Multidisciplinary Conference Case Planning in the Virtual Space

BY JONATHAN TREISMAN, MD, FACP; SHERRI COSTA, MS, RN, AOCNS;
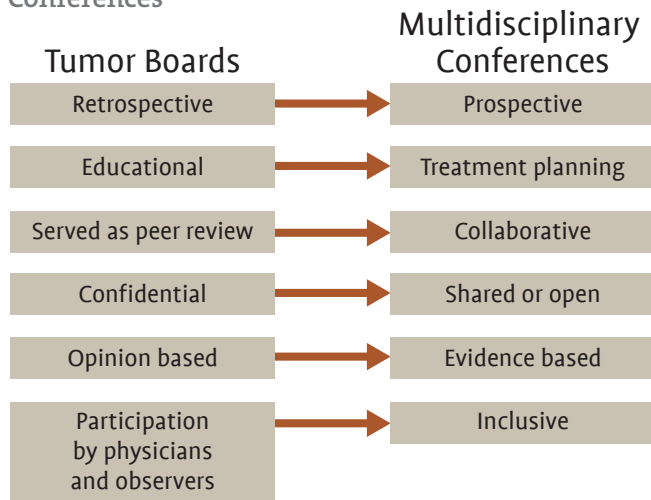CATHERINE SCHOTT, BSN, RN; AND JEANETTE FRAWLEY, MSW, CISW

The care of patients with cancer is multifaceted, and the tools for diagnosing, staging, and treating patients continue to increase in complexity. Consultations about individual patient cases have traditionally taken the form of tumor boards—the standard for communication among the multiple specialists involved in the care of a patient. A tumor board generally is held as a scheduled meeting (typically over lunch) in which participants gather and present a patient's currently available data. Because patient cases are presented only once during a prescheduled meeting, discussions about individual cases may be retrospective or lack complete patient information, limiting meaningful input. Presentation of new patient data—or the results of additional tests that may have been recommended during the first presentation—typically do not occur during subsequent tumor boards. Additional limitations to this model include increasing and competing demands on providers and a lack of evidence that tumor boards benefit patient outcomes. Although tumor boards may be effective as a teaching tool, their benefit to patient care remains uncertain.

Though tumor boards continue to be the standard for multidisciplinary conferences in most cancer programs, the evolving nature of medicine and the merging of individual provider organizations into large healthcare institutions have made this process impractical. Increasingly, traditional tumor boards are giving way

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to prospective multidisciplinary conferences that allow ongoing evaluation of a patient and patient participation in the discussion, improving shared decision making. Ideally, these prospective conferences serve as quality improvement tools that incorporate peer review, appraisal of the care process, and adherence to guidelines and pathways. (Figure 1, page 18, highlights the main differences between tumor boards and prospective multidisciplinary conferences.) This new prospective conference approach has been advanced by video technology, which allows individuals to participate from remote locations. One obstacle to accommodating the participation of all potential providers remains: time.

Figure 1. Tumor Boards vs. Multidisciplinary Conferences

Tumor Boards	Multidisciplinary Conferences
Retrospective	→ Prospective
Educational	→ Treatment planning
Served as peer review	→ Collaborative
Confidential	→ Shared or open
Opinion based	→ Evidence based
Participation by physicians and observers	→ Inclusive

Source. Katterhagen and Wishart.[1]

A Model for Optimizing Care Coordination

Ascension is a massive healthcare system with a presence in 21 states and the District of Columbia. In Wisconsin alone, Ascension operates 24 hospitals and 111 clinics and employs more than 900 physicians. In the Milwaukee metro area, Ascension provides community-based cancer care services across multiple locations spanning the city and its surrounding suburbs. For Ascension, the geographic spread of its many clinics and the competing time constraints of its providers have made it difficult to bring together multidisciplinary team members and relevant specialists for in-person tumor boards.

In 2017 Ascension SE Wisconsin Hospital in Milwaukee had the opportunity to serve as one of the seven Association of Community Cancer Centers (ACCC) member cancer programs selected to test the care coordination model developed through the ACCC Optimal Care Coordination Model project. This initiative, now named Improving Care Coordination: A Model for Lung Cancer, was recently featured in the March/April 2020 *Oncology Issues*. The final phase of the Improving Care Coordination project focused on testing the beta care-coordination model. All seven testing sites implemented 12-month quality improvement projects using the model, to ensure its practicality in helping cancer programs improve care for their patients. As part of Ascension's quality improvement projects for the Improving Care Coordination project, Ascension SE Wisconsin Hospital retrospectively audited its patient charts, which revealed several specific areas for improvement, including:

- Late-stage presentation
- Low LDCT screening rates
- Delays in time to first treatment
- Gaps in navigation services
- Limited lung cases presented at tumor boards

- Gaps in resources, such as having a dedicated thoracic surgeon and optimal equipment.

In response, the ACCC model was used to create two quality improvement projects to focus our efforts: develop a lung cancer clinical pathway and create a virtual tumor board. Before we began the latter project, our hospital's tumor board took the form of regularly scheduled meetings in which members of a multidisciplinary team gathered for discussion either in person or via phone. Individual patient cases were often discussed at only one point in time, meaning that cases were frequently retrospective. There was also considerable difficulty in bringing together all participants at the same time and place. This generally meant that our tumor boards were local events, which limited them to the expertise of local clinicians.

Prior to engaging in the ACCC Improving Care Coordination project, our tumor boards began with participants receiving an email with a meeting agenda listing the patient cases to be discussed. A team member provided significant administrative support, including creating and emailing the agenda, maintaining a calendar of meeting dates, ordering food, tracking attendance, ensuring that equipment was functional, troubleshooting any technology difficulties, and other tasks required to meet accreditation requirements.

As part of its work as a testing site for the Improving Care Coordination Model, Ascension SE Wisconsin Hospital developed and piloted an alternative method for conducting tumor boards that did not require participants to meet at a specific time and place. The virtual online multidisciplinary conference would take the place of our traditional tumor board and allow for asynchronous, ongoing dialogue about patient evaluation and care. Our virtual tumor board used Microsoft Teams to create a Health Insurance Portability and Accountability Act (HIPAA)-compliant platform, which enabled multiple participants to safely access the platform when and where they chose.
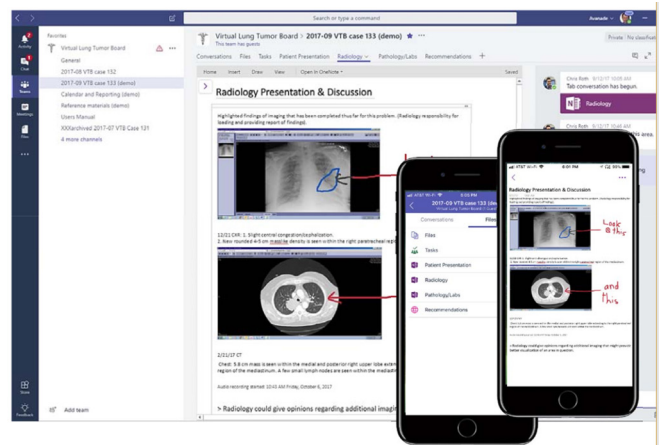
Implementing the Virtual Tumor Board

Our virtual tumor board required a robust platform that can securely combine multiple applications that allow for not only discussing patient cases but also sharing patient data, including diagnostic studies and images. Our platform also needed to incorporate a mechanism for tracking the activities of the invited participants and notifying them of new posts. We found Microsoft (MS) 365—which includes MS Teams, One Note, Power BI, and other integrated applications—to be appropriate for our needs.

Ascension SE Wisconsin Hospital began by first determining the specific needs of our tumor board (see Table 1, page 19). Next, a team of providers, including physicians, administrators, navigators, and quality representatives, visited the Microsoft Innovation Center in Chicago, during which we conducted a day-long whiteboard discussion. We shared our vision of what we wanted our tumor board to be able to do, defined key elements of the tumor board process, and provided the information that led to the conceptual design of our virtual tumor board. In the end, the virtual tumor board was a collaborative effort between our multidisciplinary team, Avanade (an IT consulting group),

Table 1. Specific Needs of Our Virtual Tumor Board

HIPAA compliance: to protect patient's medical information.

Accessible: to allow prospective and ongoing discussion and collaboration.

Prospective: to encourage and improve multidisciplinary decision making.

Collaborative: to allow outside expert participation by individuals from remote sites to ensure multidisciplinary team involvement.

Increased case presentation: to ensure that all patient cases are presented to the multidisciplinary team.

Case planning: to facilitate integration of care pathway(s) into the conference.

Documentation: to provide a summary of recommendations.

Reporting functions: to ensure compliance with CoC requirements.

Phone App Improves Participation in the Virtual Tumor Board.

Virtual tumor boards improve access by eliminating time and space constraints, unifying fragmented healthcare systems, and introducing a new potential education platform.

Microsoft, and Ascension SE Wisconsin Hospital's IT department. It was conceptualized by Dr. Jonathan Treisman and operationalized with modifications using the hospital's available infrastructure and existing computer platform. Key considerations in the design process included:

- The virtual tumor board must be secure and HIPAA compliant to protect sensitive patient information. This process involved discussions with our healthcare system's IT members, compliance officers, and legal counsel. We also discussed secure practices and the potential liability involved in posting identifiable patient information that could leave a historical record. This led us to develop a disclaimer and use de-identified patient information for the purposes of the pilot.
- Technology and consultants. We chose to use Microsoft Teams for our virtual tumor board rather than incurring the cost and time of developing a completely new program. Microsoft
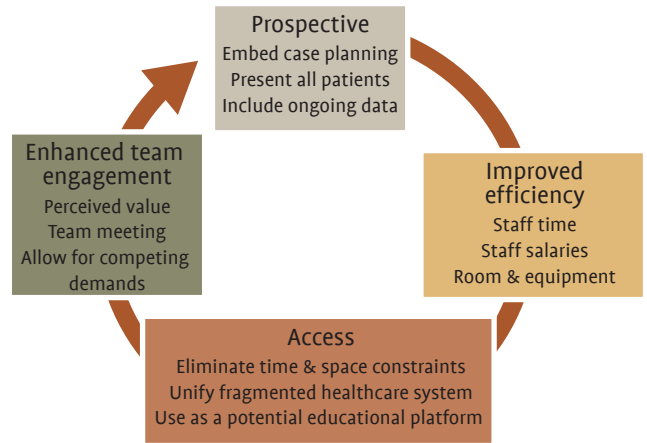
Teams is a widely available platform that was readily accessible to our providers and had advanced security features. We collaborated with Microsoft and used ACCC grant money to contract consultation services from Avanade to adapt MS Teams for our use and provide training.

- The need to ensure buy-in of key participants. Participation is fundamental to the effectiveness of a tumor board and necessary to provide optimal patient care, as defined by the Commission on Cancer's (CoC) participation requirements. Key participants included pulmonology, thoracic surgery, medical and radiation oncology, pathology, radiology, and supportive care staff. Virtual tumor boards offer an alternative venue that is more accessible and time flexible and can help improve provider participation and enhanced discussion by the multidisciplinary team.
- Access and training. (As stated above, Avanade provided staff training on the virtual tumor board.)
- Outcomes. Specifically, we wanted to improve the number of case presentations, attendance, and prospective nature of cases, as well as decrease time to first treatment, with the ultimate outcome of improved patient care.
- Tumor board elements. The program allowed for presentation of history, imaging, and pathology, which are key elements for the tumor board discussion, with a place for comment and questions.

Whiteboard discussion at Microsoft Innovation Center.

Figure 2. Benefits to Virtual Tumor Boards

Prospective
Embed case planning
Present all patients
Include ongoing data

Improved efficiency
Staff time
Staff salaries
Room & equipment

Access
Eliminate time & space constraints
Unify fragmented healthcare system
Use as a potential educational platform

Enhanced team engagement
Perceived value
Team meeting
Allow for competing demands

Pilot participants used Office 365—which includes Microsoft Teams—to test the virtual tumor board. A navigator was appointed to assemble case presentations, monitor group discussions, assist with notifications, and create summaries. Key participants included the provider team identified above; physician champions ensured that the multiple disciplines involved in the virtual tumor board were represented in discussions. We also created a process for tracking attendance and recorded the elements required by the CoC accreditation standard for tumor boards.

The pilot program took the place of Ascension SE Wisconsin Hospital's in-person thoracic tumor board conference from October 2017 to September 2018. All patients presented at the virtual tumor board had a suspicion or confirmed diagnosis of lung cancer.

Our Results

Ascension SE Wisconsin Hospital realized several benefits from the virtual tumor board format:
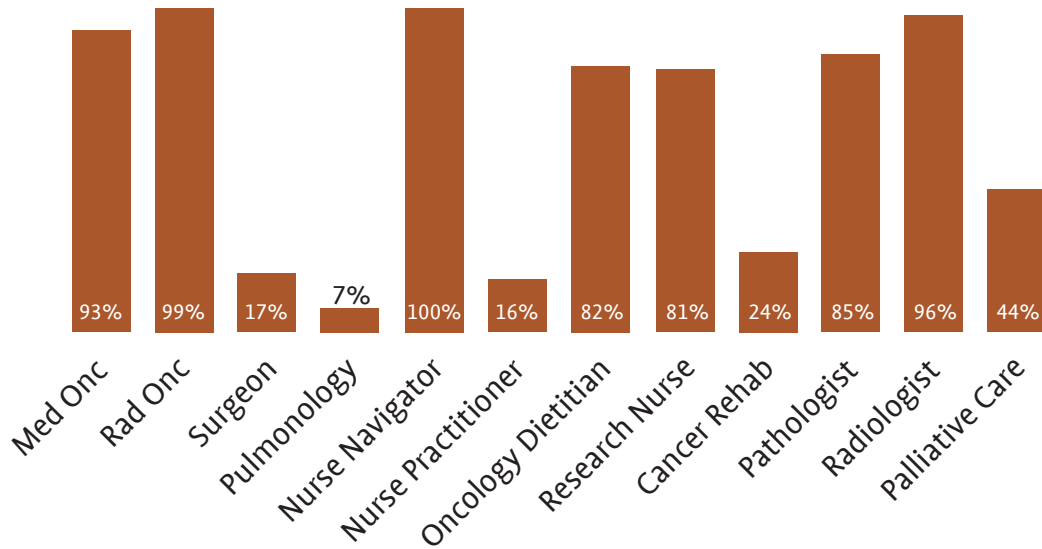
- Virtual tumor boards are prospective—not retrospective—allowing providers to embed case planning, present on all patients, and account for ongoing data and testing.
- Virtual tumor boards are more efficient than traditional tumor boards. They require less staff time and resources (room and equipment).
- Virtual tumor boards improve access by eliminating time and space constraints, unifying fragmented healthcare systems, and introducing a new potential education platform.
- Virtual tumor boards can improve team engagement because they are perceived by providers as having more value than traditional tumor boards, they can more easily bring together a larger team of providers, and they allow providers to meet competing demands.

Figure 2, above, highlights some of the key benefits to virtual tumor board implementation.

Virtual tumor board participants also realized several benefits when compared to in-person tumor boards. For example, providers were able to participate in discussions by texting their questions, opinions, and recommendations at the time of their choosing, allowing clinicians from remote locations to join the discussion. With more clinicians able to lend their input, case discussions were enhanced by a higher level of multidisciplinary expertise (see Figure 3, right). The ability to embed the case planning process into a virtual environment also meant that participants were able to follow up on the results of any diagnostic tests recommended in previous discussions. To enable these interactions, we used Microsoft Teams to create individual channels representing each patient's profile. Within these channels were tabs that allowed access to case presentations, pathology reports and images, radiology reports and images, and other pertinent patient data. Participant dialogue took placed in conversation tabs; conversations could also occur within the individual patient tabs, which were then incorporated into the multidisciplinary team conversation. Team members were notified of new information or additional comments when they were individually tagged (via "@mentioned") about specific questions, enabling ongoing dialogue. Virtual tumor board participants found that this environment allowed for a dynamic discussion platform insulated from the restraints of time and place.

During the 12-month pilot, virtual tumor board participants discussed 108 patient cases. Comparatively, 27 patients had been presented to the tumor board the previous year. Most participants said that they spent 5 to 15 minutes on each case presented in the virtual tumor board. Seventy-five of the 108 patients reviewed were included in REDCap data that tracked the patients evaluated during the pilot. (REDCap is browser-based, metadata-driven electronic data capture software and workflow methodology for designing clinical and translational research databases.) Sixty-seven percent of the patients presented during the pilot were discussed

Figure 3. Virtual Tumor Board Participation[*]

Category	Percent
Med Onc	93%
Rad Onc	99%
Surgeon	17%
Pulmonology	7%
Nurse Navigator	100%
Nurse Practitioner	16%
Oncology Dietitian	82%
Research Nurse	81%
Cancer Rehab	24%
Pathologist	85%
Radiologist	96%
Palliative Care	44%

*Note: Since the time of the pilot, Ascension SE Wisconsin Hospital has hired two dedicated thoracic surgeons, which has greatly improved surgeon participation.

prior to receiving any treatment. Virtual tumor board participants surveyed after the pilot identified these top three benefits:

1. The ability to participate when the provider chose
2. Elimination of travel to attend the virtual tumor board
3. Broader specialty participation.

The participant survey indicated several additional perceived benefits, including:

- 56 percent "strongly agree the virtual tumor board is a good use of time" versus 11 percent who said the same of the traditional tumor board.
- 50 percent believed the virtual tumor board "served as pre-treatment planning" versus 15 percent who said the same of the traditional tumor board.
- 78 percent reported that "patient management was facilitated due to virtual tumor board discussion."

Participants said the virtual tumor board format allowed them to have ongoing dialogue about individual patients as more data was gathered and that providers could easily re-open or re-discuss cases and review archived discussions. Participants also agreed that the virtual tumor board provided clear and rapid communication of the information affecting a patient's diagnosis to all of the providers involved in the care of that patient, increasing the coordination of referrals and specialists and promoting continuity of care between primary care and the oncology team.

Lessons Learned
Our use of a virtual tumor board resulted in a significant increase in the number of patients presented compared to the standard tumor board. For cancer programs looking to implement a similar virtual tumor board, our team saw this increase as a result of the virtual platform aided by the program's navigator, who assisted with presenting and tracking input from the pilot participants.

Like most cancer programs, our providers are faced with multiple competing priorities that hinder their ability to participate in meetings at a set time and place. The asynchronous nature of the virtual tumor board allowed participants to access the tumor board whenever convenient and with their preferred device (laptop, phone, tablet). This format can also remove the presence of distractions that can occur when a participant is attempting to multitask during a scheduled meeting.

Because virtual tumor boards transcend geography, they can include specialists not routinely involved in a patient's care, making this technology especially beneficial to rural clinics. Virtual tumor boards can also be an effective tool for gathering individual specialists to discuss relatively uncommon diagnoses. Finally, because the virtual tumor board has the benefit of tracking responses and evaluating them in the context of patient outcomes, they can help improve patient care.

Jonathan Treisman, MD, FACP, is a medical oncologist at Ascension St. Francis Hospital, Ascension SE Wisconsin Hospital, Inc., Milwaukee, Wis. Sherri Costa, MS, RN, AOCNS, is manager, Cancer Support Services; Catherine Schott, BSN, RN, and Jeanette Frawley, MSW, CISW, are oncology patient navigators at Ascension SE Wisconsin-Cancer Care, Milwaukee, Wis.

Reference
1. Katterhagen JG, Wishart D. The tumor board: how it works in a community hospital. *CA Cancer J Clin.* 2010;27(4):201-204.