Measure for Measure: The Cost of Improving Quality

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There is an urgent need to ensure that cancer patients receive high-quality care. This is coupled with the concern that the cost of cancer care is rising faster than many other areas of medicine and the hope that improving quality will both curb these rising costs and improve outcomes (1). The quality of cancer care people receive is highly variable. While some patients often do not receive treatments and interventions that are known to be beneficial, overuse or misuse of unnecessary and sometimes harmful treatments are also common (2). Addressing the barriers to achieving quality care and identifying intervention to improve care depend on the ability to define and measure quality.

Information on quality of care can be classified into “structure,” “process,” and “outcomes” measures. Structure includes all of the factors that affect the context in which care is delivered, process is the sum of all actions that make up the manor in which care is delivered, and outcome contains all the effects of healthcare on patients or populations (3). In 2008, representatives from the American Society of Clinical Oncology (ASCO) and the National Comprehensive Cancer Network (NCCN) collaborated to create three breast cancer and four colorectal cancer metrics suitable for national performance measurement based on high-level evidence (4). Only evidence-based clinical indicators predict patient outcomes and are true measures of quality, however indicators based on professional consensus without evidence may at times be all that is feasible (5). While more comprehensive lists of quality indicators have been developed, many are not supported by high-quality clinical evidence, and the ability of these indicators to predict outcomes that are meaningful to patients is unknown (6).

In the paper that accompanies this article, Dr. Hassett and colleagues (7) have shown that quantifying the relationship between quality process indicators, cost, and outcome is not straightforward. In a population-based sample of elderly women with breast cancer and ductal carcinoma in situ (DCIS), an association between spending and adherence with quality measures was not found. In addition, no association was observed between spending and survival. The results are disturbing. If we take this at face value, we may erroneously conclude that there is no reason to advocate for quality.

Either the truth is that adherence to quality guidelines does not reduce cost or improve outcome, or it may be that the measures of quality, cost, or outcome used in this study were imperfect. With regard to quality, measures that captured common scenarios, where guidelines are evidence based, had high adherence rates, where measures that captured rare scenarios, or where guidelines may be less clear, especially in the elderly, had low adherence rates. Given that the measures were variable in impact and level of evidence, a weighted global measure may have been a more sensitive tool. With regard to cost, the analysis measured expenditures in the year after diagnosis. For patients with breast cancer and DCIS, there is a short-term investment in toxicity and cost of therapy in the hopes of preventing a local or metastatic recurrence at a future date. The costs associated with treatment of metastatic cancer are substantially higher than the initial costs (8). Another approach would be to model the expected savings at the time of recurrence based on expected recurrence rates in each of the subsets evaluated. Finally, with regard to outcome, the investigators chose to look at five-year overall survival. Not surprisingly, the proportion of patients alive at five years was high overall (approximately 89%), given the inclusion of patients with early-stage breast cancer and DCIS. It would be counterintuitive to think that adherence to evidence-based quality measures based on treatments proven to be beneficial in randomized trials would not lead to improvement in breast cancer outcomes over time, therefore this limitation may have obscured finding a relationship.

The difficulty in demonstrating that adherence to process measures, even those that are based on high-quality data, is not unique to oncology. An analysis of Medicare beneficiaries at over 3600 hospitals noted that hospital compliance with publically reported quality measures for acute myocardial infarction, heart failure, and pneumonia predicted very small differences in hospital-level mortality rates (9). Similarly, a report of compliance with the Surgical Care Improvement Project (SCIP) recommendations for perioperative antibiotic prophylaxis noted mixed results. The SCIP measures are recognized by the Joint Commission as a core measure and are widely reported. In the analysis of over 400000 patients, there was no association between adherence to any of the individual measures, which are the data that are publically reported and infections, although a composite measure was associated with lower wound morbidity (10).

The modest correlation between process measures and outcomes likely stems from a multitude of additional factors worth considering. First, there is growing recognition that adherence to process measures is likely a surrogate for a number of underlying patient and hospital factors that influence outcomes (11). Second, an association between a measure and an outcome that is months to years later may be obscured by numerous intervening events and decisions. Finally, it may be more appropriate to aggregate multiple quality metrics as an all-or-none measure. Compliance with multiple metrics in essence “raises the bar,” as opposed to simply fulfilling the criteria of an isolated metric (10,12,13). In light of
prior work, the lack of correlation between process measures and survival for breast cancer is not surprising.

How do we reconcile the findings of Hassett and colleagues? Measuring quality in oncology will likely require a multifaceted approach. For each cancer type and stage, structural and outcome measures as well as process measures will be needed to define quality care. Process measures based on the best available evidence and likely bundled into best practice all-or-none measures will help discriminate outcomes. Quality measures will need to focus on patient-centered outcomes, both in the short term and the long term. Finally, while expenditures for cancer care can undoubtedly be reduced by reducing unnecessary tests, treatments, and procedures, it is important to accept that improving quality in and of itself may not lead to meaningful reductions in cost.

References


Notes

The authors have no conflicts of interest to declare.

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