BID for high-value care often requires two or three years to show cost avoidance. The gains from improved health and averted downstream ED visits and hospitalizations do not accrue immediately, and may therefore benefit other employers given turnover in the workforce. Savings from V-BID for low-value care, on the other hand, can be immediate and substantial.

Savings from V-BID for low-value care can be immediate and substantial.

IMPLEMENTING V-BID FOR LOW-VALUE CARE: ENABLERS OF SUCCESS

We offer several recommendations for payers, purchasers, and carriers implementing V-BID for low-value care.

- *Pair new disincentives with new “sweeteners.”* For example, in conjunction with establishing the additional cost tiers, the Oregon PEBBs added improved coverage for weight loss services.¹⁶¹ The PEBBs also decreased cost-sharing for certain high-value chronic disease management medications.¹⁶¹ For Connecticut state employees, reduced cost-sharing for high-value chronic disease management medications was coupled with higher cost-sharing for ED visits.¹⁷⁴
- *Consider use of “frozen carrots.”* Provide for more favorable coverage of high-value services so long as members adhere to recommendations for receipt of evidence-based services. Failure to maintain adherence might lead to enrollment in a plan with less favorable coverage. The Health Enhancement Program for Connecticut state employees included expectations to receive certain evidence-based preventive services. Employees not receiving these recommended services faced enrollment in an alternate plan with a \$100 per month surcharge, a \$350 per person deductible, and higher cost-sharing for certain chronic disease management medications and services.¹⁷⁴
- *Earn the buy-in of employees for benefit design changes.* This might include co-designing benefit designs with employees, hosting focus groups and listening sessions, distributing electronic and print literature, and being as responsive as possible to inquiries from employees and their families. Drawing on the trustworthiness of sources identifying low-value care, such as Consumer Reports and the professional societies participating in *Choosing Wisely*, may also be helpful.

- *Avoid or postpone efforts to address low-value care in especially sensitive areas, such as oncology.* The Oregon Public Employees experience suggests the merit of such an approach.¹⁶¹ Similarly, plan sponsors might seek to avoid clinical areas where guidelines and best practices are changing rapidly.
- *Allow for “escape clauses.”* Escape clauses can provide for standard cost-sharing when a commonly overused service is clearly of high-value in a particular instance. For example, Medicare Part D plans maintain exceptions processes through which beneficiaries may request more generous coverage for a particular medication given adverse effects with more preferred agents, contraindications, or other pertinent patient-specific circumstances.¹⁷⁵
- *Ensure the accessibility of all new resources.* Health literacy varies greatly, as does familiarity with medical and insurance terminology (“health benefits literacy”). In addition, the notion of that “more is not necessarily better” may challenge existing assumptions. All this suggests the importance of carefully developing and testing all materials prior to dissemination. This recommendation – which applies beyond V-BID – is critical to ensure members are not surprised at the point of care.
- *Align provider-facing performance measures (see Section 3-B, “Payment Models”) with new member-facing financial incentives.*¹⁷⁶ Provider-facing communication might also strive to increase awareness of member benefit designs. In an ideal future state, information on patient benefit design would be readily accessible to providers through the EHR.

Align provider-facing performance measures with new member-facing financial incentives to discourage low-value care.

UTILIZATION MANAGEMENT

Prior authorization programs require patients or providers to submit information to an insurance carrier (or pharmacy benefit manager, PBM) justifying the need for a particular medical service (or medication). Prior authorization programs, in turn, typically evaluate requests and relevant medical records in light of established guidelines for appropriateness. Approval may hinge on patient- and disease-specific characteristics, such as severity of the patient’s condition and previous treatments tried. The patient or

the provider – if balance billing is prohibited by the terms of the in-network provider’s contract with the carrier – may be liable for the cost of the service if care is rendered without approval.

Historically, Medicare fee-for-service has not required prior authorization, but the vast share of commercial plans use prior authorization for at least some services and/or medications. The following are common targets for prior authorization programs:

- Non-emergency use of advanced imaging, including magnetic resonance imaging (MRI), computerized tomography (CT) scans, and positron emission tomography (PET) scans;
- Physical, speech, and occupational therapy;
- Other musculoskeletal services, including spinal, hip, and knee surgeries;
- Radiation treatment for various cancers;
- Cardiac care, including cardiac catheterization and percutaneous coronary interventions (outside emergency situations);
- Certain expensive laboratory testing, including genetic testing;
- Organ transplants;
- Post-acute care;
- Genetic testing; and
- Specialty medications.^{177,178}

For specialty medications, 68 percent of large firms offering coverage for specialty medications used step therapy requirements in 2016 to ensure first-line therapies are trialed before patients receive more expensive treatments (i.e., “fail-first”).² Prior authorization is also especially common for specialty medications. In 2016, 82 percent of these firms required prior authorization for at least some of these drugs.² As of 2009, about half of commercially insured individuals were thought to be subject to prior authorization requirements for advanced imaging;¹⁷⁹ the figure has almost certainly grown since.

EVIDENCE FOR THE EFFECTIVENESS OF PRIOR AUTHORIZATION

Prior authorization policies can avert low-value utilization through several mechanisms. In addition to outright denials, policies can serve to educate clinicians on appropriate use for future patients and deter

requests for inappropriate services (the so-called “sentinel effect”). The administrative burden of requesting approval may also lead to different ordering decisions.

Given the prevalence of use, there is surprisingly little rigorous peer-reviewed evidence on the effectiveness of prior authorization.¹¹⁷ One exception is a peer-reviewed study from the UK showing a rejection rate of 26 percent of requests for antineutrophil cytoplasmic antibody tests.¹⁸⁰ A second peer-reviewed study lacking comparison groups reported year-over-year decreases of 8 to 22 percent following implementation of new PA requirements for various types of advanced imaging.¹⁸¹ The impact on trend after the first year was somewhat mixed.¹⁸¹

A 2008 Government Accountability Office (GAO) report used key informant interviews to examine the practices of commercial health plans around prior authorization for advanced imaging.¹⁸² The GAO noted:

Plan officials reported significant decreases in utilization after implementing a prior authorization program. For example, several of the plan officials we interviewed reported that annual growth rates were reduced to less than 5 percent after prior authorization; these annual growth rates had ranged for these plans from 10 percent to more than 20 percent before prior authorization programs were implemented. The biggest utilization decreases occurred immediately after implementation. One plan’s medical director said that prior authorization was the plan’s most effective utilization control measure, because it requires physicians to attest to the value of ordering a particular service based on clinical need.^{182(p29)}

Also on the basis of observational evidence without a comparison group, Lee and Levy (2012) studied the sharp slow-down in use of advanced imaging beginning in 2006.¹⁸³ Whereas the previous decade had witnessed growth in use of advanced imaging of greater than 6 percent per year for Medicare beneficiaries, growth in use of advanced imaging averaged just 1-3 percent per year from 2006-2009. Lee and Levy argue that commercial payers’ utilization management efforts “spilled over” in Medicare, and helped achieve the noteworthy reduction. However, Lee and Levy are not able to isolate the impact of prior authorization from concurrent changes in patient cost-sharing, Medicare reimbursement policy, and public perceptions around radiation.

Prior authorization has played an important role in bringing growth in use of advanced imaging to more sustainable levels.

In sum – and notwithstanding the limitations of the published research – it is reasonable to conclude that prior authorization has played an important role in bringing growth in use of advanced imaging to more sustainable levels. Effectiveness in other clinical areas has received less attention from third-party evaluators.

Sidebar: New Medicare Requirements for Consultation of Appropriate Use Criteria Before Ordering of Advanced Imaging Services

The Protecting Access to Medicare Act of 2014 – the so-called “doc fix” of 2014 – created a complex new program to promote consultation of appropriate use criteria (AUC) before Medicare Part B beneficiaries receive an MRI, CT, positron emission tomography (PET), or nuclear medicine study (42 USC § 1834(q)). AUC are scenario-specific guidelines that account for a particular patient’s presenting symptoms. The initial priority areas for required AUC consultation are:

- Coronary artery disease (suspected or diagnosed);
- Suspected pulmonary embolism;
- Headache (traumatic and non-traumatic);
- Hip pain;
- Low back pain;
- Shoulder pain (to include suspected rotator cuff injury);
- Cancer of the lung (primary or metastatic, suspected or diagnosed); and
- Cervical or neck pain. (42 CFR § 414.94)

CMS intends for *ordering* clinicians to interact with AUC specific to these conditions through an interactive electronic tool, ideally integrated within the EHR of the provider. As defined through rulemaking, many tools – referred to as “qualified clinical decision support mechanisms” – will be acceptable.¹⁸⁴

As a condition of payment, Part B providers *furnishing* the targeted imaging services must report whether or not the *ordering* provider consulted with evidence-based appropriate use criteria through a qualified clinical decision support mechanism. *Furnishing* providers will be able to indicate if the *ordering* provider judged that AUC were not applicable to the patient’s condition. In time – and in breaking with long-standing precedent in Medicare fee-for-service – the statute provides for a prior authorization requirement for outlier *ordering* providers with low adherence to AUC.¹⁸⁴

The intended start day of the program has been delayed. CMS now proposes to begin requiring reporting of AUC consultation on January 1, 2019. It is not clear when requirements for outlier ordering professionals to obtain prior authorization will take effect.¹⁸⁴

DISADVANTAGES OF PRIOR AUTHORIZATION

Prior authorization has many disadvantages. First, prior authorization programs are administratively burdensome for practices – in the words of the American Medical Association, “The inefficiency and lack of transparency associated with prior authorization cost physician practices time and money.”¹⁸⁵

Multiple studies indicate that the typical physician practicing in an ambulatory clinic spends more time completing desk work – authorizing medication refills, reviewing test results, communicating with staff, and completing dozens of other types of administrative responsibilities – than physically seeing patients.^{186,187} Prior authorization forms must typically be submitted through carrier-specific web portals or by fax.

The paperwork burden is compounded by the fact that each carrier typically maintains its own policies and procedures for prior authorizations for covered services and medications; information requested and standards used may vary across plans for the same service. According to a recent AMA white paper,

There is considerable variation between utilization review entities’ prior authorization criteria and requirements and extensive use of proprietary forms. This lack of standardization is associated with significant administrative burdens for providers, who must identify and comply with each entity’s unique requirements. Furthermore, any clinically based utilization management criteria should be similar—if not identical—across utilization review entities.¹⁸⁸

Apart from paperwork, preliminary denials often lead to peer-to-peer consults, which the ordering provider may be unable to delegate to other staff. This sort of administrative burden has been linked to

stress, burnout, and attrition.¹⁸⁹ Researchers have estimated that all together, prior authorization and other administrative responsibilities cost between \$68,000-\$85,000 per physician per year.¹⁸⁹

Second, prior authorization programs may delay care and engender ill-will for perceived interference in the patient/provider relationship. For example, a recent study of records for 1,985 neurosurgery patients requiring prior authorization found that approval was delayed by eight days or more for four percent of patients with Medicare Advantage coverage, 20 percent of patients with Medicaid coverage, and 28 percent of patients with commercial coverage.¹⁹⁰ Overall, the vast share of requests were ultimately approved.

Third, prior authorization programs are inherently unsuited for restricting the delivery of low-value care that may be rendered in emergencies. “Real time” review is almost always impractical.

Fourth, prior authorization programs entail substantial administrative costs for carriers; specially trained nurses, pharmacists, and physicians are commonly contracted to provide review, and multiple levels of review/appeals may be required before a request is resolved. Especially for low-cost services, the plan-paid administrative expense of establishing and maintaining a program may easily outweigh any savings achieved. Accordingly, prior authorization programs generally limit programs to high-cost medications and services.

A promising approach is electronic prior authorization (ePA).¹⁹¹ Using structured data stored in electronic medical records, the aspiration is that medical data will seamlessly flow from any provider’s electronic health record to any carrier or pharmacy benefit manager (PBM) using agreed-upon transmission standards. The carrier/PBM can then assess whether or not the requested service or medication meets the payer’s criteria for coverage. Covermymeds – an organization dedicated to advancing ePA for drugs – states that vendors representing 73 percent of the EHR market have expressed commitment to ePA, as have 96 percent of PBMs, and nearly all large pharmacies.¹⁹¹ Many EHRs support ePA at present, and providers tend to report a considerable reduction in administrative burden in association with ePA use.¹⁹¹ While leaders in the field – including the AMA¹⁸⁸ – have called for electronic automation of prior authorization processes through commonly accepted electronic standards beyond specialty medications,^{188,192} progress in implementing ePA for medical services is more difficult to ascertain. Movement to align prior authorization clinical criteria across payers – another AMA priority – is also unclear.¹⁸⁸

The future role of prior authorization is not clear. On one hand, the transfer of financial risk to provider organizations suggests that perhaps the need for payer-directed restrictions will diminish over time as providers assume greater responsibility for ensuring the prudent use of resources. On the other hand, the pace of medical innovation does not appear to be slowing; “precision medicine” is on the rise.¹⁹³ Often expensive, precision therapies with highly specific, context-dependent indications may produce substantial gains in health, but only when used in narrow populations (e.g., patients with a certain biomarker). The potential for use of expensive therapies in patients who will not derive benefit is a natural opening for new prior authorization programs. Prior authorization vendors appear bullish about the relevance of their offerings.^{177,178}

Regardless, before considering implementation of any new prior authorization program – be it for precision therapies or more established services or medications – payers and carriers should be confident that prior authorization programs will not substitute administrative waste for low-value care.

Sidebar: Referral Management

Health care organizations with downside risk – including ACOs and hospitals subject to Medicare’s Hospital Readmissions Reduction Program (HRRP) – have both quality of care and financial incentives to ensure patients requiring care outside their organization receive treatment from high-value specialists and facilities (see Section 3-B, “Payment Models”). In many cases, these incentives for careful referring practices have translated into observable improvements in outcomes. For example:

- Song et al. (2014) found that Blue Cross Blue Shield of Massachusetts AQC groups achieved about 40 percent of procedure-related savings by steering patients to lower cost sites of care.¹⁵¹ About 75 percent of imaging-related savings was achieved by steerage to lower cost sites of service, as was 40 percent of savings for other types of tests.
- McHugh et al. (2017) studied hospitals facing incentives to avert readmissions under the HRRP.¹⁹⁴ The authors reported that hospitals that intentionally developed preferred networks for skilled nursing discharges (SNFs) achieved a 4.5 percentage point greater reduction in readmission rates for patients requiring SNF care relative to hospitals that did not pursue this strategy.

In assembling preferred provider lists for purposes of referral, referring providers and provider organizations commonly consider the extent to which potentially recommended providers:

- “Close the loop”, and ensure timely clinical information is shared with the referring provider;
- Are able and willing to collaborate in clinical management with the referring provider;
- Provide timely services to referred patients;
- Deliver evidence-based services (to the extent this is observable); and/or
- Can help at-risk providers achieve near-term savings through lower unit prices (e.g., the AQC groups) or averted near-term downstream care (e.g., preferred SNFs for HRRP-eligible hospitals).^{194,195}

Referring providers should be encouraged to give strong consideration to the tendency of potentially recommended providers to avoid delivery of low-value care. An ACO should not prefer a provider with high rates of delivery of inappropriate care – which may lead to cascading ills beyond a 30-day horizon – even if associated per-episode or per-unit spending is low.

Carriers can support optimal provider-led referral management by supplying timely, relevant, and thorough data to at-risk providers. In addition to providing measures of unit cost and high-value care delivery, carriers might provide information on low-value care avoidance to inform the efforts of at-risk providers in this area. Consideration might be given to the identification, validation, and use of composite and/or indicator measures that are associated with the tendency of providers to deliver greater amounts of low-value care – including hard-to-measure low-value care.

NETWORK DESIGN

Historically, most Americans have enrolled in health plans with broad networks offering the opportunity to receive in-network coverage from a wide choice of providers. This has evolved recent years. In 2016, 18 percent of firms with 5,000 or more employees offered a narrow network plan restricting in-network access to a set of providers that is smaller than customary.² Among these large firms, 38 percent offered a plan with a tiered provider network, whereby members could enjoy lower cost-sharing when receiving care from a preferred subset of in-network providers.² In the individual market, a report from the McKinsey Center for US Health System Reform found that 38 percent of silver exchange-sold plans used narrow networks in 2016.¹⁹⁶ Five percent were reported to use tiered networks.¹⁹⁶ Insurers price narrow network products at a substantial discount relative to plans with broad networks. McKinsey reported that silver exchange-sold plans with broad networks are typically 22 percent more expensive than narrow network plans.¹⁹⁶

Tiering among in-network providers is another option to steer volume to more preferred providers. Building on the success of its V-BID program for pharmaceuticals, the State of Connecticut employee health plan will tier providers of outpatient laboratories and diagnostic imaging as follows:

- Out-of-network: 40 percent coinsurance (unless the medically necessary service cannot be procured from an in-network facility);
- In-network, non-preferred: 20 percent coinsurance (to include providers imposing facility fees); and
- In-network, preferred: full coverage.

In addition, primary care providers and specialists will be ranked based on cost and quality, with lower cost-sharing for providers designated as high-value. A “Smart Shopper” program will provide rebates for use of various preferred providers as well.[CT CITE] Tiering of in-network providers has produced promising results. A recent evaluation by Sinaiko et al. (2017) of a tiered product in Massachusetts found savings of about five percent per year associated with enrollment in the tiered product.¹⁹⁷

Wasteful services are wasteful, even if purchased at low unit prices.

Steerage-oriented strategies generally achieve savings by directing care to providers with lower unit prices. Measures of quality often figure in tiering decisions as well (as was the case in the Sinaiko study and as will be the case for State of Connecticut employees). In assessing quality, payers typically consider provider tendency to deliver *high-value* services. Tendency to avoid delivery of low-value services could and should be taken into consideration in network design as well. As shown in Figure 3, provider organizations vary considerably in the delivery of care that should not be purchased at any price. Wasteful services are wasteful, even if purchased at low unit prices.

The work of Covered California on appropriate use of caesarean sections is exemplary in this respect. In 2014, the use of cesarean section for low-risk deliveries in California hospitals ranged from a low of 12 percent at one hospital to a high of 42 percent at another.¹⁹⁸ California’s marketplace required that plans selling coverage through the exchange work to reduce use of caesarean sections to a rate no greater than the Health People 2020 target of 23.9 percent for low-risk deliveries.^{h,199} In addition to ensuring payments to physicians and hospitals do not favor caesarean sections over vaginal deliveries, the 2017 Covered California issuer contract anticipates use of selective contracting to drive

^h Nulliparous, term singleton, vertex (NPTSV) deliveries are used as a proxy for deliveries that are likely low-risk.

improvement.¹⁹⁹ The following language is included in the 2017 contract between each qualified health plan and Covered California:

Covered California expects Contractor [i.e., health plan] to only contract with hospitals that demonstrate they provide quality care and promote the safety of Enrollees. Beginning with the application for certification for 2019, as detailed in Article 1.02(3), Contractors must either exclude hospitals from networks serving Enrollees that are unable to achieve an NTSV C-section rate below 23.9 percent from Provider networks or to document each year in its application for certification the rationale for continued contracting with each hospital that has an NTSV C-Section rate above 23.9 percent and efforts the hospital is undertaking to improve its performance.^{199(p23)}

Beyond considering historic use of low-value services in tiering and network inclusion decisions, plans might also give consideration to:

- Providers' investment in shared decision-making processes. Ultimately, a service that a patient would refuse with the benefit of full information is a low-value service. A recent Cochrane review pooled the results from 17 high-quality studies of the use of decision aids for patients choosing between surgery and a more conservative option. Across 3,108 participants in the 17 studies, the likelihood of choosing surgery decreased by 16 percent in association with use of a decision aid.²⁰⁰
- Providers' investment in clinician-facing tools to avoid low-value care, such as clinical decision support (see sidebar).

A service that a patient would refuse with the benefit of full information is a low-value service.

3-D. ADDITIONAL STEPS

The strategies described above for reducing overuse are certainly not exhaustive. Additional options for employers and carriers to advance low-value care reduction include:

- *Supporting and engaging with regional coalitions addressing overuse.* For example, the Washington Health Alliance – an organization dedicated to “bring[ing] together those who give, get and pay for health care to create a high-quality, affordable system for the people of Washington State” – includes more than 25 purchasers and more than 15 carriers.²⁰¹ The

Alliance has convened a statewide *Choosing Wisely* Task Force intended to bring about more productive conversations around overuse among key stakeholders. Two reports on use of ten *Choosing Wisely* services across the state by region have been released; progress was observed on six of the ten measures according to the most recent report.^{48,202} Many other region-specific multi-stakeholder organizations have pursued related efforts.

- *Contribute to all-payer claims databases (APCDs).* According to the APCD Council, all-payer claims databases currently operate in more than a dozen states, with strong interest in many other states.²⁰³ Since the Supreme Court's 2016 decision in *Gobeille vs. Liberty Mutual*, states have been unable to compel self-insured groups to share their claims experience with statewide APCDs. Self-insured groups remain free to share their experience if they choose, however. Contributing claims to APCDs can help bring about better analysis of patterns of low-value care delivery. High-quality analyses, in turn, can guide regional priority-setting and draw attention to the most salient types of low-value care affecting local patients and employers.

The work of the multi-stakeholder Virginia Center for Health Innovation, which drew on Virginia's APCD to analyze delivery of low-value care, can be a model for this work.¹⁰⁹ Studying the 2013 and 2014 experience of more than five million Virginians covered by Medicare, Medicaid, and commercial carriers, the Center found that about 1.7 million low-value services were performed each year, at a total cost of \$641 million in 2013 and \$655 million in 2014.¹⁰⁹ About one in five Virginians receives a low-value service in a given year.¹⁰⁹ The office overseeing the state employees' health plan is seeking to act on this information when releasing a request for proposals (RFP) for carriers. (A subset of these findings will appear in a forthcoming *Health Affairs* article.⁷⁰)

4. DRIVING THE LOW-VALUE CARE REDUCTION AGENDA FORWARD

In the US and beyond, *Choosing Wisely* has changed the dialogue around value in health. With approximately 500 low-value services identified, a large range of providers, provider organizations, and academics have advanced this work. According to Morgan et al. (2016), 821 peer-reviewed articles on overuse were published in 2015 alone²⁰⁴ – more than the substantial body of work released in prior years (Figure 10).^{205,206} While public and private payers, purchasers, and carriers in the US are moving away from fee-for-service reimbursement, specifically eliminating low-value care has received comparatively little of their focused attention. But there is rich precedent for buyers acting to improve quality and value.

The first set of HEDIS measures – then the HMO Employer Data and Information Set – was released in 1991.²⁰⁷ Since that time, public and private purchasers alike have come to place considerable emphasis on what are now 81 aspects of quality assessed through the measure set.²⁰⁸ Purchasers inquire as to carrier performance on HEDIS measures in RFPs, plans publicly report on their performance, and some payers (most notably, Medicare Advantage through the Stars program) offer substantial financial incentives for achieving high or improved performance.

Figure 10: Unique English-Language, PubMed-Indexed Studies of Overuse

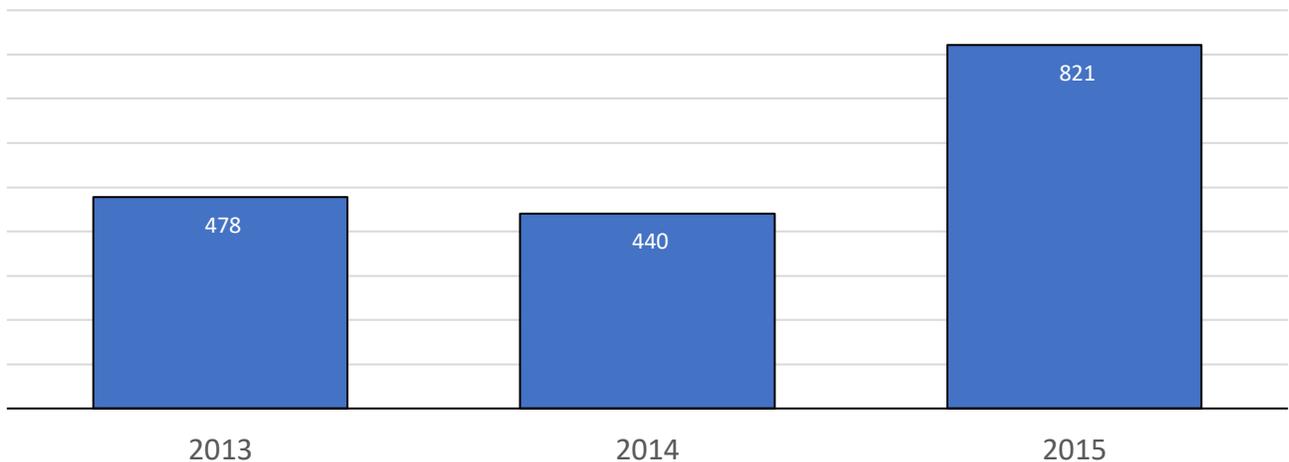


Figure derived from:

Morgan DJ, Wright SM, Dhruva S. Update on Medical Overuse. *JAMA Intern Med.* 2015;175(1):120-124.

Morgan DJ, Dhruva SS, Wright SM, [Korenstein D.](#) Update on Medical Practices That Should Be Questioned in 2015. *JAMA Intern Med.* 2015;175(12): 1960-1964

Morgan DJ, Dhruva SS, Wright SM, [Korenstein D.](#) 2016 Update on Medical Overuse: A Systematic Review. *JAMA Intern Med.* 2016;176(11):1687-1692.

In turn, carriers devote considerable resources to improving performance on key HEDIS measures, which are overwhelmingly comprised of measures related to *high-value* care. All this has been associated with laudable improvements on a range of process and outcome measures that matter.²⁰⁹ Even if half of all reported improvements were artifacts of more diligent coding, the gain in health would still be substantial.

Recognizing the influence of the buyer community, VBID Health’s Task Force on Low-Value Care, is seeking to more fully catalyze purchaser action to eliminate low-value care.

4-A. ASSEMBLING A LIST

Attendees of the April 2017 meeting generally agreed that a short list of commonly overused services most suitable for purchaser action on low-value care could be of considerable value in catalyzing and supporting focused action in this area. Meeting participants articulated several key criteria and guiding principles for identifying suitable services. The following types of services might be reasonably prioritized:

- *Services that produce harm.* Services that have received unfavorable ratings due to the harm they produce – for example, due to avoidable radiation exposure – may be prime candidates. Many such services have been identified by the USPSTF, the UK’s National Institute for Health and Care Excellence, Canada’s Agency for Drugs and Technologies in Health, and *Choosing Wisely*. Harmful care that is especially prominent in the national dialogue (e.g., overprescribing of opioids) might also be prioritized. Ultimately, harmful or no-value services may be more suitable for efforts than services that produce benefit but with poor cost-effectiveness. In the words of one meeting attendee, the “juice must be worth the squeeze.” Harmful care is especially likely to be worth the squeeze.
- *Services that are always of low-value for particular populations.* Services for which appropriateness is more difficult to discern through administrative data alone may be less attractive targets for action (see “Sidebar: Clinical Nuance and Claims-Based Estimation of Low-Value Care”). For example, avoidance of Vitamin D screening might be prioritized over appropriate use of percutaneous coronary interventions.
- *Services least likely to engender ill-will among interested parties.* Achieving meaningful transformation while avoiding all dissent is unrealistic. But some services are more likely to draw harsh attention from critical stakeholders than are others. As discussed above, for

example, the Oregon Public Employees Benefit Boards elected to exempt services related to cancer treatment from the additional cost tier given strong sentiments among employees (see Section 3-C, “Value-Based Insurance Design”). Clinical topics of consensus within the provider community are far more attractive than topics with more controversy.

- *Services associated with (a) high prevalence, (b) high unit cost, and/or (c) high total costs.* If improved care through low-value care avoidance is to relieve pressure on public and private payers – and thereby avoid more blunt approaches to cost containment – payers must realize savings. Low-cost services with high rates of inappropriate use and high-cost services with low rates of inappropriate use may both be attractive to this end. Low-cost services with low rates of inappropriate use are clearly poor candidates for action. Some purchasers noted that addressing low-value care consumed by the minority of insureds who account for the vast majority of spending is more appealing than addressing low-value care that impacts the majority of insureds who use relatively little medical care. Similar logic applies to low-value care that reduces employee productivity.
- *Services for which feasible, effective interventions to reduce overuse exist.* As described in Section 2, many viable approaches for low-value care reduction exist. Some types of context-specific services more naturally lend themselves to tried and tested strategies (e.g., avoiding use of low-value imaging in non-emergent settings) than do other services.

4-B. CONCLUDING THOUGHTS

Focused purchaser efforts are needed to reduce the delivery of services that are unsafe or unwise at any price. To this end, purchasers can pursue a range of provider-facing supports, policies, and payment models, and can develop well-aligned patient-facing interventions. Leading employers and carriers have piloted a range of promising – and in many cases, successful – efforts; there is a rich range of relevant experience that can inform future efforts. There is no “one size fits all” intervention for low-value care reduction; interventions must be customized to the particular type of low-value care targeted. Ultimately, the most effective initiatives in this area will likely marry

To reduce the provision of low-value care, purchasers can pursue a range of provider-facing supports, policies, and payment models, and can develop well-aligned patient-facing interventions.

interventions to change provider behavior with carefully designed incentives to affect consumers.

With leadership from the purchaser community, new action to eliminate low-value care will help protect patients from the physical, financial, and time-related harms of overuse; support allied efforts in the provider community; and free limited health care resources for more productive uses.

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Appendix: Meeting Participants

The following individuals participated in the April 2017 meeting. The views expressed in this report do not necessarily reflect those of any particular attendee or organization.

Brian Agnew, Pfizer

Todd Bisping, Caterpillar

Cybele Bjorklund, Sanofi

Beth Bortz, Virginia Center for Health Innovation

Jason Buxbaum, VBID Health

Marcy Carty, MD, Blue Cross Blue Shield of Massachusetts

Michael Chernew, PhD, VBID Health

Margaret Davis-Cerone, Pfizer

Robert Dressler, MD, Christiana Care Health System

David Edman, VBID Health

A. Mark Fendrick, MD, VBID Health

Tom Ferraro, MetLife

Richard Frank, MD, Anthem

Eric Gascho, National Health Council

Cliff Goodman, PhD, Lewin Group

Ben Hoffman, MD, GE Oil & Gas

Christine Juday, Sanofi

Silas Martin, Janssen

David Mirkin, MD, Milliman

Troy Ross, Mid-America Coalition on Health Care

John Rother, National Coalition on Health Care

Bruce Sherman, MD, Employers Health Coalition

Michael Sherman, MD, Harvard Pilgrim

Jason Spangler, MD, Amgen

Lauren Vela, Pacific Business Group on Health

Helene Weinraub, University of Pittsburgh Medical Center Health Plan

Mark Weinstein, Independent Colleges and Universities Benefits Association

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