

A Model for Rural Oncology

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Abstract

Small rural hospitals in the United States have had challenging issues developing sustainable oncology programs. This is a report on the development of a successful rural oncology program. In 2006, the Tahoe Forest Health System in Truckee, CA, a remote mountain resort town, started a cancer program that was focused on addressing patient and family fears that are common

to all cancer patients but more frightening in the rural setting. Four years later, it is a thriving program with significant community support, a creative academic affiliation, and a central focus of the future of the hospital. The Tahoe Forest Cancer Center developed a sustainable model for high quality cancer care that overcomes geographic, cultural and financial barriers. This structure may serve as a model for national rural health care.

Introduction

In the uncertain environment of health care delivery in the United States today, the special concerns of patients and physicians living in rural areas are magnified. This is not a new situation. Since the industrial revolution > 100 years ago, rural patients in America have had to adjust to difficult geographic barriers to physicians. However, the special needs of rural cancer patients can prove to be overwhelming. This article describes a model for rural oncology that we believe addresses those needs.

The Setting

Tahoe Forest Hospital is a 25-bed critical access facility located in Truckee, CA. It services a community of approximately 50,000 people living in an area of over 4,000 square miles in the Lake Tahoe region of the Sierra Nevada mountains. The town of Truckee has a population of 15,000. The population of the immediate area increases dramatically during the summer and winter seasons as a result of its notable tourist industry. The hospital is located off an interstate highway and is 30 miles from Reno, NV, and 100 miles from Sacramento, CA. Those distances are deceiving, as the weather in the area is extreme from November through April, with snow frequently causing major traffic and safety issues.

The hospital has a six-bed intensive care unit, four operating rooms, an out-patient surgery center, a busy labor and delivery service, and an active emergency room. A significant focus of care has traditionally been traumatic orthopedics. The health system also operates the Incline Village Community Hospital, a four-bed facility in Incline Village, NV.

The Need for a Rural Cancer Program

Patients with cancer from our rural communities had always needed to travel great distances at significant hardship to mid-sized cities for even primary cancer care. Frequently, they needed tertiary care in Reno, or quaternary care at the University of California (UC) Davis, UC San Francisco, or Stanford, all National Cancer Institute (NCI) –designated cancer centers. For years, the administration and medical staff of Tahoe

Forest Hospital had placed the recruitment of a medical oncologist as a priority. They envisioned that a medical oncologist would not only provide high quality cancer care, but also provide leadership in collaboration with hospital leadership in the development of a cancer program.

In 2004, a review of the state tumor registries for the counties involved in the Truckee catchment area gave us an anticipated new cancer diagnosis incidence of approximately 275 patients annually. The question was, could we create a sustainable program to serve those patients properly?

Basic Principles

Building a new cancer program can be fraught with tension between medical staff and hospital administration. Medical oncologists have traditionally maintained the leadership in these programs, but radiation or surgical oncologists lead many successful programs worldwide.

In this case, the first author (L.J.H.) had significant prior experience with the private practice of medical oncology¹ and was recruited to guide the development of a regional cancer program. It was mutually determined that ownership by the hospital was the most sustainable model for this rural community. The board of directors, administration, and medical staff agreed, and the Tahoe Forest Cancer Center was launched in 2006, with the author as its medical director.

In our experience, all patients, but especially cancer patients, have three major fears in addition to the fears of death, pain, and disability from cancer: the fear of disorganized care, the fear of burdening their family and caregivers unreasonably, and the fear of getting yesterday's therapy. A patient- and family-centered program that addressed those fears was therefore essential.

Addressing Disorganized Care

We opened the project by instituting an electronic medical record system. By demonstrating to a patient and family that all of the physicians on their team, not just their oncologists, are automatically kept apprised of their status, we immediately addressed their fear that their care may be disorganized, that they might "fall through the cracks." It seemed to empower

them, making them a partner in the relationship. It lessened the opportunity for medication error, and provided the entire hospital an example of the value of converting to a system-wide electronic medical record.²

Addressing Family and Caregiver Burdens

We developed a comprehensive support services program with a solid structure.^{3,4} Taking lessons from the Ohio State experience,⁵ we brought in a full-time psychologist who would be responsible for managing a team that would provide a growing set of services. Currently, we provide group and individual therapy, art therapy, an Exercise for Energy program, the American Cancer Society's "Look Good..Feel Better" program, and the "We Care" peer navigator program coordinated with the University of California, Davis (UC Davis) Cancer Center. We also have a dedicated financial counselor on site, providing significant comfort to patients by addressing their financial concerns.

One of the benefits of a rural experience is the intimate relationship a new program can have with the entire community. A group of community leaders created our Cancer Advisory Council, a business board focused on architectural benchmarking, strategic goals, and fundraising. Their efforts continue to provide the necessary financial backing for our support services program. In addition, the Council has taken up a creative project to expand those services to our patients' caregivers.

We also maximized the comfort level for our patients with a chemotherapy treatment area that provided the option of community or privacy, wireless Internet access, individual TVs with noise-canceling headphones, and a central mountain-style fireplace in front of windows facing snow-laden trees in the winter.

Not Getting Yesterday's Therapy

By far the greatest challenge of any oncology program is addressing the concern that state-of-the-art diagnosis and treatment is maintained at all times. From the day we opened, we took advantage of disease-related centers of excellence, and strongly encouraged many of our patients to seek second opinions, sending them to known thought leaders on specific conditions in the region. The presence of three NCI-designated comprehensive cancer centers within a 3-hour drive made this possible. The brain tumor program at UC San Francisco, lung cancer program at UC Davis, and lymphoma program at Stanford all have international prominence. We developed relationships with those institutions and sent our patients there to be sure we were on track with state-of-the-art understanding. Our rural patients tended to be unaccustomed to the concept of second opinions, let alone of having their doctor suggest it to them. Doing so built security through transparency. In addition, we addressed the financial hardship of sending many of our patients great distances for those opinions through a creative experiment in medical education, the virtual tumor board (Bold et al, submitted for publication).

The Virtual Tumor Board Project

By far, the most differentiating element of this cancer program, and the reason we honestly believe it may serve as a model for rural cancer care, is our active participation in the UC Davis Cancer Care Network and its Virtual Tumor Board Project. One of the missions of the UC Davis Cancer Center is to provide meaningful outreach to its surrounding rural communities. Situated in Sacramento, in the center of the state, it is surrounded by agricultural communities in the San Joaquin Valley, high-tech urban communities in the San Francisco Bay area, and remote rural communities in the Sierra Nevada mountains. UC Davis has been a national leader in telemedicine. It was therefore natural for them to reach out to four California community cancer centers at a considerable distance from Sacramento to create the UC Davis Cancer Care Network. In addition to Tahoe Forest Cancer Center, these included Fremont-Rideout Cancer Center (Marysville), Mercy Merced Cancer Center (Merced), and Valley Cancer Care (Pleasanton). Membership in the network included the responsibility of providing voluntary clinical faculty, the opportunity to participate in appropriate clinical trials, and a new concept, the Virtual Tumor Board.

Small rural community hospitals can have a difficult time having any tumor boards at all. An academic cancer center has specialty tumor boards on a weekly basis. The Virtual Tumor Board is an extension of UC Davis' ongoing tumor boards, with some technological wizardry. The objectives of the project are to (1) create a quality standard for oncology care across significant physical distances, (2) enhance the access to clinical trials for rural patients, and (3) improve communication and understanding between academic and community oncologists.

The technology infrastructure was selected by the UC Davis Center for Health and Technology. Each site was equipped with advanced videoconferencing equipment so a presenting physician's image and voice can be viewed along with the diagnostic imaging studies, pathology, and a PowerPoint or Keynote presentation. The high-definition images and sound are transmitted through encrypted Web-based technology, ensuring both maximum security and optimum quality. Each site created a dedicated virtual conference room with two monitors and a video camera. One monitor is for the audio-visual transmission and can be divided so the participating members can see and speak with each other. The other monitor is for the presentation outline, radiology, and pathology images viewed through a Web-conferencing interface.

The 80/20 rule of participation—that 80% of a project is done by 20% of its participants—holds true for oncology. Of the 20 major cancer categories, four (20%) comprise 80% of our entire distribution of cases nationwide: lung, prostate, colorectal, and breast cancer. So building a program around those four diseases made the most logical sense.

In 2008, the Virtual Tumor Board Program was launched with weekly breast and genitourinary tumor boards. In 2009, the GI and thoracic tumor boards were brought online. The gynecologic oncology tumor board went live in 2010. The schedule is simple. They all meet at noon, with GI on Monday,

genitourinary on Tuesday, thoracic on Wednesday, breast on Thursday, and gynecologic on Friday. The Tahoe Forest Cancer Center's physicians and nurses, plus many members of the general medical staff, have come to consider this their doctor's lunchtime dining room.

The experience of the Virtual Tumor Board captured the specific culture of each existing tumor board at UC Davis Cancer Center. They already had a long tradition of spirited, honest, and thoughtful reviews of ongoing cases. Integrating the outlying cancer centers into their cultures proved to be quite painless. The format allowed for the network sites to be able to present a case to a specialty tumor board, often within 1 week's notice. Our need for formal second opinion consultations was decreased dramatically. However, when we did need one, the academic team we sent the patient to was already familiar with the patient and understood what the specific issues were. This resulted in a much higher quality of second opinion consultation. Addressing the burden on caregivers and patients to travel extreme distances for such consultations was dramatically experienced with universal relief and frequently tearful appreciation.

Clinical Trials

A direct consequence of the Virtual Tumor Boards was the sense of belonging to a patient-centric academic practice group. This has enabled a significant increase in accrual of our patients into clinical trials at UC Davis, as well as the development of our own clinical research capability.

In 2008, 2 years after opening the center, we launched our clinical trials program in concert with UC Davis. To date, we have screened 157 patients and enrolled nine patients. As of this writing, we have 13 open trials. It should be pointed out that this signified a major cultural change for this rural hospital and its patient community, which had essentially no history of clinical research in the past.

Our institution is too small to have a true institutional review board, so we initiated the clinical trials program under the auspices of the UC Davis institutional review board. We brought on a full-time clinical research coordinator who works intimately with UC Davis. That institution provides the essential regulatory and quality assurance control for us, saving each network partner a significant financial burden that would easily have been a barrier to participation.

Why UC Davis Did This

Ten years ago, the UC Davis Cancer Center and Health System set out to partner with hospitals in its catchment area with the goal of delivering state-of-the-art care to patients in their local communities. Indeed, an obligation of the NCI designation is to engage the community in research efforts and to share innovations. The communities served by the UC Davis Cancer Care Network are within the areas of influence that the NCI would see a designated cancer center serving.

As a result of the nurturing received from UC Davis, the network sites were better able to treat more of their patients locally. UC Davis was experienced by them as a good partner,

and therefore received an increased number of tertiary referrals from them. These turned out to be more appropriate referrals to their health system than they were receiving in the past. In addition, as a result of the halo effect, an increased number of community physician referrals to UC Davis took place that were completely unrelated to cancer.

As a network site, Tahoe Forest Cancer Center pays UC Davis an annual fee for central administrative support, as well as clinical availability and oversight in all areas of cancer care. That fee partially offsets UC Davis personnel costs necessary to run the network. There is absolutely no implied or required linkage for referrals or patient accrual to clinical trials.

The multidisciplinary tumor boards were started later, funded by a pilot grant from the Blue Shield Foundation of California (F.J.M., principal investigator). The idea was to use them for educational purposes only. The project tested whether patients being seen at a rural community hospital would accept a virtual second opinion obtained by their doctors' presentation of their cases at virtual tumor boards, an alternative to patient travel. This clearly proved to be the case.

The network partners placed significant value on understanding our separate institutional cultures, and formulating mutually beneficial strategies to blend them. The success of the project was facilitated by active participation by the leadership at both of our cancer centers who were able to convince colleagues of the value of this special relationship to their individual institutions. This has truly been a mutually beneficial situation for both the NCI-designated cancer center and its rural community partners.

Barriers Encountered Along the Way

We experienced traditional barriers to the development of any new program in a medical community. Physicians who tend not to deal with oncology on a frequent basis initially needed to be convinced that the hospital's expenditure of limited resources on a cancer program was warranted. In addition, no one likes to be told to change his or her habits, especially health care professionals. We experienced some resistance from segments of the institution that needed to prepare for the increased demands our patients placed on them (eg, operating room scheduling, diagnostic imaging scheduling, and medicine coverage for in-patients). Those barriers proved to be illusory once our medical education program and tumor boards came online, and the benefits of the program made themselves clear to all of the stakeholders in the hospital system.

The finances of a hospital-based cancer program are fundamentally different from a private practice model. We did not think the dynamic changes in today's health care delivery system were conducive to developing this as a traditional independent practice. An institution's capacity to generate revenue from infusion therapy services is far superior to that of a private practice. In addition, an institution has the ability to negotiate with payers for insurance contracts from a much stronger position than individual physicians.

As it happens, our current insurance mix is optimal: 55% commercial, 29% Medicare, 12% Medicaid, and 4% self-pay.

However, the program is designed to succeed in anticipation of a gradual transition to an accountable care organization model, whatever that might look like.

We believe that all of the elements of this program are essential to its success and sustainability. However, our patient and family support services module is primarily supported by philanthropy. Should that community support decrease, then we might need to make necessary adjustments to the program.

Results

We started our program in 2006, with an anticipated annual accrual of 100 to 150 patients. By 2010 we had seen > 900 patients and had brought on our second oncologist. We now have enough patients to expand our services to include radiation therapy, which we plan on providing in a new facility that will open in the spring of 2012. The funds to develop this new building came from a community sponsored tax bond.

Summary

This model contains the following essential elements:

- Respect of patient fears of disorganized care, potential incorrect therapy, and undue burdens on their families
- Use of an electronic medical record
- A coordinated comprehensive support services program
- A community support structure
- Proactive use of second opinions from disease-specific centers of excellence
- Relationships with regional NCI-designated cancer centers
- A formal academic affiliation with a specific NCI-designated cancer center

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- Virtual tumor boards
- A clinical trials program

Recognition of the essential fears endemic to the rural patient population can drive the application of appropriate services that will result in success. Modern technology can provide opportunities to deliver enhanced services to remote areas that never before had been considered. We feel that this program can be used as a model for other rural health facilities.

Accepted for publication on January 4, 2011.

Acknowledgment

Supported by Blue Shield Foundation of California Grant No. 2041100.

Authors' Disclosures of Potential Conflicts of Interest

The authors indicated no potential conflicts of interest.

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DOI: 10.1200/JOP.2010.000167

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