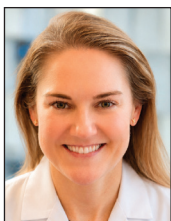


Quantifying the True Costs of Venous Disease

Dr. Julie Bulman shares her perspective on the evolving economic landscape of venous care, the challenges associated with measuring disease burden, and opportunities to improve outcomes while reducing long-term health care costs.

Chronic venous disease affects millions of patients worldwide, yet its full clinical and economic impact is often underestimated. Beyond the direct costs of procedures and treatment, venous disease can contribute to chronic wounds, recurrent hospitalizations, reduced mobility, lost productivity, and significant quality-of-life burdens for patients and caregivers. As health care systems increasingly focus on value-based care and long-term outcomes, understanding the “true costs” of venous disease has become an important conversation among clinicians, payers, and policymakers.



Much of the conversation around venous disease focuses on direct treatment costs. What costs are still being underestimated or overlooked?

Although procedural costs are an important component of venous disease management, the consequences of deep vein thrombosis (DVT) extend far beyond the index hospitalization, largely because of postthrombotic syndrome (PTS). PTS develops in more than half of patients after acute DVT, with severe disease affecting approximately 5% to 10%.^{1,2} This results in substantial medical and nonmedical expenditures over time. Prior studies suggest that more than half of DVT-related costs within the first 2 years are attributable to indirect factors such as lost productivity, transportation, caregiver support, and family involvement.³ PTS also drives recurrent health care use and diminished quality of life (QOL), making it a key determinant of quality-adjusted life-years (QALYs). Consequently, the economic value of endovascular intervention depends heavily on its ability to prevent or reduce clinically meaningful PTS.

What are the practical benefits of improving the understanding of venous disease economics?

Endovascular interventions often involve expensive single-use disposables, making their economic impact

an important consideration for health care systems. Demonstrating safety and efficacy is necessary, but economic evidence becomes essential to justify technology adoption at the local level, enabling the desired widespread implementation of evidence-based care.

What role do indirect costs such as lost productivity, reduced mobility, caregiver burden, and diminished QOL play in the broader conversation around venous disease management? How can policymakers and payers better account for these indirect costs when evaluating treatment strategies?

Patient-reported outcomes provide important insight into the lasting impact of DVT interventions, particularly because complications such as PTS may affect patients for years after the acute event. Longitudinal follow-up (≥ 2 years) captures changes in mobility, functional status, employment, caregiver burden, and overall well-being that are not reflected in procedural costs alone. Economic evaluations should also clearly define their analytic perspective, as “value” may differ dramatically when considered from different standpoints (hospital, payer, patient, society). Cost-effectiveness is commonly expressed as the incremental cost-effectiveness ratio, which relies on QALYs derived from health utility estimates. However, DVT lacks standardized utility values linked to validated PTS severity scales, creating

uncertainty in existing economic models and highlighting an important opportunity for future research.

How should value in venous care be measured beyond procedural costs? What metrics should define success in venous disease management?

Success should be measured by durable improvements in patient outcomes rather than procedural endpoints alone. Reducing severe PTS and venous ulceration is particularly important because these complications account for a disproportionate share of long-term health care utilization, functional impairment, and diminished QOL, while remaining potentially modifiable. Accordingly, future studies should prioritize extended follow-up that incorporates validated PTS assessments, patient-reported outcomes, and venous ulcer outcomes. In parallel, robust risk prediction models could help identify the patients most likely to benefit from intervention and improve individualized treatment decisions.

Do current reimbursement models and utilization management policies adequately reflect the long-term burden of untreated or undertreated venous disease? What changes would help create a more value-based approach to care?

In short, not yet. Current reimbursement and utilization management policies often fail to capture the long-term burden of untreated or undertreated venous disease. By focusing primarily on short-term procedural costs, these models may undervalue interventions that reduce severe PTS, venous ulceration, disability, recurrent health care use, and loss of QOL. A more value-based approach would incorporate longitudinal outcomes, patient-reported QOL, validated PTS severity measures, ulcer healing, reintervention rates, and total cost of care into its analysis. It would also support early risk stratification to identify patients most likely to benefit from intervention.

Are there particular patient populations or socioeconomic factors that disproportionately influence outcomes and total costs associated

with chronic venous disease? What strategies can help address these disparities?

This remains a relatively understudied area, particularly within the United States. Although evidence regarding socioeconomic determinants is limited, several clinical characteristics have been associated with substantially higher costs. A Canadian analysis found that concomitant pulmonary embolism, inpatient management of the index event, and unprovoked DVT were in fact associated with larger increases in expenditures than PTS itself.⁴ Incorporating these variables into future risk prediction models may improve both clinical decision-making and economic forecasting. At the same time, factors such as access to specialty care, insurance status, health literacy, transportation barriers, and adherence to compression therapy and follow-up are likely to influence outcomes and costs but remain insufficiently studied. Integrating these social determinants into prospective trials and registries will be essential to better understand disparities and develop more equitable models of venous care. ■

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