Suboptimal compliance with prescribed medications and evidence-based medical care is a significant contributor to poor patient outcomes, particularly for individuals with chronic conditions. As a potential mitigating solution, value-based insurance design (VBID) has been advanced as an intervention to reduce potential financial barriers to high-value services, which may also affect medication adherence. Early VBID efforts, most notably at Pitney Bowes in 2002, highlighted the opportunity and potential value of this approach, ushering in an evolving era of stakeholder engagement in VBID, with incorporation of the approach in private and public employer health plans, as well as government legislation.1

Despite a sound conceptual basis for VBID, the observed impact has not been as compelling as hoped. An analysis of 13 studies evaluating its impact on medication adherence has shown, on average, just a 3.0% improvement in adherence over 1 year. 2 No significant changes in overall medical spending by either patients or plan sponsors were noted. The authors concluded that further research was warranted to identify optimal VBID offerings and maximize their potentially unrealized value.

So why isn’t VBID yielding more impactful results? We have identified one concern that may well be foundational—socioeconomic status—and intend for this commentary to further focus related research efforts.

Wages—and Social Determinants of Health—Matter

Social determinants of health (SDH), including income level, have received increasing attention in recent years as significant contributors to individual health status.3 However, during a review of VBID program evaluations, we found just 1 study that incorporated enrollee income as an explanatory variable.1 In that analysis, increased wage status, as assessed by Census block group analysis of mean annual household income, was associated with greater medication adherence. Instead, representative VBID analyses have either controlled for household income using zip code–based imputation5 or summary propensity score matching 7 or did not describe incorporation of individual or household income as a research variable.8

Socioeconomic status (SES), an important determinant of individual health status, has not been widely incorporated into employer benefits strategies. Recent research has characterized significant differences in healthcare utilization patterns and cost among workers in different wage categories, raising the possibility that SES does influence individual healthcare utilization behaviors. In particular, SES may have appreciable impact on the effectiveness of benefits tactics, including value-based insurance design (VBID).

This paper sets forth a hypothesis that low wage status negatively influences individual receptivity to VBID offerings, which may blunt the impact of current VBID initiatives. In contrast, high-wage earners may already be compliant with recommended care, and implementation of a VBID design may not yield incremental increases in their treatment compliance. As a result, wage status may be a significant predictor of a favorable response to VBID.

Based on these considerations, the authors offer suggestions for employer actions, including evaluation of benefits enrollee response to VBID tactics by employee wage band as an initial step. Employers may also wish to engage benefits enrollees via survey or focus group activities to understand barriers to a more impactful VBID response and consider some of the included benefits design considerations that may result in more equitable and impactful use of VBID. Further research is needed to better understand the relationship between SES and response to VBID offerings.

What appears to be a fundamental assumption in VBID frameworks is that most individuals will respond favorably to financial incentives for high-value healthcare services. We believe that this may not necessarily be the case for individuals at different wage levels. A recent analysis of healthcare utilization by wage status among commercially insured individuals provides clear indication that those in different wage groups have differing healthcare utilization patterns. For example, preventive services utilization (available with first-dollar coverage due to the Affordable Care Act) among workers earning less than $24,000/year was approximately half that of those earning more than $70,000/year. In the same study, adherence for medications included in preventive medication lists (with first-dollar coverage for selected generic medications) was also 18% lower among low-wage earners relative to their higher-earning counterparts. Much in the way that analysis of aggregate population-level data has obscured wage-related differences in healthcare utilization patterns, perhaps a re-evaluation of prior VBID studies will show clearer differences in population subgroup responses to VBID programs based on wage status.

Other evidence lends credence to the idea that wage status influences treatment compliance. The confluence of continued healthcare cost growth in excess of inflation, wage stagnation among lower wage earners, and employer adoption of higher-deductible benefit designs have created significant financial pressures for low-income earners. As a result, these individuals may face the challenge of allocating scarce financial resources, potentially having to choose between basic necessities (eg, food and housing) and medical care. These ongoing trends are concerning, with deductibles increasing by 63% from 2011 to 2016, while annual wage increases for low-wage workers appear to be the lowest of all wage groups.

Consequently, recent analyses of treatment compliance have provided clear evidence that lower-income earners are more likely to forgo or delay necessary care than their higher-earning counterparts. For many, financial barriers to care have been identified as the primary driver for the observed behaviors.

From a behavioral perspective, the notion of scarcity as articulated by Mullainathan and Shafir seems particularly relevant. The authors hypothesize that individuals experiencing scarcity in their lives have reduced capacity to engage in opportunities peripheral to their primary scarcity focus. Individuals experiencing significant financial stress, for example, may not prioritize personal health and may not be influenced by a VBID offering. Given the previously noted findings that low-wage status is associated with reductions in both medication adherence and use of no-cost preventive care services, perhaps an opportunity exists to rethink current VBID tactics.

Given these considerations, how might wage status affect individual responses to a VBID offering? Based on prior findings, we hypothesize that there are likely 3 broad types of respondents. In the first group are individuals at the higher end of the wage/income scale, who may engage in a VBID offering without appreciable change in adherence, because they are already compliant with medication use and preventive care. Higher-income earners have both the discretionary financial resources and time to direct toward compliance with treatment. In contrast, low-income individuals are the least engaged with medical care, likely because of other, more pressing personal priorities, as well as health literacy or other issues. Consequently, they may be least likely to respond to a VBID incentive.

What’s Behind the Issue?
Employers have invested significant effort to find a balance between healthcare cost containment and ensuring access to care through thoughtful benefit design. High-deductible health plans have become widely accepted as a means to foster greater healthcare consumerism, although in practice, results have not been particularly promising. Compounding the issue, more than 95% of surveyed US employers offer the same benefits design coverage and cost options for all potential benefits enrollees, regardless of wage status. However, among employers with more than 5000 employees, 28% have implemented some type of wage-based benefits subsidies to make costs more equitable for low-wage workers. It is indeed intriguing to compare employer-based approaches to health benefits premium costs with those of state and federal programs, in which income-based subsidies are more prevalent.

Such employer-provided subsidy approaches may create challenges in benefits administration, potentially resulting in increased operational expenses for already costly health benefits. The continued focus on healthcare cost containment and associated administrative cost avoidance is also aligned with the focus of many publicly traded corporations on the next quarter’s revenue.
targets. Additionally, the lack of a compelling value proposition for employer-provided wage-based insurance subsidies seems to have further limited interest in the approach. Combined, these factors appear to have blunted the appetite for considering more equitable benefit designs for employees.

Another important contributor is that, until recently, detailed claims analyses from health plans and data warehouse vendors have largely overlooked SDH as a variable influencing healthcare use and costs in commercially insured populations. Although some demographic information may be incorporated in claims analyses, insured populations have generally been evaluated as a single homogenous group, rather than characterized in subpopulations based on SDH factors. For employers and other plan sponsors, this has had the effect of promoting a "one-size-fits-all" approach to health benefits, without appreciation for differences in healthcare utilization behaviors among different population subgroups.

From the benefits enrollee's perspective, it may now be easier to understand the apparent disconnect in recent surveys between employer benefits offerings and enrollee needs. We believe that the lack of consideration of SDH factors in benefit design appears to be the result of insufficiently detailed claims analysis. As a result, existing plan offerings may not have equivalent perceived value across the range of SDH subgroups.

Outcomes-based biometric incentive programs represent a clear example. Low-wage earners have a higher prevalence of chronic conditions and unhealthy behaviors and, as a result, are less likely to meet incentive thresholds. Our unpublished research indicates that low-wage workers are also less likely to participate in these incentive programs and, when they do, they earn less incentive reward than their more highly paid counterparts. In accordance with our experience, this practice has been viewed as likely to increase disparities in population health, despite its good intentions.

What Are the Opportunities?

There is an urgent need to better understand the impact of VBID programs on healthcare utilization among the continuum of population subgroups based on SDH. Evidence suggests that high-income earners derive savings from VBID designs because they are already compliant with recommended care. For enrollees at the other end of the SDH continuum, current VBID incentives—and perhaps also communication strategies—may not be sufficient to effect behavior change. Our analyses suggest that, in the absence of more detailed SDH profiling, individual wage status may represent an easily accessible basis for population stratification to more meaningfully target at-risk populations.

As a result, plan sponsors may want to first evaluate healthcare utilization and costs based on employee wage groupings. Our experience is that employee wage can be reasonably incorporated into claims databases as part of the eligibility file data feed. Based on the findings, the use of surveys or focus groups may yield a better understanding of the contributors to differences in healthcare use. Primary drivers—including out-of-pocket costs, benefits awareness and literacy concerns, access to care issues, or other considerations—are likely to be identified and prioritized. If cost is identified as a significant issue, consideration of more equitable benefit designs may promote more appropriate use of healthcare services by lower-income earners. For this subpopulation, it may well be that a VBID approach might include some combination of premium subsidies, predeductible coverage of high-value chronic care services, wage-based deductibles, or health savings account or health reimbursement arrangement contributions. In essence, this represents a wage-based VBID approach. It is also important that effective communication strategies are implemented to ensure that individuals are aware of the benefits available to them. In addition, some plan sponsors may opt to consolidate their VBID offerings to provide financial support just to lower-wage enrollees. To our knowledge, however, such a wage-based VBID offering has yet to be piloted. Of course, other contributors to suboptimal healthcare utilization, once identified, also deserve attention. It is unlikely that a single tactical approach will yield the desired impact.

It is also important to note that, as part of the analytic and planning process, we believe that opportunities exist to implement the proposed VBID redesign in a cost-neutral manner. Thoughtful resource reallocation to facilitate more equitable benefits design can be administered without additional expense. Improved impact of the proposed VBID approach may also enhance cost offsets from improved health outcomes and reduced illness-related absence, particularly for lower-wage earners.

In the current scenario of high-deductible health plan designs with greater enrollee cost sharing, VBID programs may now offer even greater promise to improve quality and reduce spending than when initially implemented. Simply put, unit prices for high-value services may now be sufficiently high to permit greater cost differentials in VBID designs to drive more appropriate utilization of those services. If thoughtfully considered and incorporated into VBID offerings, socioeconomic status as both a determinant of health and an indicator of health literacy can help optimize VBID's impact.

Stakeholders need to continue their efforts to improve healthcare delivery system quality and efficiency as they also strive to improve health literacy and consumer engagement in healthcare. To be clear, we believe that the potential value of VBID is appreciably greater than what has been demonstrated to date. We offer these considerations regarding the urgent need for further VBID research and evidence-based VBID program enhancement, with the hope that additional insights may lead to more targeted, impactful, and cost-effective use of VBID approaches.

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Source of Funding: None.

Author Disclosures: Dr Sherman reports part-time employment at Conduent HR services, receiving lecture fees from AbbVie for nonbranded presentations addressing high out-of-pocket costs and workforce human capital, and attendance at Health Enhancement Research Organization and Integrated Benefits Institute conferences or meetings. The remaining author reports no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.
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