



Health Value Added (HVA): Linking Strategy, Performance, and Measurement in Healthcare Organizations

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Key words: health value added (HVA), organizational performance, health maintenance organization, quality of care, healthcare management, strategy

Abstract

This paper describes "Health Value Added" – an innovative model that links performance measurement to strategy in health maintenance organizations. The HVA model was developed by Maccabi Healthcare Services, Israel's second largest HMO, with the aim of focusing all its activities on providing high quality care within budgetary and regulatory constraints. HVA draws upon theory and practice from strategic management and performance measurement in order to assess an HMO's ability to improve the health of its members. The model consists of four interrelated levels – mission, goals, systems, and resources – and builds on the existence of advanced computerized information systems that make comprehensive measurements available to decision makers in real time. HVA enables management to evaluate overall organizational performance as well as the performance of semi-autonomous units. In simple terms, the sophisticated use of performance measures can help healthcare organizations obtain more health for the same money.

IMAJ 2003;5:3–8

Health maintenance organizations that provide high quality care to diverse populations within tight financial and regulatory constraints need to monitor, in real time, how well their efforts are advancing their strategic goals. In order to meet this challenge, they require management models and methods for linking performance measurement to strategy. This paper describes "Health Value Added," an innovative model for focusing all HMO activities on providing "comprehensive health" to its members, with given resources. HVA was developed by Maccabi Healthcare Services, Israel's second largest HMO, which covers over 1.5 million members nationwide. Just as "Economic Value Added" enables a business to measure its ability to create wealth for its shareholders, HVA provides healthcare organizations with means for measuring their ability to improve the health of their members. This paper presents the HVA model, the specific domains that it addresses, and the measurements used to assess performance in each domain. It also describes the processes through which the components of the model were determined, and finally, discusses the advantages and limitations of

the model as a management support tool for healthcare organizations.

Providing healthcare services in the information age

Organizations have moved from industrial age competition to information age competition. Until the mid-1970s, a company's success depended upon how well it could capture the benefits from economies of scale [1]. Financial measures such as ROCE (return-on-capital-employed) and EVA (economic value added) could direct a company's internal capital to create the greatest shareholder wealth over time.

The information age, which emerged in the last decades of the twentieth century, has rendered many of the fundamental assumptions of the industrial age competition obsolete. Companies can no longer gain competitive advantage by merely deploying new technology into physical assets and by excellent management of financial assets and liabilities. The information age environment requires new capabilities for competitive success. Intangible assets are needed to develop customer relationships, introduce innovative services, and produce customized high quality services at low cost and with a short lead-time. Economic models that relate only to measurable outcomes are no longer sufficient for managing and competing in the information age. Today there is a need to assess outcomes that are less easily measured, such as quality of products, worker skills, motivation, customer loyalty, information, and intellectual capital. Increased competition means that organizations must work tirelessly to increase output and quality without raising costs.

The impact of the information age is more revolutionary for service organizations than for manufacturing companies. Today, even the most traditional services, such as healthcare, must survive within a highly competitive, open market environment. Henry Ford's famous saying: "you can have whatever color car you want as long as it is black," has now been replaced with an approach that divides the market into specific and narrowly defined population segments, identifies the particular needs and preferences of each segment, and shapes the product or service especially designed to meet those needs.

HVA = Health Value Added
HMO = health maintenance organization

In healthcare organizations around the world today the “patient” is viewed as a “customer.” Consequently, patient satisfaction plays an ever-increasing role in determining an organization’s performance. At the same time, these organizations face both heightened competition among caregivers and increased financial constraints, so they must discover areas where they can provide more value to their customers and invest their resources accordingly. In order to meet these demands, many healthcare organizations have begun to use a mixture of financial and non-financial measures for monitoring their performance. The focus on customers and on quality has caused many organizations to track and publish measures of customer satisfaction and quality of care.

As enrollment in managed care organizations (also known as health plans) in the United States has grown over the past decades, stakeholders (e.g., commercial insurance, Medicaid, and Medicare) have expressed concern about the access, service, and quality of care provided by these organizations [2]. These stakeholders demand accountability from managed care plans in the form of measurable standard performance indicators that can be used to evaluate aspects of the service provided by MCOs.

External stakeholders use performance measures for different reasons. Some public and private purchasers have developed and supported measurement systems to make informed decisions when purchasing coverage for their beneficiaries. These systems include the Health Plan Employer Data and Information Set (NCQA 1995), the Consumer Assessment of Health Plans Survey, and plan or network accreditation. In the United States 245 organizations representing 410 HMOs report performance information according to the HEDIS standards. Publicly published health plan “report cards” are used by consumers when selecting a health plan. Regulators use performance measures to ensure that these plans meet the minimal acceptable standards of service. Current literature suggests that purchasers of MCO services, i.e., employers as well as individuals who choose service providers, use performance measures less often than has been predicted [3,4].

The MCOs themselves are also potential users of these performance measures to monitor general performance and increase market share. A recent study [5] shows that MCOs employ performance measures for quality improvement with varying degrees of sophistication and usage. The measures are used to target and set goals for quality improvement initiatives as well as to evaluate and monitor current performance. There is a debate regarding the value for the organization of performance measures mandated by external stakeholders. Advocates argue that mandating HMOs to report standardized measures improves quality by placing quality on everyone’s agenda. Opponents claim that this requirement limits the focus of quality improvement initiatives, replacing the flexibility needed for effective improvement processes with a one-size-fit-all approach. Thompson and Harris [6] also raise the question whether the current assessment systems (HEDIS) are actually measuring the important issues. Given that the intent of performance measures is to improve health status by improving

healthcare quality, they discovered that there is a limited correspondence between the HEDIS measures and the leading causes of illness and death in the USA.

In England, the National Health Service has developed a similar system of performance measurements in order to empower citizens to select a hospital or evaluate the performance of their local healthcare system (health authority). These indicators cover areas of health improvement, access, effective delivery of care, patient experience, and health outcome measures. The indicators are calculated and reported at the levels of both the health authority and the hospital [7].

The proliferation of cost and quality measures presents both a threat and an opportunity to healthcare organizations. Given the increasing power of various stakeholders and the accessibility of information available to stakeholders, healthcare organizations are much more open to scrutiny today than they were in the past. At the same time, the development of a wide variety of performance measurement methods provides a resource that can serve as a benchmark for improving healthcare services. In simple terms, the sophisticated use of performance measures can help these organizations obtain more health for the same money.

Linking measurement, management, and information

Over the past 30 years a wide range of concepts, methods and movements has emerged to help organizations take advantage of performance measurement. “Management by objectives” [8] was one of the first systematic methods for directing managers to define and achieve desired outcomes, specific objectives and measures, rather than to simply carry out their roles and functions. By mapping objectives onto the organizational structure, “management by objectives” was also intended to act as a coordination and integration tool.

The growth of “strategic management” linked the internal goals of setting and structuring processes to rigorous analysis of the organization’s *environment*. Reengineering built on both of these concepts but placed the emphasis on analyzing and redesigning the *processes* through which an organization meets its strategic goals [9]. According to this approach, organizational structures and information systems need to be *aligned* to facilitate these processes. The quality movement, and “total quality management” in particular, led organizations to see quality, as defined in terms of what customers actually want, as an ultimate value. Deming [10] trained managers to focus on measuring customer needs, building effective work teams, objectively measuring results, and then feeding information back into continuous service and product improvement.

The perception of continuous and rapid change in the environment and in technology led organizations to pinpoint the ways in which they “learn” [11,12]. This means assessing the structures [13] and the *feedback* processes [12] through which organizations detect and correct errors, and discovering and taking advantage of opportunities. Argyris and Schon [12] have shown that although many organizations are good at changing strategies to achieve their goals (“*single-loop learning*”), the ability to deal with

MCO = managed care organization
HEDIS = Health Plan Employer Data and Information Set

fundamental dilemmas requires developing a capacity to inquire into goals and standards ("*double-loop learning*"). According to Senge [14], "learning organizations" actualize their potential by going beyond strategic planning to the development of a *shared vision* that expresses and aligns the aspirations of their members.

These methods provide a rich and varied set of tools that can be used by organizations to meet the challenge of competitiveness in the information age. However, these concepts and methods confront managers with a bewildering set of choices regarding where to invest energies and resources in order to move their organizations ahead. Some methods, such as the Balanced Score Card [15–17], provide a tool that integrates many of the above-mentioned concepts into a single, action-oriented framework. The Balanced Score Card aims at deriving key performance criteria from the organization's strategy, generating shared vision, translating that vision into measurable objectives, designing the processes to meet those objectives, and aligning all of those processes to meet strategic goals. It enables the organization to align activity at all levels with its strategic direction and to continuously evaluate success in achieving its strategic goals.

While healthcare organizations have experimented with most of the management methods mentioned above, very little work has been done to integrate comprehensive strategic performance measurement tools, such as the Balanced Score Card, with the existing measurement systems, such as HEDIS and CAHPS. Combining these two streams of activity can provide healthcare organizations with more effective tools for navigating in an increasingly complex environment. Instead of using a collection of critical indicators or key success factors, organizations can construct a link between objectives and measurements that allows them to align their improvement efforts with the needs of both stakeholders and management.

An additional, extremely important link needs to be established between strategic performance measurement and the organization's existing computerized information system. The use of computerized medical information systems in healthcare organizations has developed over time along different tracks in response to different needs. Managerial information systems were first developed as a tool for controlling and increasing the efficiency of billing and payment transactions between healthcare organizations and caregivers, leading subsequently to the use of the underlying databases for identifying high cost areas of medical care that could be targeted for savings. The clinical information systems that developed somewhat later for the purpose of enhancing medical diagnosis, treatment and follow-up have progressed to the point that much effort is currently being invested to integrate guidelines for clinical decision-making into these systems [18].

Managers of healthcare organizations are becoming increasingly aware that the potential of medical information systems exceeds their current utilization in routine medical and management practice [19]. Existing computerized information contains data that can add value to healthcare services' research and evaluation. The

cost-saving and time-reduction benefits of the extended utilization of existing systems and databases can be measured, enabling managers to show tangible return on investment in information technologies and systems. These methods also contribute to identifiable and quantifiable improvements in the quality of healthcare practice and organizational performance.

Health Value Added

HVA is an innovative management model for integrating strategy, performance measurements, and information systems. This model is being developed by Maccabi Healthcare Services. Israeli HMOs must balance the demand for quality care with cost-effectiveness within a unique set of constraints imposed by the features of the nationalized Israeli healthcare system. On one hand the government provides funding to the HMOs as a function of its membership (by capitation), while on the other it determines a mandatory "basket of services" that the HMO must provide.

During 2001–2002, the Maccabi management redefined the organization's mission as providing comprehensive health for its members. The concept "comprehensive health" draws upon the World Health Organization's definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." This means that Maccabi provides not only medical services to unhealthy individuals seeking care, but also services to healthy members such as preventive care and encouraging members to improve their lifestyle. Since these services are not included in the mandatory "basket of services" and are not funded by the government, Maccabi's management, in order to meet these strategic challenges, decided to develop the Health Value Added model. This model integrates performance management methods with existing validated measurements in order to guide its efforts to improve health within its budgetary constraints.

The term "Health Value Added" reflects the conceptual origins of the Economic Value Added model as well as the organization's mission of comprehensive health. If the intent of EVA is to measure a company's ability to create wealth for its shareholders, HVA is intended to measure an HMO's ability to improve the health of its members. The HVA also draws on the health field model, proposed by Evans and Stoddart [20], which describes the many factors that influence health and well-being. Understanding the nature and scope of these determining factors is an essential element in developing health improvement strategies. The HVA reflects healthcare organizations' core business and mission (i.e., health) while measuring the parameters related not only to the goals but also to the resources and processes for achieving them.

The HVA model [Figure 1] conceives of the HMO as a healthcare system comprised of four interrelated levels. At the top of the system is the organization's key output, or *mission*, which in the case of Maccabi is "comprehensive health" as measured by parameters such as life expectancy and quality of life. However, since health is influenced by a large variety of factors outside of the HMO's direct

CAHPS = Consumer Assessment of Health Plans Survey

EVA = Economic Value Added

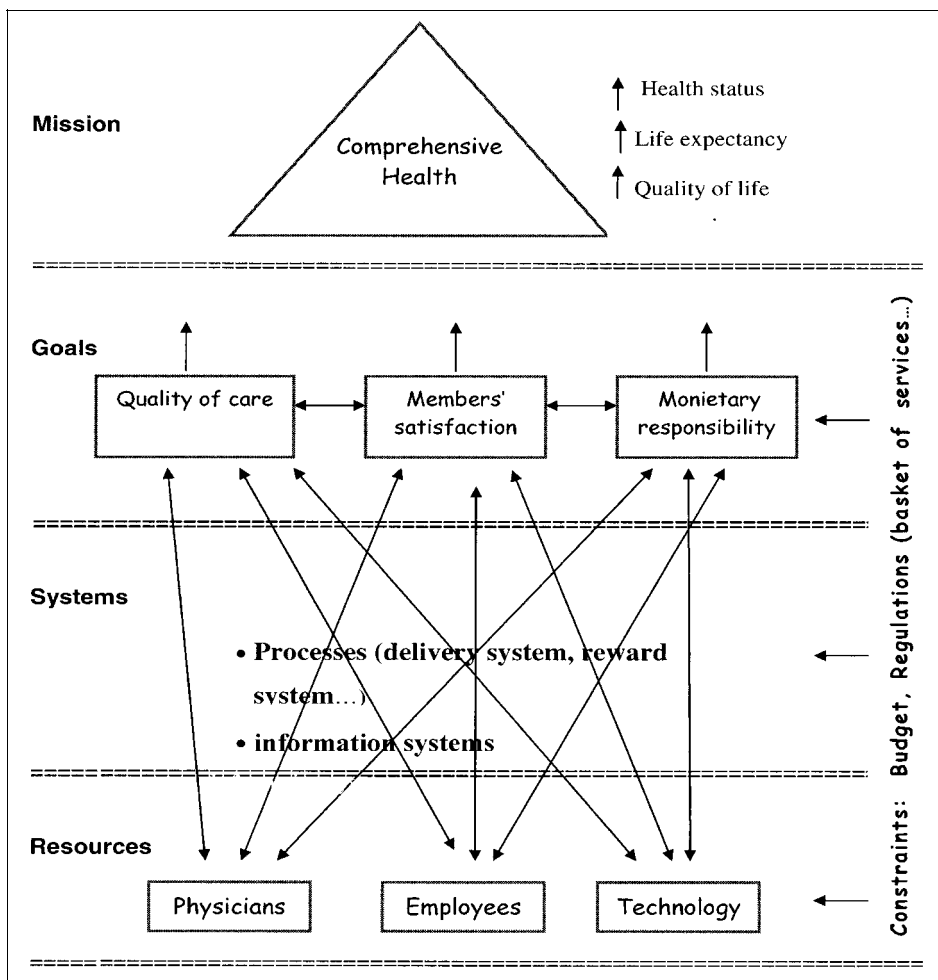


Figure 1. HVA – conceptual model

control, the measures target one level down at three primary organizational *goals*: quality of care, member satisfaction, and monetary responsibility. These three goals provide the basis for measuring organizational performance and serve as surrogate measures for progress towards achieving comprehensive health within a desired budget. The next level of the HVA model presents the *systems* through which these goals are achieved. These systems include the healthcare services delivery system, information, rewards, and decision-making mechanisms, etc. At the base of the HVA model are the *resources* that comprise inputs to the various organizational systems. Resources include physicians and other medical personnel, non-medical personnel, and technology. To sum up, HVA can be seen as an open systems model comprising inputs (resources), transformation processes (internal systems), and an output (total health as measured by quality of care, member satisfaction) achieved within a given budget.

The specific measurements in the HVA model were derived in accordance with the following guidelines:

- They should be indicators of the organization's performance in relation to its mission and strategy.
- They measure performance in terms of outcomes and/or processes that reflect cost as well as quality of care.

- They measure a variety of factors that impact upon organizational performance, providing early indications as to whether the strategy is being implemented successfully.
- They take advantage of the HMO's advanced computerized information systems in order to support management processes in real time.

In this case, the specific measurements were extracted from Maccabi's previously established measurements of cost and quality. In addition, measurements were taken from the HEDIS, CAHPS, and British National Health Service measurements.

The following are examples of measurements at each level and in each domain of the model. The organization's goals are reflected in three domains: quality of care, members' satisfaction, and monetary responsibility. The "quality of care" domain includes process as well as outcome measurements, i.e., indicators of care that improve health, such as primary and secondary prevention (cholesterol level, immunization rate for population segments, etc.), appropriate care for chronic disease (such

as measuring HgA1C and eye examination for diabetes), and care of acute illness (e.g., use of antibiotics for certain illnesses). The members' satisfaction domain includes parameters such as member satisfaction with the HMO services, member complaints, and waiting time for services. The financial domain ("monetary responsibility") contains parameters such as average cost per capita, average cost of specific services, deviation from budget, and market share.

The "resources" level also includes three domains: physicians, employees, and technology. The physician and employee domains refer to attributes such as age, gender, specialty, as well as physician and other medical and non-medical employee satisfaction with their work in the HMO. The technology domain consists of measurements relating to drugs in the organization's formulary, reimbursement policies, etc.

The internal processes needed to achieve the outcomes in the other domains are included in the systems level. Information systems, services delivery and reward systems are examples of measurements in this level.

HVA requires that the HMO defines the levels, the domains, and the measurements that best promote its strategy. In Maccabi's case, this task was carried out by a steering committee and four subcommittees that included physicians as well as middle and senior level administrators from both national and regional levels.

The steering committee defined the four levels of the model that best reflect Maccabi's operations within the Israeli healthcare system. The subcommittees defined the specific measurements in the model. In addition to the HMO staff members, representatives of the public also participated in defining the parameters that are related to member expectations and satisfaction.

Each committee began by analyzing Maccabi's recently developed mission and strategy statement. The measurements to be considered had to be those that best advance the organization's strategy while at the same time adhering to the criteria of relevance, scientific soundness, and feasibility. In order to fit the relevance criteria, medical parameters had to monitor the quality of care, have an effect on medical outcomes, relate to conditions that can be changed, and lie within Maccabi's control. From the scientific point of view, all parameters had to be valid, reliable and accurate. Feasibility required an exact definition of a measure that could be extracted from existing information systems at a reasonable cost.

The HVA measurements are organized in a matrix form. The different measurements lie on one dimension, and the different population segments on the other. The population can be divided into subgroups by age, gender, medical condition (chronic versus acute), etc. The matrix form allows the organization to examine a given parameter (such as primary prevention) across all population segments, and/or a comprehensive intervention for a given population segment (such as the elderly) across all measurements. The integration of parameters in the domains also allows an evaluation of a given service simultaneously from the quality, cost and customer perspectives.

The HVA measurements can be reported on different organizational levels: the whole organization, by region, by local branch, by group practice, and even at the level of the individual physician. However, methodologic issues arise when HVA is applied to the branch or physician level [21] because of the small numbers upon which the measures are based and the difficulty to properly adjust for case mix and risk differences among the groups. Once the HVA has been fully developed and implemented, the intention is to use it to measure the organization's performance as a whole and at the regional level.

Discussion

The HVA model provides many potential benefits to a healthcare organization. As a measurement system to determine the organization's performance, it stimulates the whole organization to improve performance. Linking the parameters to the organization's strategy provides a mechanism for integrating improvement efforts to promote the organization's goals [15–17]. Since the mission of healthcare organizations is to promote health, systems for quality improvement were developed and adapted by physicians and medical institutions [22,23]. However, the financial pressures in most systems create a conflict between administrators – who are seen as caring only for the “bottom line,” and physicians – who are seen as caring about health but disregard the financial aspects of their actions. Integrating measurements across the domains provides all levels of the organization with a “full picture” of the

consequences of their actions (in our case the health benefits, cost, and customer satisfaction).

In the process of defining the exact measurements to be included in the HVA, the organization must clarify its vision, goals and strategy and reach consensus on the specific strategic steps to implement them. In order to move the organization to where it wants to go, there must be a shared vision that aligns different organizational processes with the overall strategy [14]. The parameters can be used to broadcast this vision to all levels of the organization. In addition, these parameters can be used to align departmental and personal goals with the organization's strategy as well as to link long and short-term strategic goals with the organization's budget. Measurable parameters provide a feedback loop that enables organizations to continually monitor their performance. Feedback facilitates “single-loop learning” [11], whereby the organization adjusts its methods and procedures to bring performance in line with strategic goals. When gaps between expectations and performance persist, management may engage in “double-loop learning” [11,12] by inquiring into its strategic goals and standards for performance. The HVA measurements, when used to compare regions or sections of the organization, facilitate competition that compels groups to deliver better value, i.e., better care to customers [24].

There are also some limitations to the HVA model. The process by which the organization reaches consensus on the parameters is a challenging one. Different levels and units in the organization might have different goals and priorities, and it is not easy to align them in terms of a single set of parameters. Alignment requires a clear vision and strong professional and authoritative leadership within the organization. The demands for specific measurements by outside constituencies and for measurements linked to the organization's strategy may create pressures to measure too much. To be effective, the model should not include more than 20–30 parameters; and there will always be the question whether the right things are being measured [6]. The parameters – as accurate markers of the efficiency of the HMO – should be reassessed periodically in order to maintain flexibility needed to adapt to changes.

Because HVA creates an incentive to focus on certain parameters, important activities in the organization that are not included in the HVA might be overlooked. There may also be a tendency to include parameters that are easily derived from the existing data rather than those that are really important for future success but are currently difficult to obtain.

Conclusion

Most organizations use financial and non-financial criteria as part of their performance measurement system. Aggregate financial measures are used by senior management mainly for tactical feedback and for control of short-term operations. Non-financial measures are usually used for local improvement at the front-line customer-facing operation. This paper proposes a model and process for implementing Health Value Added – a tool for integrating and aligning all parts of the organization in efforts to achieve both its short-term and long-term strategic goals. HVA

enables the organization to evaluate the implications of its investments in comprehensive health from both the monetary and the customer-satisfaction perspectives. Using the power of performance measurement, HVA helps non-physician senior management to understand the medical outcome and helps physicians to understand the financial aspects of their decisions, which are critical to the organization's success. At the same time it enables front-line employees to be aware of the financial and health consequences of their decisions and actions. In doing so, HVA may stimulate productive competition among semi-autonomous subgroups (e.g., regions) in the organization. Finally, if adopted industry-wide, HVA could act as a catalyst for improving the health-care systems in general, which will lead to better health for all.

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