**Special Considerations for the Treatment of Children with Cancer**

Cancer in children and adolescents is rare, although the overall incidence has been slowly increasing since 1975.[1] Children and adolescents with cancer should be referred to medical centers that have a multidisciplinary team of cancer specialists with experience treating the cancers that occur during childhood and adolescence. This multidisciplinary team approach may incorporate the skills of the following health care professionals and others to ensure that children receive treatment, supportive care, and rehabilitation that will achieve optimal survival and quality of life:

* Primary care physicians.
* Pediatric surgeons.
* Radiation oncologists.
* Pediatric medical oncologists/hematologists.
* Rehabilitation specialists.
* Pediatric nurse specialists.
* Social workers.
* Child-life professionals.
* Psychologists.
* Fertility specialists.

For information about supportive care for children and adolescents with cancer, see the summaries on Supportive and Palliative Care.

The American Academy of Pediatric has outline guidelines for pediatric cancer centers and their role in the treatment of children and adolescents with cancer.[2] At these pediatric centers, clinical trials are available for most types of cancer that occur in children and adolescents, and the opportunity to participate is offered to most patients and their families. Clinical trials for children and adolescents diagnosed with cancer are generally designed to compare potentially better therapy with current standard therapy. Most of the progress made in identifying curative therapy for childhood cancers has been achieved through clinical trials. Information about ongoing clinical trials is available from the NCI website.

Dramatic improvements in survival have been achieved for children and adolescents with cancer. Between 1975 and 2010, childhood mortality decreased by more than 50%.[3] Childhood and adolescent cancer survivors require close monitoring because side effects of cancer therapy may persist or develop months or years after treatment. For information about the incidence, type, and monitoring of late effects in childhood and adolescent cancer survivors, see Late Effects of Treatment for Childhood Cancer.

Childhood cancer is a rare disease, with about 15,000 cases diagnosed annually in the United States in individuals younger than 20 years.[4] The U.S. Rare Diseases Act of 2002 defines a rare disease as one that affects populations smaller than 200,000 people. Therefore, all pediatric cancers are considered rare.

The designation of a rare tumor is not uniform among pediatric and adult groups. In adults, rare cancers are defined as those with an annual incidence of fewer than 6 cases per 100,000 people. They account for up to 24% of all cancers diagnosed in the European Union and about 20% of all cancers diagnosed in the United States.[5, 6] Also, the designation of a pediatric rare tumor is not uniform among international groups, as follows:

* A consensus effort between the European Union Joint Action on Rare Cancers and the European Cooperative Study Group for Rare Pediatric Cancers estimated that 11% of all cancers in patients younger than 20 years could be categorized as very rare. This consensus group defined very rare cancers as those with annual incidences of fewer than 2 cases per 1 million people. However, three additional histologies (thyroid carcinoma, melanoma, and testicular cancer) with incidences of more than 2 cases per 1 million people were also included in the very rare group because there is a lack of knowledge and expertise in the management of these tumors.[7]
* The Children’s Oncology Group defines rare pediatric cancers as those listed in the International Classification of Childhood Cancer subgroup XI, which includes thyroid cancer, melanoma and nonmelanoma skin cancers, and multiple types of carcinomas (e.g., adrenocortical carcinoma, nasopharyngeal carcinoma, and most adult-type carcinomas such as breast cancer, colorectal cancer, etc.).[8] These diagnoses account for about 4% of cancers diagnosed in children aged 0 to 14 years, compared with about 20% of cancers diagnosed in adolescents aged 15 to 19 years.[9]

Most cancers in subgroup XI are either melanoma or thyroid cancer, with other types accounting for only 1.3% of cancers in children aged 0 to 14 years and 5.3% of cancers in adolescents aged 15 to 19 years.

These rare cancers are extremely challenging to study because of the low number of patients with any individual diagnosis, the predominance of rare cancers in the adolescent population, and the lack of clinical trials for adolescents with rare cancers.