Opinion Article

How to Measure Value in Health Care: Why Multidimensional Metrics Must Replace Linear Models

Cesar Abicalaffe*

President of IBRAVS - Instituto Brasileiro de Valor em Saude, Sao Paulo, Brazil

*Corresponding author: Cesar Abicalaffe, President of IBRAVS - Instituto Brasileiro de Valor em Saude, Sao Paulo, Brazil.

e-mail: cesar.abicalaffe@ibravs.org

Abstract

The concept of value in health care has become central to contemporary discussions on health-system performance. However, despite the widespread adoption of Michael Porter's definition—health outcomes achieved per monetary unit spent—operationalizing this formula in real-world contexts remains a complex challenge. This opinion article argues that linear, unidimensional indicators are insufficient to capture the true performance of health-care delivery. Instead, multidimensional frameworks based on Multi-Criteria Decision Analysis (MCDA) offer a more accurate, scalable and actionable method for measuring value. The Health Value Score (EVS), developed and validated in Brazil, exemplifies how this approach can align incentives, reward quality, and meaningfully support value-based health-care models.

Introduction

For more than a decade, Value-Based Health Care (VBHC) has been heralded as the most promising paradigm to reorganize health systems around what truly matters—patient outcomes relative to the costs required to achieve them. Porter's seminal work Redefining Health Care brought conceptual clarity but left open the question: How do we measure value in a way that is rigorous, scalable, and useful for real-world decision-making? This article advances the argument that the measurement of value in health care requires a multidimensional, evidence-based structure, capable of integrating clinical, operational, economic and patient-reported dimensions. The Health Value Score (EVS), developed using MCDA principles, demonstrates a practical pathway to operationalizing VBHC.

Why Measuring Value Is More Complex Than a Formula

The Classical Equation

Value = Health Outcomes / Cost, offers conceptual simplicity but limited

operational usability. Translating outcomes and costs into standardized metrics that can be compared across institutions, specialties or patient populations is inherently challenging. Unidimensional metrics fail to represent the complexity of care delivery. Health outcomes depend on multiple interrelated factors: clinical effectiveness, process efficiency, patient-reported experiences, and adequate resource allocation. Measuring only one facet generates distorted interpretations and misguided incentives. A multidimensional structure is therefore not optional, it is essential.

MCDA as the Foundation for a Practical Measurement Framework

MCDA provides the methodological backbone needed to integrate multiple dimensions, assign evidence-based weights, and generate a single composite performance measure without losing transparency or methodological rigor. Early work applying MCDA to provider performance assessment (Abicalaffe, 2015) paved the way for the development of the Health Value Score (EVS). The framework integrates Quality indicators (i.e. structure, efficiency, clinical effectiveness and PROMs and PREMs) and Cost indicators, weighted to reflect economic value creation This model preserves the conceptual logic of value (outcomes relative to cost) while enabling practical implementation.

The Health Value Score (EVS): A Scalable Tool for VBHC

Provider Performance Model

The EVS for providers has been applied across more than 100 hospitals and health plans in Brazil, evaluating over 40,000 physicians. Indicators are grouped into four quality dimensions plus cost, with an initial weighting of 70% quality and 30% cost—a balance that supports alignment with value-based behaviors while recognizing cost stewardship. The EVS produces a continuous score from 0 to 5, allowing granular differentiation of performance. The model is currently used to support value-based clinical governance programs, bonus-based payment models integrated with FFS, DRG-based incentives for hospitals and physicians, global budget contracting, capitation models for networks, such ACOs, among others.

Patient Condition Model

A second EVS model evaluates value for specific clinical conditions. It is already modeled for the five most prevalent cancers (breast, prostate, lung, colorectal and cervical), as well as for rheumatologic diseases, diabetes, obesity, stroke, some rare diseases, and others. Pilot implementations are underway integrating EVS into bundle-based payment schemes for Breast Cancer. EVS received the VBHC Dragons Award (Netherlands, 2023) for its scalability, incorporation of PROMs/PREMs, and robust outcome metrics.

$$EVS^{©} = [IO \times p + IC \times (1-p)] \times 0,05$$
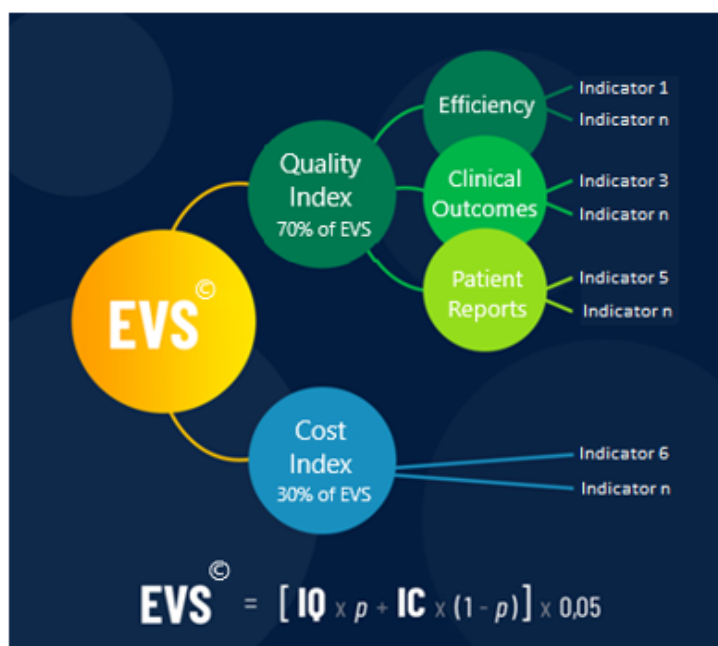
Discussion

Why EVS Represents a Turning Point

The EVS demonstrates that measuring value is feasible when grounded in a transparent, multidimensional methodology. Its adoption by hospitals, health plans, pharmaceutical and medical device companies reflect growing international recognition that value measurement must evolve beyond simplistic ratios and isolated indicators. The model aligns incentives across stakeholders—patients, providers, payers—without introducing punitive distortions. It enables: better clinical governance, more rational resource allocation, more equitable performance evaluation and operational feasibility for value-based payment reforms.

Conclusion

The journey toward a value-based health-care system requires abandoning unidimensional thinking and embracing multidimensional, evidence-based measurement models. The Health Value Score (EVS), grounded in MCDA, provides a practical, scalable, and scientifically sound approach to measuring and rewarding value. As health systems worldwide struggle with rising costs, variable quality, and increasing demand for accountability, models like EVS offer not only a way to measure value—but a pathway to redesign incentives and improve care at scale.

Acknowledgments

Conflict of Interest

None.