

## Value Based Insurance Design: Maintaining a Focus on Health in an Era of Cost Containment

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**A**s private and public purchasers of healthcare struggle to constrain rising costs, they must also strive to maximize the clinical benefit achieved for the money spent. In contrast to highly-publicized, provider-focused initiatives to enhance value such as preferential selection or reimbursement of clinicians who score highly on value measures, episode-based payments and patient centered medical homes, Value Based Insurance Design (VBID) focuses on patient incentives. Specifically, VBID is based on the premise that patient cost sharing should more explicitly encourage patients to use high value services and avoid low value services (visit [www.vbidcenter.org](http://www.vbidcenter.org) for more information).

VBID is not a panacea for the ills of the healthcare system, nor is saving money its principal objective. However, the principles behind VBID can work synergistically with a range of patient- and provider-oriented cost containment strategies to promote value. For example, VBID strategies can be used to mitigate the likelihood of adverse clinical outcomes under high deductible health plans by allowing first dollar coverage for services identified as high value. Similarly, VBID programs can augment provider-oriented strategies to favor use of high value services by aligning patient and provider incentives.

In this essay, we discuss the influence of cost sharing on patient behavior, explain the VBID concept, describe some real world examples of VBID implementation, and summarize the evidence regarding its clinical and economic effects.

### Central Role of Cost Sharing

Patient cost sharing is one of the fundamental levers for changing behavior and will, therefore, remain an important cost containment tool. It is widely accepted that higher across-the-board patient cost sharing reduces utilization of healthcare services and consequently lowers aggregate (and purchaser) healthcare spending. Evidence supporting this point dates back to the seminal RAND Health Insurance Experiment (HIE) begun in the 1970s<sup>1</sup> and many subsequent studies. A comprehensive review of this literature reports price elasticities for healthcare demand in the range of  $-0.04$  to  $-0.75$  and concludes that the most reasonable estimates tend to center around  $-0.17$ .<sup>2</sup> This implies that a 10 percent increase in price would cause utilization to fall by 1.7 percent. Although this is a modest effect, the ramifications can still be meaningful.

Ideally, higher patient copayments would discourage only the utilization of low value care. However, evidence from the HIE demonstrates that increased cost sharing reduces use of both high and low value services.<sup>3</sup> Numerous recent studies that examine cancer screening and high value prescription drugs confirm that cost sharing affects the use of even potentially life-saving services.<sup>4,6</sup>

### Value Based Insurance Design

By explicitly applying “clinically sensitive” cost sharing, VBID offers a way to preserve the demand-dampening advantages of higher cost

sharing while lessening the adverse health consequences that can result when high out-of-pocket expenditures reduce the use of high value clinical services.<sup>7,8</sup> VBID programs are based on three observations: 1) medical services differ in their clinical benefit; 2) the value of a specific intervention likely varies across patient groups; and 3) cost sharing discourages use of even high value, potentially life-saving services. We believe that more efficient resource allocation can be achieved when cost sharing is a function of the value of the specific healthcare service to a targeted patient group.

In practice, there are two general approaches to VBID programs. The first simply targets specific services and does not attempt to differentiate among patient groups that would benefit more or less from their use. Copayments would be lowered or eliminated for all users of services viewed as high value, and could be increased for low value services. The second approach targets patients with specific clinical diagnoses (e.g., coronary artery disease) and lowers copayments for specific high value services (e.g., statins, beta-blockers) only for those patient groups. This strategy, which requires more sophisticated data systems to implement, creates differential copayments based on patients’ health conditions.

A number of factors will determine how VBID programs affect patients’ health and purchasers’ spending. These factors include the effectiveness of the services targeted, the level and precision of clinical targeting, the magnitude of the copayment changes, and patients’ responsiveness to price changes. Programs that are better at identifying patients who will most benefit from the targeted service will have a higher likelihood of both improving patients’ health and achieving a positive financial return since fewer individuals will be eligible for copayment reductions.

While copayment reductions and program administration expenses represent real costs to the healthcare purchaser, these costs can be offset by reductions in use of other services due to better patient health. For example, fewer emergency room visits for acute asthma exacerbations would offset, at least partially, the direct costs of lower copayments for asthma controller medications. Several studies have shown that changes in drug copayments led to fewer hospitalizations and emergency room visits, particularly among patients with chronic diseases.<sup>9</sup> The likelihood of realizing such offsetting savings—and thereby improving the net financial benefit of the VBID program—is higher when the underlying risk of an expensive adverse outcome is high, when consumers are responsive to lower copayments, and when the service targeted for lower cost sharing effectively prevents the adverse outcome. Additional return on investment accrues if the non-medical benefits of improved health [e.g., reduced disability and absenteeism, enhanced productivity] are included.

### Experience to Date With VBID

Several private and public sector employers, health plans and phar-

■ **Figure.** Impact of Copayment Reductions on Medication Adherence

	Baseline MPR (Compliance)	Percentage Point Increase in MPR	Increase in Compliance	Decrease in Non-Adherence
ACE inhibitors/ARBs	68.4	2.59 ( $P < 0.001$ )	3.8%	-8.2%
Beta-blockers	68.3	3.02 ( $P < 0.001$ )	4.4%	-9.5%
Diabetes medications	69.5	4.02 ( $P < 0.001$ )	5.8%	-13.2%
Statins	53.0	3.39 ( $P < 0.001$ )	6.3%	-7.1%
Inhaled corticosteroids	31.6	1.86 ( $P = 0.134$ )	5.9%	-2.7%

MPR indicates Medication Possession Ratio; the percent of days in the quarter that the patient possessed the prescribed medication. Copayments were reduced by 50% for brand name drugs and eliminated for generic drugs. Source: Adapted from Chernew et al. (2008). "Impact of Decreasing Copayments on Medication Adherence Within a Disease Management Environment." *Health Affairs*, 27(1): 103-12.

macy benefit managers have implemented VBID programs. Notable early adopters include the city of Asheville, NC, Pitney Bowes, Marriott Corporation, Aetna, the state of Maine, United HealthCare (UHC) and the University of Michigan. Most typically, VBID programs simply lower copayments on classes of medications identified as high value. Other programs, such as the Asheville Project, University of Michigan's Focus On Diabetes program and UHC's Diabetes Health Plan, target patients with a particular clinical condition.

Evaluation of the impact of VBID programs is fairly nascent with most work focusing on understanding how changes in cost sharing affect medication adherence. Our recent evaluation of a program that lowered copayments for all users of five high value pharmaceutical classes demonstrated significant increases in medication compliance for four of the five drug classes, relative to a control group not subject to copayment reductions (Figure). Whether these improvements in adherence will translate into better health outcomes remains to be determined.

The financial impact of VBID programs depends on program design features including the direction and magnitude of copayment changes and the extent of targeting. Programs that raise cost sharing for low value services are most likely to save money. Those that lower copayments for high value services can also produce net savings, and reports in the popular press suggest this has been the outcome for some VBID programs.<sup>10-12</sup> For example, Pitney Bowes reported substantial savings after lowering copayments for prescription drugs for high-cost chronic illnesses, although the absence of an external control group in this study leads to questions regarding the generalizability of the findings.<sup>13</sup> Simulations also indicate that VBID programs can save money if sufficiently well targeted.<sup>14,15</sup> By and large, however, more rigorous examination of VBID programs is needed to determine their financial impact.

### The Future of VBID

While barriers to VBID implementation certainly remain, private purchasers are increasingly adopting VBID programs as they acknowledge that efforts to control spending through patient cost sharing should not produce preventable reductions in quality of care. Interest has also spread to the Medicare program; legislation was recently introduced in Congress (S.1040) to require Medicare to test the impact of reduced cost sharing for medications used to treat 15 common chronic conditions. Moreover, as comparative effectiveness research identifies high value services and health information technology becomes more widespread, it is becoming easier to create and implement VBID programs.

Experience from the field indicates that VBID programs are feasible to implement, accepted by all vested stakeholders, and very well received by

beneficiaries.<sup>16</sup> VBID can also support other initiatives such as high deductible health plans, disease management, patient centered medical homes, accountable care organizations and pay-for-performance programs. By allowing differential cost sharing, patient accountability is promoted and value of the system is enhanced.

We do not expect VBID alone to resolve our health system's inefficient use of resources. Although VBID programs cannot be designed immediately for all clinical conditions due to limited data, key VBID principles should be applied to services and patient groups

for which we predict that more rational cost sharing can produce higher value care. Ultimately, the alignment of financial incentives – for patients and providers – will encourage the use of high value care while discouraging the use of low value or unproven services, and produce more health at any level of healthcare expenditure. The quest for more efficient use of our healthcare dollars must continue, and we believe that VBID can play a role in achieving this goal.

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### REFERENCES

- Manning WG, Newhouse JP, Duan N, et al. Health insurance and the demand for medical care evidence from a randomized experiment. *Am Econ Rev*. 1987;77(3): 251-277.
- Ringel JS, Hosek SD, Vollaard BA, et al. *The Elasticity of Demand for Health Care: A Review of the Literature and Its Application to the Military Health System*. Santa Monica, CA: RAND; 2002.
- Siu AL, Sonnenberg FA, Manning WG, et al. Inappropriate use of hospitals in a randomized trial of health insurance plans. *N Engl J Med*. 1986;20(315):1259-1266.
- Gibson TB, Ozminkowski RJ, Goetzel RZ. The effects of prescription drug cost sharing: a review of the evidence. *Am J Manag Care*. 2005;11:730-740.
- Goldman DP, Joyce GF, Escarce JJ, et al. Pharmacy benefits and the use of drugs by the chronically ill. *JAMA*. 2004;291(19):2344-2350.
- Trivedi AN, Rakowski W, Ayanian JZ. Effect of cost sharing on screening mammography in Medicare health plans. *N Engl J Med*. 2008;358(4):375-383.
- Fendrick AM, Chernew ME. Value-based insurance design: aligning incentives to bridge the divide between quality improvement and cost containment. *Am J Manag Care*. 2006;12:1-7.
- Chernew ME, Rosen AB, Fendrick AM. Value-based insurance design. *Health Aff (Millwood)*. 2007;26(2):w204-w207.
- Chernew ME, Fendrick AM. Clinically sensitive cost-sharing for prescription drugs: thinking beyond the silos. *Med Care*. 2009;47(5):505-507.
- Freudenheim M. To save later, some employers are offering free drugs now. *New York Times*. February 21, 2007:A1.
- Fuhrmans V. New tack on copays: cutting them. *Wall Street Journal*. May 8, 2007:D1.
- Japsen B. Diabetes care: employers save money after lowering costs for employees' preventive care. *Chicago Tribune*. May 7, 2009.
- Mahoney JJ. Reducing patient drug acquisition costs can lower diabetes health claims. *Am J Manag Care*. 2005;11(5):S170-S176.
- Rosen AB, Hamel MB, Weinstein MB, et al. Cost-effectiveness of full Medicare coverage of angiotensin-converting enzyme inhibitors for beneficiaries with diabetes. *Ann Intern Med*. 2005;143(2):89-99.
- Goldman DP, Joyce GF, Karaca-Mandic P. Varying pharmacy benefits with clinical status: the case of cholesterol-lowering therapy. *Am J Manag Care*. 2006;12(1): 21-28.
- Spaulding A, Fendrick AM, Herman WH, et al. A controlled trial of value-based insurance design – the MHealthy: Focus on Diabetes (FOD) trial. *Implement Sci*. 2009;7(4):19. ■