

1.5 **Tumor Boards (Team Huddles) Aren't Enough to Reach the Goal**

Douglas W. Blayney

1.10 **Correspondence to:** Douglas W. Blayney, MD, Stanford Cancer Institute, Stanford School of Medicine, 875 Blake Wilbur Dr, CC 2213, MC 5827, Stanford, CA 94305–5827 (e-mail: dblayney@stanford.edu).

1.15 It should be no surprise that improved performance on the process or outcome measures of quality is not predicted by the existence of team meetings. Anyone who has ever played a team sport, worked with a laboratory team, led a clinical trial team, or led a patient care team soon realizes that huddles, lab meetings, cooperative group meetings, or attending physician rounds don't get the job done. Huddles are a necessary but not sufficient feature of high-functioning teams. Execution of the plan is how we get to good outcomes regardless of the brilliance of the plan, the talent of the team, or the difficulty of the task.

1.20 Contemporary cancer care is multidisciplinary. Tumor boards are team meetings of the multidisciplinary team. Typically, patients with newly diagnosed cancer are formally discussed by representatives of various cancer care specialties. Medical, surgical, and radiation oncologists, as well as pathologists and diagnostic imaging specialists, attend. Palliative care, social work and chaplaincy are often represented. A short history of the patient's illness and course is recited, pertinent histopathology and radiological images are reviewed, and relevant disciplines are given an opportunity to suggest further diagnostic and therapeutic maneuvers. The patient is not usually present.

1.25 Studies of tumor board efficacy have mostly come from single institutions. The study by Keating et al. published in this issue of the Journal expands observations to include a large, integrated health system, the Veterans Health Administration (VA) (1). Previously, these investigators found that VA Healthcare System cancer care is sometimes better than that of the less integrated fee-for-service Medicare (2). Their current work suggests that existence of tumor boards is not a meaningful contribution to quality care in the VA. They surveyed all of the 138 VA medical centers on availability of either general or cancer-specific tumor boards for discussion of patients diagnosed in 2001–2004. Tumor board infrastructure was in place in 75% of the VA Medical Centers. They identified 27 measures of quality and linked cancer registry and administrative data to assess receipt of stage-specific care and outcome. The measures evaluated were mostly those related to adherence to care process.

1.30 Disappointing findings show that the presence of some kind of tumor board was correlated to only one of the process of care measures. Moreover, availability of a tumor board did not correlate with improvement in any of the four survival outcome measures. As a result of these findings, we should ask: Is the minimal benefit described by Keating et al. (1) worth the costly investment of organizational time, energy, and talent? Should tumor boards continue as a feature of organized cancer programs? Is the juice worth the squeeze?

The approach proposed by Donabedian (3) to understand inferences about quality provides a path to improvement. In his 1988 publication, Donabedian suggested dividing quality into inferences about the structure, process, and outcomes involved (3).

As a structural measure, Keating et al. (1) have shown that the presence or absence of the tumor boards, in a large integrated health system, does not influence quality in a meaningful way. Smaller studies of tumor boards have shown that they can influence treatment recommendations (Keating's references 34–38). An additional small study at a referral center in which tumor boards incorporated expert pathology and radiology review showed recommendation changes for surgical management in 52% of patients evaluated (4). In a study of physicians whose patients participated in a population-based sample of women with incident breast cancer, the Los Angeles Women's Health Study (LAWHS), physicians' self-reported breast cancer case volume predicted tumor board attendance (5). The LAWHS investigators hypothesized, but did not demonstrate, that tumor board attendance by physicians might lead to collaborative decision making about type of surgery between specialist and patient and physician, as well as to increased use of evidence-based adjuvant chemotherapy, hormonal therapy, and radiation. Physicians with an interest in cancer care attend tumor boards, and these boards can change treatment recommendations.

Incremental changes in the tumor board infrastructure may increase the value of these team meetings and extend their potential benefits to low-volume physicians. The application of technology to create the "virtual" or telemedicine tumor board should be explored. Synchronous audio and video presentations that link physicians in remote areas with disease-specific expert clinicians, as well as asynchronous ("store and forward") discussions, which focus on patient-specific management issues, are a potential infrastructure enhancement (6). One example is the "Cure4Kids," a tele-oncology service linking providers in low- and middle-income countries with experts in high-income countries (6).

Twenty-three of the 27 measures studied describe adherence to care process. Process adherence measures are designed to predict a desirable future outcome, that is, survival years after application of the process. Process adherence measures are derived from clinical trial results, from which care guidelines are developed. In cancer care, a formal analysis of process adherence tools—whether guideline adherence or rigorous application of clinical trial results—has not been done. However, in cardiovascular disease, a meta-analysis of the ability of guideline and clinical trial results to predict mortality has demonstrated only modest accuracy (7). The link between process adherence and improved outcome remains to be proven when

applied to routine cancer care, in either large integrated government or academic systems, or in the oncologist's office.

Current adherence-to-care-process measures may be too insensitive to detect differences in care and to guide improvement. For instance, 5 years of tamoxifen after surgery for hormone-sensitive breast cancer has been shown to meaningfully improve survival. Current quality measurement systems measure the recommendation to begin treatment but do not yet measure patient compliance with the treatment for the full 5 years. To be useful, quality measurement systems should evolve to more fully measure process adherence.

Survival is the most important outcome measure in cancer care. Presence of tumor boards did not influence any of these outcome measures. Four explicit survival measures were studied by Keating et al. (1)—all-cause mortality in colon, rectal, small cell lung, and non-small cell lung cancer. Arguably, chemotherapy within 14 days of death and intensive care unit admission and emergency department visits within 30 days of death could also be characterized as outcome measures. Again, outcome measures were not affected by tumor board presence.

With the exception of perioperative mortality, public reporting of cancer survival data is problematic. Overcoming both political and technical limitations is necessary before survival information can be meaningfully used. Survival data produced by single institutions are loaded with potential bias. Biases that might artificially inflate survival include differences in cancer screening methods employed, differences in the underlying health of patients referred to one center compared with another, differences in the rigor of staging applied, and differences in the willingness to publicly release the results (8).

Until there is carefully constructed public reporting of process adherence and outcome, we are left to hope that cancer doctors, their leaders, and the systems that they build will use recognized measures of structure and process and work toward superior outcomes. As the efforts by Keating and colleagues (1) highlight, more work is needed. We should also expand Donabedian's (3) construct of structure, process, and outcome to include a feedback loop.

The Donabedian construct is adequate for quality measures with a short interval between intervention and outcome (eg, 30-day operative mortality). A fourth measure that incorporates

the presence and efficacy of feedback may be helpful. Most naturally occurring biological and physical systems have feedback loops. These loops can dampen or amplify changes as they move through the system. The tumor board or team meeting might be a much more powerful tool if its recommendations were actually carried out and if the reasons why or why not were known. Feedback loops for processes with a short time constant already exist (eg, chemotherapy dose adjustments based on toxicity), and we should also incorporate feedback loops with longer time constants.

Tumor boards have too long a history for them to be easily abandoned. Much like the "hurry-up" offense changed the conduct of huddles in football, tumor boards should also adapt to the changing times and technology. In the system studied by Keating et al. (1), there are only huddles and no feedback loop. Their measurement work provides a reason to change tumor board conduct.

References

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Affiliation of author: Stanford Cancer Institute, Stanford School of Medicine, Stanford, CA (DWB).