

Cancer in Children

EPIDEMIOLOGY

Each school day, nearly 46 children, under the age of 15 are diagnosed with cancer. Although the 5-year survival rate is increasing, one quarter of children will die five years after diagnosis. Cancer is the number one killer of American children; more than Muscular Dystrophy, Asthma, Cystic Fibrosis and AIDS combined.

Types of cancer common among this age group:

Leukemia: Cancer of the bone marrow, accounts for 35% of all cases

Brain & other Nervous System Cancers: Cancer involving the cerebellum or brain stem, accounts for 22% of cases

Wilms Tumor: Cancerous tumor of the kidney, accounts for 6-7%

Non-Hodgkins & Hodgkins Lymphoma: Malignant cell infiltrations of the lymphatic system, accounts for 4% of cases

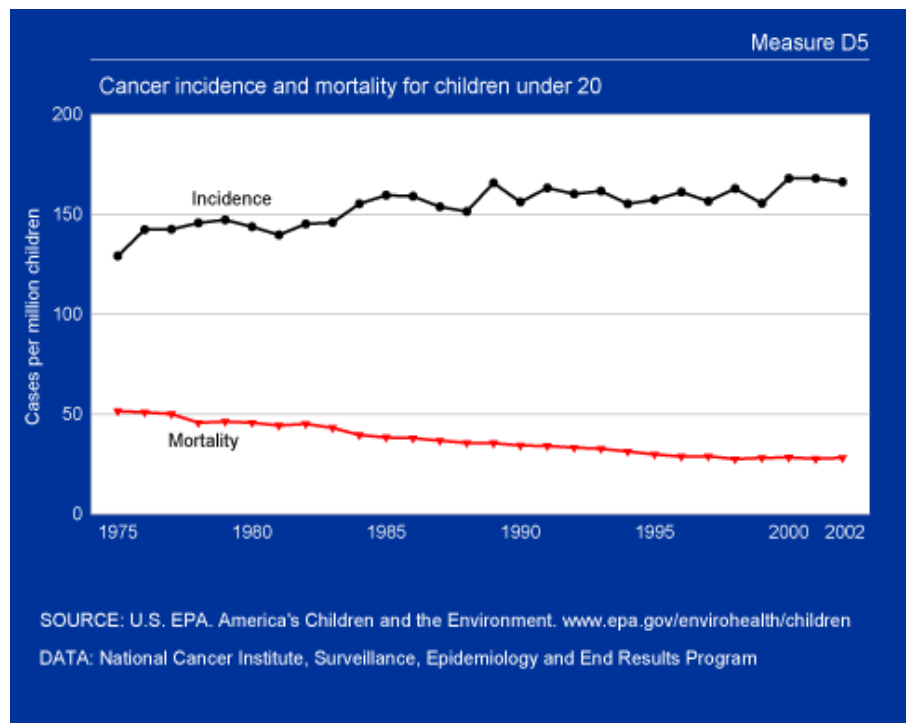
Rhabdomyosarcoma: Fast-growing, highly malignant soft-tissue sarcoma which arises in undifferentiated striated muscle cells, accounts for 5-8% of cases

Retinoblastoma: Cancer of the eye, accounts for 3-4% of cases

Bone Cancers: Cancer of the bones, accounts for 6% of cases

Osteosarcoma: Bone cancer present in bones of the knee, accounts for 2% of cases

Ewing Sarcoma: Bone cancer which affects bones of the pelvis, thigh, upper arm or ribs, accounts for 1%



RISK FACTORS

Unlike many adult cancers, childhood cancers have very few, if any, avoidable risk factors. Various pre and postnatal exposures are known to increase the risk of developing childhood cancers, but for most cases, the cause remains unknown. Examples of prenatal risk factors include radiation and diethylstilbestrol (DES). Examples of postnatal risk factors include radiation and some viruses.

Conditions such as Down Syndrome and various other genetic abnormalities explain a very small percentage of childhood cancer cases.

PREVENTION

The causes of childhood cancer are for the most part unknown; therefore, few preventative measures exist. In almost all cases, childhood cancers arise from non-inherited mutations in the genes of growing cells, which occurs randomly and unpredictably, therefore providing no effective way to prevent these cancers.

Research is being done by groups like the National Cancer Institute and the Children's Oncology Group for future strategies on possible preventative measures.

SCREENING/ EARLY DETECTION/ DIAGNOSIS

Screening and diagnosis typically begin with the child's primary care provider who performs a physical examination and various laboratory studies. Most symptoms of childhood cancers tend to mimic other common pediatric problems (flu-like symptoms) and the proper cancer screening is often negated, and therefore a greater lapse of time between presented symptoms and diagnosis takes place.

Common Symptoms of Childhood Cancer:

- C**ontinued, unexplained weight loss
- H**eadaches, often with early morning vomiting
- I**ncreased swelling or persistent pain in bones, joints, back, or legs
- L**ump or mass, especially in the abdomen, neck, chest, pelvis, or armpits
- D**evelopment of excessive bruising, bleeding, or rash
- C**onstant infections
- A** whitish color behind the pupil
- N**ausea which persists or vomiting without nausea
- C**onstant tiredness or noticeable paleness
- E**ye or vision changes which occur suddenly and persist
- R**ecurrent or persistent fevers of unknown origin

TREATMENT

There are many forms of treatment methods to treat cancer in children, each depending on the type, location, stage and previous health of the patient. Various methods include:

- **Surgery:** removal of cancerous cell or tumors is a common treatment method for children with osteosarcoma and other solid tumors that have not spread to other parts of the body.
- **Chemotherapy:** use of medical drugs to kill cancer cells, is a common treatment method for most childhood cancers.
- **Radiation:** use of radiant energy to kill cancer cells, also a common treatment method used in conjunction with chemotherapy or surgery. Brain tumors, Wilm's tumor, and head and neck cancers usually use radiation.
- **Bone Marrow Transplantation:** the replacement of one's stem cells in the bone marrow with donors' healthy stem cells, often used to treat leukemia's and other diseases of the bone marrow.

RESOURCES

National Cancer Institute (<http://www.cancer.gov/>)

Candlelighters Childhood Cancer Foundation (<http://www.candlelighters.org/>)

Institute of Medicine (<http://www.iom.edu/>)

Nemours Foundation (<http://www.nemours.org/index.html>)

Pediatric Oncology Resource Center (<http://www.acor.org/ped-onc/index.html>)