Low-Value Services in Value-Based Insurance Design

Peter J. Neumann, ScD; Hannah R. Auerbach, BA; Joshua T. Cohen, PhD; and Dan Greenberg, PhD

Value-based insurance design (VBID) has attracted favorable attention since it was proposed almost a decade ago. The topic has been the subject of numerous academic papers and conferences, and admiring articles in the popular press. Policymakers have implemented or planned numerous VBID programs.

The conceptual appeal of VBID is understandable: tailoring health insurance programs to encourage high-value services and discourage low-value care promises to improve health and reduce costs. However, in practice policymakers have devoted most of their attention to one side of the VBID equation: namely, providing positive incentives to encourage individuals to use high-value care. The flip side—imposing disincentives to the use of substantiated low-value services—has yet to gain traction.

Our objective is to explore challenges in identifying low-value services and in incorporating such information into VBID programs.

FOCUS ON HIGH-VALUE SERVICES

Appeal of Value-Based Insurance Design

While tiered formularies have flourished over the past decade, existing arrangements have tended to focus on drug price rather than on evidence of a drug's overall value as the criterion for tier placement. Higher priced drugs are placed on third or fourth tiers with high copayments regardless of whether the drugs provide good value. These “unintelligent” benefit designs create problems. Although they may reduce health costs, patients faced with higher copayments are more likely to switch medications or to discontinue medications entirely. Studies have found that cost sharing can lead to reductions in the use of essential drugs, as well as higher rates of serious adverse events, more frequent visits to the emergency department, and more hospital days.

Value-based insurance design combines incentives to encourage individuals to be more cost-conscious about their healthcare choices with information on the effectiveness and cost-effectiveness of healthcare services. For example, drugs with favorable evidence of value or cost-effectiveness would receive preferential formulary status in terms of reduced cost sharing for patients.

Experience With Value-Based Insurance Design to Date

Policymakers have experimented with VBID approaches in recent

For author information and disclosures, see end of text.

In this article
Take-Away Points / p281
www.ajmc.com
Full text and PDF

www.ajmc.com APRIL 2010

© Managed Care & Healthcare Communications, LLC

Value-based insurance design (VBID) has attracted favorable attention since it was proposed almost a decade ago. The topic has been the subject of numerous academic papers and conferences, and admiring articles in the popular press. Policymakers have implemented or planned numerous VBID programs.

The conceptual appeal of VBID is understandable: tailoring health insurance programs to encourage high-value services and discourage low-value care promises to improve health and reduce costs. However, in practice policymakers have devoted most of their attention to one side of the VBID equation: namely, providing positive incentives to encourage individuals to use high-value care. The flip side—imposing disincentives to the use of substantiated low-value services—has yet to gain traction.

Our objective is to explore challenges in identifying low-value services and in incorporating such information into VBID programs.

FOCUS ON HIGH-VALUE SERVICES

Appeal of Value-Based Insurance Design

While tiered formularies have flourished over the past decade, existing arrangements have tended to focus on drug price rather than on evidence of a drug's overall value as the criterion for tier placement. Higher priced drugs are placed on third or fourth tiers with high copayments regardless of whether the drugs provide good value. These “unintelligent” benefit designs create problems. Although they may reduce health costs, patients faced with higher copayments are more likely to switch medications or to discontinue medications entirely. Studies have found that cost sharing can lead to reductions in the use of essential drugs, as well as higher rates of serious adverse events, more frequent visits to the emergency department, and more hospital days.

Value-based insurance design combines incentives to encourage individuals to be more cost-conscious about their healthcare choices with information on the effectiveness and cost-effectiveness of healthcare services. For example, drugs with favorable evidence of value or cost-effectiveness would receive preferential formulary status in terms of reduced cost sharing for patients.

Experience With Value-Based Insurance Design to Date

Policymakers have experimented with VBID approaches in recent
years, but the programs have focused on lowering or waiving copayments for high-
value services, rather than raising copay-
ments for low-value care.17 For example,
some employers have waived copayments
for certain chronic disease medications.

Two well-known examples are programs
run by the Pitney Bowes corporation and
the city of Asheville, North Carolina.2
Pitney Bowes, which provides asthma
and diabetes medications to its employees for free, has claimed a
19% decrease in costs per asthma patient.3,18 Company
officials have argued that the program has delivered health gains
for employees, as well as corporate value in terms of improved
absenteeism and presenteeism.19 The Asheville Project in-
volved waiving copayments for diabetes care for Asheville
city employees. The project reportedly improved economic
and health outcomes over a 5-year period; while prescription
costs rose, overall medical costs declined and glycosylated
hemoglobin and lipid levels improved.20

Other programs have reduced drug copayments for pa-
patients with diabetes, asthma, and high blood pressure.21,22
The University of Michigan has offered some diabetes medi-
cations at low cost or no cost to staff and their families in
an attempt to prevent high-cost medical complications.4
An evaluation of the program is under way.21 Choudhry et
al reported that of 1075 employers surveyed, 23% had VBID
programs in some form.23 Of employers with VBID programs,
52% have offered low-cost medications for chronic disease
management. Of this group, more than half report that the
programs are successful, with another 39% stating it is too
soon to determine.23

Meanwhile, other experiments in providing financial in-
centives in the form of cash or reduced insurance premiums
for improving health also have shown promise.24,26 Research-
ers have conducted randomized controlled trials to study the
impact of offering incentives to encourage smoking cessation
and weight loss. Subjects receiving financial incentives were
more likely to quit smoking and to lose weight.24,25 Elsewhere,
researchers have estimated through decision-analytic model-
ing that providing full coverage (ie, no copayments) for cer-
tain drugs such as angiotensin-converting enzyme inhibitors
for patients with diabetes would save money overall and im-
prove health.27,29

A bill recently introduced in the US Senate called for the
establishment of a VBID demonstration program in Medi-
care.30 However, the bill focuses on reducing participants'
copayments for “high-value” and “high-effectiveness” medi-
cations for conditions such as asthma, chronic obstructive
pulmonary disease, depression, diabetes, and hypertension.

Low-Value Services in VBID

Take-Away Points
To fulfill their promise of improving value and moderating cost growth, value-based insur-
ance design (VBID) programs should target low-value as well as high-value care.

- Labeling any medical technology or service as “low value” is not straightforward.
- VBID programs might be designed around a broad set of services, including medical
management instead of surgery; ideally, these programs would tie incentives to specific
indications and to subgroups.
- Targeting low-value services presents political challenges because it involves providing
disincentives for care that may offer positive if marginal health benefits.

EVIDENCE REQUIREMENTS TO IDENTIFY LOW-VALUE SERVICES

Measures to discouragе use of low-value services, on the
other hand, have not estableished a toehold in VBID programs
or proposals. Proponents of VBID have found it easier to fo-
cus on “winners” (encouraging high-value services) than on
“losers.” To be sure, many health plans have created a fourth
tier for high-cost specialty products, but tier placement is tied
to drug costs rather than to explicit evidence of value.

One challenge in defining low-value care pertains to de-
defining the term. As the health economist Henry Aaron has
noted, a costly intervention that is always useless or that
harms patients would qualify as pure “waste.”31 Research-
ers often use the term “inappropriate care” to denote care
that often or frequently does not offer positive clinical ben-
efits and possibly results in harm, including prostate cancer
screening, prostatectomy, carotid artery stenosis screening,
and aggressive interventional procedures at the end of life.32
However, the term “low-value” goes beyond waste and inap-
propriate care to include interventions that deliver positive
but limited benefits relative to their costs. As Aaron notes,
“Most of the care that analysts label as waste is not uniformly
useless but produces average benefits that are judged to be
small relative to cost.”31

The question is when to characterize a clinical benefit as
“small.” Most clinical studies express health gains in terms of
disease-specific outcomes, which do not provide a good basis
for comparing value across conditions. A researcher studying
alternative strategies to treat colorectal cancer may express
outcomes in terms of tumor response or progression-free sur-
vival. But suppose a new treatment costs $20,000 and improves
5-year survival by 1%. Is it a low-value service? How does it
compare with a diagnostic test that rules out a serious illness,
or a drug that relieves symptoms of depression or migraine?

Researchers have devoted a great deal of attention to de-
veloping standard metrics to help define high-value and low-
value care. One such metric is cost-effectiveness, expressed in
terms of the incremental cost of a service per quality-adjusted
life-year (QALY) gained. A service is of low value if its costs
are large for each QALY gained. The use of QALYs to quantify health benefits raises conceptual and measurement challenges. Moreover, even when QALY estimates are available, there is still the question of how large the cost per QALY gained must be to constitute low value. Researchers most often have used a cost-effectiveness threshold of $50,000 or $100,000 per QALY as a benchmark for societal willingness to pay.34

Another challenge relates to the level of clinical evidence required to quantify service benefits. Ideally, data come from a randomized controlled trial comparing the service in question with a clinically relevant alternative therapy. Non-randomized evidence, including data from well-conducted observational studies, also may prove highly useful in certain situations provided that potential biases have been adequately addressed.15

In practice, all clinical evidence has limitations, including evidence from randomized controlled trials. A study may compare a new drug with placebo rather than to an active comparator. It may compare a new drug with an older drug, whereas the relevant alternative may be surgery or another management strategy. Two services with equal or similar estimated benefits may be supported by different studies that have unequal sample sizes and hence different levels of precision.

Another challenge relates to the target population. Ideally, clinical studies should include patient groups representative of the target population. In practice, many studies exclude patients with “complicating” conditions that might interfere with analysis of the results, or the studies end after a limited period of time.36 Moreover, interventions typically affect individual patients differently. The resulting averages conceal information that may be important to patients and providers.31 A service that may be of low value to one subgroup of patients may be of high value to another.

Yet another issue relates to the strength of cost-effectiveness evidence. A large and growing cost-effectiveness literature attempts to synthesize the best information to evaluate health intervention incremental costs and clinical benefits.37 This literature can provide a useful guide to defining high-value and low-value services, though it is hampered by well-known limitations including variations across studies in methods used to measure costs and health effects.37,38 In addition, some of the analyses do not compare interventions with the most relevant comparators.

### Existing Data on Low-Value Services

To provide some guidance about existing information on potentially low-value services, we searched the Tufts Medical Center Cost-Effectiveness Analysis (CEA) Registry (www.ceearegistry.org), a comprehensive database of some 1700 cost-effectiveness analyses through 2007 in the medical and public health literature that report incremental costs per QALY gained.37 The CEA Registry details the service or technology evaluated, the comparator, the assumed eligible population, and the reported cost-effectiveness ratio. For purposes of this study, we defined low-value services to be those that make health worse (without saving money) or those that cost at least $100,000 per QALY gained.34,39 We restricted our attention to papers published since 2000, as these studies more likely pertain to contemporary medical practice.

**Table 1** provides an illustrative list of potential low-value services from the CEA Registry. The list includes several drugs to treat cancer, as well as other therapies such as left ventricular assist devices and lung volume reduction surgery.

We supplemented this literature review with a list of services rejected by the United Kingdom’s National Institute for Health and Clinical Excellence (NICE) for coverage by the UK’s National Health Service. Based on a series of detailed reports (available at www.nice.org.uk), NICE rejected certain services with net costs that are too high relative to their net benefits. As Table 2 indicates, NICE recently rejected coverage for a number of technologies, including cancer drugs and drug-eluting stents for coronary artery disease (these stents are generally covered in the United States).

### Key Challenges in Identifying Low-Value Services

#### Identifying Appropriate Services and Subgroups

Building negative incentives into VBID programs to discourage use of low-value care will involve a number of challenges, the first of which is the identification of appropriate candidates. One could begin by investigating services addressing conditions responsible for high levels of healthcare spending. Services to be designated as low value could then be identified by examining the cost-effectiveness literature or by convening panels of experts to comb through the available evidence.

Another strategy would involve identifying those services for which spending varies substantially across geographic regions without an accompanying difference in healthcare outcomes. Research on large and unexplained regional variations in US health spending and the fact that this variation is not correlated with health outcomes suggests an abundance of potential low-value targets.40-46 However, research to date has not done as good a job of identifying specific low-value services,11,40,41 though some guidance is available. Fischer et al reported, for example, that physicians in high-spending regions are much more likely to recommend discretionary...
services such as referral to a subspecialist for typical gastro-esophageal reflux or stable angina. Variation in the level and growth of health spending appears to be driven by the use of technologies with widely varying benefits for different populations such as specialist consultations and diagnostic imaging.

A key question pertains to the scope of services to be covered by VBID programs. To date, VBID programs have focused much of their attention on drugs. Whether VBID can be expanded to address medical devices, procedures, and diagnostics is an important area for inquiry. Conceivably, VBID programs might be designed around a broad set of services, including medical management over surgery (eg, stents vs coronary artery bypass graft surgery, noninvasive vs invasive strategies for low back pain).

Invariably, clinical choices are complex and labeling any medical technology or service as “low value” is not straightforward. As many observers have noted, identifying inefficient areas of medicine is surprisingly difficult. Even those interventions deemed excessively costly usually help some patients and may be high value in selected subgroups. Almost every clinical service can be defined to be high or low value if used in appropriate or inappropriate patient groups. Ideally, VBID programs would tie incentives not to broad patient populations but to specific indications and to narrowly defined subgroups, though that would likely raise other challenges and concerns about equity.
Implementation Issues

Linking incentives to narrow clinical indications will likely require upgrades to existing infrastructure. For example, current information systems typically do not capture the level of clinical detail required to link payment to specific indications or patient subgroups. The data collected in administrative and claims files must capture the clinical detail needed to identify services as low or high value. The advent of electronic health records affords an opportunity to capture and use such information in future VBID programs.

Political Challenges

Targeting low-value services presents political challenges because it involves discouraging care that may offer positive if marginal health benefits. In contrast, providing incentives for high-value services creates winners, and thus encounters little resistance. Moreover, as our review of the Tufts CEA Registry and NICE decisions reveals, services identified as low value can target diseases such as cancer that are highly sensitive and backed by strong patient advocate groups. Furthermore, services that are low value by conventional standards often are strongly supported by product manufacturers and medical professional societies.

Identifying noncontroversial low-value services and designing VBID programs to discourage their use will not be easy, especially for a public already cynical about managed care. It also creates operational challenges and the potential for "gaming" (eg, physicians may exercise discretion over how they code patients in order to influence coverage).

Including low-value services in VBID programs also could raise questions about fairness. For example, tailoring VBID to limit services based on clinical or demographic characteristics would mean that certain patients would make higher copayments based on the severity of their condition. Some will argue that cost sharing is unreasonable for very expensive technologies (eg, specialty drugs) that cost tens of thousands of dollars. Beyond that there are issues regarding how to measure value—highlighted recently by activities undertaken by NICE, which has recognized that dimensions of patient experience and characteristics of therapies (eg, end-of-life care) may not be well captured by cost per QALY ratios.

We do not presume that addressing these issues will be easy or straightforward. Still, we believe that advancing VBID to include low-value services is worthwhile. Despite challenges, it only makes sense to try to identify and provide disincentives for care that offers little marginal gain for the resources consumed. Some may argue that in developing VBID programs it is preferable to focus on the magnitude of clinical benefits without explicitly considering cost-effectiveness. Others might contend that expensive services low in value would be naturally rejected by intelligent providers. We believe, however, that being explicit about costs and benefits through careful analysis is critical. Previous analysis has highlighted the fact that such analysis can shed light, sometimes in counterintuitive ways, on opportunities for improving health efficiently. For example, researchers have found that although high-technology treatments for existing conditions can be expensive, such measures may, in certain circumstances, also represent an efficient use of resources. Similarly, although certain preventive services offer good value or even save money, many others do not. The alternative is to avoid formal discussions about value and to make decisions about benefit design without adequate information.

ROLE OF FEDERALLY SUPPORTED COMPARATIVE-EFFECTIVENESS RESEARCH

Recent efforts to substantially expand the federal government's role in comparative-effectiveness research could help bolster the evidence base for VBID programs. As a vehicle for understanding the clinical effectiveness of medical care, comparative-effectiveness research promises to help identify types of care that provide little or no health gain. Comparative-effectiveness research also can help to stimulate work on methods and metrics for comparing treatment options, including the use of metrics other than QALYs. In addition, federal support can fund studies that shed light on the impacts of different levels of copayment for various services. The American Recovery and Reinvestment Act of 2009 also established a Federal Coordinating Council for Comparative Effectiveness Research, which can help coordinate comparative-effectiveness research across relevant federal departments and agencies to advise on priorities and infrastructure needs.

Possibly, federal support for comparative-effectiveness research can help target cost-effectiveness research. Although the number of cost-effectiveness analyses published each year has been growing steadily, the publication rate is small relative to the rate at which clinical studies are conducted. Moreover, the existing cost-effectiveness literature seems to showcase "favorable" cost-effectiveness ratios. Federal support also could help ensure that the cost-effectiveness analyses cover a broad range of interventions and are conducted using appropriate comparators.

CONCLUSIONS

Limiting attention to the promotion of high-value services in VBID programs is the health policy equivalent of one hand
clapping. It deals with the easy part of the problem and does nothing to dissuade the use of costly care of marginal benefit.

prevailing wisdom has long held that, unlike people in other countries, Americans cannot openly acknowledge risk of health, Tufts Medical Center (PJN, HRA, JTC, DG), Boston, MA; and the Department of Health Systems Management (DG), Ben-Gurion University of the Negev, Be’er-Sheva, Israel.

Acknowledgment

The authors are grateful to Sharon B. Arnold, PhD, for helpful comments on an earlier version of the manuscript.

Author Affiliations: From the Center for the Evaluation of Value and Risk in Health, Tufts Medical Center (PJN, HRA, JTC, DG), Boston, MA; and the Department of Health Systems Management (DG), Ben-Gurion University of the Negev, Be’er-Sheva, Israel.

Funding Source: This research project was funded by the Robert Wood Johnson Foundation.

Author Disclosures: The authors (PJN, HRA, JTC, DG) report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

Authorship Information: Concept and design (PJN, JTC, DG); acquisition of data (PJN, HRA); analysis and interpretation of data (PJN, HRA); drafting of the manuscript (PJN, HRA, JTC, DG); critical revision of the manuscript for intellectual content (JTC, DG); administrative, technical, or logistic support (HRA); and supervision (PJN).

Address correspondence to: Peter J. Neumann, ScD, Center for the Evaluation of Value and Risk in Health, Tufts Medical Center, 800 Washington St #63, Boston, MA 02111. E-mail: prneumann@tuftsmedicalcenter.org.

REFERENCES


34. Grosse SD. Assessing cost-effectiveness in healthcare: history of the $50,000 per QALY threshold. Expert Review of


