

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

Draft Document

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39 *This report follows from a purchaser-focused meeting on low-value care convened by VBID Health in*
40 *April 2017. Meeting participants and sponsors are listed in Appendix A. To encourage free and frank*
41 *discussion, it was agreed that particular viewpoints would not be attributed to particular individuals/*
42 *organizations. The views expressed in this paper do not necessarily reflect those of any particular*
43 *attendee or organization.*

44 **1. INTRODUCTION**

45 Between 1999 and 2015, employer-paid premiums for employee-only commercial coverage increased
46 176 percent – far outpacing inflation of 44 percent.¹⁻³ Over this same period, state spending on
47 Medicaid programs increased by 164 percent, while Medicare spending grew 204 percent. Despite the
48 high and growing burden of health care expenditures, Americans do not achieve the value that might
49 reasonably be expected from a system spending nearly \$10,000 per person per year.⁴ While some of
50 this spending produces impressive returns in improved health, a substantial share – between 10 and 14
51 percent of all-payer health care spending, according to some experts⁵ – represents failures of care
52 delivery and overtreatment. This care results in harm, or at best, no benefit over less costly alternatives.
53 Despite decades of decrying the widely recognized waste in the system, insufficient progress has been
54 made in reducing this low-value spending.

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

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

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

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

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.

73 1-A. TYPES OF WASTE

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

76 CLINICAL WASTE – LOW-VALUE CARE/OVERUSE

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

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

86 Among these are the services designated by the U.S. Preventive Services Task Force (USPSTF) with Grade
87 D recommendations. Grade D recommendations discourage service provision when there is moderate
88 or high certainty that the service (a) has no net benefit or (b) has harms outweighing any benefit.
89 Examples includes screening for prostate cancer in men age 70 and older (latest draft
90 recommendation),⁹ screening for abdominal aortic aneurysm in women age 65-75,¹⁰ screening for
91 cervical cancer in women under age 21,¹⁰ and many others.¹⁰ The *Choosing Wisely* campaign has also
92 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.

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

96 CLINICAL WASTE – OPERATIONAL WASTE

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

103 ADMINISTRATIVE WASTE

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

112 Low-value care – the first of the three types of waste described here – is the emphasis of this report. The
113 following sections discuss the costs, identification, and measurement of low-value care, as well as
114 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} 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.¹⁷ 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,17}

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.¹⁸ 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).¹⁹ The American Society for Clinical Pathology has identified 15 commonly overused tests – including some high-cost services – in three different top-five lists.²⁰

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.^{13,21} Section 3-A discusses the limited peer-reviewed evidence on the impact of *Choosing Wisely* on the provision of low-value services.

115 1-B. SALIENCE AND SIGNIFICANCE OF LOW-VALUE CARE ACROSS
116 STAKEHOLDERS

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

119 PATIENTS

120 *EXPOSURE TO PHYSICAL HARM*

121 By definition, low-value medical services expose patients to risk of harm without commensurate benefit.
122 The burden of overused services can range from inconvenient to catastrophic; costs may vary
123 substantially as well. Four examples of commonly overused services include receipt of screening
124 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.”

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

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

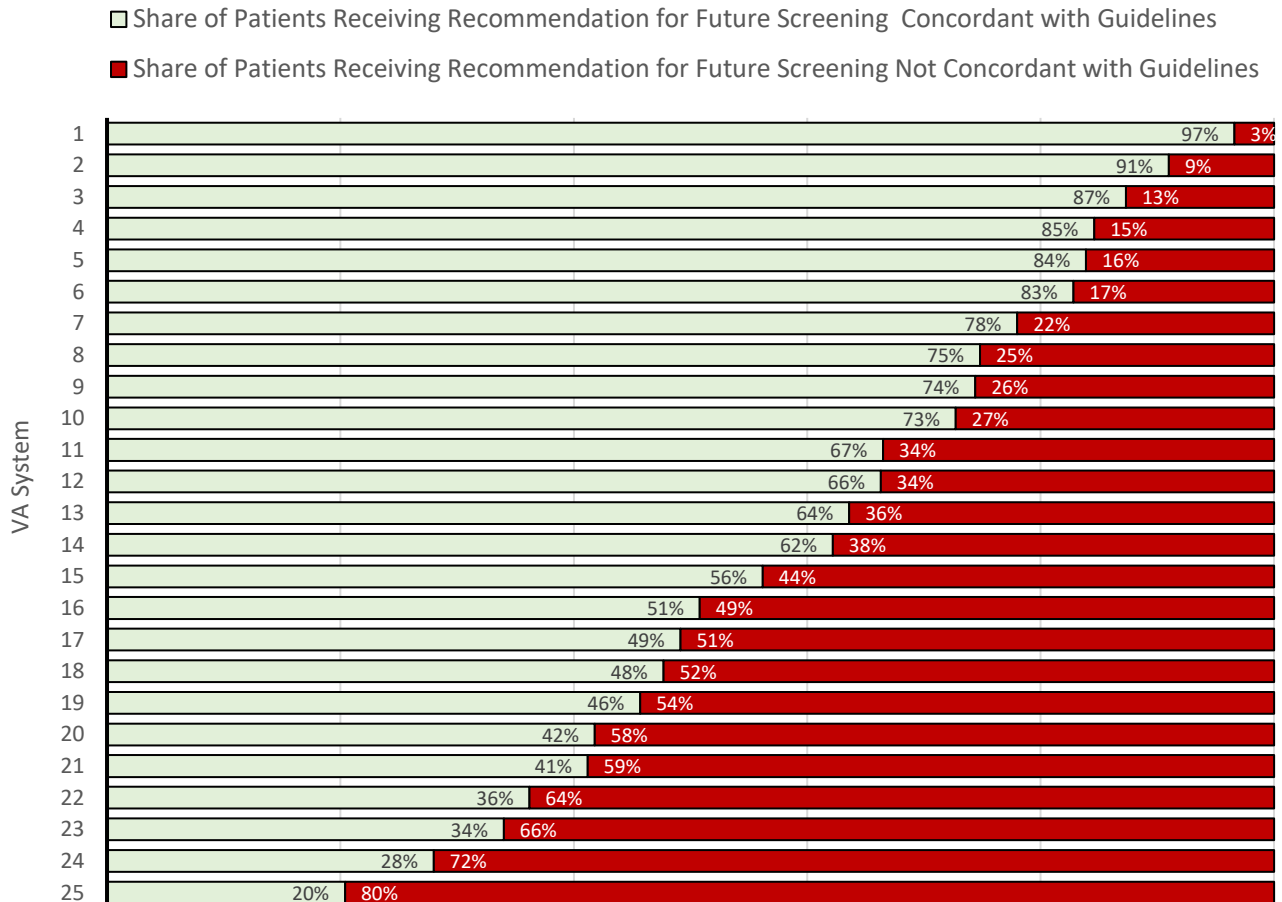


Figure derived from: Johnson MR, Grubber J, Grambow SC, et al. Physician Non-Adherence to Colonoscopy Interval Guidelines in the Veterans Affairs Healthcare System. *Gastroenterology*. 2015;149(4):938-951.

127 [Screening colonoscopy](#)
 128 Expert guidelines state that patients without a diagnosis of colorectal adenoma or cancer should receive
 129 a screening colonoscopy every ten years between the ages of 50 and 75 (or alternative evidence-based
 130 screening method).²² When used in alignment with evidence-based recommendations, the benefits of
 131 colorectal cancer screening with colonoscopy clearly outweigh the harms.²² However, receipt of
 132 colonoscopy more frequently than recommended exposes patients to the potential harms associated

133 with the procedure without commensurate benefits. Rare but serious harms include perforation,
134 laceration, or infection of the bowels as well as cardiac complications related to use of sedatives.²²

135 Given the discomfort of the procedure, overuse of screening colonoscopy is surprisingly common. A
136 2010 study by Schoen et al. found that more than a quarter of patients with unremarkable surveillance
137 colonoscopies received a follow-up screening colonoscopy within five years of the index screening;²³
138 other studies also report substantial overuse.²⁴

139 Patients frequently receive recommendations for follow-up colonoscopy at too short an interval even
140 when physicians do not have financial incentives to generate additional volume. Johnson and colleagues
141 (2015) examined physician recommendations for repeat colonoscopy in 25 Department of Veterans
142 Affairs (VA) health systems.²⁵ Examining the medical records of 1,455 veterans receiving a surveillance
143 colonoscopy in fiscal year 2008, the researchers found that recommendations for future screening were
144 aligned with evidence-based guidelines in less than two-thirds of cases. Of the 36 percent of veterans
145 receiving a recommendation *not* concordant with established guidelines for follow-up screening, 95
146 percent received guidance recommending too short a surveillance interval. As shown in Figure 1,
147 performance on delivering evidence-based recommendations varied dramatically across VA systems,
148 ranging from a high of 97 percent concordance in one system to a low of 20 percent concordance in
149 another.²⁵

150 Examination of actual patterns of care delivery in the VA – i.e., not just recommendations – has found
151 similarly varying performance across VA systems. Saini et al. (2016) identified 17 percent of screening
152 colonoscopies in a large sample of VA medical records as probably inappropriate. There was an eight-
153 fold difference between the highest performing and lowest performing facilities (interquartile range: 18
154 percent to 29 percent),²⁶ and facility tendency to overuse screening colonoscopy was relatively stable
155 over time. Conservatively supposing that 10 percent of the 300,000 colonoscopies performed by the VA
156 (or VA-contracted providers) each year are inappropriate screening colonoscopies,²⁷ and presuming that
157 the VA incurs 75 percent of typical Medicare-fee-for-service costs for each colonoscopy performed
158 (\$815),²⁸ the VA probably spends more than \$18 million annually on this single type of overuse.

159 [Diagnostic cardiac catheterization and coronary angiography](#)

160 Cardiac catheterization with angiography entails the insertion of a thin tube into the heart and injection
161 of contrast material to study the blood flow within the heart and the function of its components.²⁹ The
162 patient is typically under light anesthesia. Catheterization is often performed after myocardial infarction
163 (MI, or heart attack); the procedure is a necessary precursor to certain potentially time-sensitive

164 coronary interventions, such as insertion of a stent or balloon to open a blocked artery. Including both
 165 emergent and non-emergent services, about 1,030,000 diagnostic cardiac catheterizations took place in
 166 2010.³⁰

167 Major complications of catheterization with angiography are rare, but potentially severe (Table 1).^{31,32}
 168 The potential for adverse event suggests the importance of avoiding the procedure when a patient
 169 would be a poor candidate for coronary intervention irrespective of catheterization/angiography findings.
 170 Using chart reviews for patients undergoing catheterization at a major academic medical center
 171 following suspected MI, a 2016 study by Patel et al. found that 18 percent of all catheterization lab
 172 activations between 2005 and 2013 were inappropriate as judged against standardized criteria for
 173 appropriate use.³³ Previous research has found that between 14 percent and 36 percent of
 174 catheterization lab activations in similar emergency situations are inappropriate.³³ Examining diagnostic
 175 catheterization for suspected coronary artery disease in New York State, a 2014 study by Hannan et al.
 176 reported that 25 percent of patients undergoing catheterization were not appropriate candidates for
 177 the procedure given standard guidelines.³⁴

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

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

Adverse Event	Share of Patients Experiencing (Percent) ³⁷	Estimated Adverse Events Occurring Among Patients Not 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
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183 * Assumes 1,030,000 diagnostic cardiac catheterizations per year.³⁰

184 Diagnostic cardiac catheterization covered by Aetna, Humana, Kaiser Permanente, and United are
 185 reimbursed at an average of \$13,696.³⁵ Assuming 95% appropriateness and reimbursement at 80
 186 percent of average commercial rates, more than \$560 million is spent annually on unindicated cardiac
 187 catheterizations. This figure does not include the costs of treating any downstream complications
 188 associated with these unindicated procedures.

189 [Prostate specific antigen \(PSA\) testing](#)

190 Differing recommendations for prostate cancer screening have been put forward by the USPSTF,⁹ the
 191 American Cancer Society,³⁶ the American College of Physicians,³⁷ and the American Urological
 192 Association.³⁸ Crucially, however, no reputable organization or society recommends routine PSA testing
 193 among men age 75 or older given limited life expectancy, the indolent nature of most prostate cancers,
 194 and potential harm from follow-up testing, radiation, and surgery. For example, biopsies of the prostate
 195 to follow-up on concerning PSA results are in turn associated with in twice the risk of hospitalization in
 196 the subsequent 30 days.³⁹ Researchers have estimated that one additional hospitalization – often for
 197 serious infections – occurs for every 24 biopsies.³⁹

198 Contrary to evidence-based practice, more than 18 percent of male Medicare fee-for-service
 199 beneficiaries age 75 and older received a screening PSA test in 2014.⁴⁰ More than 32 percent of
 200 Medicare Advantage beneficiaries age 70 and older received a PSA test in 2015.⁴¹ While the risks of
 201 biopsy and other complications associated with follow-on testing might be reasonably assumed by
 202 younger men, experts generally agree that the iatrogenic harm associated with screening in this
 203 population – especially those 75 and older – dwarfs whatever benefits might be reasonably anticipated
 204 through early detection and treatment.⁹ While 59 percent of men age 80 and older are thought to have
 205 some type of prostate cancer, overwhelmingly, these men will die with – not of – this condition.⁴²

206 In 2014, Medicare spent \$79 million on PSA screening tests for fee-for-service beneficiaries age 75 and
 207 older. Previous work by Ma and colleagues (2014) suggest that these costs probably represent less than
 208 30 percent of all screening/diagnosis-related expenditures.⁴³ Extrapolating, it would be reasonable to
 209 assume that biopsy, pathology, and hospitalization costs account for another \$200 million in
 210 screening/diagnosis-related expenditures among Medicare fee-for-service beneficiaries.

211 It is difficult to estimate total costs of follow-up care after diagnosis of low-risk prostate cancer, but the
 212 aggregate expense is undoubtedly substantial given the high costs associated with a course of

213 treatment. According to research by Eldefrawy et al. (2013), typical per-patient five-year cumulative
214 costs for managing prostate cancer range from \$8,761 (active surveillance) to \$12,209 (radical
215 prostatectomy) to \$22,043 (external beam radiotherapy).⁴⁴

216 [Computed tomography \(CT\) in suspected pediatric appendicitis](#)

217 There are about 70,000 US cases of appendicitis in children annually.⁴⁵ According to a 2012 *Choosing*
218 *Wisely* recommendation from the American College of Radiology, CT in suspected pediatric appendicitis
219 should only be used after consideration of ultrasound.⁴⁶ If ultrasound results are inconclusive, then a CT
220 may be appropriately ordered.⁴⁶ According to a 2016 analysis by the Washington Health Alliance, 24
221 percent of children with appendicitis in Washington State had potentially unnecessary CT.⁴⁷ Separate
222 research has found that between 33 percent and 59 percent of children hospitalized for this condition
223 receive CT in any given year.⁴⁸ This percentage is almost certainly too high.

224 Limiting use of CT to cases where the service is truly needed is important for avoiding serious harm.
225 According to the National Cancer Institute, CT scans account for about half of the US population's
226 collective exposure to medical x-rays.⁴⁹ Children are more vulnerable to adverse effects from radiation,
227 in part because their longer life expectancy means a longer time horizon over which radiation exposure
228 can lead to cancer.⁴⁹ Extrapolating from the experience of the survivors of the atomic bombings of
229 Hiroshima and Nagasaki, experts believe the radiation of a typical CT is responsible for one extra case of
230 cancer for every 500 to 1,000 individuals scanned.⁴⁹

231 Abdominal ultrasounds covered by Aetna, Humana, Kaiser Permanente, and United are reimbursed at
232 an average of \$333,⁵⁰ while abdominal CTs are reimbursed at an average of \$751.⁵¹ (These figures are
233 likely conservative in pediatric appendicitis given the higher prices that children's hospitals often
234 command.⁵²) Conservatively estimating that 15 percent of the 70,000 children with appendicitis each
235 year receive an inappropriate CT rather than an ultrasound, this would suggest that about \$4.4 million is
236 spent annually on this potentially harmful and easily avoidable service.

237 [PATIENT TIME AND MONEY](#)

238 In an era of high consumer cost-sharing, overuse also means exposure to financial harm for patients.
239 With 40 percent of commercially insured Americans enrolled in a high-deductible health plan,⁵³ an
240 unindicated cardiac stress test – which may cost \$300 or more depending on site of service⁵⁴ – imposes
241 a meaningful financial burden on families. In some cases, exposure to “financial toxicity” may displace
242 funds that could be used on high-value health care. Chau et al. (2016) found that family-paid cost-
243 sharing accounted for about one-third of all spending on pediatric low-value services.⁵⁵ An analysis of

244 2014 data from the Minnesota All-Payer Claims Database examining use of unindicated imaging,
245 screening, and pre-operative testing services found that about 17 percent of low-value service costs
246 were borne by patients.⁵⁶

247 Apart from out-of-pocket burden, experts have also drawn attention to the bother and hardship
248 associated with seeking care that is unnecessary or harmful.⁵⁷ Drawing on nationally representative
249 survey data, Ray and colleagues (2015) estimated that every dollar spent on ambulatory medical visits
250 costs patients an additional \$0.15 in opportunity cost – i.e., the patients’ value of the time foregone.⁵⁸
251 By this measure, the average ambulatory visit and its travel time has \$43 in opportunity costs for the
252 patient. Of course, for receipt of high-value care, foregone time is almost certainly a worthwhile
253 investment. But the time-related burden of receiving medical care is especially pernicious when the
254 care itself is of little or zero value. This challenge may be particularly salient for individuals without paid
255 leave and those with caregiving responsibilities.

256 It is not uncommon for patients to experience substantial waits before receiving high-value care;
257 historically, many Americans have experienced multi-month delays to receive needed screening
258 colonoscopies, for instance.⁵⁹ Greater wait time before colonoscopy is significantly associated with
259 lower odds of receiving this service.⁶⁰ To the extent gastroenterologists are not available to offer high-
260 value colonoscopies due to time spent providing low-value endoscopies – a commonly overused
261 procedure, especially for patients with gastroesophageal reflux disease (GERD)⁶¹ – patients are harmed.

262 Similarly, patients are exposed to harm when their own receipt of unneeded services delays needed
263 care. Sheffield et al. (2013) found that about 3.8 percent of Medicare patients undergoing elective,
264 noncardiac, non-vascular surgery receive unindicated cardiac stress testing in the two months prior to
265 surgery.⁶² As the authors observe, “Unnecessary testing may lead to further testing and surgical delay
266 or cancellation.”⁶² It is inherently harmful to delay needed care so unneeded services can be performed.

267 *PREVALENCE OF RECEIPT*

268 Receipt of potentially harmful care is common. Table 2 presents findings from a scan of the academic
269 literature. Depending on the particular population, set of measures, and assumptions about the share
270 of instances in which a commonly overused service is, in fact, inappropriate, between 10 percent and 42
271 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) ⁵⁵	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) ⁶³	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) ⁶⁴	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 analysis⁶⁵ • Measure definitions draw on prior work by Schwartz et al. (2014, 2015)^{66,67}

(4) Reid et al. (2016) ⁶⁸	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) ⁶⁹	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

273 Some populations are at greater risk of receipt of overused service than are others. Examining receipt
 274 of 11 commonly over-used services among Medicare fee-for-service beneficiaries, Schpero and
 275 colleagues (2017) found that black and Hispanic beneficiaries had significantly higher odds of receipt of
 276 seven of the services studied – potentially exacerbating health disparities.⁷⁰ For instance, less than one
 277 in twenty white Medicare beneficiaries with dementia had a feeding tube inserted while more than 17
 278 percent of black Medicare beneficiaries received a feeding tube.⁷⁰ Figure 2 displays the full set of
 279 findings. Ultimately, the authors conclude that the failures of the US health systems to consistently
 280 provide high-value care to racial minorities at the same rates as whites⁷¹ – that is, the substantial
 281 amount of undertreatment – does not protect against receipt of low-value services. Lack of

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

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.

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

288 Medicaid coverage or being uninsured was generally *not* associated with a significantly greater
 289 likelihood of receiving a low-value service (relative to the commercially insured).⁷² Receiving narcotics
 290 for headache (uninsured and Medicaid) and receiving narcotics for back/neck pain (uninsured and
 291 Medicaid) were among the only exceptions. Receipt of care from a safety-net was not associated with
 292 greater receipt of low-value care. But perhaps most importantly, *all* patients in the study were at

293 substantial risk of receiving low-value care. More than 19 percent of all office visits examined resulted
 294 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)

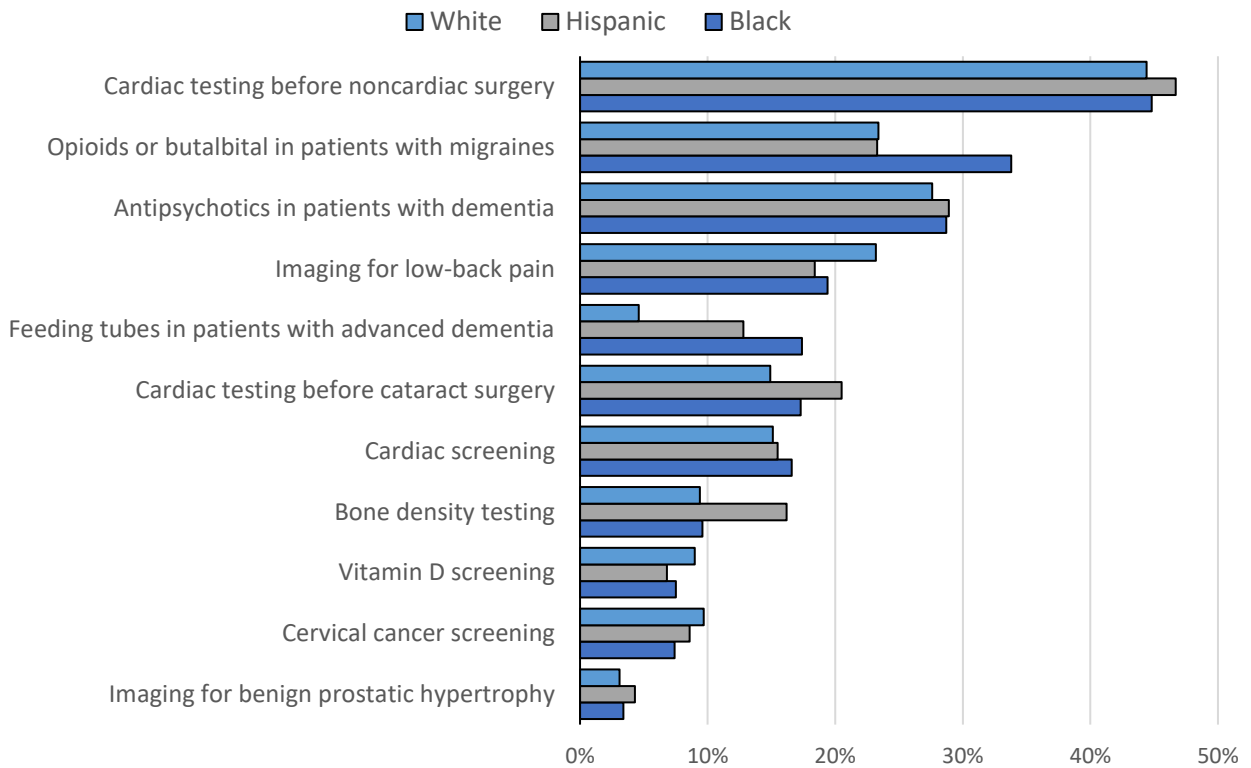


Figure derived from: Schpero WL, Morden NE, Sequist TD, Rosenthal MB, Gottlieb DJ, Colla CH. For Selected Services, Blacks and Hispanics More Likely to Receive Low-Value Care than Whites. *Health Aff.* 2017;36(6):1065-1069.

295 PAYERS, PURCHASERS, AND CARRIERS

296 Berwick and Hackbarth (2012) estimated that between \$158 billion and \$226 billion is spent on
 297 overtreatment every year (2011 dollars). Private payers and the commercially insured shoulder a
 298 majority of this amount (between \$91 and \$139 billion);⁷³ the balance is paid by public purchasers and
 299 beneficiaries of those programs (Figure 3). Funds spent on overuse are not available for more socially
 300 useful purposes.

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

305 Assumptions must be made regarding the proportion
 306 of services delivered that are, in fact, inappropriate.
 307 Much of this literature uses data for patients covered
 308 by Medicare fee-for-service.
 309 Table 3 displays findings from four recent studies that
 310 used claims data to measure the delivery of select
 311 low-value services. The data suggest that Medicare
 312 fee-for-service (FFS) alone spent \$2.4 and \$6.5 billion
 313 on 31 low-value services.⁶⁴ Supposing the all-payer
 314 hospital and professional experience of Virginia could
 315 be roughly generalized nationally, between \$30 billion
 316 to \$35 billion in all-payer US health care spending is
 317 attributable to just 44 low-value services.^{d,69}

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

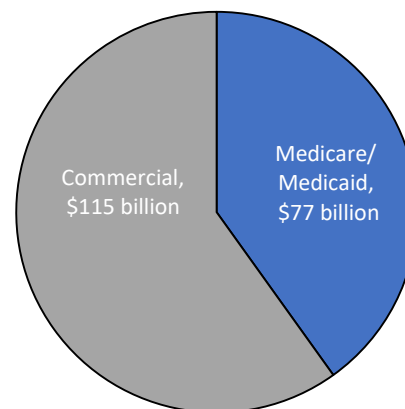


Figure derived from: Berwick DM, Hackbarth AD. Eliminating Waste in US Health Care. *JAMA*. 2012;307(14):1513.

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

Study	Population	Approach	Estimated Annual Spend	Comment
(1) Chua et al. (2016) ⁵⁵	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) ⁶⁹	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.⁷⁴ Lower estimate obtained by extrapolating from number of lives covered in the Virginia all-payer claims database to number of Americans insured in 2014.⁷⁵ See Table 2 and Mafi et al. (2017).⁶⁹

(3) MedPAC (2017) ⁶⁴	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 figures⁶⁵ • 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)^{66,67}
(4) Reid et al. (2016) ⁶⁸	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

319 These claims-based estimates are almost certainly conservative in nature for multiple reasons. First, the
 320 academic studies have reported results that draw on, at most, 44 measures of low-value care derived
 321 from claims.⁶⁹ Low-value care takes far more than 44 forms, and many types of low-value care are not
 322 suitable for claims-based analysis (e.g., needed data to ascertain appropriateness is not reported for
 323 billing purposes and/or data with which to calculate a “waste index” (see sidebar) are not available).
 324 Many high-cost, potentially overused services – such as unneeded inpatient stays or sub-specialist visits
 325 – have not been included in this literature.

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

338 not buy improved patient-reported outcomes: a recent study found that men receiving surgery or
339 radiotherapy for prostate cancer were about twice as likely as those receiving conservative care to
340 express treatment decision regret.⁷⁶

341 PROVIDERS

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

- 344 • *Money and finance:* These factors pertain to reimbursement systems, delivery system
345 organization, and provider- and patient-facing incentives. Also included in this category are the
346 supply of health care facilities, the mix of primary care providers/specialists in a given area,
347 physician ownership of ancillary services, and the extent to which delivery systems are
348 integrated versus fragmented.⁷⁷
- 349 • *Knowledge, bias, and uncertainty:* A wide range of biases – for example, “[m]ore is better, new is
350 better, more expensive is better, and technology is good” – influence patient and clinician
351 judgement, as do psychological shortcuts (i.e., heuristics).⁷⁷ Many have implications for the
352 delivery of low-value medical care. Common contributors to overuse among clinicians in this
353 category include placing greater weight on regret of omission versus regret of commission,
354 overweighting the probability of a recent adverse outcome repeating itself (i.e., “rear-view
355 mirror” bias), and innumeracy.⁷⁷
- 356 • *Relationships, power, and law:* Defensive medicine and fear of malpractice litigation fall into
357 this category (see “Sidebar: Tort Reform and Defensive Medicine”), as do state regulations
358 requiring coverage of certain technologies. More generally, the nature and quality of the
359 provider/patient relationship has implications for the extent to which clinician advice will be
360 viewed as trustworthy and the extent to which patients are able to engage in meaningful shared
361 decision making.⁷⁷ Patient care seeking decisions may also be heavily influenced by the
362 experiences of friends and families. The advertising campaigns of well-intentioned advocacy
363 groups – at times, campaigns that run contrary to the best available science⁷⁸ – can impact
364 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.”⁷⁹

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.⁷⁷ 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 2006.⁸⁰ 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.⁸¹ 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.”⁸¹

Third, Xu et al. (2013) studied the relationship between state medical malpractice laws and specialty visits.⁸² 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.⁸² 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.

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.

365 The relative weight of these factors as contributors to overuse is unclear, but some – particularly
366 problematic financial incentives – are more amenable to purchaser-led reform efforts. They are
367 therefore emphasized here.

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

371 *CLINICIANS*

372 The decades-long shift away from solo practice and the rise in physician employment may support
373 efforts devoted to the reduction of low-value care, especially if incentives for productivity are eliminated
374 or reduced in importance and replaced by measures of quality. However, according to a 2015 study by
375 Ryan et al., 46 percent of compensation for primary care providers participating in accountable care
376 organizations (ACOs) was tied to measures of productivity – little different from practices without
377 substantial risk for primary care costs not participating in an ACO.⁸³ Primary care physicians with
378 substantial risk for primary costs received an average of 32 percent of total compensation tied to
379 productivity.⁸³

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

386 *HOSPITALS*

387 In the context of acute care, elimination of some types of low-value care within a given admission can
388 produce savings – in the form of avoided use of disposable supplies, services purchased, staffing
389 required, or new capital investments – that accrue to a hospital or health system. Accordingly, some
390 leading provider systems have focused on avoiding delivery of low-value services within an episode of
391 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 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 2011.⁸⁵ On average, the researchers found that organizations provided 45.6 low-value services per 100 beneficiaries per year.⁸⁵ 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 4).⁸⁵

Figure 4: Distribution of Provider Organizations by Count of Low-Value Services Delivered per Medicare Beneficiary Per Year

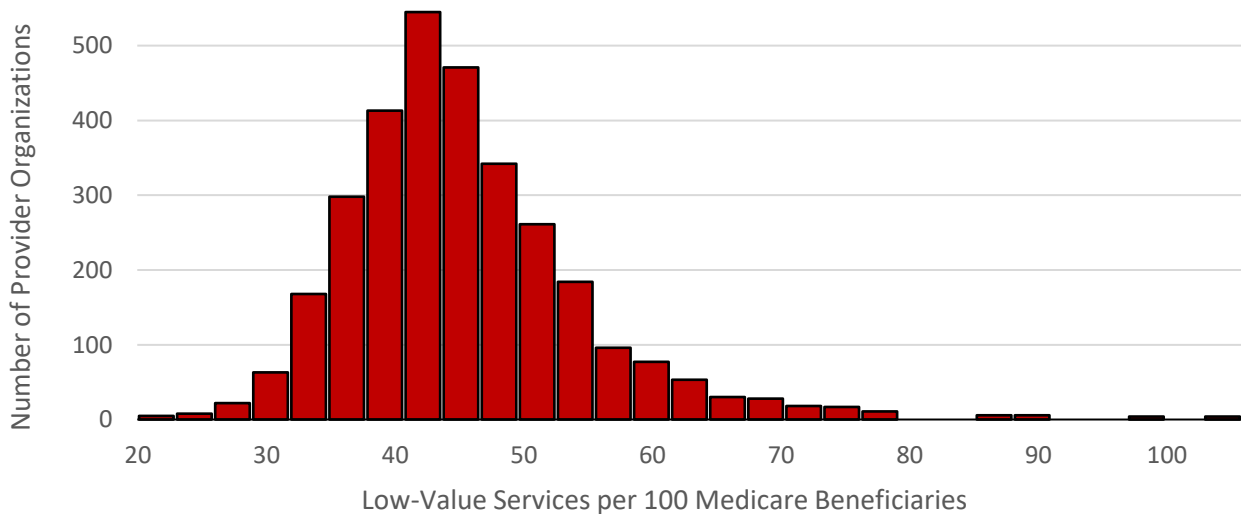


Figure derived from: Schwartz AL, Zaslavsky AM, Landon BE, Chernew ME, McWilliams JM. Low-Value Service Use in Provider Organizations. *Health Serv Res.* November 2016.

405

^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.⁸⁴

406 At the level of the hospital referral region, a 2015 study by Colla and colleagues found substantial
407 variation in the tendency to deliver low-value services as well. Across regions, provision of low-value
408 services to patients at risk of receipt varied by 20 percentage points or more for seven of the ten
409 conditions examined.⁸⁶ Region-level factors associated with increased low-value care delivery included
410 higher spending per capita, a higher ratio of specialists to primary care providers, and greater shares of
411 patients reporting fair or poor health.

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

414 Organizations such as the MacColl Center for Health Care Innovation and its Taking Action on Overuse
415 project – as well as many regional grantees of the *Choosing Wisely* campaign – are seeking to address
416 some of the non-financial drivers that contribute to overuse. As is discussed in Section 3, payers,
417 purchasers, and carriers can complement these efforts by addressing provider-facing reimbursement-
418 related drivers of low-value care delivery.^{87–89}

419

420 2. IDENTIFYING AND MEASURING LOW-VALUE CARE

421 2-A. GEOGRAPHIC VARIATION IN PATTERNS OF PRACTICE

422 Analyses based on patterns of practice across geographies offer compelling evidence on the prevalence
423 and significance of low-value care. The fundamental premise of much of this work is as follows: if
424 communities deliver vastly different amounts of medical care but achieve comparable outcomes on
425 measures of morbidity, mortality, and patient experience, some or all of the additional spending in
426 higher-cost communities is likely of low-value. Since at least the 1970s,⁹⁰ the work of researchers at
427 Dartmouth and elsewhere has illustrated the magnitude of variation in patterns of practice across
428 communities. Great differences in utilization are commonly observed across a range of conditions for
429 discretionary services.⁹¹ For example:

- 430 • Use of prostatectomy in Medicare beneficiaries *over age 75* with diagnosed prostate cancer is
431 sufficiently rare that data is unavailable for many hospital referral regions (HRRs). For those
432 HRRs with data available, use of prostatectomy in this population varies by a factor of seven
433 across regions.⁹²
- 434 • Prescribing of opioids varies by a factor of six across high-prescribing and low-prescribing
435 counties in the US. Residents of the highest prescribing county received 8.6 times as many
436 morphine milligram equivalents of opioids than did residents of the average county.⁹³
- 437 • Rates of elective percutaneous coronary interventions vary by a factor ten across California.⁹⁴

438 Greater service provision is often observed without corresponding improvements in health status.⁹⁵ In
439 fact, one 2004 study found an inverse relationship between spending and quality in Medicare.⁹⁶

440 In work for the Institute of Medicine, Fisher and Bronner (2010) estimated potential savings if the
441 patterns of care delivery for all Medicare beneficiaries were to reflect the patterns of care delivery in the
442 most efficient regions.⁹⁵ Were all care consistent with patterns of the most efficient quintile of regions,
443 inpatient days would be reduced by 23 percent, specialist visits by 37 percent, and primary care visits by
444 12 percent. The researchers projected that 18 percent of Medicare spending would be averted if all US
445 regions were as efficient as the most efficient quintile of regions. The oft-cited 2012 work of Berwick

446 and Hackbarth, “Eliminating Waste in US Health Care,” drew on this and other variation-related work, to
447 arrive at a midpoint estimate of \$192 billion in US spending on overtreatment per year (2011 dollars).^{f,73}

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

454 Estimates of low-value care grounded in analysis of geographic variation have several additional
455 limitations. First, many providers in high-cost regions may be highly efficient, while providers in low-
456 cost regions may be highly inefficient; a 2013 IOM report found that this is in fact frequently the case.⁹⁷
457 Accordingly, the IOM Committee on Geographic Variation in Health Care Spending advised that payment
458 reform is best applied at the level of the clinical decision-making unit, not the region.⁹⁸

459 Second, variations in patterns of practice within one population (e.g., Medicare beneficiaries) may or
460 may not persist when examined within other populations (e.g., those covered by commercial carriers or
461 Medicaid). The vast share of research on geographic variation has been focused around fee-for-service
462 Medicare beneficiaries. Research by Chernew et al. (2010) has observed a modest level of consistency
463 in inpatient utilization across large commercial firms and Medicare (correlation of 0.59);⁹⁹ research
464 specific to low-value care by Colla et al. (2017) has shown a modest level of consistency with respect to
465 practice patterns across payer types by service (Figure 5).¹⁰⁰ But caution is needed when generalizing
466 beyond the specific population studied.

467 Third, some of the difference in spending across regions is attributable to differing patterns of practice
468 for medical decisions where evidence for optimal care is unclear; a substantial share of medicine falls
469 into this category.^{101,102} Sirovich and colleagues (2008) surveyed primary care physicians on their
470 hypothetical tendency to use more intensive care in various clinical scenarios lacking clear guidelines for
471 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.⁶⁹ That seems unlikely. See Section 1-B, “Payers, Purchasers, and Carriers.”

472 heart failure).¹⁰³ Analyzing responses across high-spending and low-spending regions in Medicare, the
473 authors found a strong relationship between regional spending and the intensity of care that physicians
474 reported they would provide in these hypothetical situations (e.g., inpatient admission versus discussion
475 of palliative care).¹⁰³ In fact, together across the several clinical scenarios examined:

476 Compared with physicians practicing in the lowest
477 quintile of spending, those in the highest quintile
478 would recommend an additional eighty hypertension
479 follow-up visits per year, fourteen spiral CT scans,
480 twenty-five echocardiograms, twenty-four cardiac care
481 unit admissions, and twenty-nine gastroenterology referrals (per 100 patients in each clinical
482 category).¹⁰³

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

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

Figure 5: Mean Annual Prevalence for Seven Commonly Overused Services, By Payer Type (2009-2011)

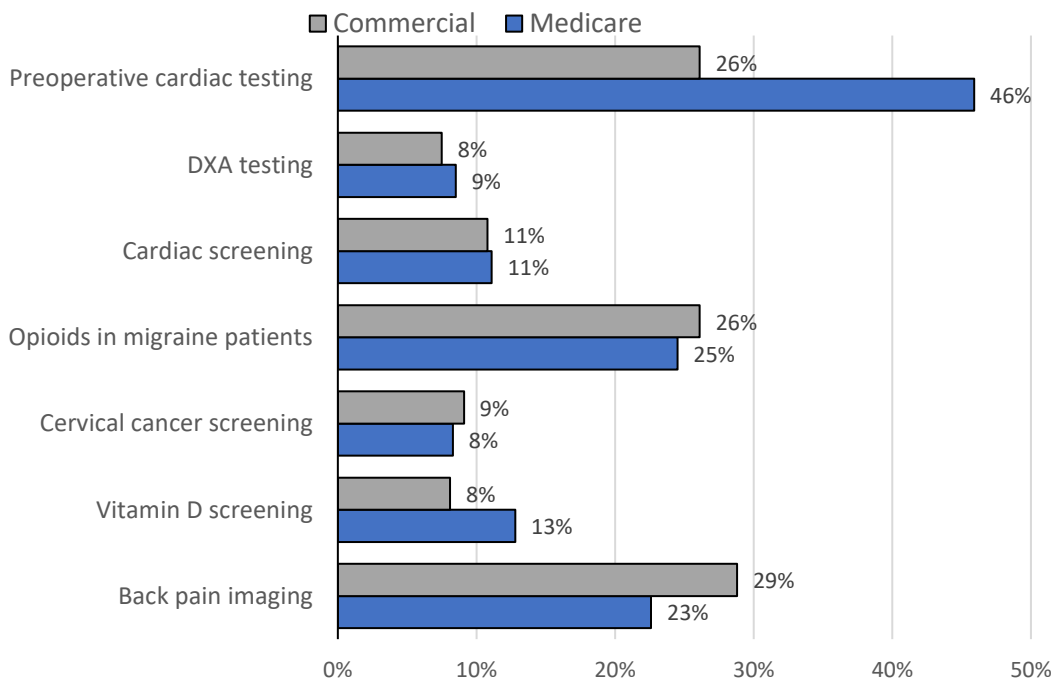


Figure derived from: Colla CH, Morden NE, Sequist TD, Mainor AJ, Li Z, Rosenthal MB. Payer Type and Low-Value Care: Comparing Choosing Wisely Services across Commercial and Medicare Populations. Health Serv Res. February 2017.

485

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

492 2-B. PATIENT-LEVEL MEASUREMENT

493 Measurement of overuse at the level of the patient generally relies on analysis of administrative
494 information, i.e., claims or encounter data combined with information on enrollee age and sex. Yet few
495 services are “ineffective, unsafe, or both for all patients and indications.”¹⁰⁴ (See “Sidebar: Clinical
496 Nuance and Claims-Based Estimation of Low-Value Care.”) Rather, appropriateness is most often a
497 function of who receives a service, the particulars of
498 his or her condition, who provides a service, and
499 where and when the service is delivered. Given this
500 need for clinical nuance,¹⁰⁵ some low-value services
501 can be translated into logic that flags a service as low-
502 value on the basis of the patient’s clinical history (to
503 the extent previous claims are available), patient
504 comorbidities (as reported through old and new diagnosis codes that accompany claims), sex, and age.
505 Depending on the particular recommendation and the quality and completeness of the administrative
506 data, it is increasingly possible to craft claims-based specifications with reasonably high levels of
507 precision. The granularity offered through ICD-10 coding might further improve these capabilities going
508 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.”⁶⁶

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.⁶⁶ 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.¹⁰⁶ 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.

509 Yet at present, some commonly overused services do not easily lend themselves to claims-based
510 measurement. For example, the American College of Radiology recommends against “imag[ing] for
511 suspected pulmonary embolism (PE) without moderate or high pre-test probability of PE.”¹⁰⁷ Clinical
512 information, such as heart rate and physical exam findings, are necessary to judge the probability of a
513 pulmonary embolism, and this information is rarely present on claims.^{66 (supp)} Even with the benefit of
514 richer information from electronic health records, the lack of structured data fields for many relevant
515 clinical findings may make the development of e-measures difficult.¹⁰⁸

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

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

527 3. ADDRESSING NO-VALUE/LOW-VALUE CARE

528 3-A. INADEQUACY OF INFORMATION-ONLY STRATEGIES

529 There is often a profound gap between evidence-based medical practice and the medical care that
530 Americans actually receive.¹⁰⁹ Guidelines are frequently disregarded,^{110,111} and de-implementation of
531 once routine care in particular is often very slow.¹⁰⁹ Accordingly, it would be unreasonable to expect the
532 educational components of an initiative such as *Choosing Wisely* to dramatically reduce the provision of
533 commonly overused services absent other types of interventions.

534 Indeed, the existing literature is unclear on the magnitude of the impact of the greater awareness of
535 low-value care engendered by the *Choosing Wisely* campaign. Rosenberg et al. (2015) examined the
536 experience of 25 million Anthem members at risk of receiving seven commonly overused services before
537 and after the release of related *Choosing Wisely* recommendations. The authors found small but
538 statistically significant decreases in use for two of the low-value services examined (1.5 percentage point
539 reduction in imaging for headache, 1.1 percentage point reduction in cardiac imaging), small but
540 statistically significant increases for two other low-value services (1.8 percentage point increase in use of
541 NSAIDs in certain conditions, 1.2 percentage point increase in appropriate HPV testing in younger
542 women), and no statistically significant changes in trend for three other low-value services (preoperative
543 chest x-rays, antibiotics for sinusitis, and imaging for low back pain, Figure 6).¹¹²

544 More recent work from Hong et al. (2017) took advantage of a longer time horizon and employed a
545 stronger study design to assess the extent to which *Choosing Wisely* recommendations impacted low-
546 value imaging for low back pain.¹¹³ Drawing on commercial claims data, Hong et al. reported no
547 statistically significant change in use of high-value imaging, but a decrease of 0.9 percentage points –
548 corresponding to a relative decrease of 3.8 percent – in use of low-value imaging in conjunction with
549 office visits for back pain. Nevertheless, rates of inappropriate imaging remained high in absolute
550 terms: 22 percent of all episodes of back pain were associated with imaging that was likely of low-value.

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

555 This section discusses six distinct approaches that
 556 purchasers and carriers can use to advance systems
 557 change for low-value care avoidance. Both supply-
 558 oriented (i.e., provider-facing) and demand-oriented (i.e.,
 559 patient-facing) interventions are discussed, with an
 560 emphasis on strategies that payers, purchasers, and
 561 carriers can implement directly. Pairing complementary
 562 supply-oriented and demand-oriented low-value care reduction strategies will likely achieve more
 563 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 6: Prevalence and Trends for Six Commonly Overused Services (2010-2013)

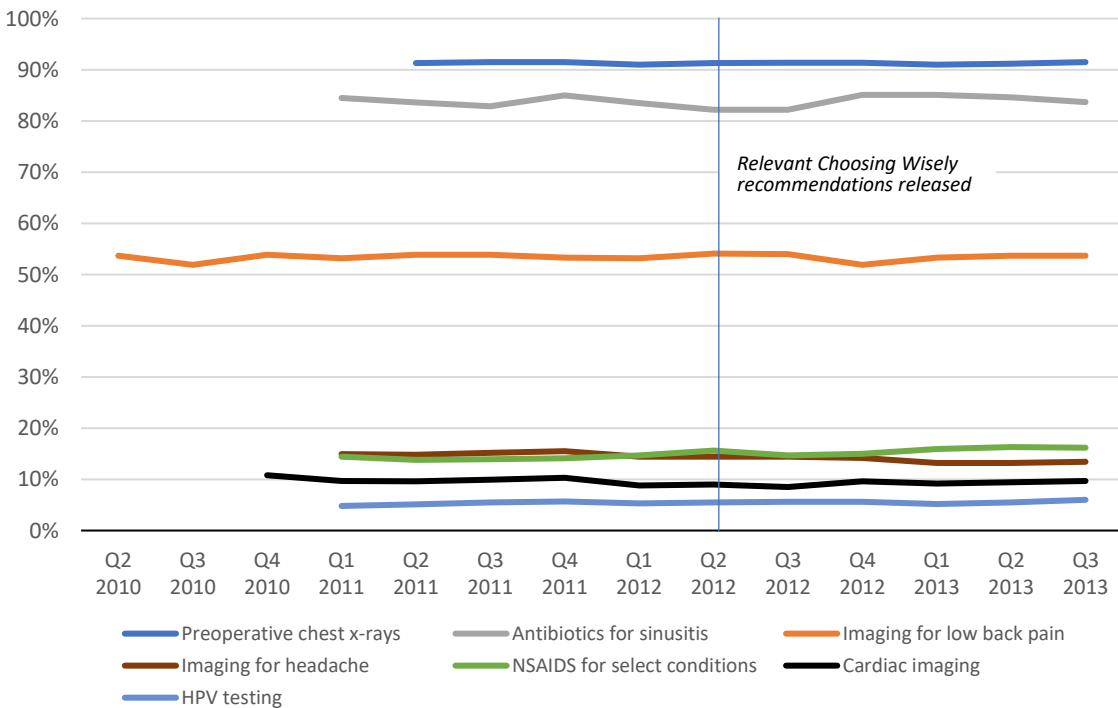


Figure derived from: Rosenberg A, Agiro A, Gottlieb M, et al. Early Trends Among Seven Recommendations from the Choosing Wisely Campaign. *JAMA Intern Med.* 2015;175(12):1913-1920.

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565

566 3-B. PAYER-DELIVERED, PROVIDER-FACING EFFORTS

567 PROVISION OF PROFILING DATA

568 Many payers have sought to prompt or support provider action on overuse through “report cards” that
569 benchmark the practice patterns of a clinician, practice, or provider group with those of peers and/or
570 regional/national standards. Published research is mixed on whether offering retrospective feedback to
571 clinicians – be it at the level of the individual provider, practice, or provider group – on use of low-value
572 services can impact future clinical decision-making. As identified in a 2016 review of the peer reviewed
573 literature by Colla and colleagues,¹¹⁴ studies of provider profiling efforts have included:

- 574 • Chinnaiyan et al. (2012) found that a Blue Cross Blue Shield of Michigan-sponsored continuous
575 quality improvement (CQI) effort decreased inappropriate use of coronary computed
576 tomography angiography. Feedback to sites on rates of appropriate use was a key component
577 of this effort, which also included the cultivation of site-specific clinical champions, the provision
578 of continuing medical education, and warnings of further payer restrictions on coverage if
579 appropriateness were not addressed. The multi-component intervention was associated with a
580 60 percent decrease in the use of inappropriate scans. The study lacked a comparison group.¹¹⁵
- 581 • Miyakis et al. (2006) found that sharing findings from audits of the appropriateness of 25 tests
582 resulted in meaningful reductions in inappropriate ordering (from about 2 to about 1.6
583 inappropriate orders per day). However, these improvements proved transient. Provider
584 behavior returned to its original form after the intervention concluded. The study lacked a
585 comparison group.¹¹⁶
- 586 • Verstappen et al. (2003) found that feedback to Dutch primary care physicians on compliance
587 with evidence-based guidelines for test ordering was associated with reductions in appropriate
588 cardiac and abdominal testing. The intervention was unsuccessful for physicians receiving
589 information on COPD, asthma, general complains, and degenerative joint complaints, however.
590 Primary care physicians were randomized to the intervention.¹¹⁷
- 591 • Wong-Beringer et al. (1999) found that simply providing results from a previous city-level audit
592 on the appropriate use of endarterectomy audit in Edmonton was associated with a significant
593 reduction in community-wide use of low-value endarterectomy (decrease from 18 percent to 4
594 percent). The study lacked a comparison group, however.¹¹⁸

- 595 • Wong-Beringer et al. (2009) tested a pharmacist-led stewardship program to reduce
596 inappropriate use of fluoroquinolones. The intervention entailed feedback to providers, as well
597 as education and point-of-care clinical decision support. Fluoroquinolone prescribing was
598 reduced by 30 percent, and mortality associated with *P. aeruginosa* infections decreased two-
599 fold. The study lacked a comparison group.¹¹⁹

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

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

612 After four years, the AQC was associated with a reduction of \$249 per member per year in overall
613 medical spending relative to a control group (not including bonus payments).¹²⁰ Some savings were
614 achieved through shifts in provider referral practices to lower priced sites of service, but at least some
615 overuse was likely eliminated: reductions in volume accounted for 60 percent of the savings attributable
616 to reduced spending on procedures, 25 percent of savings related to imaging, and 60 percent of savings
617 for all tests.¹²⁰ Improvements in clinical quality generally surpassed the improvements observed in
618 comparison groups.¹²⁰ AQC leaders report that profiling reports have been valuable in improving
619 patterns of care delivery, even if it is not possible to isolate the impact of low-value care profiling
620 reports from the other supports and incentives of the AQC.

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

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

- 626 • *Ensuring timeliness.* Provider-specific performance data that is six months old is less likely to
627 impact performance than data with only a one-month lag. This may require relying on data
628 other than fully adjudicated claims.
- 629 • *Providing feedback that is all-payer (or nearly all-payer).* Especially in markets where a given
630 payer may command only a small share of a clinician or provider group’s panel, all-payer data
631 can provide the statistical power needed to detect and present variations that are meaningful
632 and trustworthy. Dedicated registries (as with the Blue Cross Blue Shield of Michigan
633 intervention discussed above) or all-payer claims databases (see Section 3-D) may be valuable to
634 this end.
- 635 • *Empowering clinical champions within provider organizations to act on the information provided.*
636 This may mean ensuring champions have the resources needed to ensure that information is
637 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^{121–123}

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^{124–126}

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.

638 COVERAGE POLICIES AND PAYMENT RATES

639 Within the confines of state and federal requirements, purchasers generally maintain the prerogative of
640 establishing and enforcing policies governing the coverage of services and reimbursement amounts.

641 There are many potential approaches under each of these umbrellas that can serve to reduce low-value
642 care, above and beyond current efforts to date.

643 *COVERAGE POLICIES*

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

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

653 Yet many potential edits are not implemented. For example, Medicare continues to reimburse for
654 prostate cancer screening for men of all ages – including those age 70 and older – notwithstanding the
655 many guidelines advising against PSA screening in this population (see above). Medicare also
656 reimburses for colorectal cancer screening after age 85, despite the recommendation for avoidance
657 from the USPSTF.¹²⁷ A recent *Lancet* article called for payers to avoid paying for percutaneous
658 vertebroplasty (a procedure in which cement is injected into the spine) under all or nearly all

659 circumstance given evidence showing the procedure is ineffective and risky.¹⁰² Without taking into
660 account health care costs, similar arguments could also be advanced against coverage of arthroscopic
661 surgery for degenerative knee changes.^{128,129} Vitamin D screening might also be a worthy service for
662 coverage restrictions through claims-based edits,¹⁰² as could surgery for obstructive sleep apnea in the
663 absence of previous experience with more conservative options.

664 Other approaches may be used to implement medical necessity restrictions as well. Alberta Health – the
665 entity responsible for financing health care services for residents of Alberta, Canada – established a new
666 system for ordering Vitamin D tests in April of 2015.¹³⁰ To curb overuse, physicians seeking to order
667 Vitamin D testing were required to indicate which of five evidence-based criteria for testing applied to
668 the request (metabolic bone disease, abnormal blood
669 calcium level, malabsorption, liver disease, and/or chronic
670 renal disease). Orders for tests not meeting criteria were
671 simply not processed. The changes in service provision that
672 followed were dramatic. Ferrari and Prosser (2016) found
673 that Vitamin D testing decreased by 235,418 unique orders
674 to just 20,609 over the nine months following implementation of the new restriction – a reduction of 92
675 percent. About \$3 million (USD) in low-value spending was averted in this province of 4.5 million
676 residents. The relevant *Choosing Wisely* recommendation alone – issued in 2013 – was insufficient to
677 curb overuse; payer restrictions were required.¹³¹

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

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

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

685 While carriers were more comfortable denying coverage for questionable care during the heyday of the
686 managed care revolution of the 1990s,¹³² denying claims in these circumstances in more recent years is
687 often viewed as unduly risky to the maintenance of good relations with customers, providers, and
688 regulators. As one purchaser noted, “a simple plan design has allowed us to forge trust with our

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

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

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

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

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

701 *PAYMENT RATES*

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

706 For example, recognizing the profound national variation in use of cesarean section – use of cesarean
707 section across hospitals varies by a factor 15 across hospitals for low-risk deliveries¹³³ – the Minnesota
708 Department of Human Services established a blended rate for all Medicaid deliveries, assuming that a
709 reduction in cesarean deliveries of five percent could be safely accomplished. Minnesota estimated
710 savings of more than \$2 million through this equalization of facility fees for cesarean and vaginal
711 deliveries.¹³⁴ Other states reduce fees for elective caesarean deliveries to the rate that paid for a vaginal
712 delivery.¹³⁵ Such an approach recognizes that a large share of cesarean deliveries are medically
713 necessary. Many additional uses of blended fees are possible as well.

714 *PAYMENT MODELS*

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

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

720 The Health Care Learning and Action Network has mapped payment reform as ranging from fee-for-
721 service with no link to quality/value (Category 1) to fee-for-service with bonuses/penalties for
722 achievement on measures of quality and value (Category 2) to alternative payment models built on a fee-
723 for-service chassis (Category 3) to population-based payment (Category 4).¹³⁶ While Category 3-4
724 payments are likely the models most conducive to reducing the provision of low-value care, there are
725 opportunities to reduce the provision of low-value care under each model.⁸

726 *PAY-FOR-PERFORMANCE (CATEGORY 2)*

727 There is a wealth of US and international experience with pay-for-performance; evaluations of
728 effectiveness are generally mixed.¹³⁷ Overwhelmingly, these initiatives have focused on under-provision
729 of high-value care, not over-provision of low-value care. The Colla et al. review (2016) identified only
730 one study of a purely pay-for-performance program intended to reduce low-value care, which reported
731 on a successful hospital-led effort offering financial incentives to residents to avoid use of low-value
732 laboratory testing.¹³⁸

733 While formal evaluation is lacking, some pay-for-performance programs have incorporated measures of
734 low-value care. For example, the 2016 physician quality reporting system (PQRS) included National
735 Quality Forum-endorsed measures related to avoidance of inappropriate antibiotic use, overuse of bone
736 scan staging for low-risk prostate cancer patients, inappropriate cardiac stress testing, and overuse of
737 advanced imaging services.¹³⁹

738 A June 2017 report from the Medicare Payment Advisory Commission (MedPAC) suggested that a new
739 and improved Merit-based Incentive Payment System (MIPS, the successor to PQRS) for Medicare's
740 professional providers might include a composite measure of low-value care.^{140(p167)} MedPAC proposed
741 that a MIPS quality incentive pool be funded through a withhold of regular Part B fee-for-service
742 revenue. The Commission further proposed that providers earn bonuses based on the rates with which
743 their attributed beneficiaries receive commonly overused services, among other measures of
744 performance.

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

745 *EPISODE-BASED PAYMENT (CATEGORY 3)*

746 The diagnosis-related group (DRG) prospective payment system – in use, with significant updates, by
747 Medicare since 1983 – replaced a previous system of reimbursement under which hospitals were paid
748 on the basis of cost.¹⁴¹ Under the inpatient prospective payment system, most hospitals are paid a set
749 fee for a given admission, usually on the basis of the most significant diagnosis during the inpatient
750 admission and/or the use of certain high-cost procedures.¹⁴¹ With exceptions, longer stays or use of
751 more intensive services within the admission do not bring about greater reimbursement.

752 Implementation of the DRG system was associated with a decrease in patient days of 25 percent over
753 the first two years of implementation.¹⁴¹ While other types of care *not* bundled in the DRG PPS
754 increased after implementation (e.g., skilled nursing days, rehabilitation admissions), it is commonly
755 accepted that the DRG PPS brought about meaningful reductions in unnecessary care.¹⁴¹

756 The DRG PPS for inpatient admissions included only facility reimbursements; professional providers
757 continue to generally be paid on a FFS basis. In recent years, CMS has begun to bundle facility and
758 professional payments for certain procedures, establishing a target for per-episode spending and
759 reconciling spending regularly. According to a 2016 study by Dummit et al., participation in the CMS
760 Bundled Payments for Care Improvement initiative resulted in a statistically significant reduction of
761 \$1,166 for each lower extremity joint replacement relative to a matched comparison group.¹⁴² This
762 represented savings of about 4 percent (net of the savings achieved by the comparison group). No
763 deterioration in quality was observed, strongly suggesting that providers were able to remove low-value
764 care, especially in the form of unneeded post-acute care.¹⁴²

765 While Medicare and some commercial payers continue to innovate in this area, there remains
766 considerable use of reimbursement methods that are fundamentally at odds with the elimination of
767 low-value care. For example, continued use of per diem payment – common, according to a large-scale
768 2016 analysis from the New York State Health Foundation¹⁴³ – discourages hospitals from achieving
769 efficiencies that could result in shorter stays.

770 *ACCOUNTABLE CARE ORGANIZATIONS (ACOS, CATEGORY 3)*

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

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

778 Schwartz et al. (2015) investigated use of 31 low-value services among ACOs participating in the Pioneer
779 Demonstration, a Medicare initiative requiring participating ACOs to assume downside risk.⁶⁷ Relative to
780 a control group, the researchers found modest statistically significant differential reductions in the
781 number of low-value services rendered (decrease of 1.9 percent) as well as spending attributable to low-
782 value services (decrease of 4.5 percent) in the first year of the program. This translated to a differential
783 reduction in spending on low-value services per year of approximately \$460 per 100 attributed Medicare
784 beneficiaries per year. ACOs with histories of delivering more low-value care compared to other local
785 providers in their market were able to achieve considerably greater reductions than other ACOs.
786 Cardiovascular testing and procedures accounted for a large share of the averted services.⁶⁷ Together,
787 the Pioneer ACOs achieved modest but statistically significant savings in both year one^{144,145} and year
788 two of the pilot.¹⁴⁵

789 Unlike the Pioneer ACOs, organizations participating in the Medicare Shared Savings Program (MSSP)
790 were not required to assume downside risk. According to a 2016 study by McWilliams et al., MSSP ACOs
791 led by primary care providers achieved statistically significant decreases in annual spending; MSSP ACOs
792 integrated with hospitals did not.¹⁴⁶ In contrast to the Pioneer ACOs, ACOs participating in MSSP did not
793 significantly reduce the provision of 31 low-value services in the first full year of the initiative.¹⁴⁶

794 ACO programs typically include quality performance standards as “gates”; provider performance on
795 these measures controls the share of savings received or share of losses repaid. At present, CMS
796 includes a variety of measures related to key processes, receipt of evidence-based screenings, patient
797 experience, and intermediate clinical outcomes in ACO quality performance standards.¹⁴⁷ Even though
798 ACOs already have an incentive to avert acute care utilization, another set of ACO quality measures
799 pertain to avoidable utilization – serving to further emphasize areas of high-priority to CMS (e.g.,
800 unplanned admissions for attributed beneficiaries with diabetes). At present, however, only one ACO
801 measure is specific to low-value care (use of imaging for low back pain).

802 Payers and purchasers should consider selectively including high-priority measures of low-value care as
803 ACO quality measures – especially those services associated with patient harm (e.g., radiation exposure).
804 Many already do. In the AQC, for instance, BCBSMA included HEDIS measures pertaining to antibiotic
805 avoidance.¹⁴⁸ New composite measures of low-value care have been proposed that might also be

806 employed to this end.^{149,150} Of course, the merit of maintaining alignment with other measurement
807 efforts (which do not include these composites at present) should always be considered.

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

815 3-C. PATIENT-FACING INCENTIVES AND EDUCATION

816 VALUE-BASED INSURANCE DESIGN

817 Value-based insurance design (V-BID) entails aligning patients’ out-of-pocket cost-sharing with the value
818 of the underlying service – i.e., lowering cost-sharing for high-value services and/or increasing cost-
819 sharing for low-value services. Such an approach encourages the use of high-value care while
820 maintaining or strengthening incentives to avoid low-value spending.¹⁵¹ V-BID incorporates clinical
821 nuance, “recognizing that the clinical benefit of a specific service or therapy depends on who receives it,
822 who provides it, and where and when in the course of disease the service or therapy is provided.”¹⁵²

823 A 2012 systematic review published in Health Affairs by Lee and colleagues identified thirteen studies of
824 V-BID for drugs from the peer-reviewed literature, generally finding modest but meaningful
825 improvements in medication adherence in association with reductions in cost-sharing. Most V-BID
826 implementations were cost-neutral, or nearly so, from the purchaser perspective given the ability of
827 evidence-based outpatient therapy to avert downstream utilization for certain conditions.¹⁵³ Since the
828 release of the Lee (2012) review, at least four additional peer-reviewed studies have reported
829 improvements associated with V-BID, including reductions in disparities across race/ethnicity in
830 cardiovascular health,¹⁵⁴ reductions in acute care spending for patients with hypertension,¹⁵⁵ increases
831 in adherence across a range of cost-effective medications,^{156,157} improvements in receipt of evidence-
832 based preventive care,¹⁵⁷ and decreases in emergency department utilization.¹⁵⁷

833 *EXAMPLES OF V-BID FOR LOW-VALUE CARE*

834 Most payers and purchasers implementing V-BID have limited their efforts to promoting access to high-
835 value services.¹⁵³ The use of higher cost-sharing to reduce low-value service use has received far fewer

836 trials. The Oregon Public Employees Benefit Boards (PEBBs) are exceptional in this respect. Since 2010,
837 the plans available to Oregon’s public employees have provided for additional cost-sharing tiers
838 intended to encourage public employees to “think twice” before receiving certain commonly overused
839 services.¹⁵⁸ For example, full-time Oregon employees enrolled in the Providence Health Plan receiving
840 in-network care would be subject to the following additional cost tiers:

- 841 • A copayment of \$100 plus coinsurance of 15 percent for the following services: MRI, CT, PET and
842 single-photon emission computed tomography (SPECT) scans; sleep studies; spinal injections;
843 upper endoscopy; bunionectomy; surgery for hammertoe and Morton’s neuroma; and knee
844 viscosupplementation.¹⁵⁹
- 845 • A copayment of \$500 plus coinsurance of 15 percent for the following services: surgical
846 procedures for hip or knee replacement or resurfacing, knee or shoulder arthroscopy, bariatric
847 surgery, spine procedures, and sinus surgery.¹⁶⁰

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

850 Gruber et al. (2016) published an evaluation of the Oregon program. Overall, the researchers found a
851 reduction in utilization of about 13 percent for services subject to these additional copayments over the
852 36-month period after V-BID implementation. Figure 7 shows changes in use by service relative to a
853 control group. All of the reported decreases were statistically significant, with the exception of the
854 decrease in use of endoscopy.

Figure 7: Changes in Utilization of Services Subject to Additional Cost Tier (ACT) in Oregon Public Employees Benefit Board Plans

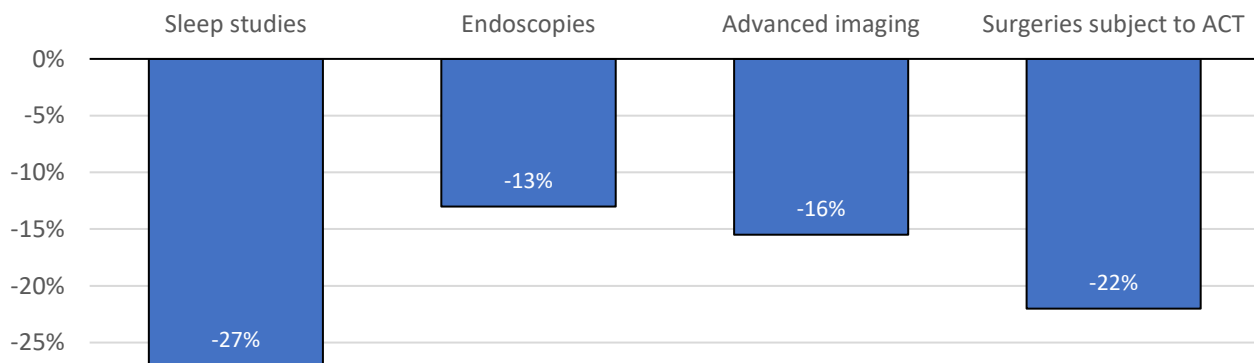


Figure derived from: Gruber J, Maclean JC, Wright BJ, Wilkinson ES, Volpp K. The Impact of Increased Cost-Sharing on Utilization of Low Value Services: Evidence from the State of Oregon. National Bureau of Economic Research; 2016.

855 Other efforts have been somewhat less nuanced, but still served to distinguish between services of
856 different importance where this distinction had historically not been reflected in patient cost-sharing. In
857 2004, most employees of the Mayo Clinic saw their cost-sharing for specialty care office visits increase
858 from \$0 to \$25 per visit.¹⁶¹ Cost-sharing for primary care visits was set at \$0.¹⁶¹ Coinsurance for most
859 non-office visit procedures increased from 0 percent to 10 or 20 percent (depending on plan option
860 selected).¹⁶¹ Researchers found that beneficiaries experiencing benefit changes decreased use of
861 specialty care by 0.7 visits per person during the year after the benefit change.¹⁶² Use of primary care
862 did not decrease. After four years, the number of specialist office visits remained lower than predicted
863 given baseline trends. Testing, imaging, and outpatient procedures also declined compared to baseline
864 trends.¹⁶²

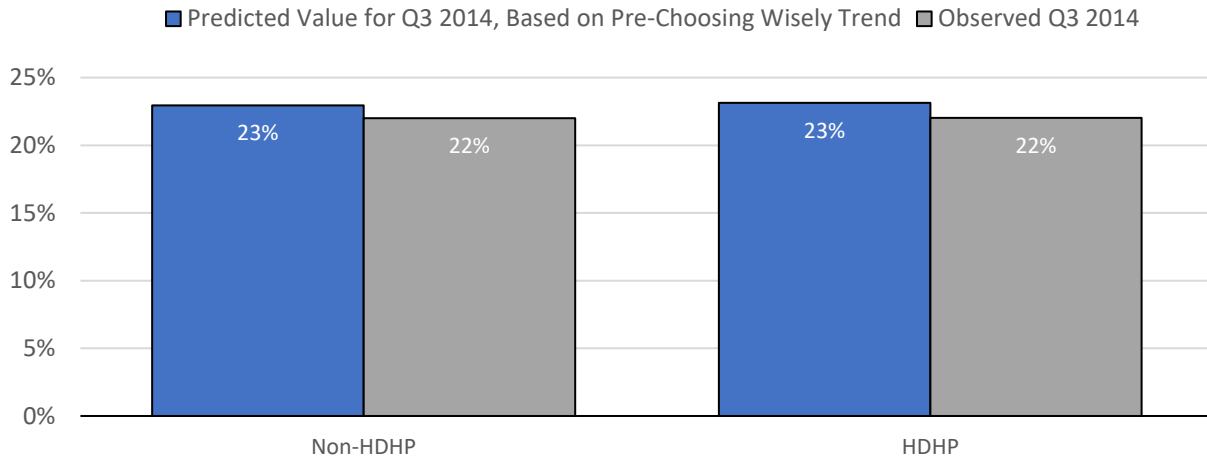
865 Connecticut’s Health Enhancement Program for state employees paired reductions in cost-sharing for
866 certain high-value services and chronic disease management medications with a new surcharge on
867 emergency department (ED) visits when a reasonable alternative exists. (ED visits resulting in an
868 inpatient admission were excluded.) Hirth et al. (2016) found that the likelihood of an ED visit
869 decreased by 0.7 percentage points two years after program implementation, even as the likelihood of
870 an ED visit increased by 0.4 percent in a comparison group (difference-in-differences of one percentage
871 point).¹⁵⁷ This represented a differential reduction of 25 visits per 1,000 enrollees per year in year two.
872 Both results were statistically significant. A new contract negotiated by the State of Connecticut with
873 state employees will build on this work, pairing a higher ED surcharge and higher cost-sharing for some
874 more expensive in-network providers with lower cost-sharing for more preferred in-network providers
875 (see discussion under “Network Design” below).¹⁶³

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

877 Evidence does not support the notion that patients in “one-size-fits-all” plans with high deductibles will
878 specifically forgo *low-value* care rather than *all* care.⁶ The *Choosing Wisely* campaign does not appear to
879 have changed this tendency. The study by Hong and colleagues (2017) discussed above (see Section 3-
880 A) examined changes in use of low-value imaging for back pain by plan type in conjunction with the
881 *Choosing Wisely* campaign.¹¹³ As shown in Figure 8, patients enrolled in high-deductible plans were no
882 more likely to reduce use of low-value imaging than were patients enrolled in plans with lower

883 deductibles.¹¹³ High deductibles and broadly targeted education are inadequate to bring about smarter
 884 shopping.

Figure 8: 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.

885 *IMPLEMENTING V-BID FOR LOW-VALUE CARE: CHALLENGES*

886 V-BID to reduce use of low-value care is commonly perceived as politically difficult and potentially
 887 operationally challenging.¹⁶⁴ Even if there is a will to promote plan designs with disincentives for low-
 888 value care, lack of consensus on services that should be targeted is commonly cited as a barrier. A June
 889 2017 report from The Urban Institute on benefit designs in commercial coverage reports a key
 890 stakeholder stating:

891 No one has ever come up with a list of . . .the low-value things that we’re going to charge more
 892 for. . .The people who get and provide those services think they’re high-value.¹⁶⁵

893 Indeed, Oregon’s use of V-BID to slow use of knee surgeries drew a critical research article funded by
 894 the American Academy of Orthopaedic Surgeons arguing that the policy imposed undue societal
 895 costs.¹⁶⁶ Beyond public perceptions, stakeholders interviewed for the Urban report also emphasized the
 896 need for, “expertise and resources to conduct the kind of medical evidence review needed to make
 897 value judgments about which services should be subjected to higher cost-sharing.”¹⁶⁵ The *Choosing*
 898 *Wisely* recommendations themselves – designed to spark conversations, not serve as a roadmap for
 899 insurance redesign – are seen as insufficient.

900 In addition to a lack of consensus on services to be targeted, Neumann and colleagues (2010) describe
901 several additional challenges specific to V-BID for low-value services.¹⁶⁷ As with payment coverage
902 policies (see Section 3-B, “Coverage Policies and Payment Rates”), the information needed to ascertain
903 appropriateness is often unavailable in administrative data. Even when appropriateness can be deduced
904 through some combination of current and historical procedure codes, diagnosis codes, and enrollment
905 data, payers should beware of changes in coding practices that could complicate determinations.¹⁶⁷

906 Manual review of clinical information to determine appropriate cost-sharing might be reasonable for
907 specific expensive services that may be overused. For example, suppose a patient wishes to receive
908 proton beam therapy for a malignancy when evidence is clear that intensity-modulated radiotherapy
909 would be equally effective. In such a scenario, the patient might be required to pay the difference in
910 price out-of-pocket.¹⁶⁸ A judgement regarding appropriate cost-sharing might be incorporated within
911 existing prior authorization processes.

912 Work in other contexts suggests that manual review to arrive at patient-specific judgements of clinical
913 value may be worthwhile outside of binary (i.e., covered or not covered) prior authorization
914 determinations: a pilot underway by the carrier Priority Health and the pharmaceutical manufacturer
915 Genentech relies on the use of rich clinical data to ascertain the patient-specific value of an oncology
916 agent (bevacizumab, Avastin) in patients with non-small-cell lung cancer.¹⁶⁹ This information is used for
917 purposes of arriving at a mutually acceptable outcomes-based price.¹⁶⁹ However, the administrative
918 burden of any similar process for determining cost-share might be greater given the need for
919 contemporaneous (rather than retrospective) determinations. Appeals might be frequent and
920 burdensome.

921 Fundamental differences in beliefs around what is fair may be another challenge to use of V-BID for low-
922 value care. Some have argued that it is simply wrong to charge patients extra for receiving low-value
923 care that their provider has ordered.¹⁷⁰ After all, patients do not order inappropriate MRIs, but
924 physicians do. On the other hand, constraints faced by many purchasers may ultimately dictate a need
925 for increased patient financial contributions in one form or another. V-BID for low-value services may
926 be less bad than simply increasing required premium contributions or bluntly raising deductibles on all
927 services. As Fendrick, Smith, and Chernew (2010) write: “naturally, no value-based insurance design
928 program will be perfect. However, the question is not whether the system is perfect, but whether it is
929 better than the alternative, which is typically high cost sharing for all services.”¹⁶⁴

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

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

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

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

- 942 • *Pair new disincentives with new “sweeteners.”* For example, in conjunction with establishing the
943 additional cost tiers, the Oregon PEBBs added improved coverage for weight loss services.¹⁵⁸ The
944 PEBBs also decreased cost-sharing for certain high-value chronic disease management
945 medications.¹⁵⁸ For Connecticut state employees, reduced cost-sharing for high-value chronic
946 disease management medications was coupled with higher cost-sharing for ED visits.¹⁷¹
- 947 • *Consider use of “frozen carrots.”* Provide for more favorable coverage of high-value services so
948 long as members adhere to recommendations for receipt of evidence-based services. Failure to
949 maintain adherence might lead to enrollment in a plan with less favorable coverage. The Health
950 Enhancement Program for Connecticut state employees included expectations to receive certain
951 evidence-based preventive services. Employees not receiving these recommended services
952 faced enrollment in an alternate plan with a \$100 per month surcharge, a \$350 per person
953 deductible, and higher cost-sharing for certain chronic disease management medications and
954 services.¹⁷¹
- 955 • *Earn the buy-in of employees for benefit design changes.* This might include co-designing benefit
956 designs with employees, hosting focus groups and listening sessions, distributing electronic and
957 print literature, and being as responsive as possible to inquiries from employees and their
958 families. Drawing on the trustworthiness of sources identifying low-value care, such as
959 Consumer Reports and the professional societies participating in *Choosing Wisely*, may also be
960 helpful.

- 961 • *Ensure the accessibility of all new written materials.* Disseminate information on benefit design
962 changes broadly to ensure affected individuals are never surprised at the point of care.
- 963 • *Avoid or postpone efforts to address low-value care in especially sensitive areas, such as*
964 *oncology.* The Oregon Public Employees experience suggests the merit of such an approach.¹⁵⁸
965 Similarly, plan sponsors might seek to avoid clinical areas where guidelines and best practices
966 are changing rapidly.
- 967 • *Allow for “escape clauses.”* Escape clauses can provide for standard cost-sharing when a
968 commonly overused service is clearly of high-value in a particular instance. For example,
969 Medicare Part D plans maintain exceptions processes through which beneficiaries may request
970 more generous coverage for a particular medication given adverse effects with more preferred
971 agents, contraindications, or other pertinent patient-specific circumstances.¹⁷²
- 972 • Align provider-facing performance measures (see
973 Section 3-B, “Payment Models”) with new member-
974 facing financial incentives.¹⁷³ Provider-facing
975 communication might also strive to increase
976 awareness of member benefit designs. In an ideal
977 future state, information on patient benefit design
978 would be readily accessible to providers through
979 the EHR.

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

980 UTILIZATION MANAGEMENT

981 Prior authorization programs require patients or providers to submit information to an insurance carrier
982 (or pharmacy benefit manager, PBM) justifying the need for a particular medical service (or medication).
983 Prior authorization programs, in turn, typically evaluate requests and relevant medical records in light of
984 established guidelines for appropriateness. Approval may hinge on patient- and disease-specific
985 characteristics, such as severity of the patient’s condition and previous treatments tried. The patient or
986 the provider – if balance billing is prohibited by the terms of the in-network provider’s contract with the
987 carrier – may be liable for the cost of the service if care is rendered without approval.

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

- 991 • Non-emergency use of advanced imaging, including magnetic resonance imaging (MRI),
- 992 computerized tomography (CT) scans, and positron emission tomography (PET) scans;
- 993 • Physical, speech, and occupational therapy;
- 994 • Other musculoskeletal services, including spinal, hip, and knee surgeries;
- 995 • Radiation treatment for various cancers;
- 996 • Cardiac care, including cardiac catheterization and percutaneous coronary interventions
- 997 (outside emergency situations);
- 998 • Certain expensive laboratory testing, including genetic testing;
- 999 • Organ transplants;
- 1000 • Post-acute care;
- 1001 • Genetic testing; and
- 1002 • Specialty medications.^{174,175}

1003 For specialty medications, 68 percent of large firms offering coverage for specialty medications used
1004 step therapy requirements in 2016 to ensure first-line therapies are trialed before patients receive more
1005 expensive treatments (i.e., “fail-first”).² Prior authorization is also especially common for specialty
1006 medications. In 2016, 82 percent of these firms required prior authorization for at least some of these
1007 drugs.² As of 2009, about half of commercially insured individuals were thought to be subject to prior
1008 authorization requirements for advanced imaging;¹⁷⁶ the figure has almost certainly grown since.

1009 *EVIDENCE FOR THE EFFECTIVENESS OF PRIOR AUTHORIZATION*

1010 Prior authorization policies can avert low-value utilization through several mechanisms. In addition to
1011 outright denials, policies can serve to educate clinicians on appropriate use for future patients and deter
1012 requests for inappropriate services (the so-called “sentinel effect”). The administrative burden of
1013 requesting approval may also lead to different ordering decisions.

1014 Given the prevalence of use, there is surprisingly little rigorous peer-reviewed evidence on the
1015 effectiveness of prior authorization.¹¹⁴ One exception is a peer-reviewed study from the UK showing a
1016 rejection rate of 26 percent of requests for antineutrophil cytoplasmic antibody tests.¹⁷⁷ A second peer-
1017 reviewed study lacking comparison groups reported year-over-year decreases of 8 to 22 percent

1018 following implementation of new PA requirements for various types of advanced imaging.¹⁷⁸ The impact
1019 on trend after the first year was somewhat mixed.¹⁷⁸

1020 A 2008 Government Accountability Office (GAO) report used key informant interviews to examine the
1021 practices of commercial health plans around prior authorization for advanced imaging.¹⁷⁹ The GAO
1022 noted:

1023 Plan officials reported significant decreases in utilization after implementing a prior
1024 authorization program. For example, several of the plan officials we interviewed reported that
1025 annual growth rates were reduced to less than 5 percent after prior authorization; these annual
1026 growth rates had ranged for these plans from 10 percent to more than 20 percent before prior
1027 authorization programs were implemented. The biggest utilization decreases occurred
1028 immediately after implementation. One plan’s medical director said that prior authorization was
1029 the plan’s most effective utilization control measure, because it requires physicians to attest to
1030 the value of ordering a particular service based on clinical need. ^{179(p29)}

1031 Also on the basis of observational evidence without a comparison group, Lee and Levy (2012) studied
1032 the sharp slow-down in use of advanced imaging beginning in 2006.¹⁸⁰ Whereas the previous decade
1033 had witnessed growth in use of advanced imaging of greater than 6 percent per year for Medicare
1034 beneficiaries, growth in use of advanced imaging averaged just 1-3 percent per year from 2006-2009.
1035 Lee and Levy argue that commercial payers’ utilization management efforts “spilled over” in Medicare,
1036 and helped achieve the noteworthy reduction. However, Lee and Levy are not able to isolate the impact
1037 of prior authorization from concurrent changes in patient cost-sharing, Medicare reimbursement policy,
1038 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. Its effectiveness in other clinical areas is less well understood.

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.¹⁸¹

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.¹⁸¹

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.¹⁸¹

1045

1046 *DISADVANTAGES OF PRIOR AUTHORIZATION*

1047 Prior authorization has many disadvantages. First, prior authorization programs are administratively
1048 burdensome for practices – in the words of the American Medical Association, “The inefficiency and lack
1049 of transparency associated with prior authorization cost physician practices time and money.”¹⁸²
1050 Multiple studies indicate that the typical physician practicing in an ambulatory clinic spends more time
1051 completing desk work – authorizing medication refills, reviewing test results, communicating with staff,
1052 and completing dozens of other types of administrative responsibilities – than physically seeing
1053 patients.^{183,184} Prior authorization forms must typically be submitted through carrier-specific web
1054 portals or by fax.

1055 The paperwork burden is compounded by the fact that each carrier typically maintains its own policies
1056 and procedures for prior authorizations for covered services and medications; information requested
1057 and standards used may vary across plans for the same service. According to a recent AMA white paper,

1058 There is considerable variation between utilization review entities’ prior authorization criteria
1059 and requirements and extensive use of proprietary forms. This lack of standardization is
1060 associated with significant administrative burdens for providers, who must identify and comply
1061 with each entity’s unique requirements. Furthermore, any clinically based utilization
1062 management criteria should be similar—if not identical—across utilization review entities.¹⁸⁵

1063 Apart from paperwork, preliminary denials often lead to peer-to-peer consults, which the ordering
1064 provider may be unable to delegate to other staff. This sort of administrative burden has been linked to
1065 stress, burnout, and attrition.¹⁸⁶ Researchers have estimated that all together, prior authorization and
1066 other administrative responsibilities cost between \$68,000-\$85,000 per physician per year.¹⁸⁶

1067 Second, prior authorization programs may delay care and engender ill-will for perceived interference in
1068 the patient/provider relationship. For example, a recent study of records for 1,985 neurosurgery
1069 patients requiring prior authorization found that approval was delayed by eight days or more for four
1070 percent of patients with Medicare Advantage coverage, 20 percent of patients with Medicaid coverage,

1071 and 28 percent of patients with commercial coverage.¹⁸⁷ Overall, the vast share of requests were
1072 ultimately approved.

1073 Third, prior authorization programs are inherently unsuited for restricting the delivery of low-value care
1074 that may be rendered in emergencies. “Real time” review is almost always impractical.

1075 Fourth, prior authorization programs entail substantial administrative costs for carriers; specially trained
1076 nurses, pharmacists, and physicians are commonly contracted to provide review, and multiple levels of
1077 review/appeals may be required before a request is resolved. Especially for low-cost services, the plan-
1078 paid administrative expense of establishing and maintaining a program may easily outweigh any savings
1079 achieved. Accordingly, prior authorization programs generally limit programs to high-cost medications
1080 and services.

1081 A promising approach is electronic prior authorization (ePA).¹⁸⁸ Using structured data stored in
1082 electronic medical records, the aspiration is that medical data will seamlessly flow from any provider’s
1083 electronic health record to any carrier or pharmacy benefit manager (PBM) using agreed-upon
1084 transmission standards. The carrier/PBM can then assess whether or not the requested service or
1085 medication meets the payer’s criteria for coverage. Covermymeds – an organization dedicated to
1086 advancing ePA for drugs – states that vendors representing 73 percent of the EHR market have
1087 expressed commitment to ePA, as have 96 percent of PBMs, and nearly all large pharmacies.¹⁸⁸ Many
1088 EHRs support ePA at present, and providers tend to report a considerable reduction in administrative
1089 burden in association with ePA use.¹⁸⁸ While leaders in the field – including the AMA¹⁸⁵ – have called for
1090 electronic automation of prior authorization processes through commonly accepted electronic
1091 standards beyond specialty medications,^{185,189} progress in implementing ePA for medical services is more
1092 difficult to ascertain. Movement to align prior authorization clinical criteria across payers – another
1093 AMA priority – is also unclear.¹⁸⁵

1094 The future role of prior authorization is not clear. On one hand, the transfer of financial risk to provider
1095 organizations suggests that perhaps the need for payer-directed restrictions will diminish over time as
1096 providers assume greater responsibility for ensuring the prudent use of resources. On the other hand,
1097 the pace of medical innovation does not appear to be slowing; “precision medicine” is on the rise.¹⁹⁰
1098 Often expensive, precision therapies with highly specific, context-dependent indications may produce
1099 substantial gains in health, but only when used in narrow populations (e.g., patients with a certain
1100 biomarker). The potential for use of expensive therapies in patients who will not derive benefit is a

1101 natural opening for new prior authorization programs. Prior authorization vendors appear bullish about
1102 the relevance of their offerings.^{174,175}

1103 Regardless, before considering implementation of any new prior authorization program – be it for
1104 precision therapies or more established services or medications – payers and carriers should be
1105 confident that prior authorization programs will not substitute administrative waste for low-value care.

1106 NETWORK DESIGN

1107 Historically, most Americans have enrolled in health plans with broad networks offering the opportunity
1108 to receive in-network coverage from a wide choice of providers. This has evolved recent years. In 2016,
1109 18 percent of firms with 5,000 or more employees offered a narrow network plan restricting in-network
1110 access to a set of providers that is smaller than customary.² Among these large firms, 38 percent
1111 offered a plan with a tiered provider network, whereby members could enjoy lower cost-sharing when
1112 receiving care from a preferred subset of in-network providers.² In the individual market, a report from
1113 the McKinsey Center for US Health System Reform found that 38 percent of silver exchange-sold plans
1114 used narrow networks in 2016.¹⁹¹ Five percent were reported to use tiered networks.¹⁹¹ Insurers price
1115 narrow network products at a substantial discount relative to plans with broad networks. McKinsey
1116 reported that silver exchange-sold plans with broad networks are typically 22 percent more expensive
1117 than narrow network plans.¹⁹¹

1118 Tiering among in-network providers is another option to steer volume to more preferred providers.
1119 Building on the success of its V-BID program for pharmaceuticals, the State of Connecticut employee
1120 health plan will tier providers of outpatient laboratories and diagnostic imaging as follows:

- 1121 • Out-of-network: 40 percent coinsurance (unless the medically necessary service cannot be
1122 procured from an in-network facility);
- 1123 • In-network, non-preferred: 20 percent coinsurance (to include providers imposing facility fees);
1124 and
- 1125 • In-network, preferred: full coverage.

1126 In addition, primary care providers and specialists will be ranked based on cost and quality, with lower
1127 cost-sharing for providers designated as high-value. A “Smart Shopper” program will provide rebates for
1128 use of various preferred providers as well.[CT CITE] Tiering of in-network providers has produced
1129 promising results. A recent evaluation by Sinaiko et al. (2017) of a tiered product in Massachusetts
1130 found savings of about five percent per year associated with enrollment in the tiered product.¹⁹²

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*

1136 services. Tendency to avoid delivery of low-value services could and should be taken into consideration
1137 in network design as well. As shown in Figure 3, provider organizations vary considerably in the delivery
1138 of care that should not be purchased at any price. Wasteful services are wasteful, even if purchased at
1139 low unit prices.

1140 The work of Covered California on appropriate use of caesarean sections is exemplary in this respect. In
1141 2014, the use of cesarean section for low-risk deliveries in California hospitals ranged from a low of 12
1142 percent at one hospital to a high of 42 percent at another.¹⁹³ California’s marketplace required that
1143 plans selling coverage through the exchange work to reduce use of caesarean sections to a rate no
1144 greater than the Health People 2020 target of 23.9 percent for low-risk deliveries.^{h,194} In addition to
1145 ensuring payments to physicians and hospitals do not favor caesarean sections over vaginal deliveries,
1146 the 2017 Covered California issuer contract anticipates use of selective contracting to drive
1147 improvement.¹⁹⁴ The following language is included in the 2017 contract between each qualified health
1148 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.^{194(p23)}

1157 Beyond considering historic use of low-value services in tiering and network inclusion decisions, plans
1158 might also give consideration to:

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

- 1159 • Providers' investment in shared decision-making
1160 processes. Ultimately, a service that a patient
1161 would refuse with the benefit of full information is
1162 a low-value service. A recent Cochrane review
1163 pooled the results from 17 high-quality studies of
1164 the use of decision aids for patients choosing between surgery and a more conservative option.
1165 Across 3,108 participants in the 17 studies, the likelihood of choosing surgery decreased by 16
1166 percent in association with use of a decision aid.¹⁹⁵
- 1167 • Providers' investment in clinician-facing tools to avoid low-value care, such as clinical decision
1168 support (see sidebar).

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

1169 3-D. ADDITIONAL STEPS

1170 The strategies described above for reducing overuse are certainly not exhaustive. Additional options for
1171 employers and carriers to advance low-value care reduction include:

- 1172 • *Supporting and engaging with regional coalitions addressing overuse.* For example, the
1173 Washington Health Alliance – an organization dedicated to “bring[ing] together those who give,
1174 get and pay for health care to create a high-quality, affordable system for the people of
1175 Washington State” – includes more than 25 purchasers and more than 15 carriers.¹⁹⁶ The
1176 Alliance has convened a statewide *Choosing Wisely* Task Force intended to bring about more
1177 productive conversations around overuse among key stakeholders. Two reports on use of ten
1178 *Choosing Wisely* services across the state by region have been released; progress was observed
1179 on six of the ten measures according to the most recent report.^{47,197} Many other region-specific
1180 multi-stakeholder organizations have pursued related efforts.
- 1181 • *Contribute to all-payer claims databases (APCDs).* According to the APCD Council, all-payer
1182 claims databases currently operate in more than a dozen states, with strong interest in many
1183 other states.¹⁹⁸ Since the Supreme Court’s 2016 decision in *Gobeille vs. Liberty Mutual*, states
1184 have been unable to compel self-insured groups to share their claims experience with statewide
1185 APCDs. Self-insured groups remain free to share their experience if they choose, however.
1186 Contributing claims to APCDs can help bring about better analysis of patterns of low-value care

1187 delivery. High-quality analyses, in turn, can guide regional priority-setting and draw attention to
1188 the most salient types of low-value care affecting local patients and employers.

1189 The work of the multi-stakeholder Virginia Center for Health Innovation, which drew on
1190 Virginia's APCD to analyze delivery of low-value care, can be a model for this work.¹⁰⁶ Studying
1191 the 2013 and 2014 experience of more than five million Virginians covered by Medicare,
1192 Medicaid, and commercial carriers, the Center found that about 1.7 million low-value services
1193 were performed each year, at a total cost of \$641 million in 2013 and \$655 million in 2014.¹⁰⁶
1194 About one in five Virginians receives a low-value service in a given year.¹⁰⁶ The office overseeing
1195 the state employees' health plan is seeking to act on this information when releasing a request
1196 for proposals (RFP) for carriers. (A subset of these findings will appear in a forthcoming *Health*
1197 *Affairs* article.⁶⁹)

1198 4. DRIVING THE LOW-VALUE CARE REDUCTION AGENDA FORWARD

1199 In the US and beyond, *Choosing Wisely* has changed the dialogue around value in health. With
1200 approximately 500 low-value services identified, a large range of providers, provider organizations, and
1201 academics have advanced this work. According to Morgan et al. (2016), 821 peer-reviewed articles on
1202 overuse were published in 2015 alone¹⁹⁹ – more than the substantial body of work released in prior
1203 years (Figure 9).^{200,201} While public and private payers, purchasers, and carriers in the US are moving
1204 away from fee-for-service reimbursement, specifically eliminating low-value care has received
1205 comparatively little of their focused attention. But there is rich precedent for buyers acting to improve
1206 quality and value.

1207 The first set of HEDIS measures – then the HMO Employer Data and Information Set – was released in
1208 1991.²⁰² Since that time, public and private purchasers alike have come to place considerable emphasis
1209 on what are now 81 aspects of quality assessed through the measure set.²⁰³ Purchasers inquire as to
1210 carrier performance on HEDIS measures in RFPs, plans publicly report on their performance, and some
1211 payers (most notably, Medicare Advantage through the Stars program) offer substantial financial
1212 incentives for achieving high or improved performance.

Figure 9: Unique English-Language, PubMed-Indexed Studies of Overuse

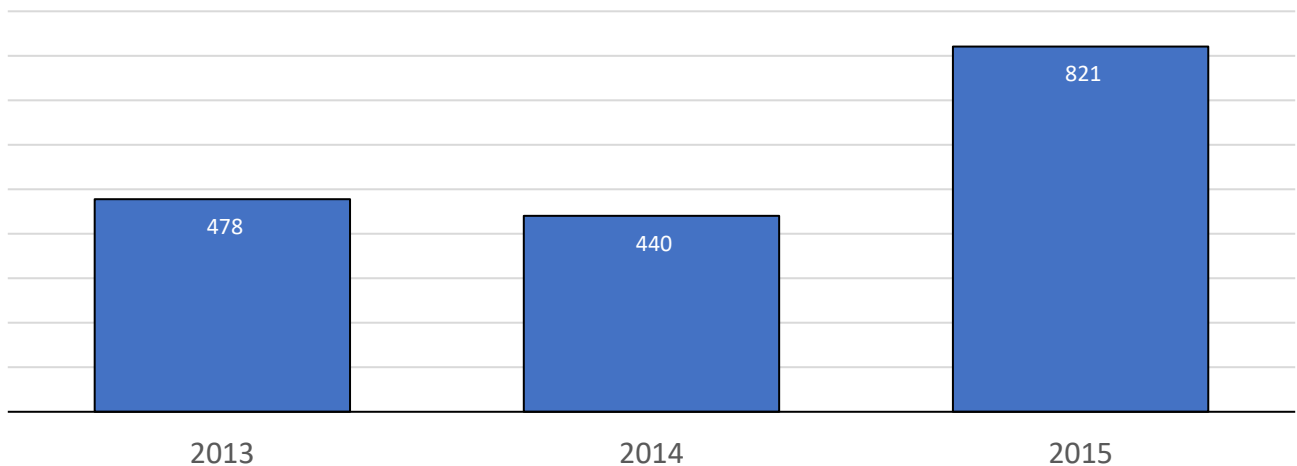


Figure derived from:
Morgan DJ, Wright SM, Dhruva S. Update on Medical Overuse. *JAMA Intern Med.* 2015;175(1):120-124.
Morgan DJ, Dhruva SS, Wright SM, Korenstein D. Update on Medical Practices That Should Be Questioned in 2015. *JAMA Intern Med.* 2015;175(12): 1960-1964
Morgan DJ, Dhruva SS, Wright SM, Korenstein D. 2016 Update on Medical Overuse: A Systematic Review. *JAMA Intern Med.* 2016;176(11):1687-1692.

1213 In turn, carriers devote considerable resources to improving performance on key HEDIS measures, which
1214 are overwhelmingly comprised of measures related to *high-value* care. All this has been associated with
1215 laudable improvements on a range of process and outcome measures that matter.²⁰⁴ Even if half of all
1216 reported improvements were artifacts of more diligent coding, the gain in health would still be
1217 substantial.

1218 Recognizing the influence of the buyer community, VBID Health’s Task Force on Low-Value Care, is
1219 seeking to more fully catalyze purchaser action to eliminate low-value care.

1220 4-A. ASSEMBLING A LIST

1221 Attendees of the April 2017 meeting generally agreed that a short list of commonly overused services
1222 most suitable for purchaser action on low-value care could be of considerable value in catalyzing and
1223 supporting focused action in this area. Meeting participants articulated several key criteria and guiding
1224 principles for identifying suitable services. The following types of services might be reasonably
1225 prioritized:

- 1226 • *Services that produce harm.* Services that have received unfavorable ratings due to the harm
1227 they produce – for example, due to avoidable radiation exposure – may be prime candidates.
1228 Many such services have been identified by the USPSTF, the UK’s National Institute for Health
1229 and Care Excellence, Canada’s Agency for Drugs and Technologies in Health, and *Choosing*
1230 *Wisely*. Harmful care that is especially prominent in the national dialogue (e.g., overprescribing
1231 of opioids) might also be prioritized. Ultimately, harmful or no-value services may be more
1232 suitable for efforts than services that produce benefit but with poor cost-effectiveness. In the
1233 words of one meeting attendee, the “juice must be worth the squeeze.” Harmful care is
1234 especially likely to be worth the squeeze.
- 1235 • *Services that are always of low-value for particular populations.* Services for which
1236 appropriateness is more difficult to discern through administrative data alone may be less
1237 attractive targets for action (see “Sidebar: Clinical Nuance and Claims-Based Estimation of Low-
1238 Value Care”). For example, avoidance of Vitamin D screening might be prioritized over
1239 appropriate use of percutaneous coronary interventions.
- 1240 • *Services least likely to engender ill-will among interested parties.* Achieving meaningful
1241 transformation while avoiding all dissent is unrealistic. But some services are more likely to
1242 draw harsh attention from critical stakeholders than are others. As discussed above, for

1243 example, the Oregon Public Employees Benefit Boards elected to exempt services related to
1244 cancer treatment from the additional cost tier given strong sentiments among employees (see
1245 Section 3-C, “Value-Based Insurance Design”). Clinical topics of consensus within the provider
1246 community are far more attractive than topics with more controversy.

- 1247 • *Services associated with (a) high prevalence, (b) high unit cost, and/or (c) high total costs.* If
1248 improved care through low-value care avoidance is to relieve pressure on public and private
1249 payers – and thereby avoid more blunt approaches to cost containment – payers must realize
1250 savings. Low-cost services with high rates of inappropriate use and high-cost services with low
1251 rates of inappropriate use may both be attractive to this end. Low-cost services with low rates
1252 of inappropriate use are clearly poor candidates for action. Some purchasers noted that
1253 addressing low-value care consumed by the minority of insureds who account for the vast
1254 majority of spending is more appealing than addressing low-value care that impacts the majority
1255 of insureds who use relatively little medical care. Similar logic applies to low-value care that
1256 reduces employee productivity.
- 1257 • *Services for which feasible, effective interventions to reduce overuse exist.* As described in
1258 Section 2, many viable approaches for low-value care reduction exist. Some types of context-
1259 specific services more naturally lend themselves to tried and tested strategies (e.g., avoiding use
1260 of low-value imaging in non-emergent settings) than do other services.

1261 4-B. ADDITIONAL SUPPORTS

1262 A list of actionable services can help galvanize the purchaser community, but additional supports are
1263 critical. Some are well-suited for a purchaser-oriented toolbox of resources.

- 1264 • An agreed-upon composite measure of low-value care delivery suitable for use in provider-
1265 facing incentive programs. For example, the June 2017 MedPAC report discussed above
1266 proposed use of a performance measure dedicated to low-value care reduction in a new MIPS
1267 program (see Section 3-B, “Payment Models”).^{140(p167)} Specifications for a consensus measure
1268 dedicated to these purpose could be valuable. In time, such a measure might be included in the
1269 Medicare Advantage Stars Program and the Healthcare Effectiveness Data and Information
1270 Set (HEDIS).
- 1271 • Language around carrier-led overuse efforts that purchasers can use in their request for
1272 proposal (RFP) processes when soliciting health plan services. Purchasers could request

1273 information on carrier work with respect to some or all of the low-value care reduction
1274 strategies discussed in Section 3.

- 1275 • Benefit design summaries for plans that have implemented V-BID targeting low-value care.
- 1276 • Resources for measuring the full burden of low-value care delivery among insureds.
- 1277 • A compendium of best practices for communicating with employees around low-value care
1278 reduction.

1279 4-C. CONCLUDING THOUGHTS

1280 Focused purchaser efforts are needed to reduce the delivery of services that are unsafe or unwise at any
1281 price. To this end, purchasers can pursue a range of provider-facing supports, policies, and payment
1282 models, and can develop well-aligned patient-facing interventions. Leading employers and carriers have
1283 piloted a range of promising – and in many cases, successful – efforts; there is a rich range of relevant
1284 experience that can inform future efforts. Ultimately, the most effective initiatives in this area will likely
1285 marry interventions to change provider behavior with
1286 carefully designed incentives to affect consumers.

1287 With leadership from the purchaser community, new
1288 action to eliminate low-value care will help protect
1289 patients from the physical, financial, and time-related
1290 harms of overuse; support allied efforts in the provider
1291 community; and free limited health care resources for
1292 more productive uses.

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.

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