WHAT FACTORS EMPLOYERS SHOULD CONSIDER IN DESIGNING AND IMPLEMENTATING VALUE BASED INSURANCE DESIGN?

Sophie Shen

A dissertation submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Public Health in the Department of Health Policy and Management in the Gillings School of Global Public Health.

Chapel Hill
2015

Approved by:

James Porto

Mark Fendrick

Fikry Isaac

Steve Sloate

Marci Thomas

Bennett Walters

ABSTRACT

Sophie Shen: Value-Based Insurance Design Program- A Promising Way to Improve Employee Engagement: What Factors Should Employers Consider In Designing and Implementing **V**BID?
(Under the direction of James Porto)

Background Employers would like employees to become more involved in managing their own health. This would not only benefit the employee but lead to decreased absenteeism and lower the healthcare costs for the employer. Employers and health plans have implemented various strategies to improve employee engagement. Value-based insurance designs (VBID) is one promising strategy that moves employees from being passive recipients of care to becoming active ones, willing to take more responsibility for managing their health and related costs, and making prudent and informed health care decisions. Although evidence exists that supports the positive impact of VBID and indicates strong interest from the employer community, adoption of VBID is far from universal. There is a need for research to generate an implementation reference for employers who are interested in using VBID to improve employee engagement.

Methods This study takes a two-step approach. A document review was conducted to understand barriers of VBID implementation. Key informant interviews were also conducted with benefit managers from employers who have implemented VBID and directors at vendor companies who have supported employers in implementing VBID.

Results Findings provide a framework for successful VBID design and implementation – a checklist of best practices. Data suggests that senior leadership buy-in, appropriate alignment between VBID and business priories and effective communication of programs are among the keys to success.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ACA	Affordable Care Act
ACO	Accountable Care Organization
COE	Center of Excellence
CEO	Chief Executive Officer
DMP	Disease-management Program
HHS	Department of Health and Human Services
HLC	Healthcare Leadership Council
IDM	Integrated Disease Management
IRB	Institutional Review Board
KPI	Key Performance Indicator
NBCH	National Business Coalition on Health
NBGH	National Business Group on Health
PCMH	Patient Centered Medical Home
ROI	Return on Investment
USPSTF	U.S. Preventive Services Task Force
VBID	Value Based Insurance Design
VBID Center	University of Michigan Center for Value-Based Insurance Design

CHAPTER 1: INTRODUCTION AND DEFINITIONS

Research shows that healthy employees have lower health care costs and provide greater intellectual capital to employers. Many consider employee engagement for both wellness and condition/disease management to be the key to developing healthy employees. Employee engagement in this context is defined as actions that people take to improve their health and benefit from care.[1] Unfortunately, employee engagement in wellness and care programs has been a top challenge for employers.[2] A 2012 employer survey conducted by Towers Watson reported that 58% of employers selected employee engagement as the biggest obstacle to changing employee behavior related to health.[3]

In recent years, the use of value-based insurance design programs has gained increasing attention by employers to engage employees in healthy behaviors and to hold them more accountable for their health. Despite the increasing popularity of value-based programs, many questions remain. This study strives to identify and to recommend a framework for designing and implementing value-based insurance design programs.

Growing Interest in Programs to Encourage Employees to Better Manage Their Health

Employers have a huge interest in engaging employees in managing their health. About 60% of the population under age 65 is covered by employer-sponsored health insurance. Employers pay over 75% of total employee's health care cost.[4] A recent Gallup poll shows that when employees are engaged and thriving in their wellbeing, they are more productive in their work. They also enjoy their work and are more likely to report excellent performance and more likely to stay with the company than those who are engaged, but are struggling or suffering in their overall lives. These numbers add up to substantial savings for employers' bottom lines in productivity and medical costs.[5]

As a result, extensive wellness and care management programs are commonly offered by large employer-sponsored health plans to improve employee engagement in managing their health and to reduce unnecessary health care costs. For this study, health management programs, sometimes called "wellness" or "health promotion" programs, focus on prevention and self-management targeted at remaining totally out of the care management system. Care management focuses on managing chronic disease and reducing utilization.

Low Employee Engagement is Concerning to Employers

It worries employers when employees do not engage in healthy behaviors demonstrated, for example, by low employee participation rates in wellness programs.[6] More than half of the employers who offer health risk assessments to their employees report participation rates of 50% or less. Participation rates in other programs, such as weight management, health coaching, and smoking cessation, are also low.[7] In 2013/2014 Staying@Work™ Survey Report, 77% of employers view low employee engagement as the biggest obstacle to changing behavior.[8]

Definition of Employee Engagement for this Study

Employee engagement is defined as actions that employees take to assess and to improve their health. For this study, employee engagement is specifically a response to activities that employers have adopted to encourage a healthy work organization. [9] This research focuses on three employee engagement domains: (1) eliciting and supporting employee preferences, (2) informing employee care choices, and (3) helping employees become activated; along an engagement continuum: consultation, involvement, and shared decision making (Figure 1). [10]

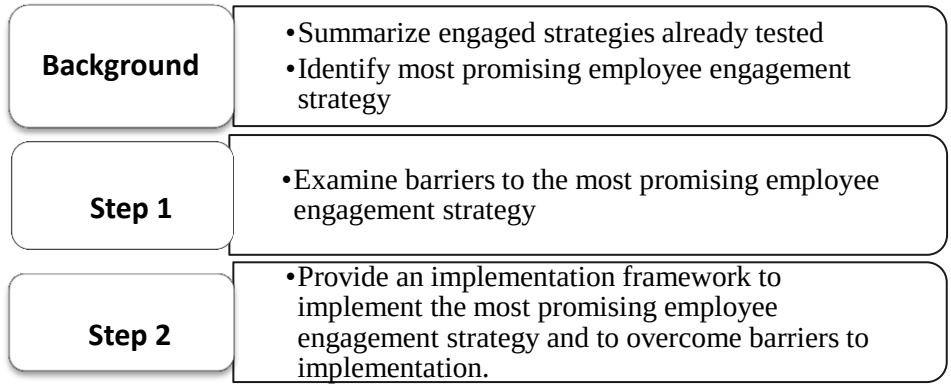
Figure 1. A Multi-dimensional Framework for Employee Engagement in Health

Domains of Engagement/ Continuum of Engagement	Consultation	Involvement	Shared decision making
Elicit and support employee preferences	Employees receive information on coverage and care options	Employers are asked about their preferences in treatment plans	Coverage treatment decisions are made based on employees' preferences, evidence and clinical judgment
Inform employee care choices	Patient centered medical homes involve patients	Target specific segment of employees to provide actionable information	Identify care opportunities for patients/providers to take actions
Activate employees	Provide personalized and integrated information to support decision making	Provide incentives for healthy lifestyle	Provide different cost-sharing arrangements based on value of services

Objective of this Study

The objective of this study is to focus on the implementation process of one promising engagement strategy (Figure 2). In order to identify one specific engagement strategy, it is important to understand past engagement strategies tested by employers and health plans and their effects. The review of past experience explains why this study focuses on one certain engagement strategy. Next, the study identifies barriers to the most successful and promising employee engagement practices, then proposes implementation strategies to overcome these barriers.

Figure 2. Objective of the Study



CHAPTER 2: REVIEW ON EXISTING EMPLOYEE ENGAGEMENT STRATEGIES

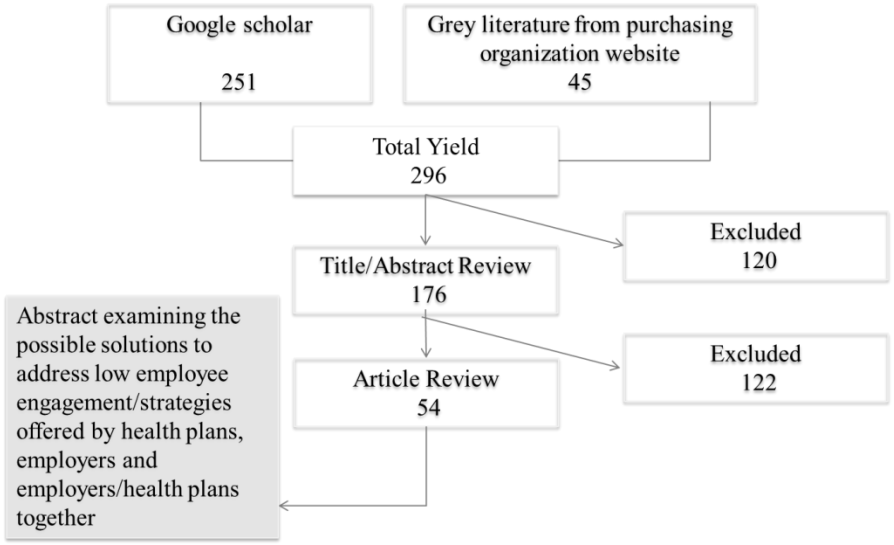
The background document review consisted of a Google Scholar search from September 2013 to March of 2014, using the following combinations of terms:

1. Health insurer OR payer OR employer AND
2. Engagement AND
3. Employee OR Customer

The search was restricted to results from the United States, published in the English language, and those that were updated within the past 10 years. Results were initially reviewed to identify sources cited more than once and when employer strategy was mentioned in association with these search terms. Literature that includes information with the following was included and summarized: (1) interventions to increase engagement (either a specific behavior or general participation); (2) descriptions of engagement strategies; and (3) outcome measures of engagement.

The review also included an environmental scan of documents posted on key employer business group websites: National Business Group on Health, America's Health Insurance Plans, Care Continuum Alliance, and Health Leadership Council, National Wellness Institute, and National Business Coalition on Health. These organizations were selected based on their claims to advocate on behalf of employers/employees. The types of literature from these organizations' websites include report summaries, reports, articles, press releases, presentations, toolkits, conference proceedings, webinars (web-based audiovisual presentations) and web pages. They were obtained primarily by direct downloads from websites and electronic journals. In some instances, documents were received directly from the author or original source (as in the case of unpublished documents). Abstracts were screened for key words and full documents were reviewed to identify final documents to be included in the review. Figure 3 provides a summary of the literature review.

Figure 3. Summary of Literature/Document Search and Review



The following sections summarize effects of three types of engagement strategies: (1) employers only, (2) health plans only and (3) employers in partnership with health plans.

Strategies Used by Employers Only:

1. Implement Environmental/Policy Changes to Promote Healthy Behavior

Environmental and policy changes are currently being promoted by organizations such as the Centers for Disease Control and other governmental organizations as ways to engage employees to adopt healthier behaviors.[11] Specifically, employers can create a work environment that supports healthier behavior in a variety of ways*:* 1) easy access to physical activity; 2) workplace nutrition program and 3) point-of-decision prompts.

Easy access to physical activities*:* Some employers try to create a work environment that supports physical activity in a variety of ways such as flexible work time, fitness centers and walking paths. In 2011, 80% of the Business Group's Best Employers for Healthy Lifestyles platinum winners offered flexible work time for physical activity.[12] Limited research demonstrates the beneficial effects. In two studies, individuals with access to fitness centers were 1.8 times more likely to participate in leisure-time activity and 1.3 times more likely to meet national physical activity recommendations. Employees

with access to safe places to walk near work were nearly twice as likely to engage in physical activity during work breaks.[13,14]

Workplace nutrition program: A workplace nutrition program encourages healthy eating that emphasizes fruit, vegetables and low saturated fat. Research shows that a healthy diet and good nutrition can promote chronic disease managements.[15] A review of 13 studies found that work-site health promotion programs that included environmental modifications to support healthy eating had a positive effect on employees' diets.[16] Financial discounts can play a very positive impact in engaging employees to have a healthy diet. Some studies found that financial discounts as small as 10% can increase the percentage of healthy foods purchased without affecting overall vending machine sales or profits. In two separate studies, 50% discounts nearly doubled sales of healthy food items.[17,18]

Based on strong evidence for moderately increasing physical activity levels,[19] employers put point-of-decision prompts at worksites to encourage employees to make healthier decisions at the location and moment when the issue is at the forefront of their minds. Prompts placed near elevators aim to motivate stair use; [20] labels and signage identifying and promoting healthy foods to encourage healthier meal consumption in the cafeteria.[21] In a systematic review of 11 studies, point-of-decision prompts increased stairwell use by a 50%.[22] Small incentives offered in the stairwell, such as fruit, along with stairwell enhancements including paint, carpeting, artwork and music, increased stair use even more.[23] However, most studies evaluated short-term behavior change; limited evidence supports long-term behavior change. Overall, the existing evidence shows positive short-term effects for specific environmental/policy strategies.

2. Encourage Employees' Participation in Wellness and Disease Management Programs

Extensive wellness programs and disease management programs are commonly offered by large employers to improve employee health and reduce health care costs. Over the past 20 years, many enlightened employers put in place wellness programs to improve the health and well-being of their workers and some employers have made wellness a mandatory program.[24] According to RAND employer

survey 2012, more than three-quarters of employees working for firms and organizations with 50 or more employees have access to a wellness program.[25]

To control the cost of chronic conditions, many employers have adopted disease-management programs (DMP) in the past 15 years. By carefully coordinating the delivery of high-quality care to patients with chronic conditions, DMPs are designed to enhance employees' health, reduce hospitalization rates, and lower treatment costs.[26] About 56% of employers with wellness programs also offer a disease management program.[27] Results of some DMPs are often disappointing or inconclusive. Many of them produced, at best, only modest improvements in health outcomes, and few were able to decrease health care spending.[28] DMP's value largely depends on employee's active participation and engagement. Simply being enrolled in a DMP does not guarantee engaged participation by employees, which is necessary to achieve improved health outcomes and subsequent reduced health care costs.

Some employers implement integrated disease management (IDM) protocol to improve employees' engagement in DMPs. IDM protocol combines telephonic-delivered disease management with a worksite-based primary care center and pharmacy delivery. IDM substantially increased contact, enrollment, and engagement rates compared to traditional stand-alone telephonic DM.[29] A 2013 study of BP program shows positive return on investment ($214.66 per disease management participant per month) one year after IDM program launch.[30]

Employers often offer financial incentives to promote participation in a variety of programs of wellness and disease management. Research indicates that financial incentives can have a significant impact on health management program participation rates.[31] There are two types of incentives in general.

Participation-based incentive: Participation-based incentives, which use simple, one-time approaches such as providing cash, gift cards, or health plan benefit discounts, are effective in the short term for preventive care, short-term health behavior changes (e.g., seeking a health risk assessment), and distinct, well-defined behavioral goals (e.g., immunizations). A systematic literature review of 47 randomized controlled trials found that participation-based incentives worked an average of 73% of the time, but little evidence shows participation-based incentives improved health outcomes in the long-run.[32]

Outcome-based incentives: Outcome-based incentives link incentives with participants achievement of outcome targets. Outcome-based incentives have been used mostly in weight-loss programs. More than half of large employers (200+ employees) offer a weight-loss program and engage employees' participation through outcome-based incentives.[33] Some research suggests that incentives provided for actual weight loss outcome effectively improve program participation and increase overall weight loss. In a 2007 study, an incentive of $14 per percentage point of weight loss led to less attrition and five times greater odds of achieving a 5% weight loss in the first three months, as compared to the group receiving no incentives.[34] Another study in 2013 found that employees receiving incentives based on group weight loss achieved greater results than those receiving no incentive and those receiving individual incentives. The weight loss was sustained 12 weeks after the incentives ended.[35] However, these studies do not demonstrate long-term results lasting beyond that of the incentives; nor are they representative of current employer practices.[36,37]

3. Make the Default Option the Preferred Option

Voluntary wellness programs/biometric screening are typically made available if an employee would like to participate. This "opt-in" or "non-commitment contract" design places the responsibility on the employee to engage, a decision that they may procrastinate. Instead, some employers change the default option to the preferred option to enable employees to easily complete the programs.

Home Depot leverages the power of pre-commitment to drive participation in their biometric screenings. During open enrollment period, employees are asked whether they will participate in a biometric screening the following year. Those who commit to participating begin receiving a monthly premium credit in January the following year. Employees are given approximately two months to be screened and receive multiple reminders along the way. Home Depot stops the premium credit for any employee or spouse who has not received their biometric screening by the end of February. The innovative incentive strategy has resulted in an increase in employee participation in the biometric screening.

One study found that when the default plan assigned users with various lengths of exercise contracts that user could actively change; the percentage of people selecting the default contract length increased by approximately 35% across all default lengths compared to the number who would have increased the contract length in the absence of a defaulted length. With changes in default values, individuals can be encouraged into longer exercise commitment contracts that obligate them to greater numbers of exercise sessions. [38]

4. Communicate Health & Wellness Messages Effectively

A strong communications campaign can increase participation in wellness programs above that of an incentive when used alone.[39] An effective communication strategy goes beyond just informing employees about programs or educating them about why healthy behaviors are important,[40] and also focus on engaging employees to actually change behaviors.[41] Existing research found employees often ignore employers' message when the message is not personally relevant. Individually tailored interventions are distinct from generic mass education approaches.[42]

Employers have designed and deployed tailored and segmented employee strategies in a variety of ways, such as by demographics, stage of life, lifestyle behaviors, chronic conditions, and readiness to change behavior. [43] In 2013, 66% of employers offered targeted communications based on an individual's specific health conditions, and an additional 27% plan to offer this type of communication in the near future. [44]

The results are mixed. Several studies show the more specific employers are in targeting messages, the greater the likelihood that the messages are relevant to the recipients and succeed in motivating them.[45,46,47] On the other hand, according to Consumer Mindset 2013 report, only one-quarter of employees agree that employers should target certain communications based on a participant's individual health condition. Even fewer agree or strongly agree (18%) that employers should target certain communications based on demographic information about participants.[48]

To summarize the engagement strategies used by employers alone: Employers are increasingly implementing employee health programs and offering healthy work environment to create healthier and

more effective workforces through programs such as nutrition counseling and onsite gyms. Studies have found that work site environment changes and health/wellness programs have demonstrated short-term results. However, long-term effects are inconclusive. Understanding that a strong communication campaign can increase participation in health and wellness programs, some employers have designed and deployed tailored employee communication strategies. Results have also been mixed. In summary, most engagement strategies used by employers are effective in the short term, but not known to be effective in the long term.

Strategies Utilized by Health Plans Alone:

1. Help Consumers Choose Health Plans According to Their Preferences

Choosing a health plan has significant implications for every consumer's health and financial status. It is often difficult for consumers to select the right health plan, partially due to their inability to evaluate key benefit components of health plans.[49] Consumers are also looking for information to help them through this process.[50] Previous studies found that premium, breadth of the network, quality of providers, cost sharing, and cost containment provisions impact consumers' choices on health plans.[51,52,53,54] Among everything, consumers pay most attention to premium cost, cost sharing, annual cap on out-of-pocket expenditures, and the annual deductible.[55] Further down the list of consumers' preferences was having a doctor of their choice or doctor with high quality score.[56] Many health plans have been offering report cards on provider quality and cost information. However, there is little evidence that consumers choose or switch health plans on the basis of critical reflection and assessment of information on quality and price, but mostly rely on purchasing organizations' recommendations.[57] In addition, consumers are more likely to avoid choosing health plans by handing the decision-making off to an agent, such as group purchasing organizations and employers. This scenario highlights the important role that employers play in choosing the right health plan for their employees.

2. Identify Care Opportunities for Consumers/Providers to Take Actions

Experience has shown that when consumers know they have options for the best treatment, screening test, or diagnostic procedure, most of them will want to participate with their clinicians in making the decision.[58] Health plans are uniquely positioned to identify care opportunities. Through large-scale data mining, health plans can identify missed screening opportunities; gaps in care; fragmented or duplicative care; and patient safety issues such as incompatible medications. Health plans then reach out to consumers and/or providers by means of the consumers' choosing and encouraging them to take actions.[59] These actions impact two domains of patient engagement: identify care opportunities for consumers/providers to take actions according to their preferences, and helping patients become activated.

For example, United Healthcare constantly mines data from various data sources: claims, laboratory, and pharmacy data; patient reports, via health risk appraisals or personal health records; and extracts from EHRs. These data are analyzed for gaps in care, quality and safety issues, and duplicative care—based on national performance measures, clinical guidelines, or consensus standards. United Healthcare's HealthNote program then reaches out to plan enrollees via mail, phone, text message, or an online portal; and further customizes these messages by lifestyle, demographic segment, or both, using different message formats and content for different groups—for example, those already physically active versus those who are sedentary, and young professionals versus retirees. Customized to both to the patient ("you need to have your diabetic eye screening") and the providers ("Ms. Jones is overdue for her diabetic eye screening"), HealthNotes are sent to 8 to 12 percent of eligible population to promote optimal care.[60] When compared to a control population, consumers and their providers who receive these messages from United Healthcare's "HealthNotes" program closed 64 percent more gaps related to medical management and 30 percent more gaps related to missed therapy over a three-month period. They also had 12.5 percent fewer hospital admissions and 20.9 percent fewer preference-sensitive heart surgeries.[61]

3. Provide Personalized and Integrated Information to Support Consumers' Decision Making

Consumers need meaningful quality and cost information to become and stay engaged. In particular, consumers want quality data at the physician level and cost data that reflect their personal out-

of-pocket exposure.[62] Information contained in public reports about health care quality and cost is typically ignored by most consumers or does not meet consumers' needs.[63] Seeing the gap in the information needed, several health plans focus on price sensitivity by providing proprietary information that aims to provide personalized, integrated information on cost and quality to support consumers' decision making on providers and services.

Aetna delivers out-of-pocket estimate information to enrollees for services or procedures in real time using Payment Estimator tool.[64] The tool takes enrollees' benefit design parameters—deductibles and coinsurance—into account when calculating the cost estimates.[65] This strategy is often used by Aetna's members who have "preference-sensitive" conditions or treatment options in which consumers may or may not choose particular treatments, or to be treated at all, depending on their own feelings about the risks versus the benefits of treatment, their ability to live well with their conditions, or other factors.[66] Aetna's analysis shows that the focus on consumerism leads to higher consumer engagement and results in savings of $12.5 million over a six-year period for every 10,000 members.[67]

4. Engage Consumers in Patient-Centered Medical Homes

Even consumers with insurance coverage may not have an established source of access to basic primary care services and that care fragmentation affects the quality and cost of care.[68] Health plans have begun to engage patients with high quality primary care providers in Patient Centered Medical Home (PCMH). PCMH has become the national shorthand for the reinvention of primary care[69] and a key component of U.S. health care reform.[70] One of the cornerstones for PCMH model is patient-centeredness, or the tailoring of care to meet the needs and preferences of patients. The PCMH model urges active engagement of consumers at all levels of care delivery, ranging from shared decision-making to practice improvement.

Blue Cross and Blue Shield Association (BCBSA) and participating BCBS companies have the largest of PCMH demonstration in the country. The Michigan BCBS has operated the nation's largest PCMH designation program for the last five years. In Michigan BCBS' PCMH, primary care physicians lead teams that proactively manage their patients' care across health care settings – focusing on wellness,

disease management and patients' unique personal health goals. The PCMH team coordinates patients' health care, tracks their conditions and ensures that they receive the care they need. Michigan BCBS's PCMH has demonstrated good outcomes. Based on an evaluation study conducted in 2013, the Michigan BCBS PCMH program is associated with 5.1 percent higher preventive care measure and a $26.37 lower per member per month medical cost for adults.[71]

However, some study findings suggest that practices transforming to PMCH models need to improve interaction with patients and better communicate about the team approach to health care, and the role of care management and group visits to better manage chronic conditions.[72] For example, a recent survey of 112 PCMH practices in twenty-two states found that less than a third of PCMH practices engage patients in quality improvement. Nearly all of surveyed practices sought patient feedback, but only 32 percent involved patients in a continuing role in quality improvement. Interviews showed that practices with high patient involvement overcame barriers to ongoing patient participation. A cultural shift is needed in how practices view patients as partners and involve patients before they even get sick, not just in areas such as personal responsibility and self-management, but also in quality improvement and governance.[73]

To summarize the engagement strategies used by health plans: Health plan engagement strategies include helping plan enrollees choose health plans based on detailed cost and quality information; identifying care opportunities for enrollees to take actions; and engaging enrollees in patient-centered medical homes. Document reviews shows all these strategies have been well accepted by health plan enrollees.

Health plans' information on cost and quality has positive effects on enrollee choice though the magnitude is modest. For price conscious enrollees, health plans' tools to help enrollees choose their health care options have been moderately successful. Health plans have begun to work with primary care providers through the PCMH model, which tailors care to meet the needs and preferences of enrollees. The PCMH model promotes active engagement of enrollees at all levels of care delivery, ranging from shared decision-making to practice improvement. Even though research has found an association between

PCMH and increased preventive care utilization and reduction in medical cost, more research is needed to evaluate the effect on enrollee engagement.

With benefit structures moving toward higher deductibles and higher coinsurance in insurance exchanges, price information and provider network are important information for exchange enrollees. Fostering greater engagement will require new approaches that provide enrollees with cost and quality information at the time they need to make a decision. Greater engagement will also require more effective communication with enrollees about the best approach to health care.

Strategies Utilized by Employers and Plans Together:

As noted above, when it comes to choosing health plans, consumers would rather hand the process to group purchasing entities that collectively purchase insurance benefits for employers to offer to their employees. For large employers, the group purchasing entities are employers themselves. Therefore, for large employers, the most relevant relationship when purchasing a health plan is between the employers and employees.[74] Employers select health plan options and provide information on different options to employees.

Besides health plan choices, employers also have significant influence on employees' choices of health care services. The choice of health plans is very different from the choice of a health care provider or service. Employees typically choose a health plan through employers prior to becoming ill, during the annual enrollment period or at the point of employment, and consider the provider panel and financial issues related to copayments at the point of seeking care.

Employees need more guidance to make the best health care related decisions at the point of seeking care.[75] Employers have a hard time connecting data across segmented programs to better track claim data, and maximize resource utilization and reduce costs. Understanding the demand, some health plans and employers see benefits of working together to engage employees by introducing plan designs that aim to move employees from being passive recipients of care to becoming active ones, willing to take more responsibility for managing their health and related costs, including making prudent and informed

health care decisions.[76] This section summarizes literatures on strategies implemented by both health plans and employers. There are generally three types of plan designs offered by employers to improve employee engagement, as listed below:

1. Use High Deductible Health Plans (HDHPs) or Consumer Directed Health Plans (CDHPs)

Employers have been testing HDHPs and CDHPs to improve employee accountability and meet the preferences of cost conscious employees. HDHPs and CDHPs are used to drive employees to take a more participatory role in the management of their health and have more direct financial accountability for their care choices.

A HDHP is a health insurance plan with lower premiums and higher deductibles than a traditional health plan. CDHPs are often associated with three features: (1) a relatively high deductible, (2) a personal spending account, and (3) the availability of information tools for employees.[77] A personal spending account may be funded in part by the employer – such as a health reimbursement arrangement or HRA, and/or with the employee pre-tax funds such as a Health Savings Account (HSA) or Flexible Spending Account (FSA).

As outlined by the U.S. Treasury Department, individuals with an HSA-eligible HDHP are required to pay the full cost of most medications and services until deductibles are met. However, a safe harbor allows some primary preventive services deemed to prevent the onset of disease are covered prior to satisfaction of deductible. Preventive care includes: periodic health evaluations, including tests and diagnostic procedures ordered in connection with routine examinations, such as annual physicals; routine prenatal and well-child care; child and adult immunizations; tobacco cessation programs; obesity weight-loss programs and screening services.[78] Some CDHPs exempt a defined list of preventive tests and therapies—such as mammograms and vaccines—from the deductible requirements.[79]

Several health plans found CDHP enrollees make fewer visits to emergency rooms, utilize more preventive services, have higher medication adherence and also lower medication use. For example, Cigna found their CDHP enrollees were more likely than traditional-plan enrollees to take advantage of various wellness programs. Generic utilization is slightly higher and emergency room use is 17% lower

for HDHP enrollees.[80] Aetna and United Healthcare found that CDHPs reduced the use of emergency rooms by 20% than those in the traditional health plans.[81]

Evidence shows enrollees in CDHPs are more engaged in their health care decision than those enrolled in traditional plans and use more preventive care. Research is inconsistent as to whether CDHPs are more successful than other types of plans at saving health care cost in the long run. While some studies indicate that CDHP enrollees access recommended care at higher rates than their counterparts in other plans, other surveys and studies show that CDHP enrollees forgo care such as medications due to the potential cost implication[82,83]

There is no consensus in the literature on the effect of CDHPs to improve employee engagement, which suggests that employers offering CDHPs may need to modify their plans to be more effective. The lack of consensus on the benefit of CDHPs suggests that employers offering CDHPs may need to develop more robust communication strategies. Emphasizing that preventive services are covered at no cost may lead to greater usage of preventive service; help mitigate more serious problems and help drive costs down in the future. Finally, a priority for policy development in this area is to determine how policy can promote the development and use of more effective information tools.

Looking forward, CDHPs will likely continue to increase in popularity. Currently, services or benefits meant to treat "an existing illness, injury or condition," are excluded from first-dollar coverage in HSA-eligible CDHPs.[84] As the demand for HSA-eligible CDHPs grows, it is important that these plans maintain the flexibility to allow for effective health management for all beneficiaries. Employers must continue to educate employees on how these programs work.

2. Value-Based Insurance Design to Encourage Employees to Use Evidence-Based Care

CDHPs have faced questions because the higher deductibles may cause patients to use less care even when the care is necessary. To mitigate the negative health effects that may result from increased cost sharing or high deductibles, employers work with health plans to encourage employees to follow evidence-based prevention and treatment options, which is referred to value-based insurance design, or VBID.

VBID represents a cost-sharing innovation intended to align patients' interest in disease control with payers' interest in cost containment by linking copay levels to the clinical value of the product or service. [85,86] It is based on the premise that higher medication and administrative expenses incurred by payers will be offset by lower non-medication expenditures that result from better disease control. VBID has been mostly implemented by self-insured employers in the form of copay reductions for medications to improve medication adherence.[87,88,89]

It is possible to incorporate VBID elements in CDHP with high deductibles and to offer more protection for certain medical services through a value-based insurance design plan structure. One type of VBID strategy may incentivize employees to use more high-value preventive services. However, CDHP with an HSA excludes the bulk of secondary preventive services according to IRS guidance[90] and prohibits health plans from offering these benefits before employees meet their deductibles. This exclusion also precludes purchasers from pursuing many proven disease management programs which are often offered for free in VBID programs. Employers need to be aware of this limitation.

The evidence for the return on investment of VBID programs is limited. Four previous observational studies and one trial that examined health expenditures for participants and non-participants one to three years after VBID implementation found similar spending trends for both groups. A study of Blue Cross Blue Shield of North Carolina's VBID program, which began in 2008, found improved patient adherence and modest reduction in hospital admissions. However, there were no significant changes in emergency department use or total health expenditures. The insurer incurred $6.4 million in higher medication expenditures; total non-medication expenditures for the study population decreased $5.7 million. The results provide limited support for the idea that VBID can be cost-neutral in specific subpopulations. In summary, the business case for VBID may be more compelling over the long term. [91]

VBID is effective in improving employee engagement through driving greater medication adherence. Increased patient engagement and awareness of the health benefits of medication adherence are also demonstrated by the positive relationship between wellness programs (part of VBID) and patient adherence. Reduced copayments likely increase medication adherence by improving financial access to

beneficial treatments so that patients do not have to save up to refill their medications. On the other hand, disease management programs may be linked with a reduction of medication adherence because of the emphasis placed on alternative lifestyle behaviors rather than medication. [92]

Further research is needed to understand how to structure VBID programs. A *HealthAffairs* study published in February 2014 identified five important features as a successful VBID program. They study found VBID plans that were more generous, targeted high-risk patients, offered wellness programs, did not offer disease management programs, and made the benefit available only for medication ordered by mail had a significantly greater impact on adherence than plans without these features. The effects were as large as 4–5 percentage points.[93]These findings can provide guidance for the structure of future VBID plans.

3. Target Specific Segments of Employees and Provide Actionable Information

Employers have been leveraging their health plans' data analytical capacities to target specific segments of employees and implement employee engagement strategies in three ways:[94]

1. Track and report health and wellness-related costs;
2. Allows an employer to identify high-cost or high-risk employees;
3. Facilitates more targeting intervention or communication

Examples of this strategy are few so no conclusions can be drawn. But here is one example: Unilever, a leading consumer product company with over 9,000 employees in the U.S., has a long history of improving the lives of consumers and employees. United Healthcare, Unilever's health plan, conducted an in-depth analysis of employees' claims data to identify opportunities for improved employee engagement through targeted communication. The data revealed several key areas that could be improved, including decreasing inappropriate emergency room (ER) use and decreasing musculoskeletal claims. Based on claims data, Unilever segmented the employee and dependents into several groups of high and low ER spenders and targeted them differently to reduce and prevent future avoidable ER use.

For example, employees and dependents with at least one visit to the ER for a migraine headache received a migraine care guide, as well as tips on how to avoid trips to the ER. Employees and dependents

who visited the ER three or more times received an formal Unilever letter which highlighted the seriousness of overuse of ER services to their employers and urged recipients to choose wisely when they have a medical problem, including starting with their primary care physician (PCP) for health care concerns and using the nurse-line to determine the right health care facility. The letter also included a general description of the services provided at urgent care centers and in ERs.[95] Unilever experienced a 4% decline in ER visits and a concurrent 39% increase in urgent care visits, suggesting that members were utilizing these services more appropriately. Employee enrollment in Unilever's Healthy Back program increased by 300%.[96]

Unilever focused on two domains of employee engagement: informing employee care choices and helping employees become activated. Unilever consistently refines the program to maintain employee engagement and the company won Best Employers for Healthy Lifestyles Silver award in 2009 and the Gold award in 2010 and 2011.[97]

A Summary of Engagement Strategies Offered by Employers and Health Plans: Three categories of engagement strategies offered by employers and health plans can be categorized as Value-Based Insurance Design (VBID) strategies. VBID may also be "value-based insurance design," or "evidence-based benefit design." No matter what the approach is called, the purpose is the same: to encourage consumers/employees to use high-value services that produce better health. VBID comprehensively addresses the way health benefits are structured and used by employees.

Summary of Existing Engagement Strategies and Implication for the Focus of this Study

Table 1 summarizes the document review on different engagement strategies that have been already tested. Engagement strategies by employers have a short-term effect. Evidence on health plan-based engagement strategies is mixed and inconclusive. VBID engagement strategies offered by a few employers together with health plans have demonstrated a positive effect.

Table 1. Summary of Existing Engagement Strategies

1. Employer only engagement strategies	**Continuum of engagement**	**Domains of engagement**	**Overall findings on effects of these strategies**
Implement environmental/policy changes to promote healthy behavior	Involvement	3	All three approaches are effective in the short term; long term impact is mixed
Encourage employees' participation in wellness and disease management programs	Involvement	3	
Communicate health & wellness messages effectively	Involvement	3	
2. Plan only engagement strategies			
Help consumers choose a health plan according to their preferences	Consultation	1,2	Information on cost and quality of providers and out-of-pocket information is helpful for consumer engagement; health plans need to strengthen their communication strategies and their team-based approach to health care
Identify care opportunities for patients/providers to take actions	Shared decision making	2,3	
Provide personalized and integrated information according to support consumers' decision making	Shared decision making	1,2	
Provide personalized services in patient-centered medical home	Shared decision making	3	
3. Strategies utilized by employers and plans together-value based insurance design			
Use consumer-directed health plans to engage cost-conscious employees	Shared decision making	1,2	Value based insurance design (VBID) approach demonstrated some evidences in improving employee engagement. Many employers are finding it difficult to realize the full benefits of VBID. Employers need to better communicate the plan specifics
Value-based insurance design to encourage employees to use evidence-based care	Involvement	2,3	
Target specific segments of employees and provide actionable information	Consultation	1, 3	

"1" stands for employee engagement domain one- elicit and support employee preferences; "2" stands for employee engagement domain two- inform employees their care choices; "3" stands for employee engagement domain three- help employees become activated in their health

Employers are increasingly embracing VBID to motivate employees to adopt healthy behaviors and make better health care choices. According to the 2014 19th Annual Towers Watson/National Business Group on Health Employer Survey on Purchasing Value in Health Care, more employers have

decided to work with their health plans to rethink plan design for employees and improve employee engagement. [98] With promising benefits, implementation of VBID is far from universal. The next chapter looks at key components of VBID that determines the success and reasons for limited adoptions of VBID.

CHAPTER 3: SPECIFICS ABOUT VBID

VBID plans are built on the principles of engaging members in their health and well-being, and designing a benefit plan that:[99]

1. Promotes wellness by emphasizing primary/preventive care;
2. Lowers or removes financial barriers to essential, high-value clinical services;
3. Discourages the use of low-value health services and providers.

VBID plans clearly communicate with their members and provide tools to allow members to use their health plan more effectively and efficiently.

The concept of VBID was first introduced in 2001. The initial VBID proposal decreased copays for highly effective medications and increased copays for less effective medications.[100] The concept was later applied to other health care services. "Value" is defined by interventions that either preserve health care quality while reducing costs or that increase quality with acceptable increases in spending. Health plans and employers are interested in this design primarily for services whose increased use is expected to reduce or not to increase spending.[101] More-sophisticated VBID designs encourage step therapy, in which high-cost options are fully covered only after lower-cost options have proven unsuccessful. For example, cost-sharing for weight-loss surgery can be decreased for employees who agree to participate in a counseling program first. VBID relies on employers to invest extra resources into an employee's health in the short term to create long-term savings.[102]

Incentives Used in VBID:

A VBID plan includes either incentives or disincentives. Whether employers choose incentives or disincentives is based on a number of factors, including an evaluation of what works best with a specific population, employer and individual choice in benefit design and coverage options, and clinical

information and research on the effectiveness (i.e. the ability of an intervention to produce the desired result) and value of health care services.

1. Incentives to Use High-Value Services for Some Conditions

A high-value service is one that provides considerable clinical benefit, relative to the cost. [103] Incentives may include the following types:

- Financial or other incentives for completing health risk assessments (HRAs)
- Waiving or reducing co-payments for certain classes of prescription drugs
- Waiving or reducing cost-sharing for high performing providers
- Waiving or reducing cost-sharing for certain types of medical treatments, tests or screenings
- Waiving or reducing cost-sharing for particular settings of care (e.g., Centers of Excellence)
- Incentives for reaching health targets, such as adherence with physician recommended medications
- Tools that inform consumers about differences in treatment options and costs and sites of care

2. Disincentives to Discourage Low-value or Unproven Services for Some Conditions

A low-value or unproven service is one that does not provide substantial health benefit relative to the cost. Low-value services lack evidence of effectiveness, and many are used for conditions other than those for which evidence has been developed.

Disincentives are mostly plan-based, such as adjustments to deductible and copayment levels. Two scenarios are likely to occur in VBID as results of copayment level adjustment. In scenario 1, targeted copayment reductions for high-value services to encourage more use of higher-value services, but an uncertain effect on total health care cost trend. In scenario 2, targeted copayment reductions on high-value services, in combination with copay increases on low-value services lead to no change or savings in total health care cost. [104,105,106]

The Choosing Wisely ® initiative is one great example of how VBID uses clinically targeted increases in cost-sharing to discourage patients from using specific low-value services.[107] In 2012, the ABIM Foundation announced the Choosing Wisely® initiative, which encourages physicians, patients, and other health care stakeholders to engage in conversations about medical tests and procedures that may

be unnecessary and, in some instances, cause harm. Under the initiative, specialty societies developed lists of five evidence-based recommendations of tests and treatments that physicians and patients should question. The goal of the initiative is to encourage physicians to be responsible stewards of finite health care resources and to reduce low-value care. Studies have found that Choosing Wisely ® has made initial strides to reduce low-value care.[108]

A VBID program that includes both incentives ("carrots") and disincentives ("sticks") may be particularly desirable for employers interested in implementing a plan that is cost-saving from an actuarial perspective in the short-term. While disincentive programs are less popular than those that offer positive incentives, qualitative research from focus groups suggests that consumers may be willing to accept disincentives provided processes for identifying low-value services are perceived as fair and transparent.[109, 110]

Five VBID Approaches Employers Use to Improve Employees' Health

There are four basic approaches to VBID by employers to improve employees' engagement: (1) by service; (2) by condition; (3) by condition severity; (4) by disease management participation; and (5) by type of providers. Table 2 provides a list of employer examples that had successfully implemented VBID for each approach.[111] The majority of VBID implementation focuses on the first type- encourage use of high-value drugs or high-value services.

Table 2. Five Types of VBID, Description and Employer Example

Type	**Definition**	**Employer**
By service	Varying copayments or coinsurance for select drugs or services, such as reducing co-pays for statins or cholesterol tests and increasing co-pays for low-value service like non-indicated cardiac testing , no matter which patients are using them	Pitney Bowes, Marriott International, Perdue Farms, Lowe's Company, Choosing Wisely
By condition	Reduce or waive copayments or coinsurance for medications or services, based on the specific clinical conditions with which patients have been diagnosed. For example, hypertensive enrollees could have copayments for their blood-pressure medications waived, but copayments for all other drugs and other enrollees would remain unchanged.	University of Michigan Focus on Diabetes Program

By condition severity	Reduce or waive copayments or coinsurance for high-risk members who would be eligible for enrollment in a disease management program	Hannaford Brothers Company
By disease management participation	High-risk members who actively participate in a disease management program are provided reduced or waived copayments or coinsurance.	The City of Asheville, NC, HoneyWell
By provider type	Steer patients to high performing providers in Patient Centered Medical Homes (PCMHs), and preferred networks.	Whirlpool Corporation, Intel

One or more of these VBID types have been adopted by many large employers and health plans throughout the country. Based on 2013 Mercer National Survey of Employer-Sponsored Health Plans, 23% of larger firms—with 500 or more employee offered VBID and additional 27% responded that they are considering it.[112]

Elements of VBID that Impact Cost of the Program

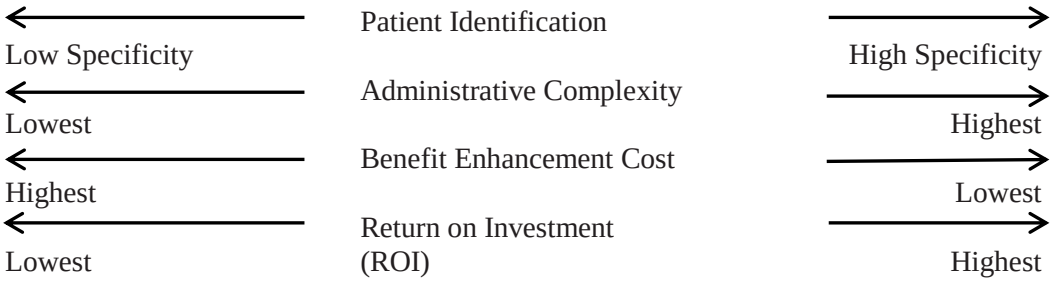
Fully insured or self-insured employers treat VBID differently. In a fully insured plan, the employer pays a per-employee premium to a health plan company, and the health plan assumes the risk of providing health coverage for insured events. The self-insured employer acts as its own health plan. The employer assumes the risk for paying the health care claim costs for its employees and uses the money that it would have paid health plans and instead directly pays health care claims to providers, which can be unpredictable. Therefore, self-insured employees have greater financial incentives to control their employees' cost.

VBID is scalable, depending on the investment an employer is willing to make and the expected return. It draws heavily on employer data to identify areas of opportunity. Many large, self-insured employers have embraced VBID. Self-insured employers can customize VBID to meet the specific health care needs of its workforce, as opposed to purchasing a 'one-size-fits-all' insurance policy.

Employers have implemented VBID at different price points for the benefit design intervention and with varying levels of intensity. For example, some employers offer reductions in copayments for chronic disease medications only to the most severely ill population of employees or those enrolled in

disease management, while others offer the financial incentive to all patients with a condition such as diabetes. A 2010 study summarized a list of key elements of a VBID approach that can each be scaled to influence the cost of a VBID effort, its population-wide reach and, potentially, its impact on health care outcomes (Figure 4).[113] Design features of VBID, such as the direction and magnitude of copayment changes and the extent of targeting, impact the financial success of VBID. Available evidence suggests that programs that raise co-pays for low value services are most likely to save money, particularly in the short term. [114]

Figure 4. Elements That Can Be Scaled To Influence the Cost of a VBID



Based on Figure 4, the potential return on investment for a VBID program firstly depends on population size and benefit cost targeted by the employer. For example, employers can target a benefit incentive to the entire employee or a select high-risk group. Smaller target groups mean a smaller outlay with a greater cost saving potential.

Administrative complexity (e.g., access to data, IT system, vendor management and communication of benefit design) plays an important role in the final return on investment. Understanding the administrative complexity, many employers have turned to health plans administering their benefit policy for support in both designing and administering VBID approaches. Plans are developing the capability to identify high-needs patients, communicate with them about essential services, and administer variable, value-based benefits.

Benefit enhancement cost. Timeliness and magnitude of the return on investment of VBID are tied to the ability of employers to offer incentives to employee groups likely to benefit—clinically and economically—from incentives. The ability of a VBID program to offset the full cost of the extra

spending on high-value services (and the administrative costs of such a program) depends on 1) the underlying clinical risks in the population treated, 2) the effectiveness of the program at increasing the use of high-value services, 3) the ability of those high-value services to mitigate the risks and 4) the cost of the services averted. Depending on the relative magnitude of these factors, it appears clear that the better targeted the program, the more likely that the up-front spending to improve health will fully offset its costs.

Framework for VBID Implementation

The implementation of a particular VBID program should be based on employer calculations that design a health benefit to target at a specific health care cost driver, coupled with communications to engage employees. To make sure the benefit is working as designed, employers need to involve health plans and employees and also design a rigorous evaluation that includes cost, quality and member experience metrics. Among employers, health plans and employers, there are three types of interactions (as shown in Table 3):

Type 1: Interaction between health plans and employees, including managing disease and health management programs, managing incentives and disincentives, identifying care opportunities for patients/providers to take actions and information designed to improve consumer's wellness.

Type 2: Interaction between health plans and employers, including data analytics to identify high-cost or high-risk populations, administration of health savings accounts and managing incentives.

Type 3: Interaction between employers and employees, including employer official communication and encouraging employee participation in wellness programs.

Table 3. Framework for VBID Implementation

Types of Interactions	Examples of Activities
Employer & Health Plans	▪ Health plans perform data analytics to identify high-cost or high-risk populations for employers ▪ Health plans administer health savings accounts for employers ▪ Health plan administer employers' incentive programs
Health Plan & Employees/ Consumers	▪ Health plans manage health management programs ▪ Health plans identify care opportunities for patients/providers to take actions ▪ Health plans provide information designed to improve consumer's wellness
Employers & Employees	▪ Employers send official communication to employees to educate employees about VBID programs ▪ Employers encourage employees' participation in wellness programs

Examples of Employers Who Have Implemented VBID

Below are summaries of four employers who have implemented VBID: Pitney Bowes, Perdue Farms, Lowe's Company and Oregon state health plan.

Pitney Bowes, a global shipping and mailing solutions with over 16,000 employees, has been widely recognized for its comprehensive, innovative VBID program to solving problems in areas of employee engagement. It focuses on employees' access to high-value services. In the midst of increasing employee medical expenses, Pitney Bowes decided to pay for a greater share of employee's diabetes and asthma medications, after the company's study found that employees with chronic conditions that only filled their prescriptions two thirds of the time or less became the biggest liabilities on the company's plan. At a time when health costs for other Pitney Bowes employees were increasing at 11% a year, the average amount spent on prescription drugs by employees with asthma and diabetes decreased by 10%. In addition, emergency room visits for employees with diabetes and asthma declined by 35% and 20%, respectively. Pitney's strategy returned $1.33 for every dollar the company spent during a 3-year follow-up period.[115]

Perdue Farms, a major chicken processing company with over 16,000 employees, developed a similar strategy to encourage employees to use high-value services and high-value providers. Perdue developed a plan called BestHealth and incentivized employees to participate in BestHealth by pricing it substantially lower than the lowest cost plan offering. BestHealth differentiates cost sharing by values of

services. Perdue Farms covers a schedule of seven high-cost interventions covered by employers' health plans at 70% cost-sharing rate rather than the standard 90% cost-sharing. In cases where the patient or physician feels that the intervention is appropriate, Perdue Farms offers a second opinion process through the Cleveland Clinic "e-consult" service. If the consultation confirms the need for the procedure, employees' cost sharing will be lowered. In addition, BestHealth steers employees toward primary care interventions by requiring participants to engage with their primary care physician and health coaches. Additionally, all BestHealth participants are required to be active in Perdue Farms' free Health Improvement Program (HIP) in which employees are given a health coach and personalized health plan based on their health risk assessment.[116] In 2013, employee enrolment in the Perdue Farm's HIP increased to 88% since the program's inception in 2008, and the average associate "HIP" health score (measured on a scale of 1-5) has improved from 3.44 to 3.63.[117]

Lowe's Company, a national chain store with over 160,000 employees, encourages employees to access high-value providers. Lowe's Company encouraged employees to go to the Cleveland Clinic for qualifying cardiac surgery as the Cleveland Clinic has expertise in this procedure. Full-time employees and dependents covered by the self-funded medical plans are eligible to receive these qualifying heart surgery procedures at no cost. Lowe's also fully covers travel and lodging expenses associated with traveling to the Cleveland Clinic for the employee that needs the procedure and an adult companion.[118]

In 2010 two Oregon public employee benefit boards implemented value-based insurance design programs for state workers. The plan includes three tiers of incentives. Tier 1 has no cost sharing for seventeen preventive services, such as periodic health appraisals; vaccinations; and screenings for breast, cervical, colon, and prostate cancer. These preventive services are recommended services by the U.S. Preventive Services Task Force. Starting in 2009, the program waives cost sharing for medication to improve medication adherence rates. Tier 2 is a standard commercial plan designed to include cost sharing. Tier 3 is designed to reduce the use of preference sensitive or supply-sensitive services but not to impede access to essential care such as TKA.[119] So far, the results have been promising. Table 4 below provides additional literature summary of several other employers.[120]

Table 4. Summary of Literature about Employers Implementing VBID

Organization (Pub. Year)	**Key Aspects of Intervention**	**Results (Effects on Cost Italicized)**
Marriott (2008/ 2013)	Encourage high-value services ▪ Eliminated copays for select generic drugs ▪ Reduced copays 50% for select brand-name drugs ▪ Targeted medication classes: ACE inhibitors, ARBs, beta-blockers, diabetes control, statins, inhaled corticosteroids Disease management program	Decrease in total spending of $323 per member due to reductions in medical expenditures after year 1; Improved adherence of 3.8-6.3% in all drug classes (statistically significant changes in 4 of 5 classes); Greatest improvement for statins
Florida Health Care Coalition (2011)	Encourage high-value services ▪ Reduced coinsurance rates for select generic and brand name drugs (to 10% from 10-35%) ▪ Targeted medication classes: diabetes control Disease management program	For first 1 year of program, diabetes-related ROI was $0.82 per $1 spent; For first 2 years of program, diabetes-related ROI was $1.08 per $1 spent; For first 3 years of program, diabetes-related ROI was $1.33 per $1 spent; Diabetes control medication possession ratios were 6.5% higher in VBID/disease management group than disease management-only group
Novartis Pharmaceuticals (2009/2011)	Encourage high-value services ▪ Reduced copays for select generic and brand name drugs ▪ Targeted medication classes: asthma control, anti-hypertensives, diabetes control* Disease management program	Decrease in mean diabetes-related payments of 37% for targeted diabetics between 2004 and 2007. Decrease in total medical payments for targeted diabetics of 13% over same period; Decrease in mean asthma-related payments of 2% for targeted asthmatics between 2004 and 2007. Increase in total medical payments for targeted asthmatics of 40% over same period; Increase in mean hypertension-related payments of 9% for targeted hypertensives between 2004 and 2007. Increase in total medical payments for targeted hypertensives of 9% over same period; Improved adherence of 4-9%, varying by drug class
Oregon Public Employees Benefit Boards (2010/2012)	Encourage high-value services ▪ Multiple category tiering of health care services ▪ Lower cost-sharing for high-value services, including office visits for chronically ill patients ▪ Targeted conditions for incentives: diabetes, hyper-tension, cardiac conditions, depression, asthma, and chronic	Reduction in obesity rate of 4-5% between 2009 and 2011/2012; Reduction in tobacco use of 6.6% between 2007 and 2012; Decreases in high-tech imaging and sleep studies of 15-30% between 2009/2010 and 2012; Decreases of 15-17% for other targeted low-value procedures between 2009/2010 and 2012

	obstructive pulmonary disease (COPD) Discourage low-value services ▪ Zero coverage or higher cost-sharing for preference-sensitive services, such as bunion and breast reduction surgery (some exceptions apply) Encourage healthy lifestyle ▪ Eliminated cost-sharing for weight management and tobacco cessation	

Employers' Barriers with VBID

Adoption and implementation of VBID is not widespread. Currently VBID initiatives are primarily implemented by self-insured employers and less frequently offered to fully insured accounts. The majority of employers who have implemented a VBID believe that the programs have been very or somewhat successful. For many others, it is too early to tell.

VBID implementation requires a multi-factored approach. As demonstrated by a recently published *Health Affairs* article, VBID plans that targeted high-risk patients, offered wellness programs, did not offer disease management programs, and made the benefit available only for medication ordered by mail had a significantly greater impact on adherence than plans without these features.[121]

Document review identifies several barriers employers face with VBID: return on investment (ROI) of VBID and standardization of VBID implementation process. Available research documenting ROI from VBID initiatives is generally mixed and it is hard to draw conclusion on ROI of VBID. Table 5 summarizes various components that need to be considered for VBID strategy's ROI calculation. Most studies find that VBID is consistently associated with improved medication adherence as well as with lower out-of-pocket spending for drugs.[122]

Studies found that improved medication adherence rates also reduce direct medical costs. It is uncertain whether the reduction in direct medical services offsets the costs of the co-pays previously paid by the employees and now paid for by the employers. It is also uncertain whether the savings will offset

the overall increasing medical services cost as a result of improved employee engagement in their own health care and wellness.

Table 5. Summary of Existing Literature on ROI of VBID strategy

Components of ROI calculation	**Savings to employers**	**Cost to employers**
Co-pay incentives for engaged employees		Increase
Medical services associated with newly engaged employees		Increase
Employee support program (e.g., disease management, health coaches)		No change or may increase
Implementation cost (e.g., education, communication, and vendor fee)		May increase
Savings of medical services associated with newly engaged employees	May increase	
Productivity or presentee-ism	May increase	

CHAPTER 4: RESEARCH QUESTION AND RESEARCH METHODS

Research Question

VBID can be scalable to different employers, depending on the investment an employer wants to make and the expected return. It varies much depending on employer data availability, administrative complexity, feature designs and areas of opportunity. However, existing literature lacks generalizable information around how employers determine these factors and executive VBID strategy. Therefore, there is a need for more research that examines the framework for designing, implementing, and sustaining employee engagement in a VBID strategy.

To meet this research need, this study seeks to answer the question: What factors should employers consider when designing and implementing VBID plans to improve employee engagement?

Study Design

The study design includes two steps: first, a document review is conducted to examine barriers of VBID implementation; second, key informant interviews of stakeholders that have experience with VBID design or implementation. Questions for key informant interviews focus on validating barriers and gathering solutions to the barriers during VBID design and implementation. The document review provides valuable foundational information to support the structure, content, and administration of key informant interviews.

The two-step approach aim at bringing a proven process and set of tools to employers to jump start VBID efforts and improve employee engagement. For policymakers and employers who have already embraced a value-based approach, this process provides additional rigor to the decision-making and planning process to take VBID strategies to the next level.

Data Collection Methods:

1. Document Review of VBID Implementation Barriers

The document review specifically searches for documents describing experience by employers who have already implemented VBID strategies. Information gathered in the document review will be summarized thematically. This step provides valuable foundational information to aid the structure, content, and administration of key informant interviews. Informant interview results will validate and supplement findings in this document review. The document review consists of a Google Scholar search from October to November of 2014, using the following combinations of terms:

1. Barriers OR challenges AND
2. Value based benefit design OR value-based insurance design
3. Employer OR health plan

2. Key Informant Interviews of Employers

Informant interview includes human resources managers, benefit design consultant, and other personnel at organizations that have implemented VBID. A total number of 17 interviewees were completed. A national registry of value-based insurance design plans suggests several self-insured employers have begun to implement value-based design in a variety of ways.[123] Table 6 includes a list of interviewees targeted for this study. All these targeted interviewees had experience overseeing the design and implementation of VBID either on behalf of an employer as an internal human resource manager, or for employer clients as vendors.

Due to the geographic spread, all informant interviews were conducted by phone. Appendix 2 includes a sample key informant interview script. The script served as a point of general guidance and was modified in the course of the interview, depending upon respondent feedback.

Table 6. Potential Employers to Interview

Organization name	Title	Type of organization
Activehealth	Sr. Medical Director	Vendor
Aetna	Director of Rx Outcome Research	Health Plan
BCBS CA	Product and Market Alignment	Health Plan
BCBS NC	Outcome research	Health Plan
CVS Caremark	Outcome research	Prescription Benefit Management
Intel	Healthcare System	Employer
Johnson & Johnson	Benefits/Employee Wellness	Employer
Lowe's	Benefits	Employer
Marriot	Benefits	Employer
Milliman	Product development	Vendor
Pitney Bowes	Benefits	Employer
State of Oregon	Employee benefits	Employer
Walgreens	Consultant Relations	Prescription Benefit Management
Walmart	Benefits	Employer
Whirlpool	Benefits	Employer

3. Data Management and Analysis

Primary and secondary data were collected for this study. The information obtained from document review and key informant interviews are qualitative. The analysis results include summaries grouped by themes, a discussion of findings, and a presentation of recommendations. The interview recordings and transcripts are reviewed to identify themes and to compare and contrast responses across interviews. To the extent possible, the data are coded and then counted or weighted (either by frequency of mention, extent of treatment of a theme or code by counting lines of text in the transcription, or both).

Study Deliverables

This research results include two primary deliverables. The first is a summary of current barriers in implementing VBID by employers. The second includes factors employers should consider if they are interested in implementing a VBID program.

IRB and Confidentiality Issues

This study required research that involves direct interaction with human subjects; therefore all relevant information was submitted to the Institutional Review Board (IRB) for review and approval.

Qualifying interviewee candidates were recruited via email. Appendix 1 includes the recruiting email script. Respondents were provided with a short summary of the study prior to the interviews, and provided with an opportunity to ask questions and/or express concerns prior to scheduling their initial interview. Finally, interviewee candidates' verbal consent was confirmed prior to any data collection, waiving written consent contingent upon IRB approval.

Interview questions were sent to interviewees ahead of time for the phone interviews, which gives the interviewees opportunities to think through questions or provide written answers ahead of the time. Recorded responses attributable to an individual interviewee remained confidential. At no point is the name, location or any other element that may allow the reader to ascertain the specific employers or health plans identified.

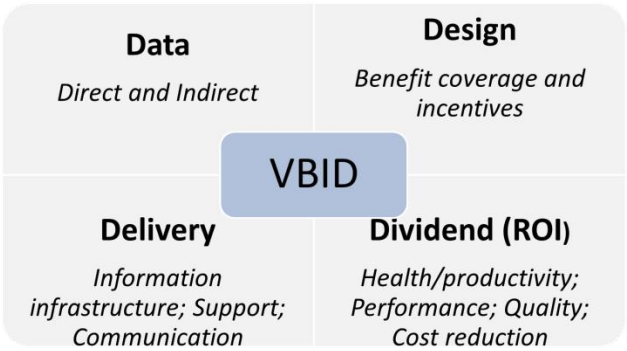
CHAPTER 5: REVIEW ON BARRIERS FOR EMPLOYERS TO IMPLEMENT VBID

This chapter summarizes literature related to barriers in VBID design and implementation. Self-insured employers have greater financial incentives to control their employees' cost and many large, self-insured employers have embraced VBID. For this reason, this section focuses on self-insured employers and health plans/vendors that work as vendors to support self-insured employers to implement VBID strategies.

The National Business Coalition on Health published a "Value-based Benefit Design a Purchaser Guide" and summarized the implementation of VBID in four key components (shown in Figure 5):[124]

1. Data: analyze data to identify cost drivers
    - Analyze claim data and employee productivity data to determine the high-cost drivers
2. Design: design the VBID strategy
    - Determine which services, drugs, or providers have high value
    - Determine which conditions drive total costs, including medical costs and lost productivity
    - Design incentives to encourage utilization of high-value services, drugs, or providers
    - Design disincentives to discourage utilization of low-value services, drugs or providers
3. Deliver: implement VBID program
    - Design and implement an effective employee communication and education strategy
    - Manage vendor effectively. Large employers can have as many as 11 or 12 different vendors that touch the VBID initiative
4. Dividends: build a business case (return on investment) for the VBID program
    - Calculate the return on investment of the VBID program.
    - Determine what needs to be measured the first year after the VBID program is implemented; what needs to be measured the second year after implementation; and subsequent years

Figure 5.Conceptual Model for VBID Implementation



When self-insured employers implement the four steps, health plans usually provide integrated support to VBID program, for example:

- Manage data analytics to support VBID, including data analytics to identify high-cost or high-risk populations;
- Educate and engage employees in better understanding their benefit design information;
- Support and manage incentives for chronic condition management, use of preventive services and selection of effective acute care services, generally and by national and regional plans

Description of Data Sources for Document Review

Google Scholar search was performed to identify peer-reviewed articles that were published between 1995 and 2014. In addition, document review was also performed in online databases of four prominent employer-membership organizations, National Business Group on Health (NBGH), Health Leadership Council, National Business Coalition on Health and University of Michigan Center for Value-Based Insurance Design. The websites for these four organizations include a wide array of resources, including webinars, journal articles, case studies, meeting highlights, technical assistance tools, and policy and issue briefs.

NBGH members are primarily Fortune 500 companies and large public sector employers — including the nation's most innovative health care purchasers — who provide health coverage for more than 55 million U.S. workers, retirees, and their families. The Business Group fosters the development of

a safe, high quality health care delivery system and treatments based on scientific evidence of effectiveness. The Healthcare Leadership Council (HLC), a coalition of chief executives from all disciplines within the health care industry, is the exclusive forum for the nation's healthcare leaders to jointly develop policies, plans, and programs to makes affordable, high-quality care accessible to all Americans. Members of HLC include hospitals, health plans, pharmaceutical companies, medical device manufacturers, biotech firms, health product distributors, pharmacies and academic health centers. HLC members advocate measures to increase the cost-effectiveness of healthcare by emphasizing wellness and prevention, care coordination, and the use of evidence-based medicine, while utilizing consumer choice and competition to elevate value.

The National Business Coalition on Health (NBCH) is a national membership organization of purchaser-led health care coalitions. NBCH and its members are dedicated to value-based purchasing of health care services through the collective action of public and private purchasers. NBCH seeks to accelerate the nation's progress towards safe, efficient, high-quality health care and the improved health status of the American population. NBCH has a membership of 52 coalitions across the United States representing over 7,000 employers and approximately 25 million employees and their dependents.

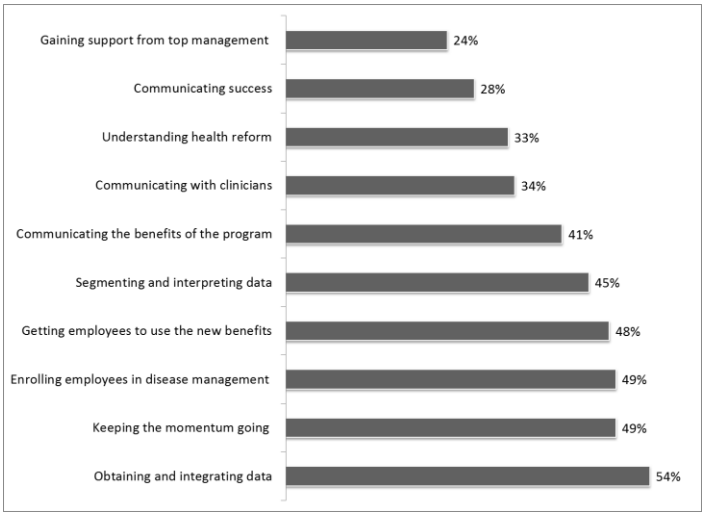
The University of Michigan Center for Value-Based Insurance Design (V-BID Center) leads in research, development, and advocacy for innovative health benefit plans. Since its inception in 2005, the V-BID center has led efforts to promote the development, implementation, and evaluation of innovative health benefit designs balancing cost and quality. A multidisciplinary team of faculty first published and named the V-BID concept, and has guided this approach from early principles to widespread adoption in the private and public sectors. The Center played a key role in the inclusion of VBID in national health care reform legislation, as well as in numerous state initiatives.

Key Findings

In general, employers understand the potential of VBID but see the implementation as a major challenge and find it difficult to realize the full benefits of VBID. [125] Figure 6 provides a list of VBID

challenges based on the 2010 Value-Based Design 2010 Survey Report.[126] The section below looks at challenges specific to each of the four components.

Figure 6. Top Ten VBID Challenges, Based on the Value-Based Design 2010 Survey Report



Data-Related Challenge:

The starting point of any good VBID is data analysis and predictive modeling. Three challenges exist: data availability, right data algorithm and whether databases communicate with each other. Data availability refers to all forms of data, e.g., health risk assessment (HRA) aggregate reports, medical analytics and prescription drug use. The second challenge is whether employers have access to the right predictive model to design a differential copayment based on patients' characteristics. Based on Pitney Bowes' experience implementing VBID strategy, VBID was really the result of a very rigorous application of predictive modeling.[127] Enrollees with certain diseases are easier to identify than others. To address this challenge, health plans are building more robust administrative infrastructures to help employers with the analysis. The third challenge is the communication among different databases. Employee eligibility data has to be transferred from health plans to the point of service, necessitating data transfer and cooperation across organizations. Questions employers and health plans may consider before conducting data analysis are:

- What are the multiple data sources?

- What are the biggest barriers to accessing data sources?
- How to use data to classify health-risk employees? (e.g., identify potential employee participants for VBID programs)
- What are the current challenges in employee health risk identification and classification?
- How to link employees among different databases such as claim data and health risk assessment data?

VBID Design-Related Challenges:

1. Design the Right Program

There are two approaches for self-insured employers to design or implement VBID: basic VBID and advanced VBID. In a "basic" VBID approach, an employer targets high-value clinical treatments for co-payment reduction across all employees. Empirical evidence around whether a drug or other intervention that provides relative value can support this approach. Once the data support a high-value claim, an employer's benefits administrator could reduce employee co-pays or even eliminate co-pays to encourage use of the high-value services across all employees. In an "advanced" VBID model, an employer may adjust employees' specific co-payments based on their medical profiles. For example, an individual who recently had a heart attack would receive reduced co-payments for prescription beta-blockers which is a proven high-value treatment in preventing subsequent heart attacks in the future collaboration.

Below is a list of questions employers need to consider as potential challenges to design both the basic and advanced VBID programs:

- What is the appropriateness assessment of VBID focus for an employer (i.e., does it vary by employee size, turnover, employee health status?)
    - For example, if the workforce is young and healthy with few conditions, VBID may not provide much benefit
- Is the program permanent or merely a pilot?
- How will the VBID program be structured?

- Which segment(s) of the population or clinical conditions will be targeted?
- What are the incentives and disincentives?

- How does it integrate with an employer's other health benefit programs?

2. Define "High-Value" Services in VBID Programs

VBID strategy is easier to create when there is clear definition of "high-value services" and "low-value services."[128] Currently, information about cost and quality of services exists in many forms from a wide variety of sources. Several organizations are already providing subsets of the quality and cost information needed to support effective care choice: Centers for Medicare & Medicaid Services (CMS), The Leapfrog Group, National Committee for Quality Assurance (NCQA), The Joint Commission, multi-stakeholder collaborative for performance measurement and reporting, several health plans, and American Medical Association (AMA). All of these organizations are providing resources and opportunities for the medical profession to examine clinical evidence and reach consensus on commonly used tests or procedures whose necessity should be discussed. One of the most famous ones is AMA's Choosing Wisely campaign (www.choosingwisely.org) to define appropriate use/overuse measures.

Employers/employees are more likely to choose high-value providers when cost data is presented alongside easy-to-interpret quality information. However, because people value different attributes about physicians and facilities, that information must be presented in a way that makes it easy for the employees to identify which information is most relevant to their situation and personal preferences. For example, a person looking for a primary care physician may place a higher priority on other patients' experiences with a doctor, while a newly pregnant woman may be more interested in the quality of the hospital where her obstetrician delivers babies.

Questions employers and health plans should ask when they try to define "high-value" services and communicate "high-value" services are:

- How does low-value service affect both the cost of care as well as employee outcomes?
- How to present information to help employees identify high-value services?

- How to encourage employees to choose high-value services?

VBID Delivery-Related Challenges:

1. Educate Employees about the Benefit Structure

Successful implementation of VBID programs requires employees to make more-complex decisions than do traditional health plans. A recent study found employers had a good general understanding of how their value-based benefit design worked, but reported confusion about specific processes due to the VBID's complexity. [129] Other barriers for employees to fully leverage VBID include having mistaken expectations about what medical services or benefit services are covered by plans; and being reluctant to discuss costs with doctors. Employees may attempt to control costs by delaying or avoiding visits to doctors, but feel that they have little control over costs once a clinical encounter begins. There are very different definitions of "value-based". For some, value means generic drugs only. For others, it's the cheapest possible formulary. Poor knowledge of benefit design combined with price sensitivity can result in unintended consequences, such as avoiding care for services that are exempt from any deductible.[130]

In order for complex benefit designs to have the desired effects, employees need better information and decision support to help them understand their benefits and to differentiate between high-value and low-value services. Potential approaches to better supporting employees include simplifying these plans to enhance their predictability and the clarity of communications among employees, providers, and health plans. Health plans can attempt to offer doctors real-time information on individual patients' cost-sharing arrangements and the possible financial effects of clinical recommendations. Questions employers and health plans need to consider to help employees better understand the specifics of VBIDs are:

- What are the goals for communication strategies?
- How are the key performance indicators of communication strategies?
- Will employers implement communication activities in-house or through a vendor?

- What are the formats of communication (i.e., fliers, newsletters, emails or face-to-face meetings)?
- How to communicate to employees that a network with tiered co-pays may not include their long-time providers?
- Can benefit vendors have mechanisms to send targeted messages to beneficiaries based on the individual's health status and whether the individual is achieving the desired VBID initiative goals?

2. Helps Employees to Make the Appropriate Care Choice

The second important obstacle for employees is making the right choice. Two types of barriers exist: lack of adequate decision-support tools and a low level of understanding of information presented in order to make the choice.

The incentives in VBID are designed to promote employees' sensitivity to cost and quality when they make decisions about their health care. The ability of people to make informed decisions is highly dependent on the extent to which they have access to useful information. As summarized in the document review, some health plans engage enrollees in shared decision-making processes by providing cost and quality information of providers according to enrollees' preferences. A survey in 2013 has shown it is often very difficult for employees to find the cost information of health services (Figure 7).[131]

Figure 7. Availability and Use of Cost Information by Types of Insurance Plans, 2013

	Traditional[a]	HDHP[b]	CDHP[c]
Tried to find the cost of health care services before getting care	22%	30%*	41%*
Found information in:	75	59*	74
Health plan's websites	52	36*	49
Health plan's customer service department	33	31	30
Printed material from health plan	26	16*	27
Provider's office	23	37*	31
Provider's website	21	11*	24
Other websites	5	5	2

Advocates of making health information accessible to consumers continue to pursue policies and tools that will make more information on costs and quality more available to employees. However, even with the information available, communicating the information effectively so employees can easily make a decision is more challenging than it might first appear. To address this challenge, employers and health plans should consider the following questions:

- How to evaluate different decision-support tool options that are already provided to employees (e.g., disease-specific information, treatment protocol, shared-decision technology)?
- When and how a decision-support tool is supposed to be used?
- How to educate providers and employees about the decision-support tools?
- How to evaluate whether enrollees make good decisions as a result of decision support tools?

Challenges to Demonstrate Dividends of VBID

Assuming that high-value and low-value services can be adequately distinguished for VBID, it is possible to achieve the cost-saving target by financing the costs of lower copayments for high-value services through higher copayments for those services of lesser value. However, because health and financial outcomes are dependent not only on benefit structure, but also on elements such as care management initiatives, pricing, and provider reimbursement and incentives, it is difficult to determine return on investment (ROI) exclusively as a result of VBID. For example, one of the biggest challenges Pitney Bowes had when it implemented its VBID strategy was to convince C-suite about the ROI of VBID.[132]

The ROI calculation for a VBID program aligns key performance indicators of a VBID program with the business objective of the program. It can assess the costs to employers of a) reduced co-pays or other financial incentives; and of b) any increased utilization that results from co-pay reduction. The more expansive ROI calculations include program costs, such as communication initiatives and disease management and other support programs, as well as productivity increases associated with reductions in absenteeism and presenteeism.

In calculating an ROI for VBID, the time frame is very important. An employer's total health care costs may increase in the short term before direct medical costs may start to decline.
Increasing medical cost as a result of lower copays is a big concern to employers. In addition, employers may not capture the long-term ROI due to employee turnover. Senior management may be reluctant to implement a VBID program if another company, perhaps a competitor, would reap the savings in the

future. Based on the literature review, employers may consider several strategies to increase the likelihood of a positive ROI by 1) implementing a targeted, rather than a non-targeted program; 2) offsetting VBID costs with other plan design changes; 3) building an effective communication strategy and implementing a basket of integrated services; 4) extending the timeframe for evaluating returns, and 5) including increased productivity or decreasing disability data in ROI calculation.[133]

VBID ROI may also be improved when employees understand and accept accountability for their unique roles in supporting the overall organizational goal on health. Strategies that encourage individual accountability may include special orientation and training centered on preventive benefits. Questions that employers need to answer when they calculate the dividends (ROI) of VBID are: [134]

- How is success defined and what are the realistic expectations?
- How to define the appropriate timeframe for the calculation?
- Is it appropriate to include the cost of presenteeism in the ROI calculation?
- If the VBID is a targeted program, what are the operational and administrative costs of targeting activities?
- How much financial resources need to be dedicated to VBID?

Summary of Barriers Related with VBID Design and Implementation: Implementing value-based benefit design is challenging. This chapter conducts a literature review and summarizes barriers employers and health plans need to address in each of the four steps of VBID design and implementation. Table 7 includes a summary of barriers and challenges employers and health plans need to consider when they design and implement VBID programs.

Table 7. Summary of Literature Review on Barriers and Challenges Related with VBID programs

Data	**Design**	**Deliver**	**Dividends**
Data availability and predictive modeling	Design the right program	Help employees to understand the benefit design products	Demonstrate return on investment of VBID program
	Define “high-value” services	Help employees to make the appropriate care choice	

CHAPTER 6: KEY INFORMATION INTERVIEW FINDINGS

Descriptive Analysis:

The organizations included in this portion of this study are on the leading edge of implementing VBID based on the literature review. These organizations incentivize employees to promote the use of high-value services and to reduce the use of services with low relative value.

1. Interviewee Profile

The study design necessitates acquiring perspectives of different stakeholders that had experience with VBID- health plans, employers, and vendors. A total of seventeen informant interviews were conducted during the winter of 2014/2015 to explore the barriers in VBID programs, and how to overcome barriers. The interviewee profile in Table 8 gives the context for study findings and includes organization profile, job category, and industry representation. The selection of these interviewees for participation in the key informant interviews was based on purposeful selection. Organizations were selected for inclusion in the sample if pre-determined during the document review that the organization has either implemented or is in the process of implementing a VBID program. Employer interviewees were specifically recruited to ensure adequate representation of geographic coverage (national or regional); organizational type (for-profit and not-for-profit); and industry representation. Since the total number of employers who have implemented a VBID program is around thirty,[135] the interviewee sample of 9 employer respondents represents about 30% of key employers who have implemented VBID. While the absolute sample size is not large, these employers provide a representative sample of employers who have implemented VBID.

Table 8. Interviewee Profile

Category	**Interviewee Profile**
Type of organization	3 vendors, 2 pharmacy benefit management company (PBM), 3 health plans, 9 employers
Geographic variation	4 regional, 13 national
Industry representation of employers	2 regional employers, 7 national employers
Job titles	VP of Benefits, VP of Product Design, VP of Employer Strategy, Medical Director, Medication Outcome Research, Director of Data analytics
Involvement with VBID	All the employer interviewees had accountability for VBID implementation when they worked as the head of benefits for the organizations. All the vendor interviewees had accountability for the VBID design and supporting employers to implement VBID strategy when they worked as vendors for employer clients.
Current job description (whether interviewees are still involves VBID	3 interviewees have changed jobs in the past 4 months before interviews occurred; 14 interviewees are still actively involved in VBID design and implementation

Each employer interviewee had direct involvement in the initial design and implementation of VBID. Each health plan or vendor interviewee had direct interaction with their employer clients to design and implement VBID. This direct involvement is significant because interviewees in this study are credible in describing their experiences with VBID. Based on literature reviews, all interviewees are recognized content experts, as well as champions for effective change during the initiation of VBID for their employees or for their employer clients. For these reasons, interviewees' recollection and recommendations provide relevant insights for other employers who are interested in offering VBID to engage employees. The Plan for Change of this study also reflects interviewees' recommendations.

The interview transcripts were reviewed to identify themes, and to compare and contrast responses across interviews. Themes were coded and, where possible and appropriate, counted. Finally, themes were grouped for discussion and conclusions.

2. Types of VBID Programs Offered by Interview Organizations

As the literature review in Chapter 3 identified, VBID plans differ from traditional benefit plans. Under a VBID plan that focuses on pharmacy benefits, for example, employees often have either no copay, or very low copays, for those chronic medications that demonstrate a proven clinical benefit(such as a blood pressure medication for a patient with hypertension). Many VBID plans are also linked to wellness and disease management programs to encourage healthy behavior and better employee engagement. Few VBID programs include disincentives for low-value providers or low-value procedures.

Table 9 below summarizes the types of incentives offered by interviewee organizations in this study. A commonly used VBID incentive by employer interviewees, and health plans/ pharmacy benefit management company interviewees is varying employees' cost sharing of their prescribed medications through copayments, co-insurance and/or deductibles to improve medication adherence. The rationale for these types of arrangements is based on price elasticity of demand associated with drug cost in which lowering out- of-pocket spending improves medication adherence.

Table 9. Types of Incentives Offered by Employer and Health Plan/PBM/Vendor Interviewees

Types of Incentives	**Employer**	**Vendor**
Design by services: Vary copayments or coinsurance for select drugs or services, such as reducing co-pays for statins or cholesterol tests; and increasing co-pays for low-value service such as non-indicated cardiac testing, no matter which patients are using them. (One employer offers additional financial rewards to encourage employees to use high-value preventive services.)	7	3
Design by condition: Reduce or waive copayments or coinsurance for certain medications or services, based on the specific clinical conditions with which employees have been diagnosed; e.g., copayments is waived for employees with hypertensions on their blood-pressure medications, but copayments for all other drugs these employees take and other employees would remain unchanged.	3	3
Direct employees to high performing providers in Patient Centered Medical Homes (PCMHs), Accountable Care Organizations (ACOs), and preferred networks.	3	3
Include wrap-around programs such as disease management & health coaching.	5	3

Note: Some employers' VBID program covers more than one category. The total number sums up to >17

Incentive designs by service and designs by condition are evenly distributed between employers and health plans/PBM/vendor interviewees. Almost all employers cover preventive services for free in their VBID programs. Only one employer offers additional financial rewards to encourage employees to take preventive services such as colonoscopy screening and healthy pregnancy programs. Although still relatively new, using incentives to steer employees to high performing providers such as those in Patient Centered Medical Homes (PCMHs), Accountable Care Organizations (ACOs) and preferred networks has become popular especially among employers who have a large workforce in certain health care markets.

Interview Findings:

1. Continuous Development of VBID Programs

The types of incentives identified through the interviews also reveal continuous development of VBID programs. Most employers said VBID started as a program that focuses on improving medication adherence because employers realized that many of their employees did not follow their providers' prescription orders, or simply missed taking medications. VBID programs that waive or reduce cost-sharing for pharmacy benefits to promote medication adherence have demonstrated success. Two employer interviewees said the poster child for VBID use is asthma because poor medication adherence results in high rates of costly emergency room use. By lowering patient cost-sharing of asthma medications, VBID increases adherence rates and reduces emerging room use and health care costs. According to interviewees, hypertension, diabetes and cardiac conditions are other disease targets for VBID to improve adherences, and to help demonstrate a positive ROI on the VBID program

Since then, VBID programs have expanded to cover other medical benefits for two main reasons identified by the interviewees. Firstly, more information has been published in the past few years to define low-value services/procedures versus high-value services procedures. Secondly, adherence rates for many employers have reached a high point, 80% in an extreme case for one employer interviewee,

and reducing the next 2 or 5% has been difficult. Therefore, employers started looking for other ways to improve employee engagement in managing their health and reducing health care costs.

To manage medical benefits, employers have used two features of VBID: tiered networks and the use of Center of Excellence providers. In tiered networks, employers' health plans place providers, typically hospitals and specialists, into tiers based on their efficiency and quality measures. With a tiered network included in the benefit design, employees pay less for care from providers that are high-quality and low-cost. Many health plans offer tiered network plans as a part of their benefit package to tackle rising health care cost especially self-funded employers. As a result, tiered networks have been used widely. Approximately 20% of employers have tiered network plans.[136] Three employer interviewees mentioned the use of a tiered network in their VBID program.

Employer offering low-cost or no-cost coverage of certain procedures at Center of Excellence providers has been a practice for several years. The literature review in Chapter 3 found that by sending employees who need highly specialized care to an organization that demonstrates the best outcomes, health costs decline while employee health outcome improves. Other byproducts of this mechanism are improvements in productivity and retention. Employees receive consultations and treatment without deductibles or co-insurance as well as travel, lodging, and living expenses for the employee and a caregiver. Participating employers receive discounted rates for care, as well as pre-arrangement payment rate information from Center of Excellence providers.

Referring patients to high-quality providers (e.g., PCMH, Center of Excellence and ACOs) corresponds to the payment and delivery reform motivated by the ACA in which providers are moving from fee-for-service models to value-based payment models. All interviewees in this study foresee this trend continuing and being adopted by more employers.

Only one employer interviewee successfully implemented disincentives on a preference-sensitive service (knee-replacement). Preference-sensitive care comprises treatments for conditions where

treatment options exist -- options involving significant tradeoffs among different possible outcomes of each treatment. That employer attributed the success of implementing disincentives to existing evidence-based research which differentiates low-priority procedures from high-value procedures. Other employers have contemplated implementing disincentives on low-value services, but cited concerns over "employee whining" as a reason for not moving forward.

Recent research finds that VBID when implemented as an independent program is less effective than when offered in combination with wrap-around program features such as identification and targeting high-risk patients and built-in wellness programs.[137] This finding was mentioned by all the interviewees (vendors and employers), but they also recognized that this feature is often overlooked by employers who are interested in VBID and they suggest more research to elaborate on this topic.

Employers increasingly recognized that there is a great amount of waste in the health care system partially as a result of overuse of low-value health services. Employers also see themselves as victims of the health care system when they have to bear the high health care cost burden by offering employees insurance options. There are benefits to offer employers more education and guidance on how to identify the waste and apply disincentives to reduce the use of low-value services. Two employer interviewees and one vendor interviewee mentioned tools to identify low-value medical services for their own employees: Choosing Wisely® and MedInsight Health Waste Calculator.

2. Employers' Appreciation of VBID

Employer interviewees were surprised that the adoption of VBID is still slow. One interviewee even asked: "I don't understand why we are still asking the question on ROI for VBID 10 years after the concept was created. It absolutely works." Even though health plans and consultants showed interest in VBID a few years ago, adoption has been low for a variety of reasons. The first reason is that the passage of ACA attracted most of the attention in the past few years. Employers, health plans, providers and policymakers are in agreement with VBID conceptually, but had to focus on other priorities after ACA

passage. The second reason is the small payoff relative to large demand for input resources and uncertainty around the ROI of VBID programs. The third reason is that current claims processing systems are not always set up to support VBID. For example, employers find it hard to pay employees differently based on their behavior such as waiving co-pays if they take medications.

All employer interviewees of this study recognize VBID as an effective strategy that aligns incentives to encourage healthy behavior and to improve employee engagement. But successful adoption of VBID requires employers to change their mind-set about employees. Many employers expected VBID to bend the cost curve but decided not to move forward when existing literature shows mixed results on cost saving opportunity for VBID programs. All interviewees recognized that to implement a VBID program successfully requires employers to view employees holistically and provide them with all-around integrated programs to promote their health, with VBID as a part of the integrated program. Sole reliance on VBID and hoping VBID will bend the cost curve is not enough to change employees' behavior. Until employees believe employers truly care about them, employees may be reluctant to buy into the VBID concept.

Most employers found it relatively easy to leverage the VBID program to improve medication adherence. Adherent employees are less likely to be hospitalized. [138]Besides lowering co-pays for medications, some employers also narrow the pharmacy network and simplify prescription pick-up to sustain or further improve medication adherence. Employers also adopt other strategies to control drug cost such as putting high cost specialty drugs under step-therapy and genetic testing for certain cancers to make medications available to people when clinically appropriate.

Employer interviewees all mentioned the challenges of applying VBID to medical benefits. First, figuring out which medical benefits work best in VBID programs is difficult. Most of high-value services are already offered for free to employees as part of preventive service benefits, such as colonoscopies and vaccinations. Secondly, employers think it would be difficult to steer employees to certain high-quality providers when employees want freedom of choice. In addition, employers think many health plans

already steer plan participants to high-quality providers and employers do not need to do anything more. Lastly, employers are worried that the process is too complicated for employees to figure out and employees may complain.

In summary, the low adoption of VBID programs suggests that most employers are still adopting a cautious approach to this program. This caution calls for additional research on best practices of VBID design and implementation.

3. Key Findings on How to Address Barriers in VBID Design and Implementation

The following paragraphs summarize recommendations shared by interviewees on how to address barriers related with VBID programs in four areas: design, data, dividends and delivery. These recommendations were ranked according to their relative importance level. The ranking was conducted based on interviewees' responses when they were asked to identify the most important step based on their experience.

Recommendation 1: Obtain and Analyze Different Sources of Data to Identify Cost- Saving Opportunities

Most employers work with their health plan administrators to design VBID programs based on claims analysis. Claims data includes both medical and pharmacy utilization data. Several steps are involved in claim analysis: collect data regularly; distinguish employees from dependents; organize data for specific chronic conditions; and analyze data by cost centers, such as ambulatory services, hospital stays, emergency visits, and screenings. For example, one employer interviewee identified three chronic illnesses — diabetes, asthma and hypertension — as major cost drivers for the company. In these disease groups, hospital stays and emergency room visits were high and employees missed taking their medications. Based on this analysis, the employer decided to lower coinsurance for medications within selective chronic disease groups.

Many employers incentivize employees to complete a health risk assessment and/or biometric screening. A health risk assessment or biometric screening can provide important data to guide the design of a VBID plan by assessing collective risk factors and by segmenting the population into specific risk

factors and conditions. However, most health plan interviewees expressed doubts about whether health assessments and/or biometric screenings on their own can make a difference to employee health cost. The health assessment must be tied to a health improvement activity such as a using a health coach, active monitoring by a primary care physician, and/or a wellness program offered by a vendor. The assessment data can serve as part of the baseline data to inform VBID program design and can be repeated periodically to measure VBID program progress.

Employers should also consider employees' perspectives when they conduct analysis to identify target areas. One employer has one employee representative on the benefit review panel to review data analysis and benefit design. It is important to keep 'customer's' needs in mind.

It helps to have productivity data to identify cost-saving opportunities. Indirect costs constitute as much as two-thirds of the total healthcare cost to an employer and are a good data source for employers to identify cost-saving opportunities. Indirect costs include sick days, short-term/long-term disability and workers' compensation. Employers should also consider productivity data.

All employer interviewees emphasized the importance of reviewing the top employee health issues regularly. Some employers conduct this exercise annually and decide how to allocate resources based on their analysis. To identify the top health care issues, employers review employees' health care use data, medication use data, as well as productivity and employee engagement data.

Several employers suggested that it helps when a health policy professional identifies top employee health issues as well as high-value services VBID programs should incentivize employees to use more. Health policy professionals in general tend to be current on health care research findings and they may have innovative ideas to address the top health issues of employers.

Recommendation 2: Put VBID on the Top of Priority List to Get Senior Leadership Endorsement

Several employer interviewees said that they recognized VBID as more than just a benefit design program but rather as an integrated program that is built on the principles of engaging employees in their own health and well-being. The objective of VBID needs to match an employer's strategic business objective to improve employee productivity and business profitability. Two employer interviewees attributed their success in VBID implementation to alignment with overall business strategy and continuous leadership endorsement. One employer interviewee mentioned that his CEO asked him a question during strategic planning process "Tell me how many additional products I can sell with a healthier workforce?" This question demonstrates that senior leadership understood that a healthy workforce has a positive impact on business bottom-line.

Employers also set long-term objectives for their VBID strategy. One employer interviewee has a three-year business plan for their VBID program, i.e., the goal and objective for 2015 was set in 2012 as part of the 2012-2015 three-year plan. The three- year health/wellness plan aligns with the business cycle. A long-term strategy allows employers to invest resources to achieve long term outcomes and to demonstrate their commitment to improving employee health. In this way, VBID became more than a cost-cutting strategy. Rather, it is a core component of the business strategy to improve business success.

Creating an urgency to change current benefit programs helps convince management to invest in a VBID Program. All the employer interviewees had identified a trigger event for them to advocate for a change in benefit design in front of their leadership team and to explore how a VBID program could help. Two employer interviewees decided to explore VBID programs for three different reasons:1) as they responded to a nationwide request to take employees' health care cost into control; 2) to bring down cost barriers to healthy behavior; 3) to pay for high-quality services at lower-cost. To identify the next step, a few employers issued a request for information (RFI) or Request for Proposal (RFP) to health plans and/or PBM for ideas and proposals. Other employer interviewees said they realized the need for changes to control their employees' health care costs after their health plans asked for premium price increases.

One interviewee said "When the cost started to go the wrong way with their employees then people started to do something."

Recommendation 3: Start with Something Easy to Implement

It might be easier to start with service specific VBID rather than condition specific VBID**.** There is more research on the service specific VBID. VBID incentives linked to specific services or drugs are commonly referred to as "non-targeted VBIDs" if they are available to all employees. This approach is relatively easy for vendors (PBMs and health plans) to administer. However, this approach is limited by the small number of services/drugs that provide high value for everyone. In comparison, condition specific VBID offers incentives only to those who have specific conditions and benefit from the service/drugs the most. To successfully implement a condition-specific program, an employer usually partners with a vendor who is capable of providing sophisticated clinical decision support that can identify the targeted population through data analysis. The problem with this approach is that not all the drugs a person with the targeted condition takes would be covered by VBID, limiting the effectiveness of the incentives.

There are also VBID programs that target specific program participation, such as participating in disease management or health promotion programs that require close coordination among the different vendors managing the program. The health plan and PBM need to assure that specific program participation is accurately tracked and the incentives are correctly administered.

Low-value and high-value services/drugs must be evidenced-based. One of the biggest challenges cited by the document review in Chapter 3 is who should determine low-value services versus high-value services. Employer interviewees said substantial research exists to provide guidance to employers on which services/drugs provide high clinical value, such as those conducted by Oregon Evidence Based Practice Center. Examples of low-value services mentioned by employer interviewees include uses of antibiotics for sinus and ear infections, lower back surgery, arthroscopic knee and shoulder surgery, angioplasty and stenting, nuclear cardiology, and sinus surgery. Other examples are

found in the 130 listed services in the American Board of Internal Medicine/ Consumer Reports "Choosing Wisely®" campaign.

Recommendation 4: Identify the Right Amount of Incentives to Change Employees' Behavior

With limited resources, employers should provide incentives to conditions or services/procedures that drive health care cost. To successfully implement incentives, employers need to figure out the "price elasticity of employees' behavior". Elasticity measures the percentage of change in the quantity demanded of a medication in response to a 1% change in co-pays. For example, one employer may identify employees with low medication adherence rates and decide to use a VBID program to improve adherence rates given the high "price tag" of low adherence. Employers should calculate price elasticity of waived or reduced co-pays for its employees and answer the question: If co-pays are waived or reduced, how many more people will adhere to their medication so that health care costs for these employees are reduced? Interview findings suggest that the price elasticity of demand varied considerably by medication class, suggesting that the influence of cost sharing on medication use may be related to characteristics inherent to each medication class or underlying condition,[139] but currently, there is not enough research on employee price elasticity to different incentives and employee behavior modification.

In the early stages of VBID program implementation, employers were reaching the sickest and the most costly patients, but not necessarily the most non-adherent patients. All the employer interviewees emphasized that the ability of benefit design and financial incentives alone to address the complex problem of medication non-adherence should not be overestimated. Rather, many other reasons are associated with non-adherence. More research on how to structure incentives to change behavior of the most non-adherent population is needed.

Recommendation 5: Report Other Measures to Supplement ROI for a Balanced Assessment

As discussed below there are very good reasons to ensure that ROI is one of many data points that is included in a balanced evaluation of the VBID program. Since leadership, and even shareholders, are concerned about this metric, health benefit managers have taken steps to (1) define the aspects that would

be important to include in this calculation, (2) collect the data, (3) calculate the measure and (4) monitor it over time. At the same time other qualitative and quantitative metrics should be evaluated over time to ensure a complete picture of the VBID program. When ROI is used as one component of a balanced scorecard approach for VBID evaluation, health benefit managers are better able to fully assess the progress and impact of VBID programs.

In key informant interviews, each of the employer interviewees said their senior leadership understands the importance of improving employees' engagement in their health and the connection between employee well-being and the business bottom line. Health benefit managers still need to build a business case and they are often asked to make the case with a ROI which is one of the most commonly used financial metrics for evaluating the financial consequences of investments. In general, a ROI for a VBID program considers the costs related with reduced co-pays and other financial incentives plus any increased utilization of healthcare resources that may result from the incentives. The ROI is then calculated by comparing those costs to the reduced medical costs resulting from increased treatment adherence to evidence-based treatment and services.[140]

Formula of ROI = ((Medical cost savings –Reduced co-pays & Increase in utilization) / Reduced co-pays & Increase in utilization)) × 100

Employer interviewees agreed with the importance of a financial metric, such as ROI, but also emphasized that ROI should not be the only measurement for the following six reasons (Table 10).

Table 10. Summary of Reasons Why ROI Should Not Be the Only Metric To Make a Business Case

1. A business case for VBID should include non-financial aspects such as employee retention, which is not captured in ROI calculation
2. ROI's focus on health care cost savings makes it difficult for other functions within the company to analyze the impact of VBID on their functions
3. ROI steers the evaluation focus of VBID programs to short term performance
4. ROI is calculated at annual basis and does not capture the impact a ROI can make during the course of a year
5. For a VBID program that has wrap-around services, it is difficult to calculate a stand-alone ROI
6. ROI does not show the cause-and-effect relationship of different components in VBID program

The interviewees noted that the definition of a business case for VBID goes beyond just the financial impact such as health care cost and health care utilization. A business case should also include indirect measures such as employee satisfaction and talent retention. In addition, ROI's focus on financial aspects makes it difficult for other functions within the company to understand the impact of VBID on their functions. For example, the sales function may measure salesforce performance rating as a benefit for a VBID program. Corporate communication may look at the impact on corporate reputation and customer loyalty as a benefit of the program. However, these non-financial benefits are not currently captured in the traditional ROI calculation.

Another reason is that ROI measurement places the evaluation focus of VBID programs toward short term performance. The literature demonstrates that it is very challenging to show a positive short-term ROI for a VBID program in the initial years. In the case where a VBID program may increase utilization in certain services in the short term, it can cause debate over whether increases in utilization will impact clinical outcomes and eventually reduce spending to achieve a positive ROI in the long term. This delay is a problem especially for mid-size employers.

As noted in Chapter 5, mid-size employers, who often switch health plans every two or three years, have had little incentive to invest in VBID, knowing that a positive financial ROI could be hard to demonstrate in a short time frame. If there were other measures readily available for mid-size employers to use for evaluating the impact of VBID on their employees, they might change their perspectives.

Another issue is that ROI is calculated on an annual basis and does not capture the impact an ROI makes during the course of a year or beyond the course of a year. One study found a disease-focused VIBD shows behavior and cost changes in the first year; however, the main effects on increase shows three years later. The program established metrics to measure different treatment points and monitor the trend over a 3-year window to show a positive trend, such as improvement in medication adherence.[141]

When VBID is integrated into broader strategies such as disease management programs to align clinical focus with financial incentives, it is hard to calculate the stand-alone ROI. Lastly, senior

leadership often wants to know the cause and effect relationship between VBID and the outcomes and whether any results are sustainable in the long run. ROI does not show a cause-and-effect relationship about which specific component (s) of VBID programs attribute to any improved outcomes. Interview findings show there is often a cause-effect relationship between non-financial perspectives and ultimate financial returns: the more satisfied employees are with a VBID program, the more engaged they are in managing their health and reducing health care cost for their employers. It is impossible to get insights on the drivers for a positive outcome through the ROI number.

Interviewees recognized the benefits of ROI. It is simple and easy to understand especially when health benefit managers use ROI to justify budget support. As a matter of fact, 100% of interviewees of my study said they are calculating ROI. The key is to supplement ROI with financial and non-financial metrics to give the comprehensive and balanced assessment. Employers and vendors provided samples of other metrics they used, which includes ROI (Table 11).

For other financial metrics, all interviewees measured change in health care utilization. Besides financial measures, most interviewees emphasized the importance of some non-financial qualitative metrics such as employee behavior survey questions to assess employees' experience and satisfaction with the VBID program. Based on employers' experience, these measures can demonstrate impact of VBID programs on employees' actual well-being beyond medical utilization. Examples of satisfaction survey metric range from a modified lengthy version of CDC Behavioral Risk Factor Surveillance Survey to one simple question in employee annual survey-"Are you satisfied with your health care service or how you rate your health?"

If a VBID program is offered with wrap-around services, a good process measure includes participation rates of the wrap-around services such as Health Risk Assessment survey participation rates and wellness program participation rates. One employer even hired a firm to audit VBID programs to ensure VBID programs run smoothly and all different program components connect with each other. For example: health plans identify employees who may need a health coach and send a note to the health

coach; then the health coach reaches out to the employee, and the health coach sends the information back to the health plan. An audit can identify gaps in this process and offer insights for improvement. For employers who are working with high quality COE providers, employers in this study worked with vendors to manage travels, to respond to inquiry calls, and to conduct employee feedback surveys. Recording these transactions will be useful in tracking the progress of VBID programs. Several good examples of feedback survey questions to understand employees' experience with COE providers are: Are you satisfied with the whole process? Will you recommend it to your friends? Will you do it again? Survey questions should be asked within one month after an employee's visit with the provider.

Table 11. Measures Recommended by Interviewees For this Study (Including ROI)

Measures recommended by interviewees of this study	**Recommended by # of interviewees** (N of total interviewees=17)
Financial measures	
ROI	All interviewees
Program implementation cost (including health plan charges)	All interviewees
Number of medical claims filed	All interviewees
Total health care cost	All interviewees
Pharmaceutical drug expenditure	All interviewees
Health care services utilization	All interviewees
Non-financial measures	
If employers include COE providers', measure employees' satisfaction with seeking care at COE. Recording these transactions will be useful in tracking the progress of VBID programs.	1 out of 9 employers.
Chronic disease prevalence rates	9 out of 9 employer interviewees
Employee engagement at work	3 out of 9 employer interviewees
Employee loyalty to employers	2 out of 9 employer interviewees
Public perception of employers	1 out of 9 employer interviewees
Process measures	
Employee satisfaction with the VBID program	16 out of 19 (the remaining 3 had no exposure to this question)
Health Risk Assessment survey participation rate (if offered)	6 out of 9 employer interviewees
Wellness program participation rate (if offered)	3 out of 3 employer interviewees
Employee experience with high-quality providers	3 out of 3 employers that offer services through high-quality providers
Employees having access to health care services they need	1 out of 1 employer interviewee that offers disincentives for low-value services
VBID program audit	1 out of 9 employer interviewees

Recommendation 6: Implement Ongoing Employee Communication Programs

Employers should leverage all possible opportunities to share useful information with employees about the VBID programs employers are implementing. Employers can announce the program through annual enrollment, through town-hall events and by sending postcards to every employee's home address. After programs become more well-known and fully understood, which usually takes four or five years, employers can consider marketing only to employees who might be a good target for the VBID program.

Communication messages need to be both general and specific. Employees generally do not understand the details of a VBID program until it applies to them. A letter or other communication that includes specific messages to explain what may happen to employees when they seek care is very helpful. However, no matter how specific the communication is, it should make sense to employees. One employer uses "Additional Cost Tier" to describe the tiered benefit offering in which employees will have to pay additional costs for preference-sensitive procedures. This method is transparent and easy to understand. Employers work with internal corporate communication departments to educate employees about specific program features. Fully integrating benefit design strategies into the corporate communication strategy can help convince employees that their employers care about their health. Some employers' VBID health plan partners also developed collateral marketing material and offered hotlines for employees to call them for questions.

Communication strategies should to fit the organizational culture. Not all organizational cultures are a good fit for VBID programs. One employer interviewee mentioned that one employee questioned the benefits of VBID program by saying "I am physically healthy enough to build an airplane. My employer does not need to worry about my health." If that type of mentality prevails in the organization where employees think they are invincible, VBID may not be a good fit for that organization.

Another communication strategy is to focus on the positive aspects of the VBID program to gain employees' interest and trust. One employer interviewee had great success in presenting VBID information when the presenter started the presentation with a slide on a new benefit offering which

waived cost-sharing for weight-loss programs. After that, the presenter moved on to explain other features of VBID programs such as increased cost-sharing for preference-sensitive services/procedures. Both benefit changes were well received and received a great amount of excitement. When the same employer delivered the presentation in the reverse, in which the presenter started the presentation with an announcement on increased cost sharing, employers became angry and had a hard time staying engaged with the rest of the presentation, which also included the announcement of free weight-loss programs.

Employers should communicate successful stories if employees' lives improve after they participate in the VBID program because "people follow people". Several health plans and employers use social media to share these stories at employee health events to promote health stories.

Recommendation 7: Employers Need to Prepare for Implementation Complexity

First, there are contracting and paperwork requirements. For employers who are interested in negotiating a bundled payment with Center of Excellence providers, extra steps in the program design stage include setting up contracts and supporting paperwork protocols with partnering providers. In some cases, Center of Excellence providers will not begin formal evaluation of employees' needs until they have received medical records. Failure to provide medical information prior to an employee's surgery may result in reduced benefit coverage or the employee's surgery not being covered at a low-cost or no-cost rate to employees. Some employer interviewees mentioned that a few of the employees' local providers have been slow to send medical records, which delayed the scheduling of procedures.

Employers need to be prepared for potential spending increases initially after the implementation of a VBID program. Long-term support from senior leadership on the importance of employee health helps sustain a VBID program. Most employer interviewees said that VBID did not bend the cost curve the right way and many of them actually experienced an increase in health care use after the initiation of VBID. For example, waiving or reducing co-pays or cost-sharing for medication benefits, or free coverage for generic drugs increases medication use. Over the long term, the additional cost of medications could potentially be offset by reduction in non-medication spending (e.g., less hospital and

physician service use). At the beginning of the program, employers need to be prepared to see potential cost increases and to answer any potential questions about long term effects. Several employee interviewees also witnessed an increase of preference-sensitive procedures right before implementation of a VBID program in which employees pay higher cost-sharing for preference-sensitive procedures. In one example, employees rushed to get a hip procedure right before the VBID started.

Employers should also watch for the potential "elevator" effect when employee A, for example, is a good candidate for statins and, therefore, gets the drug without copays. Employee B is not high risk and has to pay for the co-pay of the drug. Employee B may suspect unfair treatment or discrimination when he/she finds out the cost-sharing difference. In the original paper that created conceptualized VBID, the authors acknowledged that this type of issue would occur.[142] Employer interviewees said it is important to communicate to employees that no employee is being asked to pay more for high-value drugs/services under VBID programs, just that those who would benefit more pay less.

Recommendation 8: VBID Requires Supportive Infrastructure to Facilitate Easy Use

Interviewees mentioned a variety of supportive services their organizations offer to make it easy for employees to use VBID programs. Supportive services include employee hotlines, information posted on the health plan's website and simplifying the prior-authorization process. For example, Oregon State Employees' health plan website includes the pros and cons for hip replacement which is a preference-sensitive procedure for which employees pay additional costs. Other employers give financial incentives (e.g., gift cards) to encourage employees to sign up for member portals through which employers provide important information to their employees. To make sure employees receive medications and services at different cost-sharing rates at the point of care, several employers worked with their health plans to move all the related medications and procedures onto a no-prior authorization list.

Employer interviewees have opinions on whether to list different VBID cost-sharing information on employees' health benefit cards. Although some employers put tiered co-pay information on employee benefit cards, other employer interviewees are worried that too much information may confuse employees.

The key success factors lie in supportive resources to make the program sensible to employees rather than overloading information on a small card.

As existing literature found, VBID programs are most effective when they are offered together with wellness programs and patient targeting.[143] Consistent with these findings, several employer interviewees and vendor interviewees made similar comments. From one employer interviewee: "You have to layer a lot of things together to make this (VBID) work. Wrap-around programs make a difference. Having a VBID program that only lowers co-pays for drugs is not enough. Adding something on top of VBID makes more sense." Another interviewee said "Adding additional programs on top of VBID convinces employees that their employers really care about their health, more than just focusing on medication adherence." The design of wrap-around services varies by employee characteristics. For employers with a young employee pool, health benefit managers may want to start with programs that offer limited features versus comprehensive features.

Recommendation 9: Select and Manage the Right Vendors/Partners

Average employers need several vendors (such as health plans, a pharmacy benefit management company and a health coaching company) to implement a VBID program, but what employers really need are partners. It is important to make sure that all the vendors in the health care service chain treat employees according to the VBID. For example, if an employer offers a free disease management program for employees with diabetes, the employer needs to make sure primary care physicians who work with employees send employees' information to the disease management program. In this way, the disease management company can reach out to the specific employee to design and implement a care plan to control the diabetes. One employer interviewee of this study worked with providers in its network to include the following script into clinicians' talking points about that employer's VBID program: "Do you know your employer offers a VBID likes this?"

When asked about the vendor cost for VBID, all the employer interviewees said the cost associated with working with health plans and pharmacy benefit management vendors for VBID programs should be minimal. Health plans for employers should not charge additional costs to implement VBID programs. According to several employer interviewees, if VBID programs are implemented well, VBID programs save money for health plans/carriers as well. For employers who have several health plans/carriers, it is important for employers to make sure all health plans work together so that all the member employees have similar experiences. Pharmacy benefit management vendors should not charge employers a high price for supporting the VBID strategy that focuses on medication adherence since PBM vendors receive more revenue if medication utilization increases.

Several employers cited strong partnerships with their health plans as a key to successful VBID programs. If employers are interested in offering VBID, it is best to work with vendors who share similar views. For example, if employers are interested in offering reduced cost barriers for generic drugs, it is helpful to work with a health plan/pharmacy benefit management vendor who is more assertive in moving people to generic drugs. A true health plan partner will help convince an employer's senior leadership that incentivizing all employees to get on generic drug formulary is feasible.

According to health plan interviewees, it usually takes six months to find a compatible vendor and takes approximately another two months to get health plan programs running. Challenges in working with vendors are related with sharing data among vendors. Several employer interviewees expressed frustration that some vendors of their VBID program did not want to share employee information with other vendors to protect their proprietary data.

CHAPTER 7: VBID DESIGN AND IMPLEMENTATION RECOMMENDATIONS

The findings of this study – both from document review and from the experiences of employer/health plan managers interviewed- found that using VBID to encourage employees to use high value services, to adopt healthy lifestyles and to use high-quality providers has been effective. VBID improves the health of the employee population and also enhances employee engagement. The findings also suggest that the design and execution of VBID is a multi-phased, incremental process.

The purpose of this chapter is to provide a series of beginning steps for employers to consider and to make moving from consideration to action easier.

An individual employer's starting point in designing and implementing VBID will depend on a variety of factors. These factors include the demographics and specific needs of its member population; the availability of data; organizational priorities; and the availability of the human and capital resources necessary to undertake a program or programs to improve employees' engagement in managing their health. VBID might be a good fit if employers have the following characteristics (Table 12):

Table 12. Characteristics for Employers Suitable for VBID Programs

Category	**Characteristics**
Employee turnover	VBID is suitable for employers with low turnover rates because there is a great amount of historical data to understand the cost drivers of the employee population
Age cohorts	VBID is suitable for employers with a mixed age cohorts: there are usually opportunities for cost saving because healthcare use is high for people with chronic conditions. For employers with a high proportion of young employee population, VBID could be useful to encourage use of high-value preventive services such as smoking cessation.
Employee size	Employers with a large number of employees or with a significant number of employees located in one geographic location: Most employers who have implemented VBID programs are large and have sites spread across different states or regions. Several health plan managers and employers think having at least 5,000 employees in a region is a good threshold to evaluate whether VBID may generate positive return.
Leadership support	Benefit managers are able to secure senior leadership engagement and cross functional support to design and implement VBID programs.

Recommended Practices For Employers Interested In VBID:

The recommendations presented below are based the results of this study. Working for an employer with long-standing commitment to the health and wellness needs of its employees, the challenges employers have to overcome in order to implement a VBID program were surprising. The Plan for Change contains seven key sequential recommendations based on this study's findings and leadership theory. Each recommendation contains several actions that employers should consider, regardless of the specific target employee population or disease/services chosen. These recommendations by no means represent the only way to structure and implement VBID programs.

Step 1: Secure Leadership Buy-in

First and foremost, successful programs are characterized by a strong leadership commitment at all levels of the organization to ensure visibility and buy-in. Three specific themes emerge from interviews and literature review.

Obtain senior management support**:** Successful implementation of a VBID requires the support of senior management. Companies can assign senior managers to be champions for the whole or components of the VBID program. The champions are responsible for taking the lead in developing and promoting his or her component. This creates a sense of ownership and allows incentivizing individuals for the success of the program.

Alignment with organizational mission: Successful VBID program has an explicit linkage between the program and an overarching organizational mission. Benefit plan managers need to assess an employer's health care strategy in relation to its overall business strategy and to align VBID with the employer's business strategy. VBID can be part of the foundation for sustainable organizational growth. Rather than as a cost-cutting program, a VBID program should be viewed as a program to build a healthy workforce, reduce employee absenteeism and build a better business. The health benefit manager must be involved in all key strategy discussions where the business implications of a VBID can be presented, discussed and adopted by senior leadership. To set the tone for a VBID implementation, an employee

representative should also be involved in those conversations. Senior leadership needs to understand that VBID is a multi-year effort and will not bend the cost curve immediately or by itself.

Empowerment of middle managers: For employers with large presences in different geographic locations, local middle managers' buy-in will help elevate the importance of VBID programs and will help garner approval to pilot-test a VBID program at the local office/manufacturer site before expanding it to all employees.

Step 2: Identify Top Health Care Issues

The second step toward starting a VBID program is to look at the current benefit design and to analyze the cost drivers of employee health in depth. This step also sets performance metrics and calculates benchmark to measure the impact of VBID in later steps. A thorough analysis of current benefit design and top health care issues for employees will reveal areas with the greatest opportunity for improvement.

As challenging as it is, extracting as much data as possible is an important first step. Essential data sources for the initial analysis are included in Table 13. These data points are also useful for scorecard performance calculation of the VBID program. Most interviewees recognized the challenges of getting access to lab results. Items with an * are identified as "must have" data components.

Table 13. Essential Data Sources for the Initial Analysis

Direct data related with health care service utilization	**Indirect cost related with productivity**
Standard health plan or third party administrator reports, including: ▪ Employee healthcare utilization information from claims (inpatient, physician, medication, vision care)* ▪ Employees disease diagnosis information from claims* ▪ Short term/long term disability utilization and costs from health plan vendors ▪ Health Risk Assessments and biometric data (if HRAs are offered) ▪ Lab results (optional)	▪ Productivity/presenteeism data ▪ Recruitment, retention levels and satisfaction level

All interviewees mentioned the importance of including lab results for top health care issue assessment. For example, medication non-adherence is calculated through lab data in order to identify non-adherent population (e.g., statins use for individuals with diagnosed hyperlipidemia or LDL cholesterol under guideline recommended levels). Lab test values are used to measure the outcomes of VBID as well.

Because of the clinical nature of many data sources, having a clinician to help review the data is useful. Throughout the process, the clinician is expected to have a working knowledge of the most recent research findings regarding effectiveness of care and be able to identify opportunities to reduce illness or injury. As pointed out by a few employer interviewees, having a health policy expert also helps translate opportunities into workable programs.

Step 3: Determine Target Population or Services for VBID Programs

After identifying top health care issues, health benefit managers should then identify conditions/services and population groups best suited for VBID, starting with a list of conditions and/or drug classes most often identified in the literature as targets for VBID programs. Based on the cost burden to employers, feasibility for improvement and implementation difficulty, the benefit manager may want to pick only one or two conditions and/or services for the initial implementation of VBID.

Employers should start small and demonstrate progress before expanding VBID to all employees. The population groups and conditions chosen should allow for a fairly rapid establishment of the value of VBID programs. Early success will provide a platform on which benefit managers can build a business case, which will depend crucially on designing and executing a valid evaluation instrument to assess VBID effects. Conditions with shorter intervals from intervention to measurement, such as pre-natal care and asthma, are promising candidates.

Although providing incentives to improve medication adherence are considered the easiest VBID program to implement, it might not be worth the effort to invest in medication adherence if the adherence rates are already high; instead look to other conditions or services as targets for VBID.

There has been increasing synergy between VBID plans and new delivery models such as the Patient-Centered Medical Home (PCMH) or Accountable Care Organizations (ACOs). In the PCMH or ACOs, employers with a large employee population concentrated in geographic locations may find this strategy more practical than employers with small employee populations because they can assert their purchasing power with high-quality providers for a lower-cost benefit plans.

Step 4: Design Incentive/Disincentive Structure to Improve "Adherence" to Evidence-based Care

Once an employer identifies the VBID focus in Step 3, the employer needs to design incentives or disincentives to improve adherence to evidence-based services, promote use of high-value services, improve adherence to treatment regimens and encourage healthy behavior. The document review and interviewees identified the following specific incentive designs for employers to consider:

- Reduce co-payment amounts for prescription drugs and equipment for specific conditions[1];
- Reduce co-payment amounts for prescription drugs or equipment used to treat a specific condition when the individual participates in a disease management program or when working with care coordination teams;
- Modify deductibles for participation in disease management, wellness or care coordination programs for populations with multiple chronic diseases;
- Reduce or eliminate premiums/deductible if employees participate in weight loss programs or other types of wellness programs;
- Reduce co-payment amounts for healthcare services billed at low-cost setting such as urgent care rather than emergency department;
- Modify co-pays or deductibles for completing a share decision tool before proceeding with preference-sensitive treatments, and
- Reduce co-payment amounts for using high-quality providers

[1] As of completion, no employer has done VBID program only for employees that are non-adherent to medications.

Employee demographics will shape the specific VBID programs design and adoption. For example, employers with large numbers of employees experiencing multiple chronic conditions will develop different VBID programs from employers who find most of their risks are associated with high rates of obese employees. Table 14 below lists some common approaches to structure incentives.

Table 14. VBID Incentive Design Components[144]

Plan design component	**Structure**	**Incentive /Disincentive**	**Expected impact on health care utilization**
Annual deductible			
Individual	$ amount	depends; incentive if deductible reduced	Depends
Family	$ amount	depends; incentive if deductible reduced	Depends
Primary care services/Health promotion			
Well-pregnancy care	$ amount reward/no copay	Incentive	Increase
Participate in disease management	$ amount reward/deductible reduction	Incentive	Increase
USPSTF recommended preventive services	No copay	Incentive	Increase
Smoking cessation, weight loss program, other behavioral	No copay	Incentive	Increase
Visit doctors in ACO or PCMH	Reduced or no copay	Incentive	Increase
Hospital (inpatient and outpatient)			
Outpatient Non-Surgery (hospital facility)	Low copay	Incentive	Increase
Outpatient Surgery (hospital facility)	High copay	Disincentive	Decrease
Outpatient Surgery (freestanding facility)	Low-mid copay	Incentive	Increase
Outpatient Physician Services	Low copay	Incentive	Increase
Inpatient Physician Services	Low copay	Incentive	Increase
Preference sensitive services	Higher co-pay or designated center of excellence provider	Disincentive	Decrease
Emergency and urgent care			
Urgent care center	Low copay	Incentive	Increase
Hospital emergency department	High co-pay	Disincentive	Decrease
Outpatient physician services	No or low-copay	Incentive	Increase
Prescription drugs			
Generic drugs	No or low-copay	Incentive	Increase
Preferred brand name drugs	No or low-copay	Depends	Depends
Non-preferred brand name drugs	Higher co-pay	Disincentive	Decrease

To offer the most effective incentives, employers need to calculate price elasticity of waived or reduced co-pays for its employees.[145] Price elasticity of demand is a term in economics often used when discussing price sensitivity. The formula for calculating price elasticity of demand is:

Price Elasticity of Demand = % Change in Quantity Demanded / % Change in Price

If a small change in co-pays for certain services/drugs is accompanied by a large change in quantity of services/drugs demanded, the services/drugs are said to be elastic (or responsive to price changes). Conversely, a service/drug is inelastic if a large change in price is accompanied by a small amount of change in quantity demanded.

Employers need to answer this question: If co-pays are waived or reduced, how many more people will adhere to their medication so that overall health care costs for these employees are reduced? The price elasticity of demand varied considerably by medication class, suggesting that the influence of cost sharing on medication use may be related to characteristics inherent to each medication class or underlying condition. Employers can search for price elasticity information through a literature review and consult with their health plans that have more experience in designing incentives to calculate employer-specific elasticity.

Step 5: Implement a Comprehensive Communication Strategy

Employers should identify and communicate the VBID program with all the potentially effected internal and external stakeholders, such as employees, key executives, providers, large employer groups and the community.

If the VBID is offered to all employees, an aggressive public messaging campaign targeting all employees is necessary. For employers who have decided to pilot the VBID strategy in one region, employers should launch a small-scale communication strategy to local employees and the local community as well. These communication approaches may also be tied to how well senior management understands, and buys into, the concept of VBID.

Here are several best communication practices identified through interviews but not identified through the literature review:

- Communication should be as clear and simple as possible and delivered on a regular basis. Instead of calling higher cost-sharing tiers "tier 2", employers should consider calling programs simple names, such as "higher cost-sharing tier."
- Employees may complain about higher-copays for low-quality services and providers. Prepare talking scripts for employees' questions on this topic.
- Be aware that in most organizations, employees communicate with each other through "virtual" networks, in hallway conversations, or in the cafeteria. Look for, and take advantage of, "heroic stories" when an employee personally benefits from a VBID program. With permission, employers can tell "heroic" stories to other employees and to the community.
- Collaborate with vendors (health plans, disease management vendors) to deliver and to re-enforce key messages at every new opportunity. For example, representatives on health plan hotlines should know and communicate the offerings of VBID to employees.
- Require input from employees on messages that will be sent to all employees. Have employee representatives on the communication strategy planning team and, if possible, have employees of different ages and different cultural backgrounds on the planning team.
- Conduct an employee satisfaction survey at the end of each year of VBID implementation to evaluate the acceptance of VBID and to identify areas for improvement. Employers should revise the VBID plan based on employee feedback.
- Communicate the value proposition of VBID both for the employee who participates in the VBID and also for the entire employee population and its dependent population. VBID can be positioned as a way to improve employees' and their family members' health holistically. An employer should position the program to benefit employer success, not just to benefit the people who participate in the program.

- Share the process and outcomes of VBID program implementation with employees.

Step 6: Establish the Appropriate Operational System to Execute a VBID Program

A VBID program requires collaboration across different functions within an employer. Most employers with a VBID program have one health benefit manager/director that acts as a one-man team who works across different functions- human resources, communications, data analysis, vendor management and legal - on developing and managing a VBID initiative to share different perspectives.

Large companies have as many as 5 to 10 vendors who interact with the VBID program. The coordination issues among different vendors involved in VBID can be quite complex. Employers need to set up processes to assure that vendors collaborate with each other. Employers can set up cross-vendor processes and effectively implement them. For example, health plan vendors need to send accurate patient information to the disease management company promptly when they identify employees, with multiple chronic diseases in claims and health assessment records, who are taking actions to control their diseases. As complicated as it might sound, all employer interviewees recognize that their health plan vendors and care management vendors have developed capacities in designing and implementing VBID programs in the past few years.

Employers usually issue Request for Proposal to solicit vendors once every two or three years. Vendors should have measurable performance targets. Measuring vendors' performance once every year also seems to be a good practice. Health plans have been building the capability to administer VBID programs more efficiently. Employers can work with regional health plans, in addition to the large national plans, to administer different types of VBID offerings.

Document review and interviews have found that VBID should be paired with wrap-around programs or services—such as wellness programs--to maximize the likelihood that employees make positive behavioral changes. [146,147] Examples of these services include smoking cessation and weight loss programs. Most health plans have these services in the service offering to self-insured employer clients

such as disease management, pharmacy management and wellness programs. Employers should not have to pay substantially more for these services.

Step 7: Build a Dashboard with a Comprehensive Set of KPIs to Create a Feedback Loop

As recommended by the interviews and document reviews, a successful VBID program needs measurement to build a business case to sustain budget allocation and, also importantly, monitor the progress of the all the above steps so that a health benefit manager can continuously adjust and improve the program. A comprehensive measurement system is a critical component because it pulls multiple program components together to measure progress, to conduct cause-effect analysis, to identify new health care cost drivers, to identify areas that need revisions, and to make a business case for continuous resource allocation.

In the previous chapter, this study discussed reasons why there is a need for other metrics, besides ROI, to be included in the measurement system. One of the key reasons is that ROI cannot measure the non-financial impact a VBID program makes on employees' well-being.

Therefore, the first step of building a measurement system is to include both financial and non-financial metrics. This is based on a Performance Indicators (KPIs) framework used in the context of Balanced Scorecard methodology (BSC). BSC is a strategy performance management tool, which has been used by no less than 60% of all Fortune 500 companies during the last decade, and has also been widely used in health care settings and disease programs.[148,149] BSC's success lies in its approach of "balancing" the financial perspectives and non-financial factors and drawing relationships between non-financial perspectives and ultimate financial outcomes. This framework explains why employers interviewed for this study were able to justify investment in VBID programs when they presented positive non-financial outcomes even when the financial outcomes did not show improvement in the early stages.

Including metrics other than ROI has several merits. Non-financial measures can demonstrate progress to maintain momentum toward achieving financial goals. Secondly, nonfinancial performance measures, such as employee retention, help solicit interest and endorsement from other internal

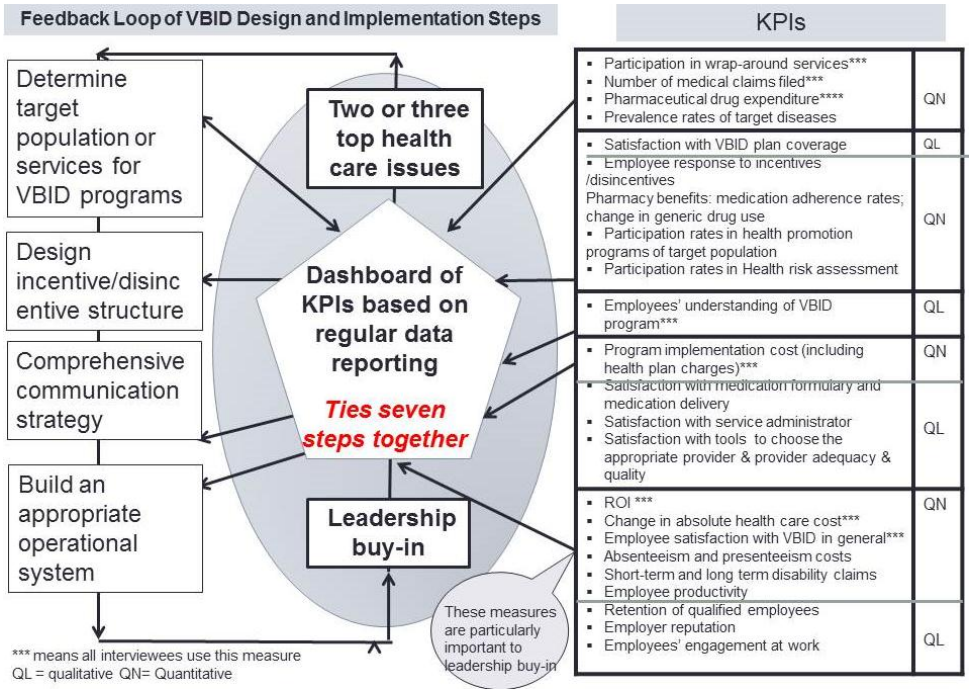
departments. Thirdly, it helps demonstrate cause- and-effect relationships between VBID program components and the financial outcomes.

Employers should set up corresponding indictors at the beginning of the VBID planning process. The measures, accepted by senior management, must be specific and able to be collected. Table 15 includes a list of KPIs that this study identified to measure both financial and non-financial outcomes that are derived from the literature review and key informant interviews. In addition, Table 15 includes process measures to measure employees' reaction to a VBID program specifically. Most metrics for evaluating VBID programs are measured on an annual basis. Some metrics of VBID programs such as medication compliance rates are best measured at six-month intervals. But other outcomes may have a measurement period for a quarter or half-year. Employers should determine the ideal frequency based on their data availability.

Like many other strategy management, a VBID program is an ongoing activity: it never ends.[150] Once it has been implemented, its execution must be monitored for improvement. The information collected from KPIs is returned to the health benefit manager and leadership team through feedback loops, and becomes the input for the next round of VBID program formulation and implementation. Figure 8 shows how data collected for KPIs that correspond to each design and implementation step, builds a feedback loop and lays the foundation for program assessment and the next round of design and implementation. Based on the feedback collected through KPIs, health benefit managers can determine whether to continue with existing incentive structures, or suggest changes or corrective actions for specific program design component or the implementation process.

Given the comprehensiveness of the measurement system and the evolving nature of VBID programs, this study recommends the usage of a dashboard tool to track all KPIs on one single platform. A dashboard has been used widely by organizations to track program performance, it is a user-friendly and immediately understandable.

Figure 8. A Dashboard of KPIs Provides Insights For Program Effectiveness and Future Planning



Each KPI can be potentially visualized with a target versus actual comparison or with actual versus historical comparison. Based on the comparison, health benefit managers are able to identify the true drivers of success or drivers of failure or simply evaluates whether a specific VBID component makes a difference. For example, if the dashboard shows lack of responses of the highest risk employees to reduced co-pay incentives for high–value medications compared to the target response rate, the health benefit manager may conclude that the incentive structure does not work. To address the lack of response, the manager can potentially change the incentive structure by offering more reduction in co-pays, offer more clinical interventions, and implement another round of communication campaign for the highest risk employees so that, ideally, the same population is more engaged the next time the dashboard is measured.

The dashboard can also assist trend analysis and projection studies. When the dashboard is compared over multiple time periods, it can provide a dynamic tool to help compare employers' current practices and previous performance and to draw a trend line to show the program's impact over time. Another key strength of the dashboard is that it can be adapted to profile multiple populations: it could be presented at a macro level (e.g. all employees included in VBID programs) for high-level planning and

resource allocation, but could also be useful at a micro level (e.g. employees living in Arizona). Regular region-level analysis helps sustain engagement in VBID programs from middle-managers that are responsible for employees in a specific region.

Table 15. Recommended KPIs to Assess and Improve a VBID program

VBID-PS	KPIs (examples)	Frequency
Engagement	Increase in employee satisfaction with: ▪ VBID plan coverage (e.g., services covered, coinsurance, deductibles) ▪ Service administrator that administers the VBID program (e.g., representatives accurately and quickly resolve an issue and/or answer questions) ▪ Tools to choose the appropriate provider (e.g., usefulness of provider locator website, easiness to locate a provider, total health care cost estimator calculator) ▪ Communication of the VBID program (e.g., employee understands how the plan works) ▪ Provider adequacy (e.g., number of network providers from which to choose, ease of finding and/or making an appointment with a network provider) ▪ Quality of provider services (e,g. quality of care employee/dependents receive from the network providers) ▪ Satisfaction with medication formulary and medication delivery	Annual
Participation	Increase in employee respond to incentives/disincentives to manage their conditions: ▪ For VBID programs that focus on pharmacy benefits: medication adherence rates(e.g., adherence rates of beta-blocker): change in use of generic drugs; use of recommended specialty drugs) ▪ For VBID programs that focus on high-value services/low-value services (e.g., change in low-value surgeries and high-value surgeries):volume of low-value procedures; utilization of alternative treatment to delay surgeries ▪ Participation rates in health promotion programs of target population	Annual/half year Annual Annual
Physical results	Decreases: ▪ The number of medical claims filed ▪ Employee productivity rates (presenteeism & absenteeism) ▪ Short-term and long term disability claims ▪ Health risk assessment Increase ▪ Retention of qualified employees	Quarterly Annual Annual Annual Annual
Financial Results	Healthcare utilization ▪ Medical claims expenditure (emergency room use, physician office use, outpatient service use) ▪ Pharmaceutical drug expenditure ▪ Absenteeism and presenteeism costs ▪ Employee out-of-pocket health care costs one year before and after the VBID program ▪ Financial return on investment value	Annual Annual Annual Annual Annual

CHAPTER 8: PLAN OF ACTION

Introduction

Based on the recommendations, I created a reference guide to encourage practical application and advancement of VBID. Appendix 1 of this dissertation includes a seven-step checklist for employers to use as a reference guide when they design and implement VBID programs. This is only a small step of what is needed to encourage more adoption of VBID. It takes policy changes to help VBID become more widely adopted. Change is not easy and change requires leadership. The DrPH curriculum has provided very valuable information on leadership theory and approach to influence change from outside. The plan for actions has been guided by the work of Margaret Wheatley on influence people and systems through non-linear networks and John Kotter's eight-part process to "promote transformational change."

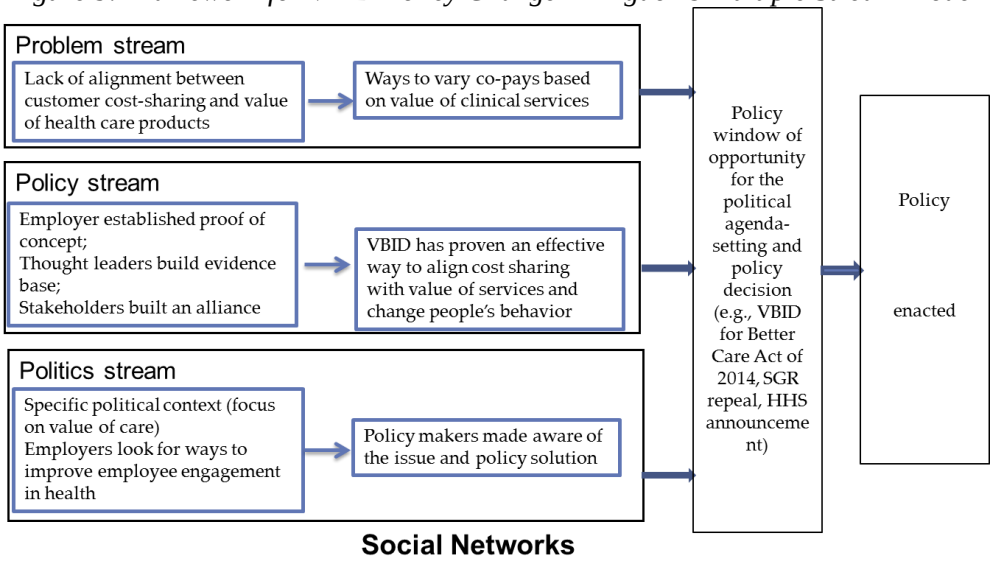
Framework for Plan of Action

To encourage more use of VBID requires more than best practice sharing but also policy changes. The primary framework to explain VBID-related policy changes was the adapted Kingdon's "Multiple Streams" framework model.[151] This framework identifies three process pathways (e.g., Problems, Policy, and Politics) to engage leadership (e.g., policy actors), institutions (e.g., stakeholder organizations), and politicians (e.g., Congress) to achieve ultimate policy objectives (Figure 9).

The Problem Stream is the recognition and definition of problems in a policy area by the stakeholders and legislators. The Policy Stream consists of ideas and proof-of-concept proposed to solve a problem. Thought leaders and employers have developed and tested VBID idea as a solution. The Politics Stream consists of the lawmakers that are influenced by pressure and economic arguments. In this particular case, employers and key influencers have pressured lawmakers to make changes because they understand the economic value of VBID programs. All three streams blend together when lawmakers

recognize a problem, sometimes because of a focusing event; a solution is already developed and ready for consideration; a political window of opportunity opens up to act.

Figure 9. Framework for VBID Policy Change - Kingdon's Multiple Stream Model



There are several good policy windows this year and there is a solid foundation in the problem stream. Therefore, the Plan for Actions should focus on help support both Politics and Policy Streams to leverage national policy windows so that VBID can be adopted in more programs.

Policy Windows at National Level

At national level, momentum has grown significantly for VBID in the past few months. In particular, there are three opportunities to mobilize more use of VBID.

Firstly, there is growing public interest in addressing this concern by incorporating VBID into the context of an HSA-HDHP. As mentioned in Chapter 2, HDHP has been becoming an increasingly popular offering by employers.[152] HDHPs can be paired with HSAs that allow employers to save pre-tax dollars to pay for eligible health care services and can be carried over year-to-year. Employees with an HSA-eligible HDHP are required to pay the full cost of most medications and services until deductibles are met. While a safe harbor allows some primary preventive services deemed to prevent the onset of disease are covered prior to satisfaction of deductible. There are different services including but not

limited to annual physicals, routine prenatal and well-child care, child and adult immunizations, tobacco cessation programs, obesity weight-loss programs and screening services. However, according to IRS, preventive care does not generally include any service or benefit intended to treat an existing illness, injury, or condition.[153] This creates confusion about what services can and cannot be covered outside of the deductible,[154] and essentially may exclude many high-value services that could otherwise be encouraged through VBID.[155] It also creates concerns that patients may cut back on both low- and high-value care. [156]

These concerns can potentially be addressed by incorporating VBID into the context of an HSA-HDHP. This is because VBIDs can address spending in ways that are much more likely to increase value. An important aspect of VBID is the concept of "clinical nuance" which recognizes that (1) medical services differ in the benefits they provide to different population; and (2) the health benefit derived from a specific service depends on what patient uses it, as well as when and where the service is provided. Under the HSA-HDHP set-up, patients may forego some high-value care that has higher out-of-pocket burden and instead opt to receive low-value services. One key challenge for incorporating VBID into HSA-HDHPs, similar to what has been mentioned in in the employer market, is determining whether a service has high or low value for individual patients. Choosing Wisely® campaign provides a comprehensive reference list of low-value tests and procedures.

A range of stakeholders have been mobilized to offer HSA-HDHPs greater flexibility to adopt VBID through Smarter Healthcare. Launched in March 2015, Smart Healthcare includes members from employers, providers, health plans, health and life sciences companies, consumer and patient groups, think tanks, and academic centers. Interest has also been raised among regulators in further exploring the issue as well as on Capitol Hill to possibly create a solution through legislation.

The second opportunity is key policymakers' interest in applying VBID to public payer programs. In June 2014, Reps. Diane Black (R-TN-06) and Earl Blumenauer (D-OR-03), both members of the House Ways and Means Committee, introduced H.R. 5183 -- the Value-Based Insurance Design (VBID)

for Better Care Act of 2014 -- a bipartisan measure that would establish a regional demonstration program for high-quality Medicare Advantage (MA) plans to utilize V-BID to reduce the copayments or coinsurance for beneficiaries with specific chronic conditions. If this bill gets passed, beneficiaries will be provided with increased access to the care they need to ensure better health outcomes.

Besides the congressional interest, Center for Medicare and Medicaid Services (CMS) is also interested in applying VBID to Medicare Advantage and Medicaid Advantage plans. In October 2014, Center for Medicare and Medicaid Innovation (CMMI) issued Request for Information to seek input on initiatives to test innovations in Medicare Advantage health plan design, including but not limited to VBID. If CMMI decides to go forward with a proposal to incorporate VBID in Medicare Advantage plans, with Medicare and Medicaid's size and market dominance, VBID may see a much wider adoption by the rest of the market.

The third policy window of opportunities is, from the consumer/patient engagement perspective, incorporating VBID in MA plans or other health plans can support nation-wide efforts to shift away from FFS to value-based health care system. This January, the Department of Health and Human Services (HHS) announced "*Better Care. Smarter Spending, Healthier People: Paying Providers for Value, Not Volume*" objective. HHS's announcement laid out plans to change the way providers are paid which is to reward value and care coordination – rather than volume and care duplication. HHS seeks to have 85 percent of Medicare fee-for-service payments in value-based purchasing categories by 2016 and 90 percent by 2018. In addition, the potential Medicare Sustainable Growth Rate (SGR) repeal also has languages to move providers away from FFS world. When this dissertation was written, the version of SGR repeal legislation passed in the House includes provisions to set up a two-tier payment system that provides incentives for doctors to shift more of their practice into value-based payment model.[157]

Changing providers' behavior alone is not enough. In order to achieve the objectives HHS laid out by 2018, providers also need engaged patients who can take a proactive approach to managing their

health and health care, which results in improved patient outcomes. VBID can serve as one of the important tools to improve engagement.

Leadership Theory for Plan of Action

In Kotter's 1996 book "Leading Change," the author provides a step by step process for successful change initiatives (Table 16).[158] Although the policymaking is not the same as running a business, there are definitely lessons that can be learned from the business world with regard to implementing policy change.

Table 16. Kotter's Eight Steps to Promote Transformational Change

Step 1	Establishing a sense of urgency
Step 2	Creating the guiding coalition
Step 3	Developing a vision and strategy
Step 4	Communicating the change vision
Step 5	Empowering employees for broad-based action
Step 6	Generating short-term wins
Step 7	Consolidating gains in producing more change
Step 8	Anchoring new approaches in the culture

In her book *Leadership and the New Science*, Wheatly pointed out that chaos is the only ways to achieve transformation and demonstrated an urgent need for leaders to learn from and apply new science to practice in all organizations in order to deal with chaos.[159] Wheatly's book offered several practical implications for leaders to encourage more adoption of VBID in policy arena (Table 17).

Table 17. Practical Implications from Wheatly's Leadership and New Science

Wheatly's Leadership and New Science	**Practical recommendation**	**Implication for Plan of Actions to encourage more adoption of VBID**
Reformulating organizational change	Work with the whole of a system, even as we work with individual parts or isolated problems	Align VBID with imperative of building a value-based health care system
Leadership imperatives	Help develop a clear identity that lights the dark in moments of confusion	Reignite broad stakeholders' interest in VBID

Immediate Action Plans:

Given the three policy windows of opportunities this year and guidance from the leadership theory, I am suggesting the following immediate action items that can be taken before the end of 2015 to maximize the potential value of this research and also to further broker policy solutions for VBID.

Action 1. Disseminate Findings from this Study

Since one of the barriers employers have is around lack of implementation guidance. A wide dissemination of findings from this study will provide great guidance to employers that are interested in VBID programs. This study also contributes to existing evidence body that supports the feasibility of wide adoption of VBIDs. Advocacy partners can weave the findings from this study into their advocacy talking points with policymakers and legislators. The first step of an effective dissemination strategy is stakeholder mapping in order to identify and classify the groups who should be allies, beneficiaries, decision makers, and influencers (Table 18).

Many large employers belong to several employer advocacy groups and I intend to connect with these groups to share the findings. Based on initial contacts with some of the groups, there have been interests to publish the checklist and make it readily available.

This dissemination effort relies on different types of documents and tools. I am interested in committing personal resources to develop some tools, in consultation with beneficiaries and influencers. The specific tools I have in mind are described in more detail below:

1. Create a Wikipedia Page on VBID and Document Case Studies
2. Briefing Paper That Includes The VBID Implementation Checklist
    - Emphasize the benefits of VBID programs and barriers for more adoption of VBID
    - Share the research results
    - Facilitate adoption of the checklist for implementation consideration
3. Present at National and/or Regional Conferences
    - Co-present with employer interviewees on how the checklist may apply to their experiences

- Discuss the needs for policy changes

4. A Personal Website
    - The website continues documenting and sharing employer and employee experiences with VBID, based on which I can constantly update the Implementation Checklist.

Table 18. Stakeholder Map for Dissemination

Allies	Employers that have already implemented VBID programs ActiveHealth Management American Association of Retired Persons (AARP) ABIM Foundation America's Health Insurance Plans (AHIP) Commonwealth Fund Institute of Medicine Harvard University Program for Value Based Insurance Design Milliman National Coalition for Health Care Reform National Committee for Quality Assurance TriZetto University of Michigan Center for Value-Based Insurance Design
Beneficiaries	Employers that are interested in implementing VBID National Business Group on Health Health Leadership Council National Wellness Institute National Business Coalition on Health
Decision makers	Congress, for example, Rep. Diane Black (R-Tenn.), Senate Finance Committee Chairman Ron Wyden (D-Ore.) Center for Medicare and Medicaid
Thought leaders	America's Health Insurance Plans Michael Chernew PhD Niteesh Choudhry, MD, PhD Mark Fendrick, MD Teresa Gibson, PhD Jack Mahoney, MD, MPH Matthew Maciejewski, PhD

Action 2. Create a New Vision for VBID

For a long time, VBID has been promoted by several key thought leaders, such as Dr. Mark Fendrick from the VBID Center. A potential and broad vision for VBID – aligning VBID with value-based payment has been proposed through Smarter Healthcare and in the way of getting disseminated to a broad coalition. While this vision was largely supported by the long-time supporters of VBID, a detailed framework for exactly what is shared with whom and when, in what forum or format, is beyond the scope

of this study. However, this is a critical step. I am willing to work with Dr. Fendrick to design a framework and share with existing and new stakeholders of the "new" vision of VBID.

Action 3. Join and Expand Existing Coalition to Communicate the Vision of VBID

Most of the key informants interviewed for this study pointed to the value of external partnerships, primarily of partnership with other employers to share best practices and accelerate implementation, and, more importantly, collaboration with national thought leaders to influence policymakers for public payers to adopt VBID. The primary benefits of such partnerships center on sharing knowledge and lessons learned. Such partnerships can actually serve a better purpose to achieve greater industry alignment and mass to push the policymakers and lawmakers to adopt VBID in public plans. I recommend several actions I can do:

- Join Smarter Healthcare and share its information with my network which includes all the interviewees I talked to for the study, policy and lobbying staff in Washington DC and my social media accounts followers. As one employer interviewee said, VBID was a hot popular concept 10 years ago but it became slightly mundane as most attention shifted to the implementation of ACA. Now is a perfect time to revive the interest in VBID by mobilizing a broader coalition, communicating the virtue of VBID and advocate for the policy objective.
- Encourage Smarter Healthcare & University of Michigan VBID Center to leverage other coalitions such as the Health Care Transformation Task Force and HHS Health Care Payment Learning and Action Network. Health Care Transformation Task Force is a private industry consortium that brings together patients, payers, providers and employers to align private and public sector efforts to clear the way for a sweeping transformation of the U.S. health care system. HHS's Action Network has more than 2,800 patients groups, insurers, providers, states, consumer groups, payers and others have registered to participate in the HHS Action Network to expand alternative payment models beyond Medicare into Medicaid and the private sector. Smarter HealthCare should participate in both networks to share best practices and identify health plans or

health systems to partner. In addition, since the two most powerful consumer advocacy groups (e.g., National Partnership for Women & Families and Families USA) are also the participants for the two networks, it is a great platform for Smarter Healthcare to leverage the consumer advocacy power.

Action 4. Consolidating Gains in Producing More Evidence

> *" I don't understand why isn't everyone implementing VBID. It totally works!" VP, Benefit, a Large Employer.*

There is a great amount of momentum and evidence that can put VBID into the bigger imperative of progressing *Towards Achieving Better Care, Smarter Spending and Healthier People*. In order to build a system delivers better care and spends health care dollars more wisely, policymakers should allow more flexibility for consumers to exercise their power to choose care of high quality and of clinical benefits through coverage and benefit design reform. The concept of consumer empowerment has become more popular now than 10 years ago when VBID was initially introduced. Within the Kotter framework, the concept of a continuous process of evaluation, or a feedback loop back to Step 3 (Create a Vision), is where the original vision should be modified as new evidence is gathered and analyzed that offer new insights on advantages of VBID programs.

Future research (both qualitative and quantitative) is needed in order to inform the process of producing "VBID is necessary to support consumers to make better choices in the value-based system." In particular, I recommend two efforts:

- Document and disseminate consumer behavior changes once CMMI/CMS issues the proposal for MA and/or MA-PD plan to test VBID programs and use that as new evidence base
- Mathematical simulation models need to be developed to test different VBID designs in HSA-HDHP and public payers, about the potential financial impact of VBID on the quality and cost of health care

Action 5. Adopt VBID-Performance Scorecard to Replace ROI as a Way to Measure VBID

There are some long-term actions that can be taken to maximize the potential value of this research. I am particularly interested in the idea of replace ROI with VBID-PS as a way to monitor and improve VBID programs. Based on initial conversations with Dr. Mark Fendrick, he sees the merits of this change and expressed great interest in working with me on that.

Most studies have tried to measure VBID's through ROIs. Findings from this study shows many employers that have successfully implemented VBID actually extended measurement of VBID beyond short-term financial outcomes and measures impact on workplace productivity and quality of life, employee and patient engagement, and talent attraction and retention.

This study further proposed VBID-PS (Performance Scorecard) as an alternative for ROI. One recent study by Gibson and et al specifically recommended VBID evaluations should consider a broad variety of programmatic dividends on both humanistic and health-related outcomes such as work productivity, quality of life, engagement, and talent.[160] More research and dissemination is needed to communicate and institutionalize the concept of VBID-PS in order to have a revolutionary impact on the way VBID is measured. Drawing innovation diffusion theory (Figure 10),[161] I propose to focus on several diffusion strategies to refine and disseminate the concept of VBID-PS (Table 19).

Figure 10. Bradley and Curry's Framework of Diffusion of New Concept

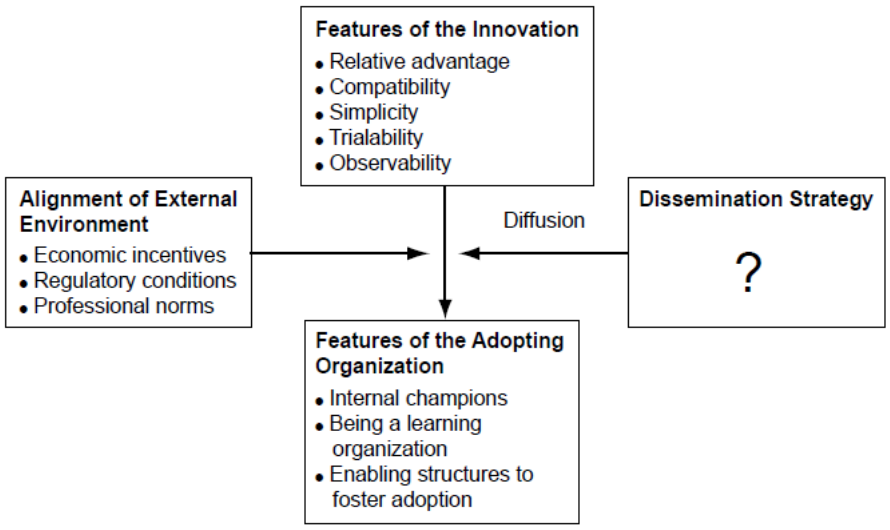


Table 19. Dissemination of VBID-PS to Replace ROI As a Way to Measure VBID Programs

Strategy 1	Build evidence base to support utility of VBID-PS and simplicity of using it.
Strategy 2	Identify a list of credible coalitions that will support this concept.
Strategy 3	Align dissemination effort with communication efforts of the coalitions.
Strategy 4	Develop practical implementation tools and guides for key stakeholder groups
Strategy 5	Create networks to foster learning opportunities of applying VBID-PS

APPENDIX 1: CHECKLIST FOR EMPLOYERS TO IMPLEMENT VBID

The building blocks of a VBID - data, design, dividends and delivery- all requires collaboration among employers, employees, health plans and vendors. By taking on a hands-on approach, employers can help employees better manage their health, drive better health outcomes and deliver a positive impact to business impact. Below is a checklist for employers to use as a reference guide when they design and implement VBID programs.

1. Senior leadership buy-in	
▪ Assess an employer's health care strategy in relation to its overall business strategy and to align VBID with the employer's business strategy	✓
▪ The benefit manager must be involved in all key strategy discussions where the business implications of a VBID are presented	✓
▪ Sustain senior leadership through mutually agreed metrics. Metrics should include employee satisfaction, talent retention, and metrics for VBID programs should be similar to those used for other functions (e.g., sales, marketing)	✓
2. Identify top health care issues through in-depth data analysis	
▪ Analyze employee data to reveal areas of greatest opportunities for improvement	✓
▪ Have a clinician and a health policy expert sit on the data analysis review team to support identification of top health care issues	✓
▪ Include direct and indirect data sources (disease prevention, health care utilization, employee engagement, retention rates, lab results)	✓
3. Determine target population or services for VBID program	
▪ Start with one or two conditions or services or a subset of the population to build a business case before expanding it to all employees	✓
▪ Start with VBID to improve medication adherence unless the adherence rate is pretty high already	✓
▪ Leverage delivery model reforms to incentivize employees to seek care only at high-quality healthcare providers such as PCMHs and ACOs	✓
▪ With a large presence in certain regions, an employer should leverage purchasing power with high-quality providers for a lower-cost benefit plan	✓
4. Design incentive structures to improve "adherence" to evidence-based regiment	
▪ Calculates the price elasticity of employees' behavior. Elasticity measures the percentage of change in the quantity demanded of a medication in response to a 1% change in co-pays. Employers may get access to price elasticity information through their health plans or other employers	✓
▪ Limit incentives to only sickest and the most costly patients in the early stages of VBID program implementation	✓

5. Implement a comprehensive communication strategy	
▪ Customize a communication strategy for VBID programs to the needs of an employer's culture and to employee characteristics	✓
▪ Design language as clear and simple as possible and deliver it on a regular basis	✓
▪ Prepare for communication strategies for negative reactions such as negative reactions to higher co-pays as employees become aware of different cost-sharing for different employee subgroups	✓
▪ Collaborate with vendors (health plans, disease management vendors) to deliver and to re-enforce key messages at every encounter with employees	✓
▪ Conduct an employee satisfaction survey at the end of each year of VBID implementation to evaluate the acceptance of VBID and to identify areas for improvement.	✓
▪ Revise the communication strategy based on employee feedback	✓
6. Establish the appropriate operational system to execute a VBID program	
▪ Pair VBID with wrap-around programs or services—such as wellness programs--to maximize the likelihood that employees make positive behavioral changes. Most health plans already offer wrap-around services to self-insured employer clients. Employers should not pay much more for those services.	✓
▪ Have a dedicated staff that works across different functions- communications, data analysis, vendor management and legal - on developing and managing a VBID program	✓
▪ Issue Request for Proposal (RFP) bid or rebid to solicit vendors once every two or three years.	✓
▪ Measure vendors' performance once every year also seems to be a good practice	✓
▪ Collaborate with vendors (health plans, disease management vendors) to deliver and to re-enforce key messages at every encounter with employees	✓
▪ Minimize the complexity of VBID programs by maximizing collaboration among different vendors	✓
7. Build a dashboard with a comprehensive set of KPIs to create a feedback loop for continuous program improvement and sustainability	
▪ Define and agree upon key performance indicators (KPIs) with senior leaders at the beginning of the VBID planning process and link the VBID program closely to the business bottom line	✓
▪ KPIs need to address multiple stakeholders and multiple aspects: financial, non-financial, short-term and long-term. Examples include employee absenteeism, ability to track qualified employees, healthcare outcomes, healthcare service utilization, employee productivity; and employees' satisfaction with their health benefits	✓
▪ Create a dashboard with KPI results reported regularly (e.g. quarterly or biannually) in a continual feedback loop to indicate changes over time.	✓

APPENDIX 2: EMAIL INVITATION TO POTENTIAL INTERVIEWEES

Dear Insert Interviewee Name:

This is Sophie Shen. I am finishing my PhD at the University of North Carolina Chapel Hill. My doctoral thesis is to identify consideration factors for employers who are interested in implementing VBID to improve employee engagement in managing their health.

Part of my data collection is based on phone interviews with employers and vendors that have experience with VBID. I was recommended to speak with you or someone on your team to get insights from your experience helping employers implementing V-BID.

Will you have about 20-30 minutes in this or next week to speak on the phone to answer a few questions? I will be recording our conversations. Your feedback will be kept confidential. I really appreciate your consideration.

Sophie Shen

Attachment:

The purpose of this study is to provide employers, who are interested in VBID, with an array of elements to incorporate/consider in their overall strategy for VBID.

Step 1 in the study conducts a document review to understand barriers of VBID implementation (completed). Step 2 interviews program managers from several employers and health plans that have implemented VBID. Collecting specific VBID outcome data is out of scope of this research.

The "Implementation Plan" section of this dissertation will not discuss how to implement a perfect VBID that includes all of the elements identified as having a positive effect on employee engagement. Rather it will discuss how an employer's VBID plan could be constructed with a list of consideration points for each of the elements that are possible for inclusion. It will also identify areas of interest for future studies.

APPENDIX 3: INTERVIEW SCRIPT FOR HEALTH PLAN/VENDOR INTERVIEWEE

Thanks for speaking with me. The interview will take about 25 to 30 minutes. I will be recording and transcribing the interview. Do you have any questions for me before I begin?

1. Among self-funded employer clients, what demand have you seen in VBID program?
2. Do you think it works? And what do your employer clients think about it? What components do you believe are most effective?
3. What is best handled in house by employers versus through vendors to design and implement VBID?
4. What criteria do employers use to choose vendors? And what metrics do employers use to measure the success of vendors?
5. How do employers justify initial and ongoing investment in VBID? What types of metrics do they use to measure the progress and outcomes of a VBID program?
6. What are the three most important data sources in order to implement a VBID? What are the biggest barriers to accessing and utilizing data sources that you think other employers should consider?
7. If vendors help employers determine clinical areas and services with the greatest potential to be included in VBID (e.g., pharmacy benefits vs. medical benefits; incentives vs. disincentives), what are the effective ways to identify high-value services/products/providers?
8. What are some effective communication strategies that you have seen that help employees understand their VBID benefit and use it appropriately?
9. Anything else that other employers considering implementing a VBID program should know?

Thank you

APPENDIX 4: INTERVIEW SCRIPT FOR EMPLOYERS

Hello. Thanks for speaking with me. The interview will take about 25-30 minutes. I will be recording and transcribing the interview. Do you have any questions for me before I begin?

1. First, I want to confirm my understanding of your VBID design (insert summary of this specific employer based on literature). Is the description still accurate?
2. What were the key steps taken to design the VBID strategy (Probe: determine specific clinical areas and services to apply VBID strategy? What's the process you take to define "high-value" versus "low-value services"?)
3. What metrics, if any, have you established to measure the VBID strategy? (Probe: Process measures (such as employee participation in wellness program), clinical outcome measures (such as more use of preventive services), cost avoidance measures (reduced hospitalizations), or other measures (increased productivity, presenteeism, etc.)? Can you share with me some sample metrics without the real data? I would like to include them in the reference material of my final thesis.
4. Access to useful data has been identified as a big barrier for VBID design. What are the most important data in your experience (Probe: baseline utilization prior to VBID implementation)?
5. What are the biggest barriers you had to overcome during the implementation?
6. And how do you address the challenges?
7. Studies have found large employers can have as many as 11 or 12 different vendors that touch the VBID program. What is the process of picking the right type of vendor and managing them effectively?
8. Our literature found VBID is most effective when it is paired with high-touch program, is that your experience? What is your strategy to engage employees in those high-touch programs?
9. Did you implement a communication/branding strategy to educate and engage employees?
10. Is there anything else that you think other organizations tackling this issue should know? Either before they begin, during implementation, or while the program is in effect?

REFERENCES

[1] Sandy, L. G., Tuckson, R. V., & Stevens, S. L. (2013). UnitedHealthcare experience illustrates how payers can enable patient engagement. *Health Affairs,* 32(8), 1440-1445

[2] National Business Group on Health. (2012).Engagement Toolkit

[3] Towers Watson, & National Business Group on Health. (2012).Performance in an Era of Uncertainty.

[4] Claxton, G., Rae, M., Panchal, N., Damico, A., Lundy, J., Bostick, N., Kenward, K., & Whitmore, H.(2012). *2012 Kaiser/HRET employer health benefits survey*. Accessed February 24, 2014.

[5] State of American Workplace, Gallup (2013). http://businessjournal.gallup.com/content/163130/employee-engagement-drives-growth.aspx

[6] Mattke, S., Liu, H., Caloyeras, J. P., Huang, C. Y., Van Busum, K. R., Khodyakov, D., & Shier, V. (2013). Workplace wellness programs study.*RAND Corporation.*

[7] Baicker, K., Cutler, D., & Song, Z. (2010). Workplace wellness programs can generate savings. *Health Affairs*, 29(2), 304-311.

[8] Tower Watson.(2013). 2013/2014 Staying@Work™ Survey Report

[9] Sandy, L. G., Tuckson, R. V., & Stevens, S. L. (2013). UnitedHealthcare experience illustrates how payers can enable patient engagement. *Health Affairs*, 32(8), 1440-1445

[10] Hibbard J.H., Stockard J., Mahoney E.R., Tusler M. (2004). Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers. *Health Serv Res,* 39(4 Pt 1):1005–26.

[11] Center for Disease Control. (2010).Healthy Communities Program Toolkit, Accessed December 20, 2013

[12] National Business Group on Health. (2011). Healthy Dining: Offerings and Contract Requirements.

[13] Lucove, J. C., Huston, S. L., & Evenson, K. R. (2007). Workers' perceptions about worksite policies and environments and their association with leisure-time physical activity. *American Journal of Health Promotion*, 21(3), 196-200.

[14] Sharpe, P. A., Granner, M. L., Hutto, B., & Ainsworth, B. E. (2004). Association of environmental factors to meeting physical activity recommendations in two South Carolina counties. *American Journal of Health Promotion*, 18(3), 251-257.

[15] Center for Disease Control. Workplace Health Promotion

[16] Mhurchu, C. N., Aston, L. M., & Jebb, S. A. (2010). Effects of worksite health promotion interventions on employee diets: a systematic review. *BMC public health*, 10(1), 62.

[17] French S, Jeffrey R, Story M, et al. Pricing and promotion effects on low-fat vending snack purchases: the CHIPS Study. *American Journal of Preventive Medicine.* 2001;91(1):112-117.

[18] French S, Jeffery R, Story M, Hannan P, Snyder M. A pricing strategy to promote low-fat snack choices through vending machines. *American Journal of Preventive Medicine*. 1997;87(5):849-851.

[19] Soler, R. E., Leeks, K. D., Buchanan, L. R., Brownson, R. C., Heath, G. W., & Hopkins, D. H. (2010). Point-of-decision prompts to increase stair use: a systematic review update. *American Journal of Preventive Medicine*, *38*(2), S292-S300.

[20] Alliance, B. H. L. (2007). Physical activity strategy. *Vancouver: BC Healthy Living Alliance*, *15*.

[21] Story, M., Kaphingst, K. M., Robinson-O'Brien, R., & Glanz, K. (2008). Creating healthy food and eating environments: policy and environmental approaches. *Annu. Rev. Public Health*, *29*, 253-272.

[22] Soler, R. E., Leeks, K. D., Buchanan, L. R., Brownson, R. C., Heath, G. W., & Hopkins, D. H. (2010). Point-of-decision prompts to increase stair use: a systematic review update. *American Journal of Preventive Medicine*, 38(2), S292-S300.

[23] Kerr, N. A., Yore, M. M., Ham, S. A., & Dietz, W. H. (2004). Increasing stair use in a worksite through environmental changes. *American Journal of Health Promotion*,*18*(4), 312-315.

[24] Linnan L, Bowling M, Childress J, et al. Results of the 2004 National Worksite Health Promotion Survey. *American Journal of Public Health*. 2008;98(1).

[25] RAND Employer Survey 2012. Among employers offering health insurance benefits to active full-time employees, 57 percent provide a wellness program.

[26] Mckinsey Report (2013). How to design a successful disease-management program, access on January 1, 2014

[27] Moseley, K., & Estrada-Portales, I. M. (2013). Rand Report on Workplace Wellness: What Employers Must Know. *Population health management*, *16*(5), 349-350.

[28] Mattke, S., Seid, M., & Ma, S. (2007). Evidence for the effect of disease management: is $1 billion a year a good investment?. *American Journal of Managed Care*, *13*(12), 670.

[29] Frazee, S. G., Sherman, B., Fabius, R., Ryan, P., Kirkpatrick, P., & Davis, J. (2008). Leveraging the trusted clinician: increasing retention in disease management through integrated program delivery. *Population Health Management*, *11*(5), 247-254.

[30] Grossmeier, J., Seaverson, E. L., Mangen, D. J., Wright, S., Dalal, K., Phalen, C., & Gold, D. B. (2013). Impact of a Comprehensive Population Health Management Program on Health Care Costs. *Journal of Occupational and Environmental Medicine*, 55(6), 634-643.

[31] Serxner, S., Anderson, D. R., & Gold, D. (2004). Building program participation: strategies for recruitment and retention in worksite health promotion programs. *American Journal of Health Promotion*, *18*(4), 1-5.

[32] Kane R.L., Johnson P.E., Town R.J., Butler M. (2004). Structured review of the effect of economic incentives on consumers'preventive behavior. *American Journal of Preventive Medicine*, 2004;27(4):327–52.

[33] Marketdata Enterprises Releases Report on Worksite Weight Loss Programs (2014). BWWFitnessWorld

[34] Finkelstein, E. A., Linnan, L. A., Tate, D. F., & Birken, B. E. (2007). A pilot study testing the effect of different levels of financial incentives on weight loss among overweight employees. *Journal of Occupational and Environmental Medicine*, *49*(9), 981-989.

[35] Kullgren JT, Troxel AB, Loewenstein G, et al. Individual- versus group-based financial incentives for weight loss: A randomized, controlled trial. *Ann Intern Med.* 2013;158(7):505-514

[36] Finkelstein EA, Linnan LA, Tate DF, Birken BE. A pilot study testing the effect of different levels of financial incentives on weight loss among overweight employees. *J Occup Environ Med*. 2007;49(9):981-989.

[37] Volpp K, Loewenstein G, Troxel A, et al. A test of financial incentives to improve warfarin adherence.*BMC Health Services Research*. 2008;8(1):272.

[38] Goldhaber-Fiebert, J. D., Blumenkranz, E., & Garber, A. M. (2010). *Committing to exercise: contract design for virtuous habit formation* (No. w16624). National Bureau of Economic Research.

[39] Seaverson, E. L., Grossmeier, J., Miller, T. M., & Anderson, D. R. (2009). The role of incentive design, incentive value, Communications strategy, and worksite culture on health risk assessment participation. *American Journal of Health Promotion*,*23*(5), 343-352.

[40] Christensen, C. M., Grossman, J. H., & Hwang, J. (2009). *The innovator's prescription: a disruptive solution for health care.* New York: McGraw-Hill.

[41] Berry, L. L., Mirabito, A. M., & Baun, W. B. (2010). What's the hard return on employee wellness programs. *Harvard Business Review*, *88*(12), 104-112.

[42] Berry, L. L., Mirabito, A. M., & Baun, W. B. (2010). What's the hard return on employee wellness programs. *Harvard Business Review*, *88*(12), 104-112.

[43] Singhal, S., Stueland, J., & Ungerman, D. (2011). How US health care reform will affect employee benefits. *McKinsey Quarterly*, 1-11.

[44] Aon Hewitt's 2012 Health Care Survey

[45] Aon Hewitt (2011) Health Care Survey: New Paths. New Approaches.

[46] Goetzel, R. Z., & Ozminkowski, R. J. (2008). The health and cost benefits of work site health-promotion programs. *Annu. Rev. Public Health*, *29*, 303-323.

[47] Rimer, B. K., Orleans, C. T., Fleisher, L., Cristinzio, S., Resch, N., Telepchak, J., & Keintz, M. K. (1994). Does tailoring matter? The impact of a tailored guide on ratings and short-term smoking-related outcomes for older smokers. *Health Education Research*, *9*(1), 69-84.

[48] Aon Hewitt (2013),The consumer health mindset. 2013.

[49] Consumers Union and Kleimann Communication Group.(2012). Choice architecture: Design decisions that affect consumers' health plan choices. Access January 2, 2014

[50] Kolstad, J. T., & Chernew, M. E. (2009). Quality and consumer decision making in the market for health insurance and health care services. *Medical Care Research and Review*, *66*(1 suppl), 28S-52S.

[51] Lake, T., Kvam, C., & Gold, M. (2005). Literature review: Using quality information for health care decision making and quality improvement. Cambridge, MA: *Mathematica Policy Research.*

[52] Hibbard, J. H., & Jewett, J. J. (1996). What type of quality information do consumers want in a health care report card?. *Medical care research and review*, *53*(1), 28-47.

[53] Gibbs, D. A., Sangl, J. A., & Burrus, B. (1996). Consumer perspectives on information needs for health plan choice. *Health care financing review*, *18*(1), 55.

[54] Edgman-Levitan, S., & Cleary, P. D. (1996). What information do consumers want and need?. *Health Affairs*, *15*(4), 42-56.

[55] Tumlinson, A., Bottigheimer, H., Mahoney, P., Stone, E. M., & Hendricks, A. (1997). Choosing a health plan: what information will consumers use?. *Health Affairs*, 16(3), 229-238.

[56] Day, R., & Nadash, P. (2012). New state insurance exchanges should follow the example of Massachusetts by simplifying choices among health plans. *Health Affairs*, *31*(5), 982-989.

[57] Baji, P., Pavlova, M., Gulácsi, L., & Groot, W. (2012). Preferences of Hungarian consumers for quality, access and price attributes of health care services—result of a discrete choice experiment. *Society and Economy*, *34*(2), 293-311.

[58] Barry, M. J., & Edgman-Levitan, S. (2012). Shared decision making—the pinnacle of patient-centered care. *New England Journal of Medicine*, 366(9), 780-781.

[59] Sandy, L. G., Tuckson, R. V., & Stevens, S. L. (2013). UnitedHealthcare experience illustrates how payers can enable patient engagement. *Health Affairs*, *32*(8), 1440-1445.

[60] HealthNotes brochure, http://www.optumhealth.com/~/media/OptumHealth/Podcast/Pdfs/HealtheNotes_Brochure.pdf

[61] Sandy, L. G., Tuckson, R. V., & Stevens, S. L. (2013). UnitedHealthcare experience illustrates how payers can enable patient engagement. Health Affairs, 32(8), 1440-1445.

[62] Yegian, J. M., Dardess, P., Shannon, M., & Carman, K. L. (2013). Engaged Patients Will Need Comparative Physician-Level Quality Data And Information About Their Out-Of-Pocket Costs. *Health Affairs*, 32(2), 328-337.

[63] Hibbard, J. H., Greene, J., Sofaer, S., Firminger, K., & Hirsh, J. (2012). An experiment shows that a well-designed report on costs and quality can help consumers choose high-value health care. *Health Affairs*, 31(3), 560-568.

[64] Diamond, F. (2012). Engaged Consumers' Decisions Help Aetna's CDHP Program Save. MANAGED CARE

[65] Boehm E, Rogowski R, Bocal E, Sizemore A. (2011). Case study: Aetna drives consumer engagement through its member cost estimator tool. Cambridge (MA*): Forrester Research Inc*.

[66] Veroff, D., Marr, A., & Wennberg, D. E. (2013). Enhanced support for shared decision making reduced costs of care for patients with preference-sensitive conditions. *Health Affairs*, *32*(2), 285-293.

[67] Aetna 10th Annual HealthFund Study Results Highlight More Than a Decade of Helping Employers Save Millions http://newshub.aetna.com/press-release/products-and-services/aetna-healthfund-study-results-highlight-more-decade-helping-emp, accessed on February 8, 2014

[68] Sack, K. (2008). In Massachusetts, universal coverage strains care. *New York Times*

[69] Landon, B. E., Gill, J. M., Antonelli, R. C., & Rich, E. C. (2010). Prospects for rebuilding primary care using the patient-centered medical home. *Health Affairs*, *29*(5), 827-834.

[70]Adashi, E. Y., Geiger, H. J., & Fine, M. D. (2010). Health care reform and primary care—the growing importance of the community health center. *New England Journal of Medicine*, *362*(22), 2047-2050.

[71] Blue Cross Blue Shield of Michigan (2013). Blue Cross Blue Shield of Michigan saves an estimated $155 million over three years from Patient-Centered Medical Home program

[72] Upshur, C. (2013). Patient engagement and barriers to health care in the patient-centered medical home. In *141st APHA Annual Meeting (November 2-November 6, 2013)*. APHA.

[73] Han, E., Scholle, S. H., Morton, S., Bechtel, C., & Kessler, R. (2013). Survey Shows That Fewer Than A Third Of Patient-Centered Medical Home Practices Engage Patients In Quality Improvement. *Health Affairs*, *32*(2), 368-375.

[74] Baji, P., Pavlova, M., Gulácsi, L., & Groot, W. (2012). Preferences of Hungarian consumers for quality, access and price attributes of health care services—result of a discrete choice experiment. *Society and Economy*, *34*(2), 293-311.

[75] Aon Hewitt (2013). The Consumer Health Mindset study

[76] Chernew, M. E., Rosen, A. B., & Fendrick, A. M. (2007). Value-based insurance design. *Health Affairs*, *26*(2), w195-w203.

[77] Bundorf, M. K. (2012). Consumer-directed health plans: Do they deliver?. *POLICY*,*1*, 6.
[78] http://www.irs.gov/irb/2004-15_IRB/ar10.html#d0e967

[79] Robinson JC. Consumer-directed health insurance: the next generation. Health Aff (Millwood). 2005;24(6):w5-583–90. DOI:10.1377/hlthaff.W5.583

[80] CIGNA HealthCare (2013). CIGNA Choice Fund® experience study. http://newsroom.cigna.com/images/9022/CignaStudyCDHPExecutiveSummary.pdf. Accessed April 18, 2013.

[81] Aetna (2011). Aetna HealthFund study. http://www.aetna.com/news/AHF_study.pdf. March 2011. Accessed April 14, 2013

[82] Towers Watson (2013). Employee perspectives on health care.(2013)

[83] Buntin MB, Haviland AM, McDevitt R, Sood N. Healthcare spending and preventive care in high-deductible and consumer-directed health plans. *Am J Manag Care*. 2011;17(3):222-230.

[84] http://www.irs.gov/irb/2004-33_IRB/ar08.html

[85] Fendrick AM, Chernew ME. Value-based insurance design: a "clinically sensitive, fiscally responsible" approach to mitigate the adverse clinical effects of high-deductible consumer-directed health plans. J Gen Intern Med. 2007;22(6):890–1

[86] Fendrick AM, Smith DG, Chernew ME. Applying value-based insurance design to low-value health services. Health Aff (Millwood). 2010;29(11):2017–21

[87] Chernew ME, Shah MR, Wegh A, Rosenberg SN, Juster IA, Rosen AB, et al. Impact of decreasing copayments on medication adherence within a disease management environment. Health Aff (Millwood). 2008;27(1):103–12.

[88] Maciejewski ML, Farley JF, Parker J, Wansink D. Copayment reductions generate greater medication adherence in targeted patients. Health Aff (Millwood). 2010;29(11):2002–8.
[89] Choudhry NK, Avorn J, Glynn RJ, Antman EM, Schneeweiss S, Toscano M, et al. Full coverage for preventive medications after myocardial infarction. N Engl J Med. 2011;365(22):2088–97.

[90] http://www.irs.gov/irb/2004-33_IRB/ar08.html

[91] Maciejewski, M. L., Wansink, D., Lindquist, J. H., Parker, J. C., & Farley, J. F. (2014). Value-Based Insurance Design Program In North Carolina Increased Medication Adherence But Was Not Cost Neutral. Health Affairs, 33(2), 300-308.

[92] Choudhry, N. K., Fischer, M. A., Smith, B. F., Brill, G., Girdish, C., Matlin, O. S., ... & Shrank, W. H. (2014). Five Features Of Value-Based Insurance Design Plans Were Associated With Higher Rates Of Medication Adherence. Health Affairs, 10-1377.

[93] Choudhry, N. K., Fischer, M. A., Smith, B. F., Brill, G., Girdish, C., Matlin, O. S., ... & Shrank, W. H. (2014). Five Features Of Value-Based Insurance Design Plans Were Associated With Higher Rates Of Medication Adherence. Health Affairs, 10-1377.

[94] Nadine Hays, Executive Vice President, Verisk Health, Using data analytics to cut medical costs http://www.theihcc.com/en/communities/broker_advisor_consultant/using-data-analytics-to-cut-medical-costs_ghnsqvo5.html

[95] National Business Group on Health. (2012).*Engagement Toolkit*

[96] Mills, P ., & Colling, J. (2009). Health promotion, participation, and productivity: A case study at Unilever PLC. Chapter 37 in ACSM's Worksite Health Promotion Handbook, Champaign, IL: Human Kinetics

[97] Unilever, http://www.unileverusa.com/Careers/whyjoinus/graduates/worklifebalance, last accessed at February 22, 2014

[98] The 19th Annual Towers Watson/National Business Group on Health Employer Survey on Purchasing Value in Health Care

[99] Boress L. (2008). Employers' readiness to adopt value-based benefit strategies. Presentation to the Chicago Chapter of the International Society of Certified Employee Benefit Specialists; May 2008; Chicago, IL. Midwest Business Group on Health. mbgh.org/templates/UserFiles/Files/2008/Benchmarking/MBGH_Employer_Survey_May2008.pdf. Accessed November 9, 2009.

[100] Fendrick, A. M., Smith, D. G., Chernew, M. E., & Shah, S. N. (2001). A benefit-based copay for prescription drugs: patient contribution based on total benefits, not drug acquisition cost. *American Journal of Managed Care*, 7(9), 861-874.

[101] Ito, K., Elkin, E., Blinder, V., Keating, N., & Choudhry, N. (2013). Cost-effectiveness of full coverage of aromatase inhibitors for Medicare beneficiaries with early breast cancer. *Cancer*, *119*(13), 2494-2502.

[102] Wagner, R. B. (2011). The Search for Value: Value-Based Insurance Design in Both Public and Private Sectors. *Compensation & Benefits Review*, *43*(3), 190-195.

[103] Fendrick, A.M., Smith, D.G., and Chernew, M.E. Applying Value-Based Insurance Design to Low-Value Health Services. Health Affairs November 2010 29(11): 2018.

[104] Gibson, T. B., Mahoney, J., Ranghell, K., Cherney, B. J., & McElwee, N. (2011). Value-based insurance plus disease management increased medication use and produced savings. *Health Affairs,* 30(1), 100-108

[105] Gibson, T. B., Wang, S., Kelly, E., Brown, C., Turner, C., Frech-Tamas, F., ... & Mauceri, E. (2011). A value-based insurance design program at a large company boosted medication adherence for employees with chronic illnesses. *Health Affairs*,*30*(1), 109-117.

[106] Choudhry, N. K., Fischer, M. A., Avorn, J. L., Lee, J. L., Schneeweiss, S., Solomon, D. H., ... & Shrank, W. H. (2012). The impact of reducing cardiovascular medication copayments on health spending and resource utilization. *Journal of the American College of Cardiology*, *60*(18), 1817-1824.

[107] Cassel CK, Guest JA. Choosing wisely: helping physicians and patients make smart decisions about their care. JAMA. 2012;307(17):1801-1802

[108] Changes in Health Care Financing & Organization (HCFO). How Prevalent and Costly are Choosing Wisely Low-Value Services? Evidence from Medicare Beneficiaries. HCFO Brief; October 2014

[109] Maciejewski ML, Wansink D, Lindquist JH, Parker JC, Farley JF. Value-Based Insurance Design Program In North Carolina Increased Medication Adherence But Was Not Cost Neutral. Health Affairs. 2014;33(2):300–8.

[110] Chen S-Y, Shah SN, Lee Y-C, Boulanger L, Mardekian J, Kuznik A. Moving Branded Statins to Lowest Copay Tier Improves Patient Adherence. Journal of Managed Care Pharmacy. 2014;20(1):34–42.

[111] Spaulding, A., Fendrick, A. M., Herman, W. H., Stevenson, J. G., Smith, D. G., Chernew, M. E., ... & Rosen, A. B. (2009). A controlled trial of value-based insurance design-The MHealthy: Focus on Diabetes (FOD) trial. *Implement Sci*, 4(1), 19-19.

[112] Mercer. (2013). National Survey of Employer-Sponsored Health Plans 2013, http://benefitcommunications.com/upload/downloads/Mercer_Survey_2013.pdf, accessed January 15, 2014

[113] Patient-centered Primary Care Collaborative (2010). Aligning Incentives and Systems: Promoting Synergy Between Value-Based Insurance Design and the Patient Centered Medical Home

[114] Fendrick AM, Chernew ME. Value-Based Insurance Design: maintaining a focus on health in an era of cost containment. American Journal of Managed Care. 2009 Vol. 15 No. 6, 338-339.

[115] Gibson, T. B., Mahoney, J., Ranghell, K., Cherney, B. J., & McElwee, N. (2011). Value-based insurance plus disease management increased medication use and produced savings. *Health Affairs*, *30*(1), 100-108.

[116] Merrill R. (2012). Heart-friendly plan design in the real world. National Business Group on Health Webinar Presentation.

[117] First Corporate Responsibility Report from Perdue, http://www.thepoultrysite.com/poultrynews/29974/first-corporate-responsibility-report-from-perdue

[118] http://www.bloomberg.com/news/articles/2014-03-07/cheaper-surgery-sends-lowe-s-flying-to-cleveland-clinic

[119] Kapowich, J. M. (2010). Oregon's test of value-based insurance design in coverage for state workers. *Health Affairs*, 29(11), 2028-2032.

[120] V-BID Center Brief, The Evidence for V-BID: Validating an Intuitive Concept, http://www.sph.umich.edu/vbidcenter/publications/pdfs/V-BID%20Evidence%20Feb2014FINAL.pdf, 2014

[121] Choudhry, N. K., Fischer, M. A., Smith, B. F., Brill, G., Girdish, C., Matlin, O. S., ... & Shrank, W. H. (2014). Five Features Of Value-Based Insurance Design Plans Were Associated With Higher Rates Of Medication Adherence. *Health Affairs*, *33*(3), 493-501.

[122] Lee, J. L., Maciejewski, M. L., Raju, S. S., Shrank, W. H., & Choudhry, N. K. (2013). Value-Based Insurance Design: Quality improvement but no cost savings. *Health Affairs*, *32*(7), 1251-1257.

[123] Center for Value-Based Insurance Design. V-BID registry [Internet]. Ann Arbor (MI): University of Michigan; [cited 2012 Dec 16]. Available from: http://vbidregistry.org/

[124]The National Business Coalition on Health. (2009). Value-based Benefit Design, A Purchaser Guide, http://www.sph.umich.edu/vbidcenter/registry/pdfs/VBBDPurchaserGuide[1].pdf, accessed on March 1, 2014

[125] Mercer (2009). National Survey of Employer-Sponsored Health Plans 2008, http://www.ehpco.com/documents/MercerNationalSurveyResults2010CentralOH.pdf. Accessed on March 1, 2014

[126] Center for Health Value Innovation. (2010). 2010 Value-Based Design 2010 Survey Report. Accessed on March 30, 2014

[127] Value-Based Benefit Design: The Good, the Not So Bad and the Ugly, http://www.thebenfieldgroup.com/archives/BBHL-0801.php

[128] Fendrick, A. M., Smith, D. G., & Chernew, M. E. (2010). Applying value-based insurance design to low-value health services. *Health Affairs*, *29*(11), 2017-2021

[129] Lieu, T. A., Sabin, J. E., Kullgren, J. T., Hinrichsen, V. L., & Galbraith, A. A. (2010). Consumer awareness and strategies among families with high-deductible health plans. *Journal of general internal medicine*, *25*(3), 249-254.

[130] Reed, M., Fung, V., Price, M., Brand, R., Benedetti, N., Derose, S. F., ... & Hsu, J. (2009). High-deductible health insurance plans: efforts to sharpen a blunt instrument. *Health Affairs*, 28(4), 1145-1154.

[131] 2013 EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey

[132] Value-Based Benefit Design: The Good, the Not So Bad and the Ugly, http://www.thebenfieldgroup.com/archives/BBHL-0801.php

[133] Houy, M.(2009). *V*alue-Based Benefit Design: A Purchaser Guide, Washington, D.C.: National Business

Coalition on Health, January 2009. http://www.healthexchange.ca.gov/BoardMeetings/Documents/National%20Business%20Coalition%20on%20Health%20-%20Value-Based%20Benefit%20Design%201-09.pdf, accessed on February 1, 2014

[134] Nowicki, S., Pickering, L., Nobel, J. (2012). Value-based benefit design: an employer and health plan perspective. http://www.nebgh.org/resources/NEBGH%20SIC%20VBBD%20Phase%20Zero_07_09_12.PDF, accessed on March 12, 2014

[135] VBID registry, http://vbidregistry.org/

[136] Narrow, tailored, tiered and high-performance networks: an emerging trend. www.wellcentive.com/downloads/Narrow%20Tailored%20Tiered%20and%20High%20Performance%20Networks.pdf

[137] Choudhry, N. K., Fischer, M. A., Smith, B. F., Brill, G., Girdish, C., Matlin, O. S., ... & Shrank, W. H. (2014). Five Features Of Value-Based Insurance Design Plans Were Associated With Higher Rates Of Medication Adherence. Health Affairs, 10-1377.

[138] Sokol, M. C., McGuigan, K. A., Verbrugge, R. R., & Epstein, R. S. (2005). Impact of medication adherence on hospitalization risk and healthcare cost. Medical care, 43(6), 521-530.

[139] Gatwood, J., Gibson, T. B., Chernew, M. E., Farr, A. M., Vogtmann, E., & Fendrick, A. M. (2014). Price Elasticity and Medication Use: Cost Sharing Across Multiple Clinical Conditions. Journal of managed care pharmacy: JMCP, 20(11), 1102-1107.

[140] Houy, M. Value-Based Benefit Design: A Purchaser Guide. National Business Coalition on Health. January 2009.

[141] Mahoney, J. J., Lucas, K., Gibson, T. B., Ehrlich, E. D., Gatwood, J., Moore, B. J., & Heithoff, K. A. (2013). Value-based insurance design: perspectives, extending the evidence, and implications for the future. Am J Manag Care

[142] Fendrick, A. M., Smith, D. G., Chernew, M. E., & Shah, S. N. (2001). A benefit-based copay for prescription drugs: patient contribution based on total benefits, not drug acquisition cost. American Journal of Managed Care, 7(9), 861-874.

[143] Choudhry, N. K., Fischer, M. A., Smith, B. F., Brill, G., Girdish, C., Matlin, O. S., ... & Shrank, W. H. (2014). Five Features Of Value-Based Insurance Design Plans Were Associated With Higher Rates Of Medication Adherence. Health Affairs, 10-1377.

[144] Adapted from Maryland Health Benefit Exchange Document 5. Employer Value-Based Insurance Design (VBID) Tool, http://dhmh.maryland.gov/mhqcc/Documents/June%202014%20Meeting%20Materials/VBID%20Materials/5.%20VBID%20Employer%20Tool_Draft_5.20.14.pdf, accessed on January 15, 2015

[145] Frank, M. B., Fendrick, A. M., He, Y., Zbrozek, A., Holtz, N., Leung, S., & Chernew, M. E. (2012). The effect of a large regional health plan's value-based insurance design program on statin use. Medical care, 50(11), 934-939.

[146] Gibson, T. B., Mahoney, J., Ranghell, K., Cherney, B. J., & McElwee, N. (2011). Value-based insurance plus disease management increased medication use and produced savings. Health Affairs, 30(1), 100-108.

[147] Choudhry, N. K., Fischer, M. A., Smith, B. F., Brill, G., Girdish, C., Matlin, O. S., ... & Shrank, W. H. (2014). Five Features Of Value-Based Insurance Design Plans Were Associated With Higher Rates Of Medication Adherence. Health Affairs, 10-1377.

[148] Zelman, W. N., Pink, G. H., & Matthias, C. B. (2003). Use of the balanced scorecard in health care. Journal of health care finance, 29(4), 1-16.

[149] de Koning, Guido M.J.; "Making the Balanced Scorecard Work (Part 1)", Gallup Business Journal

[150] Hill, C., Jones, G., & Schilling, M. (2014). Strategic Management: Theory: An Integrated Approach. Cengage Learning.

[151] Kingdon JW. Agendas, Alternatives, and Public Policies. 2nd ed. Longman Classics in Political Science. Addison-Wesley Educational Publishers. 2003.

[152] Wharam JF, Ross-Degnan D, and Rosenthal MB, "The ACA and High-Deductible Insurance— Strategies for Sharpening a Blunt Instrument," New England Journal of Medicine, Vol. 369, No. 16, October 17, 2013, pp. 1481–1484.

[153] Notice 2004-23, 2004-15 I.R.B. 725 available at www.irs.gov/irb/2004-15_IRB/ar10.html.

[154] Enhancing Flexibility in HSA-HDHP Design by Applying VBID & Clinical Nuance Principles to Better Align the "Preventive Services Safe Harbor" http://www.smarterhc.org/wp-content/uploads/2015/03/VBID-2-Pager.pdf

[155] Michael Chernew, J. Sanford Schwartz, and Mark Fendrick, "Reconciling Prevention And Value In The Health Care System," Health Affairs Blog, March 11, 2015, http://healthaffairs.org/blog/2015/03/11/reconciling-prevention-and-value-in-the-health-care-system/.

[156] Baicker K and Goldman D, "Patient Cost-Sharing and Healthcare Spending Growth," Journal of Economic Perspectives, Vol. 25, No. 2, Spring 2011, pp. 47–68.

[157] http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/114/BILLS-114hr2ih.pdf

[158] Kotter, J. P. Leading Change. Boston: Harvard Business School Press, 1996.

[159] Wheatley, Margaret, Leadership and the New Science, 2005

[160] Gibson, T.B., Maclean, R.J., …(2015) Value-Based Insurance Design: Benefits Beyond Cost and Utilization, The American Journal of Managed Care

[161] Bradley, E. H., Curry, L. A., Ramanadhan, S., Rowe, L., Nembhard, I. M., & Krumholz, H. M. (2009). Research in action: using positive deviance to improve quality of health care. Implementation Science, 4(1), 25.