

Multidisciplinary Care

Implementing a Multidisciplinary Open-Access Clinic at a Private Practice–Based Community Hospital

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Introduction

In 2007, William Beaumont Hospital (Beaumont) in suburban Detroit, Michigan, recognized the need for integration of the many specialists engaged in the care of patients with cancer. Beaumont is a 1,061-bed major academic and referral center with American College of Surgeons Level 1 trauma status. The hospital is predominately a private practice hospital, but it also employs staff physicians, and it ranks first in the United States for inpatient admissions and second for its number of surgeries. Our system includes a 361-bed community teaching hospital and a recently acquired 289-bed community hospital that is also located in the metropolitan Detroit area. Ninety-one medical and surgical specialties are represented on the Beaumont medical staff of more than 3,100 physicians. Beaumont is a major teaching facility that has 37 accredited residency and fellowship programs with 400 residents and fellows.

After the acquisition of emerging technologies in the treatment of primary and metastatic hepatic malignancy by interventional radiology, as well as a growing referral base for benign and malignant pancreatic lesions, a multidisciplinary tumor board was created to improve treatment planning for these diseases. The tumor board was created by surgical and private medical oncology subspecialists, a radiation oncologist, and diagnostic and interventional radiologists with an interest in upper GI malignancies. Initially, we created the clinic to better integrate these services with the express purpose of expediting evidence-based patient care in a cost effective manner. We recognized the benefit of strengthening our hospital's reputation as a leader in GI cancer care. We addressed initial concerns that patient referral patterns might be disrupted by welcoming all oncology providers in our system to participate in the clinic and tumor board. Involved physicians were notified if their patients were being presented.

We encouraged physicians to bring all patients with a new or potentially new liver/pancreas cancer diagnosis to the tumor board and clinic to identify those patients eligible for clinical trial enrollment and to determine the optimal sequencing of surgery, chemotherapy, radiation, and/or interventional procedures. Simultaneously, interested physicians identified both in-house ($n = 2$) and phase III ($n = 4$) protocols that would be beneficial to the patients and worked with the Cancer Clinical Trials Office through our standard procedure to open these

protocols. Currently, there are various methods for collecting data and outcomes, which will be discussed in the Outcome section below. With multidisciplinary input, there has been a trend toward the increased use of neoadjuvant therapy, including the establishment of an in-house clinical trial for borderline resectable pancreatic cancer. Residents and fellows are mandated to attend the tumor board as part of their medical education. In addition, clinicians with special interest in pancreatic and hepatobiliary cancers emerged through their weekly commitment to the tumor board and the presentation of patients; representation from each of three medical oncology private practice groups, as well as several private practice general and hepatopancreaticobiliary-trained surgeons participated. This led to early identification of a need for a multidisciplinary clinic to accommodate the patients whose cases were presented and to expedite and to enhance patient care. Integrating both private and employed practice models into the multidisciplinary clinic became essential. We describe the methods, the implementation process, and the ongoing challenges and outcome benefits associated with the institution of this multidisciplinary tumor board and clinic.

Plan Development

We initially created an open-access model for site-specific cancer care to enhance the care of patients whose cases were presented to the tumor board and in need of multidisciplinary care. This model centered around the concept of a nurse navigator playing an integral role in assisting the patients and their physicians in scheduling necessary studies leading up to definitive surgery, radiation, and/or chemotherapy. Immediately after the discussion of cases at the multidisciplinary tumor board, patient appointments would be scheduled for consultation with involved specialists. The referring physician would be encouraged to specify with which cancer specialists (ie, surgeon, medical oncologist, radiation oncologist, interventional radiologist) he or she would like the patient to see. Patients would be brought to the clinic within a week of the initial referral and were scheduled to see the appropriate specialists on the day their cases were presented to the multidisciplinary tumor board.

Implementation

Initial implementation began with obtaining space for a multidisciplinary clinic. The concept of a virtual clinic was considered and used in part, given that patients could be readily scheduled in private oncology, radiation, or surgical offices located on the campus of William Beaumont Hospital within the same day. With this vision, a pro forma was created, outlining the need for space allocation from existing hospital clinic space and proposing salary for one nurse navigator and one full-time employee for administrative support. After receiving approval from the hospital, these positions were filled, and the clinic moved forward under the supervision of a private surgical oncologist with an administrative position. Each clinic session begins with a one-hour tumor board conference at which submitted cases are reviewed and discussed by the multidisciplinary team. The team consists of surgeons, medical and radiation oncologists, a radiologist, a pathologist, and interventional radiologists. The tumor board allows the multidisciplinary team to review imaging studies, to discuss alternate treatment options, and to discuss clinical trials for which the patient may be eligible.

The current practice of open participation by all resident and attending staff is voluntarily supported. Discussions at the tumor board focus on evidence-based best practice guidelines and implementation strategies for therapy. In cases for which clear guidelines do not exist, the multidisciplinary group attempts to define institutional “best care” practices.

Patients then meet with subspecialists in the various disciplines necessary to coordinate their care. Patients are seen either in on-campus private offices or in the hospital-owned clinic at the preference of the involved physicians. During the clinic session, the nurse navigator assists Dr. X and his or her patient in scheduling necessary testing, biopsy, additional appointments and consultation, and/or procedures as deemed necessary. On the basis of the commitment of our radiology department, studies are often performed on the same day as the clinic visit. Each patient is asked to complete a patient satisfaction survey so changes can be made to improve on subsequent patient visits. In addition, a letter summarizing the recommendations resulting from the clinic visit is dictated and sent to the referring physician.

The tumor board and clinic have been well received by the private medical oncologists, surgical oncologists, and hospital-employed physicians and have grown rapidly. In addition to multidisciplinary physician evaluation, it became apparent that all patients would benefit from scheduled visits with a nutritionist, a psychosocial consultant, a clinical trials nurse, a financial assistance consultant, and a genetic counselor if deemed necessary by the treatment team. Additionally, an optional visit with integrative medicine is also offered.

Outcomes

The benefits of implementing the multidisciplinary tumor board and clinic at our institution have been readily apparent.

Similar multidisciplinary tumor boards and clinics are now in place for breast cancer and colorectal cancer, and clinics for head and neck cancer and melanoma are being developed. The success of these clinics is evident in the growing numbers of patients treated according to National Comprehensive Cancer Network guidelines. For example, Levine et al¹ reported that patients at our institution with newly diagnosed rectal cancer underwent preoperative staging by transrectal ultrasound more often than patients not seen in the clinic (95% v 32%; $P < .0001$). As a direct result, patients seen in the multidisciplinary clinic underwent perioperative chemoradiation for rectal cancer 63% of the time compared with 40% of patients not seen in the clinic ($P = .016$), and perioperative chemoradiotherapy was given to twice as many patients with stage II disease who were seen in the clinic. Subgroup analysis of neoadjuvant therapy rates for stage II or greater rectal cancer revealed an even more pronounced difference favoring those patients preoperatively managed in the clinic (79% v 19%; $P = .001$). Additionally, multidisciplinary patients with colorectal cancer who were seen in the clinic received significantly more complete preoperative testing by all outcome measures—abdomen computed tomography scan (94% v 76%; $P = .014$), chest computed tomography scan (94% v 41%; $P < .0001$), and carcinoembryonic antigen (100% v 63%; $P = .0001$). Finally, access to multimodality therapy was also significantly increased for patients referred to the clinic; frequency of perioperative oncology consultation was 98% in this group compared with 64% in patients treated elsewhere ($P < .0001$).¹ Table 1 lists data being collected and compared with monitor outcomes differences between patients seen in a multidisciplinary clinic setting and patients not seen in the multidisciplinary clinic.

Further success of implementing the multidisciplinary clinic is evident in the increasing numbers of patients treated through clinical trials, particularly those treated through our institutional phase I and II pancreas protocols, with 75% of those patients being identified and accrued through presentation at our multidisciplinary tumor board in 2009. Research outcomes directly attributed to a multimodality approach and that have advanced clinical care on a national level have been presented at large national meetings and published in major journals.^{2,3} Most importantly, it has led to the development of a core faculty group dedicated to the management of these cancers with an ultimate goal of tracking patient outcomes and of continuing to develop current institutional best practice guidelines. Through the core faculty group, we were able to analyze and compare success rates for sampling solid pancreas masses via endoscopic ultrasound with imaging-guided core biopsy at our institution. This interdisciplinary commitment to process improvement will undoubtedly lead to more effective and perhaps safer outcomes linked directly to our own institutional resources.

Concomitant with the early success of the liver/pancreas tumor board, techniques related to minimally invasive liver surgery began to emerge, leading surgical faculty to learn about and implement new technology. In an effort to expand further and to build Beaumont's position as a leader in liver surgery, a

Table 1. Preoperative Staging of Patients With Newly Diagnosed Colorectal Cancer Including CT and TRUS

Staging	Patients Seen in Clinic (2009; %)	Patients Not Seen in Clinic (overall 2008-2009)		Patients Not Seen in Clinic (2008)		Patients Not Seen in Clinic (2009)	
		%	P	%	P	%	P
CT abdomen	97.5	83.1	.03	83.1	.04	83.0	.04
CT chest	95.0	37.1	< .0001	28.9	< .0001	48.1	< .0001
CEA	100.0	63.8	< .0001	65.2	.0001	61.0	< .0001
TRUS	88.0	37.7	< .0001	44.0	.001	25.7	< .0001
Complete workup							
Colon	91.7	27.5	< .0001	19.3	< .0001	38.5	.002
Rectum	84.0	15.3	< .0001	18.0	< .0001	11.4	< .0001
Anus	66.7	22.2	.48	25.0	.48	20.0	.77
Total	85.0	23.0	< .0001	19.0	< .0001	28.3	< .0001

Abbreviations: CT, computed tomography scan; TRUS, transrectal ultrasound; CEA, carcinoembryonic antigen.

certificate of need was obtained to begin hepatic transplantation, and a well-known transplant surgeon and pioneer in laparoscopic liver surgery was recruited. Currently, outcomes data are being collected through individual physicians in the various departments, attempting to integrate and share data with physicians interested in publishing data and improving outcomes. The radiation oncology department tracks data on outcomes for the phase I protocols involving concurrent chemotherapy and radiation. Chemotherapy data and outcomes are being collected separately under an institutional review board–approved protocol through one medical oncologist in cooperation with dedicated and interested oncology fellows. Lastly, the surgical subspecialties are providing specimens to the biobank and collaborating with the research institute on bench research. Physicians involved in the other multidisciplinary clinics, including the colorectal cancer clinic, are collecting similar data in separate databases. Quality metrics being tracked are uniform across the clinics and are obtained through Press Ganey surveys.

Challenges

We continue to face ongoing challenges with the growth of the multidisciplinary clinic. Integration of private oncologists and surgeons into the clinic has been difficult as a result of unfounded fears that a patient will be lost to the system and competing specialists. Currently, we remain in an environment in which most referrals to the clinic come from individual physicians directing their patient to a known physician participant. With growth of the program, we fully expect that undesignated referrals and self-referrals will increase. To distribute these patients equitably among committed physician participants, formal criteria were established for physicians to be recognized as members of clinic faculty and to share in referrals and marketing initiatives.

These criteria include regular attendance at tumor conferences, participation in national organizations relative to pancreas and liver disease, and evidence of scholarly activity related to the subject.

Another challenge presented by our open-access model was that of billing and remuneration for consultations performed by specialists on the day of the patient visit. At the onset, physicians participating in the clinic received no remuneration for their involvement. Although a model of partial employment and hourly remuneration of physicians participating in the clinic was considered, private practice physicians chose to maintain financial autonomy by billing for evaluation and management services through their individual practices. Support provided by the hospital included salary for the nurse navigator and one clerical staff member as well a fully equipped clinic space in the hospital cancer center. To avoid issues of inurement to private practitioners providing services in a hospital-staffed clinic, fees billed through private offices were required to use a modifier resulting in a reduced level of payment by approximately 20%.

Whereas surgeons participating in the clinic found that acceptable, medical oncologists agreed only to see patients in their private office setting. Given the fact that all participating private oncologists maintained offices in the cancer center where the clinics were held, a smooth flow of patient care and the geographic identity of the clinic was maintained. Although formulation of a more virtual clinic was considered, the authors strongly encouraged development of a dedicated space with direct physician contact to symbolize and identify our commitment to the multidisciplinary approach. Hospital-based services—including radiation oncology, diagnostic and interventional radiology, nutritional support, and social work—participate on site with no significant barriers. Recognizing the success and value of the multidisciplinary clinic initiative, the hospital now provides direct funding to the administrative directors of its clinics and has established financial metrics to monitor performance. Data on the individual financial impact on private physicians billing directly has not been collected.

Finally, we continue to have challenges regarding implementing a database to monitor and track compliance with recommendations and guidelines and to track patient out-

comes. Currently, each clinic collects its own quality metrics, and individual physicians collect data pertinent to their own research interests. We also continue to work to develop an electronic medical record that will interface and accommodate each of the private offices. Regular discussions, meetings, and strategy reviews continue to help this process move forward.

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Authors' Disclosures of Potential Conflicts of Interest

The authors indicated no potential conflicts of interest.

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