How Performance Metrics Influence Clinical Decisions

Author:	*Lloyd W. Klein[1] 1. Cardiology Division, Department of Medicine, University of California, San Francisco, USA *Correspondence to lloydklein@comcast.net

Disclosure:	The author has declared no conflicts of interest.
Received:	26.03.26
Accepted:	21.04.26
Keywords:	Cardiology metric, case selection, patient-centred outcomes, percutaneous coronary intervention (PCI), quality of care, shared decision-making (SDM), short-term mortality, symptom relief.
Citation:	EMJ Int Cardiol. 2026. https://doi.org/10.33590/emjintcardiol/4RNU5QNR

Abstract

Clinical decisions in cardiology are strongly influenced by the metrics that are measured and rewarded. Emphasis on volume or short-term survival drives activity rather than meaningful patient benefit. High-quality care depends on careful case selection and technical skill, and these should be assessed by measuring outcomes that matter to patients. The usual performance metrics are selected because they are easy to measure, but symptom relief and functional improvement are what matters to patients. Performance measures should focus on patient-centred outcomes to ensure that cardiology practice delivers real clinical benefit and responsible use of healthcare resources.

Key Points

1. Clinical decisions in cardiology are strongly influenced by the metrics that are measured and rewarded.

2. The usual performance metrics are selected because they are easy to measure, but symptom relief and functional improvement are what matters to patients.

3. When clinicians focus on outcomes that matter to patients, unnecessary procedures and avoidable complications decline, costs are better aligned with benefit, and overall care is optimised.

WHAT DEFINES QUALITY IN CARDIOLOGY?

The process of clinical decision-making is influenced by what is measured and rewarded. Payment formulas, procedural targets, and reporting dashboards do more than track clinician performance: they impact how cardiologists prioritise treatment strategies even before a patient is seen. The choice of which metrics to follow (and which to ignore) defines what is considered 'good practice' and guides clinical activity. In procedural cardiology, the most consequential determinant of outcomes is often the decision to intervene. Once that decision is made, technical execution and short-term outcomes matter, but overall benefit depends primarily on the indication for the procedure and its likelihood to achieve meaningful improvement in symptoms, function, and long-term health.[1-3]

WHY PATIENT-CENTRED OUTCOMES MATTER

Optimal clinical practice strives to achieve outcomes that matter to patients. These include relief of symptoms, improvement in functional capacity, quality of life, and durable benefits, such as fewer hospitalisations or repeat procedures.[4,5] Decisions that reflect patient goals and preferences are central to effective care. Interventions that achieve these outcomes provide meaningful benefit, yet these aspects of care are rarely captured formally and almost never incorporated into quality metrics.[6-8] If case selection and patient-centred outcomes were the central focus, clinicians could provide care that maximises what matters most to the patient rather than meeting procedural quotas or administrative benchmarks.

LIMITATIONS OF VOLUME AND SHORT-TERM METRICS

Procedural volume does not define quality. Performing many interventions demonstrates activity, not necessarily patient benefit or procedural skill. High-quality care requires evidence-based case selection, technical proficiency, and outcomes that matter to patients. Measures emphasising volume or short-term outcomes do not capture whether interventions improve symptoms, functionality, or long-term benefit. Volume-driven practice can also increase costs: procedures that do not yield meaningful long-term improvement consume resources without improving patient health or satisfaction.

Similarly, reliance on short-term survival metrics can further obscure the true value of interventions. Thirty-day mortality is heavily influenced by patient acuity and comorbidities rather than procedural skill or appropriateness.[6,9] While survival at discharge provides some information about immediate hospital care, it does not indicate whether the patient achieves symptom relief, improved function, or reduced rehospitalisation. Metrics limited to short-term survival can undervalue the cognitive work of careful case selection and the deliberate decision to intervene only when likely to benefit the patient. Risk adjustment can mitigate but not eliminate this limitation.

Evidence that existing quality measures improve health outcomes is limited. Metrics are chosen because they are easy to measure, not because they reflect patient-prioritised benefit. Procedural and surgical volume exemplify this limitation.[1,3] Patient-centred case selection prevents complications, reduces repeat procedures, and conserves healthcare resources. Quality assessment should measure what clinicians can influence. Metrics primarily reflecting patient risk provide limited guidance for improving care.

THE ROLE OF SHARED DECISION-MAKING

Shared decision-making (SDM) supports patient-centred practice. SDM involves discussion of risks, benefits, and alternatives in the context of patient goals and preferences.[10,11] By clarifying what patients value, SDM ensures interventions are more likely to relieve symptoms, improve

function, and provide long-term benefit while avoiding procedures of limited value. SDM also makes decision-making visible and defensible, reducing reliance on blunt administrative metrics. Consistent use of SDM has been associated with improved adherence, patient satisfaction, and more judicious use of procedures.[2,3,9,10]

Internal quality programmes can reinforce this approach. Structured peer review, discussion of case selection, and feedback on technical performance are more likely to improve care than external report cards focused on limited, downstream metrics.[1,2] Programmes that evaluate both outcomes and the rationale for interventions provide actionable guidance for refining practice. Clinicians benefit when cognitive work, the reasoning behind whether and why to intervene, is explicitly acknowledged and assessed alongside procedural performance.

RETHINKING QUALITY MEASUREMENT IN CLINICAL PRACTICE

Comprehensive frameworks capture the dimensions most relevant to patient-centred care. Models assessing case appropriateness, technical skill, procedural complexity, and long-term outcomes, such as functional status or rehospitalisation, distinguish interventions that provide meaningful patient benefit from those that do not.[12,13] These approaches allow programmes to evaluate quality in ways that matter to patients rather than to regulatory checklists or easily reportable procedural volumes.

By placing case selection and patient-centred outcomes at the centre of practice, cardiology can define quality in terms of meaningful clinical benefit rather than procedural activity. Metrics should measure performance only insofar as they inform improvement in areas clinicians can influence. When clinicians focus on outcomes that matter to patients, unnecessary procedures and avoidable complications decline, costs are better aligned with benefit, and overall care is optimised.

The implications are clear: what is measured and rewarded strongly influences practice, while emphasising metrics that fail to capture outcomes that matter to patients risks promoting activity over benefit. By explicitly linking quality assessment to case selection, technical skill, patient-centred goals, and long-term outcomes, clinicians and institutions can support more individualised health decisions and more responsible use of resources.[1-5,7-9]

ILLUSTRATIVE CASES

Case 1: Volume-Driven Care Without Patient-Centred Benefit

A 78-year-old man with Canadian Cardiovascular Society (CCS) Class I angina and an 80% proximal left anterior descending artery lesion on angiography is referred for percutaneous coronary intervention (PCI). He is minimally symptomatic on two antianginals, lives alone, and his primary goal is to “stay out of the hospital.” Left Ventricular Ejection Fraction (LVEF) is 55%, there has been no recent acute coronary syndrome, Fractional Flow Reserve (FFR) is 0.83.

Under a volume/short-term metric framework, this case counts as a ‘successful’ PCI: high procedural volume, 0% 30-day mortality, no complications. The operator meets institutional benchmarks.

Under a patient-centred framework, the intervention fails the appropriateness test: symptoms are minimal, functional status is unchanged, FFR is negative, and the patient’s goal of avoiding hospitalisation is not advanced. SDM would likely favour continued medical therapy. The procedure consumes resources without meaningful long-term benefit, exactly the disconnect this discussion highlights.

Case 2: Patient-Centred Case Selection Yielding Meaningful Benefit

A 67-year-old woman with daily CCS Class III angina, despite maximal medical therapy, has a 90% mid-right coronary artery lesion, FFR is 0.71, and LVEF is 45%.

Her stated goal is to walk her granddaughter to school without chest pain. She has declined coronary artery bypass grafting.

Under volume/short-term metrics, this patient is higher risk: comorbidities and reduced LVEF may worsen 30-day mortality statistics even with perfect technique. A risk-averse system might de-emphasise intervening.

Under the patient-centred outcomes model, PCI is indicated: symptom burden is high, functional limitation is clear, FFR confirms ischaemia, and the intervention directly targets the patient's stated goal. Post-PCI at 6 months, she reports CCS Class 0, walks 1 mile daily, and has had zero hospitalisations. This is the 'durable benefit' and 'symptom relief' described that should define quality.

References

1. Klein LW et al. Overcoming obstacles in designing and sustaining a high-quality cardiovascular procedure environment. JACC Cardiovasc Interv. 2020;13(23):2806-10.
2. Klein LW et al. Integrating shared decision-making in coronary revascularization with quality assurance programs. Catheter Cardiovasc Interv. 2022;100(1):1-4.
3. Spertus JA et al. Health status outcomes after coronary revascularization and the role of patient-reported outcomes in quality assessment. J Am Coll Cardiol. 2015;66(19):2079-88.
4. Weintraub WS et al. Effect of PCI on quality of life in patients with stable coronary disease. N Engl J Med. 2008;DOI:10.1056/NEJMoa072771.
5. Patel MR et al. ACCF/SCAI/STS/AATS/AHA/ASNC/HFSA/SCCT 2012 appropriate use criteria for coronary revascularization focused update: a report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Association for Thoracic Surgery, American Heart Association, American Society of Nuclear Cardiology, and the Society of Cardiovascular Computed Tomography. J Am Coll Cardiol. 2012;59(9):857-81.
6. Krumholz HM et al. An administrative claims model suitable for profiling hospital performance based on 30-day mortality rates among patients with acute myocardial infarction. Circulation. 2006;113(13):1683-92.
7. Dehmer GJ et al. 2023 AHA/ACC clinical performance and quality measures for coronary artery revascularization: a report of the American College of Cardiology/American Heart Association Joint Committee on Performance Measures. Circ Cardiovasc Qual Outcomes. 2023;16(9):e00121.
8. Aktaa S et al. European Society of Cardiology methodology for the development of quality indicators for the quantification of cardiovascular care and outcomes. Eur Heart J. 2022;8(1):4-13.
9. Klein LW. Thirty-day mortality is a flawed quality indicator for coronary interventions: why interventionalists should insist on better metrics. EMJ Int Cardiol. 2023;11(1):49-52.
10. Elwyn G et al. Shared decision making: a model for clinical practice. J Gen Intern Med. 2012;27(10):1361-67.
11. Barry MJ, Edgman-Levitan S. Shared decision making - pinnacle of patient-centered care. N Engl J Med. 2012;366(9):780-1.
12. Klein LW et al. Proposed framework for the optimal measurement of quality assessment in percutaneous coronary intervention. JAMA Cardiol. 2019;4(10):963-4.
13. Klein LW et al. Performance metrics to improve quality in contemporary percutaneous coronary intervention practice. JAMA Cardiol. 2020;5(8):859-60.