

The evaluation of a child suspected of having cancer may take several days to complete. Specific signs and symptoms depend on the type of cancer and its location. The essential components of a comprehensive evaluation for childhood cancer include complete history and review of symptoms, physical examination, laboratory tests, diagnostic imaging, diagnostic procedures (e.g., lumbar puncture [LP], bone marrow aspirate, and biopsy), and surgical pathology.

Laboratory Tests

Several laboratory tests must be performed to accurately diagnose and treat children with cancer. The majority of patients have a complete blood count, serum chemistries, liver function tests, coagulation studies, and urinalysis done on initial presentation. Frequent complete blood counts are necessary to monitor effects of therapy and in some hematologic malignancies, response to therapy. Blood chemistry yields important information with regard to kidney, liver, bone function, and electrolyte balance. These tests are important to help detect the extent of disease and also to monitor for side effects during therapy.

Diagnostic Procedures

A LP is a routine test employed in leukemia, brain tumors, and other cancers that may metastasize to the CNS. LPs are also used to administer intrathecal drugs in patients with various malignancies, such as leukemia.

A bone marrow aspirate test is performed by aspirating marrow with a large- or fine-bore needle. A bone marrow biopsy is performed by obtaining a piece of bone through a special type of needle. These tests are performed to determine the presence or absence of tumor or response to therapy in this specific location.

Diagnostic Imaging

Modern-day diagnostic imaging has greatly improved our ability to accurately diagnose childhood cancers. The most commonly employed modes of imaging include chest x-rays, computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET), and metaiodobenzylguanidine (MIBG)