

North Star Lodge Cancer Center Cutting-Edge Radiation Therapy...and More

When Yakima Valley Memorial Hospital in Yakima, Wash., opened its comprehensive outpatient cancer treatment center in spring 2000, it named the center North Star Lodge, a guiding light for patients and their families.

For 32 years, Memorial Hospital has delivered quality surgical care and radiation therapy to residents of central Washington. During these years, cancer treatment shifted from primarily inpatient care to predominantly outpatient services. To accommodate the community's ever-changing needs, Memorial Hospital built North Star Lodge Cancer Center. The 36,000-square-foot facility provides imaging, laboratory, and other diagnostic services—all at one convenient site.

"We carefully coordinate with inpatient oncology staff and a host of other hospital and community organizations and support services to offer a seamless continuum of care," said Sean Cleary, Ph.D., M.D., medical director of Memorial Hospital's Cancer Care Services.

Treatment options include state-of-the-art radiation therapy, chemotherapy, physical therapy, psychosocial services, and nutrition counseling. In addition, genetic counseling, screening programs, support groups, and community and professional educational services, as well as naturopathy and complementary services, are key components of the cancer center.

ADVANCED RADIATION THERAPY TECHNOLOGY

North Star Lodge Cancer Center's advanced radiation technology ranges from the GE Advantage Sim diagnostic and treatment planning CT scanner to the BrainLab (m3) micro-multileaf collimator for

stereotactic radiosurgery. The center has two Varian linear accelerators—a Clinac 2300 CD and a Clinac 2100.

"With the two linear accelerators, the hospital-based 60 cobalt (⁶⁰Co), and orthovoltage machines, we have a full range of energies and qualities of radiation from which to select," said David Judd, Ph.D., a medical physicist who has 20 years experience with linear accelerator technology. "We have the flexibility to match the energy of the radiation beam to the depth of the tumor," he said, "allowing us to give as much radiation dose as possible to the target area and the least amount of dose as possible to normal tissue."

With the dramatic progress in computer software and three-dimensional (3-D) reconstructive capabilities, "we have made significant advances in improving patient comfort with rapid CT simulation and increasing the accuracy of essentially all modalities we use," said Cleary. CT simulation can provide a full view from chin to pelvis in less than two minutes. The GE helical scanner allows automatic 3-D reconstruction of a variety of normal structures, and the physician and dosimetrist can outline additional critical structures and target volumes on the monitor. Digitally reconstructed radiographs provide a beam's-eye view of each individual field with projected volumes. Utilizing the CT planning software, blocking and beam adjustments can be rapidly made, and the fields viewed in coronal, sagittal, and axial images that were not previously available. While planning remains a time-consuming process, patients' time on the CT simulator is limited to a few minutes, markedly improving their comfort. The North Star Lodge's

computer planning system allows rapid transfer of CT scan images and MRIs throughout central Washington.

The center uses 3-D conformal radiotherapy (3DCRT) for much of its curative treatment. As a beta site for Radiation Oncology Computer Systems (ROCS) treatment planning systems, the center has significant experience with 3DCRT, which allows beneficial dose escalation in the treatment of prostate cancer.

The most accurate of treatments at the North Star Lodge is the BrainLab stereotactic radiosurgery (SRS) system. This system combines extremely sophisticated 3-D reconstructive software with the micro-multileaf collimator, which can be used with either linear accelerator. In contrast to standard linac-based SRS, which uses circular collimators or gamma knife radiosurgery, the BrainLab system can treat with conformally shaped beams in either a static or rotational manner in single or multiple fractions.

"This collimator allows us to treat highly irregularly shaped brain tumors, arteriovenous malformations (AVMs), or head and neck malignancies with stationary or arcing conformally shaped beams. Lesions even up to 8 to 9 cm receive a homogenous dose distribution not attainable with standard gamma knife or stereotactic radiosurgery," Cleary said. North Star Lodge Cancer Center is one of four sites on the West coast that has the new BrainLab micro-multileaf collimator technology.

The new center also has a brachytherapy suite for its Varian VariSource High-Dose Rate Afterloader. This high-tech equipment uses an iridium-192 (¹⁹²Ir) source on the end of a tungsten wire, which is used to select head

Yakima Valley Memorial Hospital was founded more than 50 years ago as a not-for-profit hospital and began treating cancer patients in 1968 when it opened the first radiation service in central Washington. Memorial has a reputation for creating innovative and successful approaches to serving the region's health care needs.

VITAL STATISTICS

- Total hospital bed size: 226
- Dedicated cancer unit beds: 15
- Number of analytic cancer cases seen in 1999: 591
- Managed care penetration in the state: 19 percent.

SELECTED PATIENT SUPPORT SERVICES

- Exercise classes for breast cancer and cancer-related fatigue are offered as part of the center's continuum of care.
- Lymphedema and massage therapy are available from specially trained and certified therapists.

- Patient education programs allow patients to explore their eligibility for participation in national oncology cooperative group clinical trials plus more.
- Medication, herbal, and nutritional counseling are provided in conjunction with the oncologists, naturopathic physician, registered

dietitian, and pharmacist.

- Holistic counseling is available for the whole person (physical, emotional, and spiritual counseling) as well as to the patient and family.
- A large resource library, with Internet access, is available to the community.



and neck, esophageal, lung, breast, and gynecologic cancers as well as advanced prostate cancer and sarcomas. The high-dose rate brachytherapy is carefully planned with another 3-D reconstructive software system, the Varian computer-aided design (CAD) plan system.

"High-dose rate brachytherapy is perhaps the most conformal of all treatments; we can computer-control the dwell-time of the source within millimeter increments throughout an implant in order to obtain a dose distribution that most precisely fits to the target configuration," Cleary said. The cancer center also provides planning for inpatient implantation of low-dose

rate I-125 seeds for prostate cancer.

All these services at North Star Lodge Cancer Center require a high level of technical expertise. In addition to Cleary and radiation oncologist Clare Bertucio, M.D., are a full-time physicist and dosimetrist as well as seven certified radiation therapists.

Memorial Hospital markets the services offered at North Star Lodge as part of its overall hospital marketing plan. Marketing uses established communication vehicles, such as videos and quarterly newsletters sent to physicians, to highlight its cancer care services. The strategy is to educate the public and health care community

about the services available without "advertising." Because of the uniqueness of North Star Lodge in the Pacific Northwest, local media coverage has been extensive as well.

High-tech services at the North Star Lodge are set in a soothing, comfortable environment for healing. The facility's soft, earth-tone colors, use of natural rock, cascading waterfalls, and mountain lodge design offer an escape from the traditional, clinical-looking cancer treatment facility. In fact, North Star Lodge received the Greater Yakima Chamber of Commerce's 2000 award for its building, which visually enhances the surrounding community. ☐