Theoretical and Methodological Issues in Research Related to Value-Based Approaches in Healthcare

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EXECUTIVE SUMMARY
The U.S. healthcare system is undergoing a transformation from traditional fee-for-service models to value-based purchasing in an attempt to build a culture of accountability and address escalating costs and other major concerns. Research related to the new environment of care is imperative in light of the growing body of data that informs the healthcare system about the impact of value-based purchasing. This study reviews theoretical and methodological issues related to research in value-based care. The concept of value is reviewed on the basis of its definition, measurement, and application in healthcare settings. Stakeholder roles in relation to creation, management, and improvement of value are also explored. The authors also conduct a review of theoretical frameworks that can be applied to the assessment of value and offer suggestions about what might constitute an ideal framework. Recommendations for future research are presented, with a focus on areas in which health systems and providers have the potential to generate value and achieve professional benefits and fiscal integrity in this new environment of care.
INTRODUCTION
The U.S. healthcare system is undergoing changes in care delivery and payment mechanisms that reflect a shift from volume- to value-based healthcare. The shift aims to replace the traditional fee-for-service (FFS) reimbursement model driven by volume and costly services to value-based purchasing (VBP), a model driven by accountability through integration of cost and quality (Conway, 2009). Under this approach, healthcare is moving toward a value-based system of reimbursement whereby performance or quality of care is the basis of reimbursement for providers and systems. Since passage of the Affordable Care Act (ACA) in 2010, evidence has been growing that value-based approaches are being adopted by healthcare organizations. Payers and consumers have gradually become more aware of the financial and health benefits of value-based care, while providers are gaining familiarity with accountable care models (Werner & Dudley, 2009).

Unfortunately, with all the deliberations and, to some extent, implementation of the transformations related to value in healthcare, the concepts of value and value-based care have been defined differently by researchers, providers, and healthcare organizations. Because the main premise of value-based approaches is to generate a data-driven system of care, reimbursement, monitoring, and service improvement, a working definition of value must be determined and adopted for successful generation of comparable data. Although there is strong agreement that value in healthcare is judged as outcomes in relation to costs (Halm, Lee, & Chassin, 2002; Lohr, 1988), cost savings alone should not gauge the success of value-based approaches. Instead, value analysis should be developed on the basis of carefully collected and measured data; this analysis should be capable of producing projections in cost and other important healthcare metrics. Discussions of measurements of value should incorporate ideas on how to evaluate the effect of intangibles, such as those influencing patient-centered care, that might be important complements to value.

Failure to develop an acceptable definition of value will hinder progress in achieving the intended benefits of value-based practices. For example, delays by healthcare professionals and organizations in adopting VBP might occur, and health services may fail to achieve the desired standards and, as a result, create new cost threats. Moreover, value measurements will vary because of mixed or indistinct definitions. Research and evaluation efforts that depend on the accuracy of data could be adversely affected by these inconsistencies. Although increasing numbers of healthcare professionals and organizations have begun using value-based approaches, definitional issues, measurements, and the relationship between cost and outcomes have yet to be understood by all stakeholders.

The aim of this study is to review theoretical and methodological issues related to conducting research on value-based healthcare. Our intent is to help health policy researchers identify and address concerns related to research in the emerging field of VBP in healthcare.
Because cost and quality are major concerns in the U.S. healthcare system, value-based data should be readily available so that researchers can determine whether VBP has led to new and favorable patterns of care.

**CONCEPTUAL ISSUES AND THEORETICAL FRAMEWORK**

Health policy researchers need conceptual frameworks to study, understand, and analyze value-based care. Key conceptual issues are related to diverse sources of information and how access to these sources varies among stakeholders, such as providers, managers, and consumers. A classification of these sources is needed based on how they generate and make use of value-based data. Various conceptual models, such as that discussed by Miller (2009), have been postulated to illustrate the transition to value-based care and the data that could be generated. The conceptual issues around this transition are manifested in four aspects of healthcare: provider practices, clinical systems, payment models, and managerial systems. This transition is expected to be gradual and multidimensional, starting with changes in organizational structure, coordination processes, and internal operations.

Miller (2009) depicted the transition to VBP (Figure 1). The model focuses on the delivery system’s transformation and how it leads to transformations in payment systems. This framework illustrates how the definition of value may be reached when the healthcare system completes different phases of the journey to value-based care. Therefore, all stakeholders involved in the various stages of this transformation must arrive at a common definition.
when VBP becomes the dominant model of reimbursement.

Several generic and disease-specific frameworks have been developed to support assessment of information at different levels and initiatives in the VBP environment.

**Care Delivery Value Chain**
The care delivery value chain framework can help stakeholders understand the organization and structure of care delivery and, thus, provides a means to evaluate services delivered for a particular condition (Reid, Compton, Grossman, & Fanjiang, 2005). This framework can be used to conceptualize how value-based data can be generated while emphasizing its application for conditions associated with high expenditures. The key takeaway is that this model allows value-based care to be examined and adopted for specific conditions that traditionally have been associated with high costs of care.

**Four-Level Healthcare System Model**
Ferlie and Shortell (2001) developed a model to describe a systems approach to healthcare delivery. We propose a modification of this model to make it applicable to value-based care. The four-level healthcare system model (Figure 2) is a potentially useful tool for studying VBP in different care settings.

To achieve integrated, team-based, and patient-centered care, researchers and providers should assess value at

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**Figure 2**
The Four-Level Healthcare System Model

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each of the four levels. Accordingly, the primary focal point is the patient, and providers and systems should identify the concept of patient-centeredness as the core component of care in the VBP environment. Care facilitators at all levels should shift their focus to respond to the needs of the patient and provide optimal care options. Since the early 2000s, patient-centeredness has been increasingly recognized and accepted by providers as being essential to success in healthcare. Epstein and Street (2011) reported that patients who perceive themselves to be active participants in their care are more likely to comply with treatment and are likely to achieve better outcomes (Bell, 2014). In the new VBP environment, researchers should develop tools capable of capturing the contribution of patient-centeredness to value-based care. Previous studies have reported that patient involvement at different levels of healthcare design and infrastructure has the potential to ensure optimal and efficient care delivery (Caixeta, Bross, Fabricio, & Tzortzopoulos, 2013). For example, investigators can compare information about service availability and care decisions from patients who interacted with patient navigators or community health workers with that from patients without such interactions to assess any differences in outcomes. Therefore, under a VBP environment, patients should be regarded as co-creators of value whereby their input is solicited at the design stage when planning for health services, product development, and new technology.

To correctly judge the value of care received by the patient, researchers should use the four-level model to conceptualize how information related to patient care can be effectively coordinated across all levels. The second level in the model is the care team, consisting of providers who have direct contact with the patient. Value at this level can be achieved only when providers engage the patient in a way that utilizes evidence-based treatment guidelines and support systems to generate treatment plans that best suit the patient’s needs. Some potential challenges to achieving success at this level include lack of teamwork training, inadequate focus on the customer’s needs, and providers’ or healthcare systems’ reluctance to adapt to team-based care because they are accustomed to FFS practices.

Organization, the third level of the model, establishes the infrastructure and resources necessary for the optimal delivery of health services. Efficient utilization of administrative, logistical, and technical support adds to the value of care at this level. Although value is measured from patient–provider encounters, the organization is important with respect to guiding providers on how to use innovative processes and available resources to create value.

The outer level in this model is the political and financial environment that governs healthcare through legislation and policies meant to produce effective VBP practices. For instance, the ACA contains provisions for establishing a VBP environment as a way to provide accountable care with favorable cost implications. Promotion of integrated care under payment models such as accountable care organizations (ACOs)
and bundled payment is one of the provisions of the ACA aimed at improving quality and reducing the cost of care (Aroh, Colella, Douglas, & Eddings, 2015). The key takeaway from the four-level model is its placement of the patient at the center amid all other aspects of care that contribute to enhanced, value-based health services.

**Donabedian Model**

Techniques for evaluating health services based on value need to be established at various care levels so that quality can be measured accurately. For instance, the Donabedian Model identifies meaningful classifications of measurements that can be used to assess value (Teckie, McCloskey, & Steinberg, 2014). According to this model, investigators can measure quality on the basis of three categories: structure, process, and outcome. This framework has been applied widely in quality and outcomes assessment. For example, researchers used the Donabedian model of patient safety to examine risks and hazards in the structure of care that can lead to negative patient outcomes (Gustafson, Beaubien, Salas, & Barach, 2005). The key takeaway from this model is its ability to guide researchers and care providers in assessing value in different dimensions of care that might provide additive or multiplicative benefit.

**Porter’s Framework**

A conceptual framework that can help to clarify definitional and measurement issues regarding the concept of value has been proposed. It takes into account the patient’s initial diseases, diagnoses, reported health outcomes, patient satisfaction, and other clinical and administrative factors (Porter, 2010). According to this model, a measure of value can be established for a specific disease or patient population. However, Porter acknowledged that value is a complex concept involving various interdependent factors and indicators. The model proposes that value should be expressed as a function of the patient’s initial conditions that affect the treatment processes, which, in turn, have an effect on disease indicators that eventually are reflected in health outcomes. The key takeaway from this model is the opportunity to create and apply risk adjustments when assessing value-based care.

**Measurement Issues in Conducting Research Related to Value-Based Healthcare**

Assessing the impact of value-based care depends on the achievements made in measuring value. From the mid-1990s to the mid-2000s, value measurements targeted specific health conditions and were done, for the most part, on an experimental basis to cover select populations (Rosenthal, Landon, Normand, Frank, & Epstein, 2006). More recently, Medicare’s pay-for-performance initiatives have been in the forefront of value-based reimbursement approaches, with applications in conditions such as diabetes (Leichter, 2006), heart failure, and pneumonia (Kahn, Ault, Isenstein, Potetz, & Van Gelder, 2006); however, even when the same health condition was compared between populations or over time, varied measurements of quality were used. Eventually, investigators suggested
that selection of appropriate and consistent high-impact measures along with proper program design would be key to developing successful VBP plans (Shelton & Saigal, 2011).

Value is defined predominantly in terms of outcomes relative to cost, or outcomes per cost expended (Beattie & Nelson, 2008). However, this definition needs to be considered carefully, because outcomes and cost are not rigidly defined constructs in healthcare. For example, outcomes can take different forms and might be affected by both patient factors, such as the degree of illness, and nonpatient factors, such as geographic region, while the magnitude of cost depends on the point at which the assessment is made in the episode of care. In addition, focusing on outcomes and cost without adequately considering the process of care might result in underrepresentation or exclusion of patient needs, which might create new concerns in service delivery. For example, in a study of VBP programs, Damberg et al. (2014) found that only 17% of the programs included goals related to the patient’s experience of care or their perspectives on the process of care. In other words, the programs focused mainly on the outcomes of care, rather than on the patients themselves. Ultimately, the value measure should include all services that address patients’ needs and the relevant costs for a full set of interventions leading to attainment of a full set of outcomes, while adjusting for patient and environmental factors (Porter & Lee, 2013). In other words, the definition of value that can be applied in research should capture the total cost of care and optimal outcomes.

Methodological Issues in Conducting Research Related to Value-Based Healthcare

A lack of clarity in the definition of value is the leading methodological issue facing researchers in the VBP environment. Without a working definition, research in this field will produce only narrowly applicable results. In addition, other important methodological challenges, such as those pertaining to data, data collection, and study designs, might affect the quality of studies and need to be carefully examined to inform policy researchers and providers.

Availability of Data Related to Value-Based Practices

The ability to assess different aspects of care under value-based practices depends on the amount and type of information generated from health services in which resources and providers are dedicated to VBP. Relevant data need to be available in a format that allows investigators to evaluate various components of care and assign specific costs to them. The provider’s time and expertise are usually the main cost factors. Other system resources, such as the time needed to process patient data, office space, materials, and equipment (Scanlon, Chernew, & Doty, 2002), also need to be included in the cost computation.

Investigators have tried to evaluate VBP on the basis of expenditure data. This approach might elicit clear-cut data pertaining to specific clinical conditions, although the information gathered might not capture potential savings because expenses do not always equate to the actual costs (Tompkins, Altman,
& Eilat, 2006). (For example, each time a patient encounter requires an application of technology, the cost of the encounter includes both the expense of using the technology and the expense of maintaining it embedded in a single price.) Other quality-related studies have relied on claims data to identify provider performance trends (Yong, Olsen, & McGinnis, 2010; Wyse, Joseph, Barkun, & Sewitch, 2011). The weaknesses of this approach are the high cost of data collection and the lack of accuracy in claims data. Because these data focus on provider reimbursement (e.g., number of visits, procedures, and laboratory services), they do not accurately reflect the total cost of services provided and, therefore, could potentially lead to invalid conclusions about the impact of value-based care.

Sources of Data
Investigators need to carefully weigh the strengths and deficiencies of research designs when deciding which data sources to use in conducting VBP research. As more organizations adopt VBP practices, the number, content, and size of databases are expected to grow. Table 1 presents a sample of data sources pertaining to research on value-based approaches. We selected the databases on the basis of their relevance

<table>
<thead>
<tr>
<th>Database: Hospital Value-Based Purchasing (HVBP) Outcome Scores</th>
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<tbody>
<tr>
<td>Purpose: To provide performance and outcome measures related to VBP programs in hospital services</td>
</tr>
<tr>
<td>Availability: Public use of the data is possible through the Centers for Medicare &amp; Medicaid Services.</td>
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<td>Strength: The database represents the largest share of Medicare spending in the country.</td>
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<tr>
<th>Database: Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)</th>
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<tr>
<td>Purpose: To produce data from the patient’s perspective about the care he or she receives; comparisons between hospitals regarding important domains of care can be made from HCAHPS data</td>
</tr>
<tr>
<td>Availability: Publicly available for consumers, researchers, and policymakers</td>
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<tr>
<td>Strength: Based on a national, standardized survey of patients from more than 4,000 hospitals</td>
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### TABLE 1 continued

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<thead>
<tr>
<th>Database</th>
<th>Purpose, Availability, and Strengths</th>
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<tbody>
<tr>
<td><strong>Database:</strong> Colorado All Payer Claims Database</td>
<td><strong>Purpose:</strong> A statewide repository of health insurance claims information from all healthcare payers, including health insurers, government programs, and self-insured employer plans. <strong>Availability:</strong> Publicly available to consumers, providers, researchers, and policymakers. <strong>Strength:</strong> Availability of comprehensive prices for hospital-based services at different administrative levels in the state.</td>
</tr>
<tr>
<td><strong>Content:</strong> Claims data featuring transparent price, quality, cost of care, and utilization information across Colorado</td>
<td><strong>Website:</strong> <a href="http://www.cohealthdata.org">http://www.cohealthdata.org</a></td>
</tr>
<tr>
<td><strong>Database:</strong> National Database of Nursing Quality Indicators (NDNQI)</td>
<td><strong>Purpose:</strong> To examine the relationship between nursing and patient outcomes. The database includes elements of pay-for-performance reimbursement approaches. <strong>Availability:</strong> Contact NDNQI for availability. E-mail: <a href="mailto:NDNQISupport@pressganey.com">NDNQISupport@pressganey.com</a> <strong>Strength:</strong> The only national nursing database that provides reporting of structure, process, and outcome indicators for evaluation of nursing care at the unit level.</td>
</tr>
<tr>
<td><strong>Data:</strong> The NDNQI database contains information relevant for measuring nursing quality, including indicators that can be linked to important outcomes, such as hospital-acquired conditions and adverse events. The unit-level data contained in the NDNQI make it possible for specific unit requirements to be identified and addressed.</td>
<td><strong>Website:</strong> <a href="http://pressganey.com/solutions/clinical-quality/nursing-quality">http://pressganey.com/solutions/clinical-quality/nursing-quality</a></td>
</tr>
<tr>
<td><strong>Database:</strong> American College of Surgeons National Surgical Quality Improvement Program (NSQIP)</td>
<td><strong>Purpose:</strong> To improve the quality of surgical care with better outcomes, fewer complications, and greater patient satisfaction. <strong>Availability:</strong> Data are available to surgeons, clinical reviewers, and researchers. All requests must be processed by NSQIP staff. E-mail: <a href="mailto:techsupport@acsnsqip.org">techsupport@acsnsqip.org</a> <strong>Strength:</strong> Designed to benefit hospitals and surgeons (individuals and teams) in producing positive surgical outcomes.</td>
</tr>
<tr>
<td><strong>Data:</strong> Risk-adjusted, case-mix-adjusted data that enable surgeons and hospitals to better assess their quality of care compared with similar hospitals with similar types of patients. Information from patients’ health records is used for completeness and consistency in reporting and making comparisons. More than 600,000 cases are included in the database.</td>
<td><strong>Website:</strong> <a href="https://www.facs.org/quality-programs/acs-nsqip">https://www.facs.org/quality-programs/acs-nsqip</a></td>
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in terms of outcomes, patient experience, and expenditures. Information about the purpose, availability, and strength of the databases also is provided.

The main purpose of the Hospital Value-Based Purchasing (HVBP) Outcome Scores Database is to list participating hospitals according to their performance and outcomes scores in relation to the hospital’s VBP practices (Ryan, Burgess, Pesko, Borden, & Dimick, 2015). The Centers for Medicare & Medicaid Services (CMS) collects and examines data from each hospital to evaluate their usefulness in value-based approaches. Since it is a national-level database, HVBP offers scholars a way of obtaining information about the types of care delivered and allows easy follow-up within and across facilities. The Colorado All Payer Claims Database is a state-level database that includes data from commercial health plans, as well as Medicare and Medicaid. This comprehensive claims dataset also contains information about important state trends since passage of the ACA in 2010.

Although the list of resources presented in Table 1 is encouraging, more consolidated effort is needed to create centralized sources of information that can be used to assess value. Accordingly, future research strategies need to support scholars in developing or adopting common frameworks for VBP research. Organizations or systems with the potential to create databases should emphasize accessibility and interpretability of the information because patients and other consumers are key stakeholders in the VBP environment—they need to be aware of provider practices and know what to expect in the processes of care under VBP.

Publicly available data sources typically do not include privately owned databases because such databases are confined to proprietary use and strategic planning purposes. By providing data sources in Table 1, we hope that policy researchers will be motivated to explore other state- and national-level sources of information regarding VBP initiatives. Medicare’s ACOs and other organizations that follow the ACO model are examples of good sources of data. According to Casalino (2014), however, investigators should realize that information from the ACO models was generated during the experimental phases of the schemes and must be treated as such during different stages of research.

In addition to having access to the right data, policy researchers need to be familiar with the appropriate methods of handling qualitative and quantitative data generated from value-based practices. We review the types and strengths of these methods to guide scholars in choosing analytical methods pertaining to VBP research.

**Qualitative Methods**

Numerous qualitative research designs have been developed that could be useful in analyzing VBP performance. Three designs that have great applicability potential are grounded theory (Hysong, Teal, Khan, & Haidet, 2012), ethnography (Kaplan et al., 2014), and case studies (Kirkpatrick, Smith, Zapas, & Thomas, 2013) (Table 2). A review of studies based on these designs revealed that information about performance...
measures could be obtained from both clinical and nonclinical professionals, demonstrating the wide applicability of qualitative analysis in investigations related to value-based care. For instance, as organizations and systems adopt VBP, a single-case design or multicase design (Yin, 2013) can be used to explore evidence of the effectiveness of VBP in and between systems. A recent case study involving the state of Oregon examined the societal impact of VBP in terms of cost and other related factors (Koenig, Dall, Ruiz, Saavoss, & Tongue, 2014). The study findings showed that the value of a medical service should be based on both costs and benefits, and high-expenditure services should not be discouraged solely on the basis of cost (Koenig et al., 2014).

Though there are advantages to these types of approaches because they help investigators develop hypotheses regarding relationships between value-based practices and predetermined outcomes (based on experience or the patient’s goals for care), interviews and multiple-site visits are likely to be costly and time consuming. Moreover, the results of case studies are limited to the specific groups of people or organizations being studied. An exploratory qualitative study based on the experience of 24 health plans in four states obtained in-depth information about the use of performance measures for quality improvement (Scanlon, Darby, Rolph, & Doty, 2001). As we will discuss, quantitative designs are equally useful and can be used to identify trends associated with value-based care, establish associations, and develop forecast models.

Quantitative Designs
Table 2 presents five quantitative research designs that are useful in evaluating value-based care and corresponding outcomes. They include cross-sectional (Chien, Eastman, Li, & Rosenthal, 2012), case–control (Kim et al., 2011), pretest/posttest (Heikkinen, Salanterä, Suomi, Lindblom, & Leinonen, 2011), longitudinal (Blustein, Borden, & Valentine, 2010), and time series (Campbell, Reeves, Kontopantelis, Sibbald, & Roland, 2009). The table includes design attributes considered to be applicable to VBP research; moreover, examples of published studies using these designs are presented. When choosing research designs for VBP studies, investigators should carefully consider a number of design-related factors. Researchers can design studies that either elicit findings regarding the current state of VBP approaches or create projections of the interrelationships between factors and possible causative factors in VBP practices. Several quantitative studies have reported findings on value-based outcomes (Borah et al., 2012; Gilman et al., 2015; McHugh, Neimeyer, Powell, Khare, & Adams, 2013; Spaulding, Zhao, & Haley, 2014). These studies represent early adoption of, or progressive improvements in, VBP research in which varied definitions of value might have been used for different VBP strategies based on specific populations or health conditions.

CONCLUSIONS AND RECOMMENDATIONS
Although the U.S. healthcare system has been through several reforms since the enactment of Medicare and Medicaid in...
the 1960s, none of the reforms has affected service delivery to the extent that VBP is poised to revolutionize the field. With its focus on the patient in planning and service delivery, the VBP concept leads stakeholders to make major revisions to their traditional roles. Stakeholders in key categories of consumers, providers, and purchasers have to shift their attention to assessing the value of healthcare services. To foster research and produce improvements in care associated with higher-quality and less-costly care in the VBP environment, it is imperative that the concept of value be unambiguous in its meaning, definition, measurement, and context of use.

As research related to value-based approaches grows, the healthcare system should be consistent in generating pertinent data that can be examined for variations and trends in key aspects of service delivery. Meaningful research will be conducted by understanding and overcoming conceptual and methodological challenges in assessing value and VBP approaches. Findings from such research will help inform policy changes relevant to the new environment of care because it will be based on carefully defined concepts of value and value-based care.

As we have discussed, sources of value-based data exist and continue to emerge as VBP gains ground in healthcare. Although this is promising, many of the emerging databases may not provide generalizable information because they are developed by organizations defining value in the context of their individual strategic plans. Before conducting VBP investigations, researchers should carefully consider the sources and types of available data. With its vast base of patients and power to influence delivery, CMS should take a leading role in encouraging healthcare organizations to continue developing their value capabilities and build national-level data sources. Medicare ACOs, whose design is based on a VBP scheme, provide the best opportunity for generation of rich data related to value.

As we have shown, value can be assessed at the patient, provider, organization, or population level in different processes of care. We hope researchers will consider developing new frameworks or use existing theoretical frameworks, including those discussed earlier, to delineate these assessment levels in relation to VBP. Such frameworks can be used to better understand the concept of value and allow for systematic analysis of value-based data and incorporation of different levels of care together with their possible interactions. In the long run, these models should be used to determine how providers and systems respond to VBP strategies and serve as a guide to find ways to improve value. We hope that stakeholder collaborations and contributions will be better understood and effectively managed as the frameworks inform these groups about their specific roles in the new environment of service delivery.

VBP has the potential to significantly change the way care is delivered in the United States. Careful planning of service delivery strategies and incorporation of multistakeholder approaches will help researchers and policymakers overcome conceptual and practical challenges associated with conducting research in this era of transformation.
<table>
<thead>
<tr>
<th>Qualitative Designs</th>
<th>Description</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>VBP Research Examples</th>
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<tbody>
<tr>
<td>Case Study</td>
<td>Narrows a broad subject into a meaningful entity of analysis; can be used to examine systems, groups, or institutions; flexible design that adds to the investigation of complex issues in healthcare practices</td>
<td>An in-depth examination of a unit of interest that could contain a single group or many groups being studied together; use of multiple types of data or evidence from the case</td>
<td>Time consuming; more expensive to conduct case studies than studies using other designs; results not statistically generalizable</td>
<td>Kirkpatrick, Smith, Zapas, &amp; Thomas (2013)</td>
</tr>
<tr>
<td>Grounded Theory</td>
<td>A process of discovering or generating a theory or theories from systematic research; it is applied mostly in understanding social relationships and the behavior of groups of subjects</td>
<td>Understanding the process by which patients learn to manage new or chronic health issues; recognizing patterns of behavior</td>
<td>Grounded theory is more concerned with generating the hypothesis than testing it; difficulty to record and report the research process</td>
<td>Hysong, Teal, Khan, &amp; Haidet (2012)</td>
</tr>
<tr>
<td>Ethnography</td>
<td>Collection and analysis of data about homogeneous groups; the researcher mingles with the subjects of research and becomes recognizable in the group</td>
<td>A hands-on approach to gathering information; much attention is paid to practices and behaviors of the subjects of interest</td>
<td>Studying a few subjects instead of the entire group of subjects; time consuming and narrow in nature because it focuses on a single group</td>
<td>Kaplan et al. (2014)</td>
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<tr>
<th>Quantitative Designs</th>
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<th>Weaknesses</th>
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<tbody>
<tr>
<td>Cross-Sectional</td>
<td>Observational study design that provides a snapshot of the subject of interest at one point in time; mostly descriptive; different types of providers or systems can be examined at the same time</td>
<td>Large numbers of people can be reached quickly; no waiting time for outcome to occur; results can be generalized</td>
<td>Missing data in responses and people may have recall bias; inability to establish causal relationships</td>
<td>Chien, Eastman, Li, &amp; Rosenthal (2012)</td>
</tr>
<tr>
<td>Study Types</td>
<td>Description</td>
<td>Advantages</td>
<td>Disadvantages</td>
<td>References</td>
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<tr>
<td>Case–Control</td>
<td>Compares patients who have an outcome of interest (cases) with patients who do not have the outcome (controls); looks back to compare how frequently the exposure to a factor of interest is present in each group to determine the relationship between the factor and the outcome</td>
<td>Case-control studies are quick and easy to carry out; helpful when outcomes are rare</td>
<td>Difficult to get control subjects who are similar except for the variable of interest</td>
<td>Kim et al. (2011)</td>
</tr>
<tr>
<td>Pretest/Posttest</td>
<td>Looks at outcomes of interest before the intervention and after the intervention</td>
<td>Uses an unrelated control group that can undergo multiple pretests and a posttest; uses multiple time points for outcome assessments for both groups</td>
<td>Difficult to attribute causation to the intervention if there is no randomization, control group, or both</td>
<td>Heikkinen, Salanterä, Suomi, Lindblom, &amp; Leino-Kilpi (2011)</td>
</tr>
<tr>
<td>Longitudinal</td>
<td>A group of people followed up over time; aims to look at causative agents</td>
<td>Follow the same subjects over time; examine how patterns evolve over time; demonstration of the causation direction</td>
<td>Studies are time consuming and expensive to run</td>
<td>Blustein, Borden, &amp; Valentine (2010)</td>
</tr>
<tr>
<td>Time Series</td>
<td>A sequence of data points typically consisting of successive measurements made over a time interval</td>
<td>Control of factors that do not vary frequently or temporarily; provides information about changes</td>
<td>Complex with multiple variables; predictions of turning points in historical data</td>
<td>Campbell, Reeves, Kontopantelis, Sibbald, &amp; Roland (2009)</td>
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Several healthcare plans and networks that have adopted some degree of VBP have reported that these approaches have benefited their organizations (Berwick, 2011; Bunkers, Koch, McDonough, & Whited, 2014; CMS, 2011). This suggests a well-defined, coordinated research strategy needs to be developed to generate information that will allow researchers to assess the effectiveness of VBP schemes (Damberg et al., 2014). Eventually, policymakers and researchers will be able to assess the effectiveness of VBP objectives, including cost control, quality improvement, and better outcomes of care.

REFERENCES


### Practitioner Application

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Markanta et al. have astutely described the current state of confusion as it pertains to qualitatively and quantitatively assessing the effects of changes in healthcare as it transitions from volume to value. The Affordable Care Act has catalyzed an incredible rate of change in healthcare, and this report highlights the need for standardization of measurement and reporting of outcomes in a universally understandable language.

The premise that more care does not lead to better care has been well documented by the *Dartmouth Atlas* and other sources. The transition from volume-based to value-based care stems from the fact that U.S. healthcare costs have continued to climb at an unsustainable rate, and our outcomes are mediocre at best when compared with those in other countries. The transition to patient-centered care is in keeping with the need for consumers to become more involved in their healthcare. Transparency in costs and outcomes is inevitable, and with it comes the need to court the favor of healthcare consumers—payers, patients, and providers.

This article highlights the challenges faced in determining value. Although there may be general agreement regarding the definition of value (i.e., outcomes/costs), consensus is lacking in the determinants of costs, and the methods used to report outcomes vary greatly. The authors put forth an excellent case for agreeing first on the definition, and they follow this with examples of qualitative and quantitative methods to determine value.

The authors state that the value measure should include all services that address patients’ needs while incorporating relevant costs for a full set of outcomes and adjusting for patient and environmental factors. The premise that researchers and, ultimately, policymakers should agree on the definition of outcomes, costs, and value as they pertain to healthcare before amassing large volumes of confusing literature on the subject seems obvious.
In our healthcare delivery system in Connecticut, we emphasize patient-centeredness via a defined strategic initiative in patient experience. Providers’ compensation is tied to patient experience scores. We measure patient satisfaction by means of surveys that have been scientifically validated and are used by more than 1,000 healthcare entities throughout the United States. We are bombarded by the media almost daily with reports comparing our outcomes with those in other healthcare organizations locally, regionally, and nationally; often, the methods used to compare performance are indecipherable. We are competing in a field in which success can be determined through subjective interpretation and presentation of outcome data along with superior marketing capabilities. A system of accurate comparison would pave the way for competition that results in better care and outcomes for patients.

Mkanta et al. conclude that “a well-defined, coordinated research strategy needs to be developed to generate information that will allow researchers to assess the effectiveness of VBP schemes.” Eventually, policymakers and researchers can effectively assess the goals of value-based performance schemes including cost control, quality improvement, and better outcomes of care. How to develop and coordinate this research strategy will be a challenge for researchers and other stakeholders.