

Value-Based Insurance Design: Embracing Value Over Cost Alone

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Introduction—The Backdrop

The US healthcare system is in crisis, with documented gaps in quality, safety, access, and affordability. Years of escalating costs—which will be pushed even higher by new medical advances¹—have not always paid off in terms of better quality or outcomes.² In short, we pay more than any other country for healthcare, but get less.³ We need to somehow contain costs, yet improve quality.

Across-the-Board Cost-Sharing and What Went Wrong

Many believe the solution to our cost crisis is increased patient cost-sharing at the point of medical service. The rationale^{4,6}: with more “skin in the game,” patients would use only essential care, thereby eliminating wasteful overuse and reducing costs, with no effect on outcomes.^{5,7} Thus, higher copays, coinsurance rates, tiered pharmacy benefits, and high-deductible health plans have appeared across the board.⁴

Although the “one size fits all” cost-sharing solution has produced the intended effect (by dampening consumption), the underlying rationale has proved short-sighted.^{5,8} Ample evidence shows that increased, untargeted cost-sharing, even in modest amounts:

- Decreases use of essential care, including potentially life-saving medications and services (such as immunizations and cancer screening).⁹⁻¹¹
- Adversely affects compliance, adherence,^{6,12-14} and outcomes,⁵ and ultimately leads to worse overall population health.^{2,4,6}

From an overall cost perspective, reduced consumption of essential care may yield short-term savings but may also lead to worse health outcomes and markedly higher costs down the road—in complications, hospitalizations, and increased utilization.¹⁵

These adverse consequences flow from 2 major shortfalls in the “one size fits all” approach. First, it disregards heterogeneity—medical interventions have different clinical benefits for different people.⁸ Second, giving patients expanded cost and decision-making responsibility in isolation simply does not correlate with optimal clinical outcomes, especially for patients who are not adequately informed.^{1,4} Research reflects that patients, even when paying more, do not (some might argue cannot) distinguish between high- and low-value therapies.⁵ The latter shortfall bears emphasis. Shifting the information and decision-making burden to the patients:

Abstract

The US healthcare system is in crisis, with documented gaps in quality, safety, access, and affordability. Many believe the solution to unsustainable cost increases is increased patient cost-sharing. From an overall cost perspective, reduced consumption of certain essential services may yield short-term savings but lead to worse health and markedly higher costs down the road—in complications, hospitalizations, and increased utilization. Value-based insurance design (VBID) can help plug the inherent shortfalls in “across-the-board” patient cost-sharing. Instead of focusing on cost or quality alone, VBID focuses on value, aligning the financial and nonfinancial incentives of the various stakeholders and complementing other current initiatives to improve quality and subdue costs, such as high-deductible consumer-directed health plans, pay-for-performance programs, and disease management. Mounting evidence, both peer-reviewed and empirical, indicates not only that VBID can be implemented, but also leads to desired changes in behavior. For all its documented successes and recognized promise, VBID is in its infancy and is not a panacea for the current healthcare crisis. However, the available research and documented experiences indicate that as an overall approach, and in its fully evolved and widely adopted form, VBID will promote a healthier population and therefore support cost-containment efforts by producing better health at any price point.

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- Ignores variations in intelligence, methods of learning, and education (the average US reading level is 10th grade)
- Ignores susceptibility to marketing messages, and consumer cultures and values^{16,17}
- Unjustifiably assumes that consumers have adequate information to evaluate benefits and costs.

Therefore, even if the premise of equating patient responsibility to responsible choices was watertight, a pronounced gap in both information and knowledge impairs informed decisions.^{2,5} This gap is particularly problematic among vulnerable populations (eg, the poor, ethnic minorities, the uninsured).¹⁵

Enter Value-Based Insurance Design

Value-based insurance design (VBID) can help plug the inherent shortfalls in across-the-board patient cost-sharing.¹ Instead of focusing on cost or even quality, VBID focuses on *value*,² aligning the financial and nonfinancial incentives of the various stakeholders and complementing other current initiatives to improve quality and subdue costs, such as high-deductible consumer-directed health plans (CDHPs), pay-for-performance (P4P), and disease management (DM).² The overarching goal of VBID is better population health rather than saving money.^{8,18}

We and our colleagues first introduced VBID (then called benefit-based copayment) in 2001.^{1,16} VBID has since evolved and been successfully deployed. More recently, VBID and VBID concepts have been incorporated into proposed healthcare reform bills in both the US House of Representatives and the Senate, with the latter expressly calling for a VBID demonstration program for Medicare.^{19,20}

VBID Defined

Approach and Scope

VBID is system-oriented and population health-centered, yet more targeted than across-the-board solutions.¹ Similar to those solutions, VBID recognizes that greater patient involvement and cost-sharing remain important to help solve the current systemic problems.¹ But VBID takes a “clinically sensitive, fiscally responsible” path to align incentives² and mitigate the negative clinical effects associated with increased cost-sharing^{2,9,21} by:

- Decreasing cost-sharing for interventions that are known to be effective and increasing cost-sharing for those that are not. Cost-sharing amounts are set in relation to the clinical value, not the cost, of a specific intervention to a targeted patient group.^{2,9} Targeting accounts for heterogeneity.

- More explicitly guiding patients to use high-value, and avoid low-value, interventions—addressing the information gap.

VBID’s targeted, “clinically sensitive” approach can therefore yield efficiencies not previously achieved and, ultimately, generate better health outcomes for the dollars spent.^{1,2,9} Thus, VBID—originally associated with cost-sharing for pharmaceuticals—is now recognized as translatable to other healthcare services, including diagnostics, surgical procedures, and physician selection.²²

Moreover, VBID principles have been deemed key elements in national healthcare reform. This signifies a credible consensus on the merit of VBID. For example, in its May 2009 letter to the Senate Finance Committee, the American Academy of Actuaries stated: “There is inherent value in the implementation of value-based insurance designs.”²³

Although limited data preclude VBID programs for all conditions, undisputed data on what works best are available for some, including the “Big 5”: cancer, cardiovascular disease, diabetes, obesity, and respiratory conditions. For those conditions, more refined cost-sharing would likely produce higher-value care.⁹

Key Tenets of VBID

By switching focus from cost alone to the clinical value of health services, VBID aims to systemically restructure health benefits.²¹ Value-centric VBID programs promote optimum outcomes from expenditures while minimizing the nonadherence to evidence-based medicine (EBM) that attends across-the-board cost-sharing.²⁴

VBID flows from this 3-part algorithm:

1. “Value” equals the clinical benefit gained for the money spent.
2. Cost-sharing for all health services is based on their expected clinical benefit to certain patient populations as determined by EBM.
3. The greater the expected clinical benefit, the lower the cost-share.²¹

VBID aligns financial and nonfinancial incentives by encouraging use of—and reducing barriers to access for—high-value services (those medically necessary or EBM-recommended) and discouraging low-value or unproven services.^{1,25} For example, VBID would have no or low cost-sharing for lipid-lowering therapy for individuals with a history of myocardial infarction, and higher cost-sharing for total body computed tomographic scanning.¹

Defining Value in Healthcare. High-value healthcare has been defined as the right care to the right patient at the right time

for the right price. Value equals what is gained in exchange for what is given up—the benefit relative to the cost. Applying this to an individual patient, value equals the health and well-being gained in exchange for the cost. From a population-health—and VBID—perspective, value is expressed as the aggregate system health gains relative to aggregate system costs.³

That said, what is “right” about care, time, and price is somewhat subjective.³ Private employers, for example, who are in business to make money and will bear the cost of lower VBID-driven copays, assess value differently and need a business reason for adopting fundamental change.

VBID, therefore, takes a “fiscally responsible” approach tethered to the real world, offering 3 tranches of potential cost-savings:

1. *Targeting.* For any intervention, skillful targeting can identify those who will benefit the most. This limits the number of individuals eligible for lower copays, and avoids higher treatment costs for those individuals down the road.²⁹ Long-term savings can be enhanced by coupling improved targeting with initiatives to improve adherence.²⁶
2. *Shifting costs to lower-value interventions.* Plan sponsors can fund short-term subsidies of high-value services via increased cost-sharing for low-value services.²⁷
3. *Increased productivity (eg, less absenteeism and presenteeism, fewer disability claims).*⁸ Although many consider these savings difficult to quantify, a strong link has been established between worker health and productivity,²⁸ together with credible evidence of the associated costs and recently developed measuring tools. For example, a 2006 study of workers with diabetes estimated absentee costs of \$1000 per worker per year; costs for reduced performance (presenteeism) were 6-fold higher.²⁶ According to the American Diabetes Association, in 2007, diabetes accounted for approximately \$58 billion in indirect costs, attributable to 15 million workdays absent and 120 million workdays of reduced performance.²⁹ A 2009 study reported that health-related productivity costs (particularly for chronic conditions) were 2 to 3 times higher than direct costs and were strong drivers of higher overall healthcare costs. Comorbidities can drive costs even higher.^{28,30} Using productivity-loss modeling to assess the impact of impaired worker health, the city of Battle Creek, Michigan, discovered that employees were losing 13 days a year, 41% of which were attributed to absenteeism and 59% to presenteeism. The analysis also showed that recapturing 10% of productivity would yield almost \$250,000—equivalent to adding 3.1 full-time employees.³¹

Compatibility With Other Healthcare Reform Platform.

VBID offers a unified and unifying template to promote

value through compatibility with other healthcare reform platforms.²⁴

Health Information Technology. Health information technology (HIT) refers to interoperable, systemic resources that combine electronic medical records, electronic health records, clinical information (eg, comparative effectiveness research [CER] and evidence-based guidelines), claims, and financial data. Top government policymakers consider HIT crucial to healthcare reform and economic recovery.

HIT is a central element of VBID. Because VBID targets benefits that encourage value and discourage waste, optimal results depend on relevant, objective, and actionable data (1) for clinicians at the point of care, (2) for consumer education, and (3) for decision makers to discern targets and evaluate results.

CDHPs. CDHPs and VBID complement each other. Both promote greater patient responsibility and EBM to encourage cost-consciousness and clinically appropriate high-value services, and discourage lower-value services.³² However, most CDHPs have imposed patient cost-sharing in isolation, which has raised the above-noted risk of adverse clinical outcomes and higher subsequent costs,³² and perpetuated the information gap that hinders informed patient decisions.

The next iteration of CDHPs could therefore be improved by instilling VBID principles. For example, insurers can offer more enrollee education about EBM, expand the use of HIT, and integrate financial incentives into benefit design. On the latter point, an evidence-based “VBID waiver”³² can be offered to ensure that interventions already identified through EBM as high value are available to enrollees with little or no out-of-pocket expense.

From a financial perspective, this hybrid CDHP/VBID strategy may cost more than a standard CDHP. In exchange, sponsors and payers would gain assurance that the added cost would likely leverage consumption of high-value interventions, which evidence suggests will improve health outcomes and save money in the long term.³²

Physician Payment Reform—P4P and Patient-Centered Medical Homes (PCMHs). P4P and PCMHs aim to increase preventive care, decrease overuse of services, and reward providers for meeting quality measures—all based on EBM. Integral to both platforms are the VBID precepts of aligning patient and provider incentives⁹ and giving patients ready access to essential services. PCMH and VBID have other features in common, including greater patient involvement and using HIT to support evidence-based clinical decisions.

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CER. CER by definition compares interventions to determine what works best for patients with certain conditions, and therefore inherently supports appropriate use of medical services.³³ CER has real-world implications; improving the evidence base that informs medical decisions³³ promotes better decisions, thereby inducing use of interventions with high clinical value (hence better outcomes). Thus CER, by changing the “adopt everything for everyone” mentality to an “adopt when appropriate” paradigm, can promote efficiency, help reduce medical errors, and eliminate waste—and help curtail unnecessary spending.³³ For these reasons, federal policymakers pursuing healthcare reform have championed CER.³⁴

CER and VBID are perfectly aligned. CER can help target patient groups that benefit most from certain interventions. It is the keystone of EBM and evidence-based guidelines. CER can help to objectively assess both the clinical and financial effects of inventions, including worker productivity.³³

In sum, CER helps determine the right medical intervention for the right person at the right time³³—the very definition of value in healthcare. Thus, knowing what works best is a predicate to effective VBID.³³

VBID’s compatibility with these key reform initiatives reflects the ascendancy of value in healthcare. It also reflects the current trend toward integrated healthcare, which rejects the documented “silo” mentality of traditional healthcare³⁵ and emphasizes consumer responsibility for individual health.

Who Uses VBID?

VBID is used by a diverse and growing number of entities, public and private, including employers, health plans, and pharmacy benefit managers.⁹ A 2008 study determined that 20% to 30% of large employers use some form of VBID strategy.³⁶ In a 2008 survey of 500 large employers, each with more than 10,000 employees, 12% reported current value-based initiatives, and 5% planned to introduce them.³⁷

Pitney Bowes is the most celebrated first mover in VBID. Its program provided copay relief for drugs to treat asthma and diabetes, and is considered an exemplar of how VBID is feasible, acceptable to employees, and produces clinical and economic returns.¹

Other notable VBID pioneers include Aetna Insurance; the city of Asheville, North Carolina; Marriott International; the state of Maine (pharmacy benefit manager: Well-Point Inc); United HealthCare (UHC); and the University of Michigan.

VBID Designs and Who Uses Them

There are 4 basic VBID formats^{2,24}:

1. **Design by service.** Copayment or coinsurance is

reduced or waived for select drugs or services for all enrollees.

This approach is used by Pitney Bowes and Marriott for drugs treating asthma, diabetes, and hypertension.

2. **Design by condition.** Copayment or coinsurance is reduced or waived for evidence-based interventions to treat patients diagnosed with specific conditions.

This approach was used by the University of Michigan for all employees with diabetes, who received reduced copayments for antidiabetics, insulin, beta-blockers, calcium channel blockers, antihypertensives, diuretics, antihyperlipidemics, and antidepressants.²¹ Asheville, North Carolina, and UHC also targeted diabetes.^{9,24}

3. **Design by condition severity.** Copayment or coinsurance is reduced or waived for targeted high-risk members found eligible to participate in a DM program.

WellPoint offers this format.³⁸

4. **Design by participation.** An extension of the third design approach, payment relief is offered to high-risk members who actively participate in a DM or similar incentive program.

Gulfstream offered reduced office visit copays to employees who use physicians that meet EBM guidelines.³⁷

Some entities have blended the basic formats, primarily relating to asthma, diabetes, and hypertension:

Asheville, North Carolina. For employees with diabetes, lower copays were coupled with pharmacist-led coaching.²¹

Healthcare Alliance Medical Plans, Inc (HAMP). Created a fourth copayment tier, making specific drugs available for a reduced copayment. HAMP anticipates expanding this tier to include drugs for multiple sclerosis, rheumatoid arthritis, and other diseases using compliance-based incentives.³⁷

Service Employees International Union Health Care Access Trust (SEIU). Its VBID program couples copayment with participation in a DM program; SEIU absorbs office visit copayments for participating employees.³⁷

Evidence That VBID Works

Increasing evidence, both peer-reviewed and empirical, indicates not only that VBID *can* work, but *does* work.

Debate continues, however, over the quality of the evidence. Much of the available evidence, although compelling, is self-reported and anecdotal, derived from the popular press, or based on simulations. There are relatively few peer-reviewed, controlled studies to give the VBID movement definitive gravitas. This is partly because VBID is still somewhat new, and insufficient time has elapsed for robust results to accumulate,⁹ including data as to wheth-

■ **Table. Employers and Positive Results From VBID Initiatives**

Entity	Positive VBID Results
Caterpillar	VBID diabetes initiative: 50% reduction in employee disability days 50% of enrollees with reduced A1C levels over 1 year (8.7 to 7.2 on average)
IBM	Healthcare cost trend of 3% to 4%, compared with 12%+ average
Gulfstream	Healthcare cost increases held to 3.4% per year for 4 years
WellPoint	State of Maine diabetes initiative: Improved medication possession rate (77%-86%) Compared with control group, an adjusted average cost of \$1300 less per participating member over 1 year of follow-up
Healthcare Alliance Medical Plans, Inc	New fourth (value-based) copayment tier: Medication possession rates for diabetics and asthmatics increased 10.6% and 32.7%, respectively For diabetics, better blood sugar control For asthmatics, a move from rescue medications to control drugs Fewer episodes of heart attack, stroke, and kidney failure
City of Springfield, OR	Diabetes program modeled after Asheville, NC, program. Study comparing control and intervention groups before and after copayment waived for both: At inception, mean A1C levels were 7.25% and 7.32%, respectively. After intervention group received counseling, A1C levels decreased 30% and 50%, respectively. With respect to patients with A1C level of $\leq 7\%$ (target recommended by American Diabetes Association), the control group achieved similar target level (decreasing from 50% to 48% before and after program inception) but the intervention group rose from 46% to 63%, respectively. Because of this success, benefit became available to all enrollees with diabetes.
United HealthCare	Estimated its Diabetes Health Plan will yield savings of \$500 per member per year (26 million covered lives).

VBID indicates value-based insurance design.

er estimated savings/return on investment (ROI) will be realized.³⁷

Arguably, the debate is academic. Early VBID movers have reported notably positive results²⁷ and employers have reported saving money by lowering the cost of preventive care.³⁹ For example, Pitney Bowes' reduced copayments for asthma and diabetes medications translated into \$1 million in savings from decreased complications.³⁹ However, many question the general utility of the Pitney Bowes' results because no external control group was involved and predictive modeling was used.⁹ On the other hand, a 2008 analysis noted that value-based plans help channel the appropriate drug to the appropriate person—markers of value as noted above.⁴⁰

Goldman and colleagues³⁶ simulation relating to cholesterol-lowering therapy reported a marked inverse relationship between copayments and compliance, and concluded that notwithstanding obstacles in refining risk groups, varying copayments for cholesterol-lowering therapy by therapeutic need would reduce emergency department use and hospitalizations, representing more than \$1 billion annually in projected savings. The analysis also indicated that benefit-

based copayment designs could improve aggregate health outcomes without raising health plan pharmacy payments.

A study of one large employer's VBID initiative reinforced Goldman et al's conclusions, reporting that compared with a control employer using the same DM program, medication compliance increased among VBID enrollees for 4 of 5 medication classes, and noncompliance reduced by 7% to 14%.⁴¹

Other positive results have been reported. Space limitations preclude a full recital, but the [Table](#) lists prominent examples.

The Business Case. As previously suggested, whether VBID “works” is actually a 2-part question, involving both clinical and financial impact. Although the available evidence makes a compelling case associating VBID with positive clinical results—and despite the above-cited potential for savings—no definitive proof exists that VBID will generate overall savings or ROI. After all, there is no single VBID intervention and therefore no routine answer—or even rule of thumb—regarding the bottom-line impact of VBID.⁹ This may partially explain why, despite overt interest from employer groups and health plans, uptake on VBID programs has been gradual.²⁴

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VBID by definition contemplates these determinations. Rigorously measuring and evaluating clinical and economic results is essential for designing astute plans and employee health strategies,²⁸ and involves 4 main components: (1) measuring patient-reported clinical outcomes in addition to process measures, (2) using control groups to determine if observed clinical and economic changes are attributable to VBID design, (3) incorporating long-term follow-up to confirm clinical gains from high-value services,²⁴ and (4) measuring economic losses from absenteeism and presenteeism, and integrating them with clinical data to quantify the overall “burden of illness.”²⁴

Currently, this mission is easier to identify than execute, for several reasons. First, VBID itself entails a new mindset: embracing value over cost. Second, traditionally, payers and employers have not assessed costs, value, or benefit design this comprehensively.³⁵ Third, measuring and quantifying value, and setting appropriate copayments, requires a blend of clinical judgment, health economics, and actuarial analysis,²⁴ and systemwide HIT and analytic tools of an amplitude not yet available. A 2007 analysis of employers confirmed these conclusions; of the more than 175 existing pharmacy benefit-related measures identified, only 4% focused on value.²⁴ This underscores why HIT/CER are core dependencies for VBID. VBID programs will be easier to create as CER reveals more about high-value services and HIT offers more robust data to gauge them.

Despite the difficulties in proving the business case, the available research does contain the following savings indicators (previously explained), all of which can increase the likelihood of positive ROI:

- Finely tuned targeting of patient subsets reduces VBID program costs²⁴
- Programs that increase cost-sharing for low-value services are likely to save money⁹ (this and other design changes can help offset VBID program costs)
- Better worker health saves money (this suggests the benefits of an effective communication strategy coupled with employee health initiatives³⁷).

The healthcare system is intricate and interconnected. Properly evaluating VBID results requires both a long-term horizon and a systemwide perspective. Several studies support this view and have shown that, particularly for chronic diseases, increased cost-sharing for prescription drugs is associated with spending increases in other sectors.³⁵

Conclusions

VBID is centered on value, not cost, and thus contemplates fundamental change, both cultural and systemic. For all its documented successes and recognized promise, VBID is

in its infancy and is not a panacea for the current healthcare crisis^{1,4,9}—which is national, even global, in scope.

VBID is not firmly formulaic. It represents a set of cohesive, yet flexible, guiding principles²⁴ that if properly deployed can align healthcare silos and stakeholders on both sides of the cost/quality equation, and complement other healthcare reform strategies.^{9,21,24}

By focusing on value, VBID is not a cost-cutting system. However, the available research and documented experiences indicate that, as an overall approach, and in its fully evolved and widely adopted form, VBID will promote a healthier population and therefore support cost containment by yielding more health per dollar spent through improved adherence, better outcomes, reductions in services utilized, and increased worker productivity.²⁴ Therefore, VBID—despite the debate about ROI—offers the best available, comprehensive approach to efficiently deliver better healthcare per dollar. Moreover, even if VBID is supplanted by a bigger and better idea, VBID is on sound footing and can play a supporting role.⁹

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