Soft tissue sarcomas are the most frequent sarcomas; the annual incidence for 2007 in the United States is estimated at about 9220 cases, with an overall mortality rate of approximately 3560 cases per year. Important updates for the 2007 version of the guidelines include the addition of epirubicin (single agent) and the combination of epirubicin, ifosfamide, and mesna as generally accepted systemic therapy. Imatinib was added as an option for desmoid tumors.

Primary bone cancers are extremely rare neoplasms, accounting for less than 0.2% of all cancers. Primary bone cancers show wide clinical heterogeneity and, perhaps most importantly, are often curable. With current multimodality treatment, including multi-agent chemotherapy, approximately three quarters of all patients diagnosed with osteosarcoma are cured. Updates for 2007 include changes in recommendations for treating chondrosarcoma, Ewing's sarcoma, and osteosarcoma.

The effective treatment of advanced soft tissue sarcomas remains challenging, and, although some agents display modest effectiveness against soft tissue sarcomas, dose modifications and combination therapies have not consistently led to significant improvements in response rates or a concomitant increase in overall survival. Novel therapies designed to inhibit defined molecular alterations have revolutionized the approach to the treatment of sarcomas. As more underlying genetic mechanisms are uncovered, new agents designed to target these lesions will lead to more specific, less toxic, and more effective therapies.

The evaluation and treatment of soft tissue sarcomas has never been more demanding than it is today. The pathologist plays a central role in this process and is an integral member of the multidisciplinary sarcoma treatment team. This article briefly summarizes the role of the soft tissue pathologist and includes sections on methods of diagnosis, frozen section, classification of sarcomas, expert consultation, molecular pathology, grading, assessment of treatment response, and tumor banking.

Fred Hutchinson Cancer Research Center/Seattle Cancer Care Alliance

Since opening its doors in 1975, Fred Hutchinson Cancer Research Center (www.fhcr.org) has developed an international reputation for innovative research that yields lifesaving breakthroughs in the prevention, detection, and treatment of cancer, HIV/AIDS, and other devastating illnesses. The Hutchinson Center houses the world's top cancer-prevention research program and also leads major national and international projects dedicated to the discovery of powerful new tests to diagnose cancer at its most curable stages. Through development of bone-marrow transplantation, the Hutchinson Center has raised survival rates for some forms of leukemia from zero to as high as 85%. This Nobel Prize-winning accomplishment is considered one of the great success stories in cancer research. Through the Center's partnership in the Seattle Cancer Care Alliance, patients receive outstanding personalized care from world-renowned specialists, including prevention clinics for individuals at high risk of developing cancer. The Hutchinson Center is one of 39 National Cancer Institute-designated Comprehensive Cancer Centers nationwide.

Lee Hartwell, PhD (second photo on cover), president and director of the Center, received a Nobel Prize in 2001 for research into how and why the cell cycle goes awry, a process that can lead to the uncontrolled growth characteristic of cancer. His insights are being used in laboratories worldwide to develop treatments for cancer and other diseases.