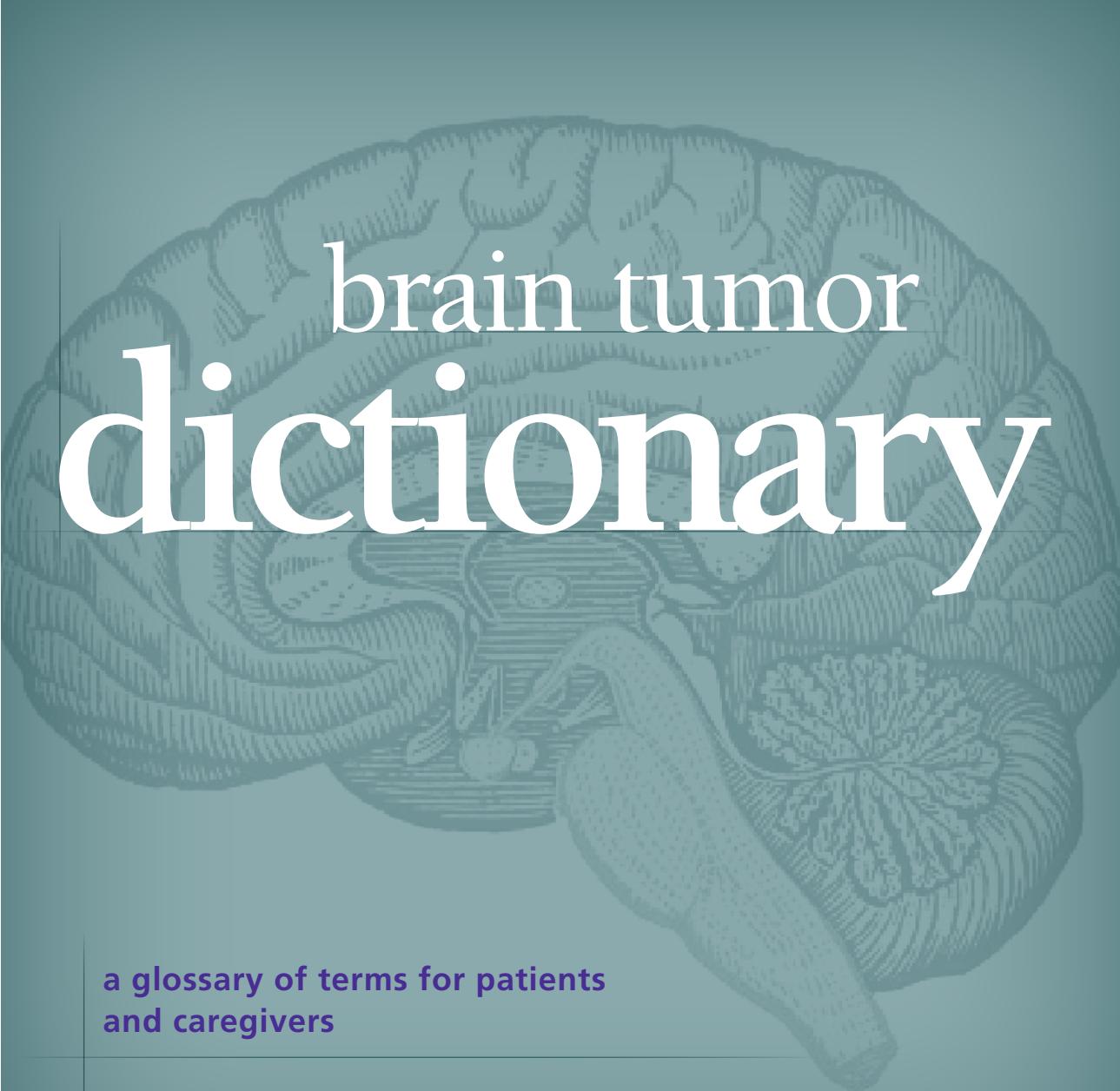




American  
Brain Tumor  
Association®

*Providing and pursuing answers®*



# brain tumor dictionary

**a glossary of terms for patients  
and caregivers**

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## ABOUT THE AMERICAN BRAIN TUMOR ASSOCIATION

Founded in 1973, the American Brain Tumor Association (ABTA) was the first national nonprofit organization dedicated solely to brain tumor research. For over 40 years, the Chicago-based ABTA has been providing comprehensive resources that support the complex needs of brain tumor patients and caregivers, as well as the critical funding of research in the pursuit of breakthroughs in brain tumor diagnosis, treatment and care.

To learn more about the ABTA, visit [www.abta.org](http://www.abta.org).

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**3D-CRT** Three Dimensional Conformal Radiation Therapy. Radiation beams are shaped to match the tumor. Shaping is accomplished by special equipment and special computer programs. Also called *CRT*.

**AA** Anaplastic Astrocytoma.

**AACR** American Association for Cancer Research, a professional society.

**AAN** American Academy of Neurology, a professional society.

**AANN** American Association of Neuroscience Nurses, a professional society.

**AANS** American Association of Neurological Surgeons, a professional society.

**abducens nerve** [ab doo´ sens] 6th cranial nerve.

**abscess** [ab´ sess] An accumulation of pus, often with swelling, due to an infection.

**Absence seizure** A type of generalized seizure (also called *petit mal*) that causes an impairment of consciousness.

**accessible** [ak ses´ sah bul] Refers to tumors that can be reached by a surgeon without severe consequences; tumors that are not deep in the brain or beneath vital structures.

**accessory nerve** 11th cranial nerve.

**acetaminophen** [as et ah mih´ no fen] The generic name for a drug that temporarily relieves mild to moderate pain and reduces fever. Unlike aspirin, it does not cause bleeding problems. Examples: Tylenol, Excedrin (a combination drug which contains aspirin and caffeine in addition to acetaminophen).

**acoustic nerve** [a kous´ tik] 8th cranial nerve.

**acoustic neuroma** [a kous´ tik • new row´ ma] A benign tumor of the nerve of hearing (the 8th cranial nerve) located in the angle between the cerebellum and the pons. May be associated with neurofibromatosis 2. Also called *vestibular schwannoma* [ves tib´ you lar • shwah no´ ma], *acoustic neurilemmoma* [nur´ ih le mow´ ma].

**AcPhys** Acupuncture Physician.

**ACR** American College of Radiology, a professional society.

**ACRIN** American College of Radiology Imaging Network, a clinical cooperative group funded by the National Cancer Institute, charged with developing and conducting multi-institutional trials of imaging techniques. Its objectives are to evaluate outcomes and cost, quality of life implications, develop new evaluation methods and increase availability of the most valuable technology.

**acromegaly** [ak row meg´ ah lee] A disorder due to an excessive amount of growth hormone in adults who have achieved their full height. Growth hormone, also called somatotropin, is secreted by the anterior lobe of the pituitary gland. Symptoms of acromegaly include an enlarged lower jaw, hands and feet. A hormone secreting pituitary adenoma (a benign brain tumor), can cause this condition. In children, excessive growth hormone causes gigantism.

**acronym** [ack´ roe nim] An invented word or an abbreviation, made up of the first letters of other words. Examples: Laser; DNA.

**ACRP** Association of Clinical Research Professionals, a professional society.

**ACSW** Academy of Certified Social Workers.

**ACTH** adrenocorticotrophic hormone. Produced by the anterior lobe of the pituitary gland, it regulates the activity of the adrenal gland.

**acuity** [ah ku´ ih tee] Refers to clarity or distinctness of hearing or sight.

**acupressure** [ak´ you presh yur] Pressure or massage to specific sites on the body to control pain or nausea.

**acupuncture** [ak´ you punk shur] The insertion of thin needles through the skin at specific points on the body to control pain and other symptoms.

**acustimulation** [ak´ you stim you lay´ shun] Mild electrical stimulation of acupuncture points to control nausea and vomiting.

**acute** [ah kute´] Having severe symptoms and a short course; not chronic.

**adamantinomatous craniopharyngioma** [ad ah man tih no´ ma tus • kray´ nee o fah rin jee o´ ma] One of the two types of craniopharyngioma, a benign tumor arising from small nests of cells located near the pituitary stalk. This type of tumor occurs most commonly in children and tends to be cystic.

**adenoma** [ad in ome´ ah] A usually benign tumor arising from a gland, such as a pituitary adenoma.

**adjuvant therapy, treatment** [ad´ ju vant] “In addition to.” Therapy given at the same time or immediately following another treatment. The treatments work together to make each more effective.

**ADL** Activities of Daily Life. For example, preparing a meal, doing laundry, brushing your teeth. A term used in a rehabilitation setting or in assessing quality of life.

**adoptive immunotherapy** [uh dop´ tiv • ih myoo noh thayr´ uh pee] A treatment used to help the immune system fight cancer. A cancer patient’s T cells (a type of white blood cell) are collected and grown in the laboratory to increase their number, and are then returned to the patient. This therapy circumvents some of the limitations of active immunotherapy.

**AFP** Alpha-FetoProtein. A germ cell tumor marker found in the cerebrospinal fluid and blood.

**age range** In clinical trials, refers to the ages of patients who are eligible for a particular treatment.

**agnosia** [ag no´ zee ah] Loss of ability to recognize objects, people, sounds, shapes, or smells. Usually classified according to the sense or senses affected (hearing, sight, smell, taste, touch). Symptom common to tumors of the parietal lobe of the cerebral hemispheres.

**agraphia** [ah graf´ e ah] Loss of ability to write. Symptom common to tumors of the parietal lobe of the dominant cerebral hemisphere.

**AHRQ** Agency for Healthcare Research and Quality. The mission of this US government agency, which is part of the Department of Health

and Human Services, is “to improve the quality, safety, efficiency, and effectiveness of health care for all Americans.”

**alkylating agents** [al´ kih lay ting] A family of anticancer drugs that interfere with a cell’s DNA thus inhibiting its ability to grow.

**alleles** [ah leelz´] The genes that occupy the same relative location on both chromosomes of a pair.

**allogenic transplant** [al o jen´ ik] Material such as blood, bone marrow or stem cells that comes from a donor with genetically different but compatible genes.

**alopecia** [al o pee´ she ah] Loss of hair; baldness in areas where hair is usually present. Hair loss often occurs over the area of the head receiving radiation therapy or as a side effect of some forms of chemotherapy.

**alpha-fetoprotein** [al´ fah fee toe pro´ teen] A germ cell tumor marker found in the cerebrospinal fluid and blood. Commonly abbreviated *AFP*.

**alternative medicine** Used instead of conventional medicine to treat illness by helping the body heal itself or to treat the “source” of the disease.

**amplification** [am pli fi kay´ shun] Making multiple copies of a gene or any sequence of DNA, either in the human body or in the laboratory. The term is most often used to describe malignancy (cancer). A tumor cell repeatedly copies (amplifies) DNA segments as a result of unusual cell signals or environmental stress.

**amygdala** [a mig´ da lah] Part of the limbic system, it is located in the temporal lobe of the cerebral hemisphere.

**analgesic** [an al gee´ zik] A medicine used to reduce pain.

**analog or analogue** [an´ ah log] In biochemistry, a substance related in chemical structure to another substance, but not identical to it.

**anaplasia** [an ah play´ zee ah] Cells that have returned to a more primitive or undifferentiated form. Malignant cells.

**anaplastic** [an ah plas´ tik] Malignant.

**anaplastic astrocytoma** [an ah plas´ tik • as tro sigh toe´ ma] In the WHO classification system, this is a grade III, malignant astrocytoma. Astrocytomas are tumors that arise from the supportive tissue of the brain. *Abbreviated AA.*

**anaplastic choroid plexus papilloma** [an ah plas´ tik • ko´ royd • pleks´ sus • pap ih low´ ma] Occurring primarily in children, this is the malignant form of the choroid plexus papilloma. It comprises about ten percent of all choroid plexus tumors and typically occurs in one of the lateral ventricles. *Also called choroid plexus carcinoma.*

**anaplastic ependymoma** [an ah plas´ tik • ep en dih moe´ ma] In the WHO classification system, this is a grade III, malignant ependymoma, most commonly found in the cerebral hemispheres. Ependymomas arise from the ependymal cells that line the ventricles and central canal of the spinal cord. These tumors occur in both children and adults.

**anaplastic oligoastrocytoma** [an ah plas´ tik • o´ lig o as tro sigh toe´ ma] This tumor contains both astrocytes and oligodendrocytes. Its behavior is similar to tumors composed of astrocytes or oligodendrocytes, whichever is most prevalent in the particular tumor. They are commonly grade III, malignant tumors. *Also called mixed glioma.*

**anesthesiologist** A physician trained in administering anesthetics and caring for people who are anesthetized. Anesthetics are drugs or agents used during surgery to prevent the sense of pain. Local anesthesia numbs a small area; general anesthesia produces unconsciousness.

**anesthetics** [an es thet´ iks] Substances that cause loss of feeling or awareness. Local anesthetics cause loss of sensation in one part of the body; general anesthetics cause unconsciousness.

**angiogenic** [an gee oh jeh´ nik] Relating to the formation of blood vessels.

**angiogenesis** [an gee o jen´ ih sis] The growth of new blood vessels. Tumors need angiogenesis for continued growth.

**angiogenesis inhibition**

[an jee oh jen´ eh sis] Purposeful blocking or interference with the formation of new blood vessels, for example to a tumor.

**angiogenesis inhibitor** [an gee o jen´ ih sis] Angiogenesis inhibitors block the formation of new blood vessels around a tumor. It is believed that without an adequate supply of blood and the nutrients it carries, a tumor is unable to grow. *Also called anti-angiogenesis therapy. [angio = blood vessel; genesis = birth].*

**angiogenic** [an gee oh jeh nik] Relating to the formation and differentiation of blood vessels.

**angiogram** [an´ gee o gram] A diagnostic procedure done in the x-ray department to help visualize blood vessels. The person receives an injection of dye to outline the vessels on the x-ray or scan. *Also called arteriogram.*

**anomaly** [ah nom´ ah lee] Out of the ordinary, abnormal.

**anorexia** [an o rek´ see ah] Loss of appetite.

**anosmia** [an oz´ me ah] Absence of the sense of smell. Symptom common to tumors of the frontal lobe of the cerebral hemispheres.

**anterior** [an tier´ ee or] Front, or forward position.

**anti-angiogenesis** To block the growth of new blood vessels around a growing tumor. *Also called angiogenesis inhibition.*

**antibiotic** [an tie by ah´ tik] A drug used to treat infection.

**antibody** [an´ tie bod ee] Part of the immune system. An antibody is a protein produced and secreted by a special white blood cell in response to a foreign substance (antigen). Each antibody can recognize and bind only to one specific antigen. The antibody helps destroy the antigen by either disabling it directly or making it more vulnerable to destruction by other parts of the immune system.

**anticancer antibiotics** A group of anticancer drugs that block cell growth by interfering with DNA, the genetic material in cells. *Also called antitumor antibiotics or antineoplastic antibiotics.*

**anticonvulsant** [an tie kon vul´ sant] A drug that prevents, reduces or stops convulsions or seizures. Example: Tegretol (a proprietary name for carbamazepine), Phenobarbitol. *Also called antiepileptic.*

**antiemetic** [an´ tie eh met ik] A drug that helps control nausea and vomiting.

**antiepileptic** [an´ tie ep i lep´ tik] A drug that prevents, reduces or stops convulsions or seizures. Example: Tegretol (a proprietary name for carbamazepine), Phenobarbitol. *Also called anticonvulsant.*

**antifungal** [an´ tie fun´ gull] A drug used to treat infections caused by a fungus.

**antigen** [an´ tih jen] A substance, recognized as foreign to the body, that stimulates the immune system to produce antibodies.

**antimetabolites** [an´ tie meh tab´ o litez] A group of anticancer drugs that resemble nutrients needed by the cell for growth. Once inside the cell, they interfere with its ability to reproduce.

**antineoplastic antibiotics** A group of anticancer drugs that block cell growth by interfering with DNA, the genetic material in cells. *Also called antitumor or anticancer antibiotics.*

**antipyretic** [an´ tie pie ret´ ik] A drug used to reduce fever.

**antisense therapies** [an´ tie sens] A form of gene therapy that seeks to block specific protein messages formed by malignant cells. It is thought that if abnormal messages can be blocked, so can the growth of the tumor.

**antitumor antibiotics** A group of anticancer drugs that block cell growth by interfering with DNA, the genetic material in cells. *Also called anticancer or antineoplastic antibiotics.*

**AOCN** Advanced Oncology Certified Nurse.

**aphasia** [ah faz´ e ah] Loss of ability to speak or write; loss of ability to understand speech or written words.

**APN-CS** Advanced Practice Nurse-Clinical Specialist.

**APN-NP** Advanced Practice Nurse-Nurse Practitioner.

**APON** Association of Pediatric Oncology Nurses, a professional society.

**aphagia** [uh fay´ jia] Loss of the ability to swallow or the refusal to swallow.

**apoptosis** [ay pop to´ sis] or [ah-po-to´ sis] Normal, timely cell death. Healthy cells live and die in a predictable pattern. This pattern keeps the number of cells in our body balanced. Abnormal cells lose the ability to sense these natural cues, and go on needlessly reproducing. The unneeded cells eventually form a tumor.

**arachnoid** [ah rack´ noyd] The middle of three layers of meninges, the membranes covering the brain and spinal cord. It forms the outer border of the subarachnoid space.

**arachnoid cyst** [ah rack´ noyd] An enlarged, fluid-filled area of the subarachnoid space — the space between the arachnoid and pia mater layers of the meninges. Can occur in both adults and children. *Also called leptomenigeal cyst [lep´ toe meh nin jee´ al].*

**arm** In a clinical trial, refers to a particular treatment pathway. *Also called study arm or treatment arm.*

**arteriogram** [are tier´ e oh gram] A diagnostic procedure done in the x-ray department to help visualize blood vessels. The person receives an injection of dye to outline the vessels on the x-ray or scan. *Also called angiogram, MRI angiography.*

**articulation** [ar tik u lay´ shun] Speech.

**artifact** [ar´ tih fakt] In radiology, the appearance on an x-ray of something not naturally present, such as a surgical metal clip. In the laboratory, the appearance on a slide or in a tissue sample of an object or feature that was inadvertently introduced or caused in the laboratory.

**ascending tract** The pathway of sensory nerves from the spinal cord to the brain stem or thalamus.

**ASCO** American Society of Clinical Oncology, a professional society.

**ASPHO** American Society of Pediatric Hematology Oncology, a professional society.

**aspirin** One of the family of drugs called nonsteroidal, anti-inflammatory agents. It is used to reduce pain, fever and/or swelling.

**ASTRO** American Society for Therapeutic Radiology and Oncology, a professional society.

**astrocytoma** [as tro sigh toe´ ma] Any tumor that arises from astrocyte cells — part of the supportive (neuroglial) tissue of the brain. There are four types of astrocytoma: pilocytic astrocytoma (grade I), astrocytoma (grade II), anaplastic astrocytoma (grade III), and glioblastoma (grade IV).

**astrocytoma I** A tumor that occurs mainly in children; the most benign of the astrocytomas. *Also called pilocytic astrocytoma* [pie low sit´ ik • as tro sigh toe´ ma].

**astrocytoma II** A low grade tumor.

**astrocytoma III** A malignant astrocytoma. *Also called anaplastic astrocytoma (abbreviated AA).*

**astrocytoma IV** An aggressive, malignant tumor that commonly invades adjacent tissue and spreads throughout the central nervous system. Its hallmark is areas of dead tumor cells (necrosis) observed under the microscope during the pathological examination. *Also called glioblastoma (abbreviated GBM).*

**asymptomatic** Having no symptoms.

**ataxic gait** [ah tak´ sik • gate] A clumsy, uncoordinated walk. *Also called ataxia.*

**atonic** [a tonn´ ik] No muscle tone, limp.

**atonic seizure** [a tonn´ ik] A type of generalized seizure (*also called epileptic drop attack*) that causes sudden limpness.

**ATR** Registered Art Therapist.

**ATT/RhT** Atypical teratoid/rhabdoid tumor [tear´ ah toyd • rab´ doyd] A rare, high grade tumor occurring most commonly in the cerebellum of children younger than two years of age.

**attenuated** [ah ten´ you a ted] Weakened; referring to virus, it means the virus is no longer infectious.

**atypia** [a tip´ ee ah] During examination of a tumor under the microscope, atypia refers to how different the tumor cells are from normal cells.

**atypical absence seizure** [a tip´ i cal] A type of generalized seizure that causes a change in muscle tone.

**atypical teratoid/rhabdoid tumor** [tear´ ah toyd • rab´ doyd] A rare, high grade tumor occurring most commonly in the cerebellum of children younger than two years of age. *Also called ATT/RhT.*

**audiometry** [aw dee om´ eh tree] A hearing test.

**aura** [or´ ah] Advance notice of an imminent seizure; most commonly a peculiar sensation, strange noise, light or smell.

**autologous transplant** [aw tol´ o gus] Material such as blood, bone marrow or stem cells that comes from oneself as opposed to being donated by another.

**autophagy** [awe toff´ ah gee] Literally, eating one's own flesh. A future cancer treatment might incorporate the tendency of some cells to digest some of their own cytoplasm.

**Avastin** [uh vas´ tin] See bevacizumab.

**axial** [ak´ see al] Position as it relates to the central nervous system (CNS). Intra-axial is within the CNS; extra-axial is outside the CNS.

**B cell** Part of the immune system. A type of lymphocyte (small white blood cell) that circulates in the blood. When it finds an antigen (a stranger presumed to be harmful), it manufactures and releases antibodies against the antigen. *Also called B lymphocytes.*

**BA** Bachelor of Arts degree.

**basal ganglia** [bay´ zil • gang´ lee ah] Masses of nerve cells deep within the brain at the base of the cerebral hemispheres. They are involved in muscle movement and control.

**basic research** Laboratory studies that explore the ways in which cells live, grow, and die so that we can understand how a malignant cell is altered and then use that information to control cancer.

**basophil** [bays´ o fil] The type of white blood cell that is involved with fighting bacterial infections.

**BBB** Blood brain barrier.

**benign** [be nine´] Not malignant, not cancerous.

**BFA** Bachelor of Fine Arts degree.

**bevacizumab** [bev uh siz´ u mab] A monoclonal antibody that interferes with the blood supply of tumors by inhibiting the formation of new blood vessels (angiogenesis). Bevacizumab targets a protein called vascular endothelial growth factor (VEGF) and is indicated for the treatment of metastatic colorectal cancer, non-squamous non-small cell lung cancer, metastatic breast cancer, glioblastoma, and metastatic renal cell carcinoma. Its brand name is Avastin.

**bias** Anything beside the treatments being tested that affects a study's results. Clinical trials use many methods to avoid bias because biased research often produces misleading results.

**bilateral** [buy lat´ ur al] Occurring on both sides of the body.

**biologic response modifier** (BRM) A substance — either natural or manufactured in the laboratory — that increases, directs or restores normal immune defenses. Used as an adjuvant therapy for brain tumors, it seeks to stop the growth of the tumor.

**biologic therapy** Deliberate manipulation of the immune system to change the biological environment in the body. The intent is to make it difficult for tumors to grow or to cause a change in their behavior. This therapy uses substances called biologic response modifiers (BRMs). Many BRMs occur naturally in the body.

**biomarker** [by´-oh-mar-ker] A biological molecule found in body fluids or tissues that can

serve as a sign of a normal, or abnormal process, or a sign of a condition or disease. Most brain tumor biomarkers are used to monitor how well the body responds to a treatment for a disease or condition. Researchers are also working to develop biomarkers for diagnostic purposes. Also called molecular marker and signature molecule.

**biopsy** [bi´ op see] A surgical procedure to remove a small piece of tumor for examination under a microscope in order to make a diagnosis. The sample is examined by a pathologist who determines the type of the tumor. A biopsy can be performed as part of the surgery to remove the tumor, or as a separate procedure.

**blastoma** [blas toe´ ma] A tumor whose cells have embryonic characteristics, such as a medulloblastoma or a glioblastoma.

**blood brain barrier** A protective barrier or filtering mechanism, formed by the blood vessels and glia of the brain, which prevents some substances in the blood from entering brain tissue. *Abbreviated BBB.*

**blood brain barrier disruption** A technique used to temporarily disrupt the barrier in order to allow drugs to flow from blood vessels into the brain.

**BMT** Bone Marrow Transplant.

**BNCT** Boron Neutron Capture Therapy.

**board certification** A physician's advanced credential indicating a high degree of competence and training in their area of specialty.

**bolus** [bow´ lus] A single dose of drug, usually injected into a blood vessel over a short period of time.

**bone marrow** [mare´ o] The soft, sponge-like tissue in the hollow center of large bones where all blood cells are manufactured.

**bone marrow aspiration** [as pih ray´ shun] Removal of a small sample of bone marrow (usually from the hip) through a needle for examination under a microscope.

**bone marrow or stem cell transplantation** A procedure to replace bone marrow destroyed by treatments such as high doses of anticancer drugs or radiation. Transplantation can be autologous (the person's own marrow or stem cells saved before treatment), allogenic (marrow or stem cells donated by someone else) or syngenic (marrow or stem cells donated by an identical twin).

**boron neutron capture therapy** Radiation therapy that combines a special form of non-ionizing radiation with a drug that concentrates in tumor cells. The person is given an intravenous infusion containing the element boron before the procedure, which concentrates in tumor cells. The person then receives radiation therapy with atomic particles called neutrons (epithermal or slow neutrons) produced by a research nuclear reactor. The radiation is absorbed by the boron, killing the tumor cells and avoiding normal cells. *Abbreviated BNCT.*

**brachytherapy** [bray key ther´ ah pee] Sources of radiation energy are implanted directly into or next to a tumor. Brachytherapy is a local therapy. *Also called interstitial radiation therapy, intracavitary radiation, radiation implants, radiation seeding or radioactive pellets.*

**brain mapping** Intraoperative monitoring using direct cortical stimulation, evoked potentials, functional MRI or intra-operative ultrasound imaging.

**brain metastases** Cancer that has spread to the brain from another site in the body.

**brain stem** The bottom-most portion of the brain, connecting the cerebrum to the spinal cord. Consists of the midbrain, pons, medulla oblongata, tectum, cervicomedullary junction and the reticular formation.

**brain stem glioma** [glee o´ ma] A general name for tumors arising in or on any part of the brain stem: midbrain, pons, medulla oblongata, tectum, reticular formation, cervicomedullary junction or the dorsum (back). About 10% of brain tumors in children are brain stem gliomas. The tumor might be any type of astrocytoma, a ganglioglioma or an ependymoma. There are four groups of

brain stem gliomas: diffuse, focal, exophytic and cervicomedullary. Brain stem gliomas can be intrinsic (within the brain stem) or extrinsic (outside the brain stem).

**brain tumor stem cells (BTSC)** Brain tumors are now believed to possess a population of stem like cancer cells that have the ability to reproduce, self-renew, and develop into any of several mature cell types. Some researchers believe these cells may be the cells that give rise to brain tumors, and may contribute to resistance to chemotherapy and radiation therapy.

**BRM** Biological Response Modifier.

**Broca's area** [bro´ kas] An area of the frontal lobe involved with speech.

**BS** Bachelor of Science degree.

**BSC** Best Supportive Care.

**BSN** Bachelor of Science in Nursing degree.

**BSW** Bachelor of Social Work degree.

**BTEC** Brain Tumor Epidemiology Consortium.

**BTFC** Brain Tumor Funders Collaborative.

**BTGAP** Brain Tumor Genome Anatomy Project. An NCI-NINDS intramural collaborative working group mapping the genes for brain tumors.

**Burr Hole** A hole through the skull made by a special drilling tool to provide access to the brain.

**butterfly glioma** A higher grade astrocytoma that has spread through both sides of the brain causing a "butterfly" appearance on scans.

**BX** Biopsy.

**CA** Cancer.

**calcification** [kal sih fih kay´ shun] Deposit of calcium. Associated with some types of brain tumors, as meningiomas, oligodendrogliomas and astrocytomas.

**cancer** [kan´ sur] Malignant tissue. It can invade and destroy healthy tissue, and tends to spread to distant locations. Cancer cells are abnormal and divide without control.

**Cancer Information Service** 1-800-422-6237; TTY 1-800-332-8615. A national information service (in English or Spanish) of the National Cancer Institute for patients, the public and health professionals. *Abbreviated CIS.*

**cancer of unknown primary origin** Cancer cells are found but the place where they first arose (the original or primary site) cannot be located.

**Cancer Trials Support Unit** A pilot project sponsored by the National Cancer Institute. It is charged with simplifying administrative procedures performed by Clinical Cooperative Groups. *Abbreviated CTSU.*

**CANCERLIT** Cancer Literature. A bibliographic database that contains references to cancer literature published in over 4,000 different sources including biomedical journals, proceedings, books, reports and doctoral theses from 1963 to the present. Most records contain abstracts and all contain citation information, descriptive fields such as document type and the language in which the document was written.

**cancer.gov** The National Cancer Institute's cancer information website, it provides access to a wide variety of information, including clinical trials from PDQ, cancer literature from CANCERLIT and a wealth of other information. The complete web site address is [www.cancer.gov](http://www.cancer.gov).

**carcinogen** [kar sin´ o jen] Any substance known to cause cancer. The amount of time from exposure to symptoms and diagnosis may be years or even decades.

**carcinogenesis** [kar sin o jen´ eh sis] The process by which normal cells are transformed into cancer cells.

**carcinoma** [kar sih no´ ma] A malignant tumor that arises from skin or the lining of internal body organs, for example, the breast, prostate, lung, stomach or bowel. Carcinomas often invade adjacent tissue and spread to distant organs, including the brain.

**CARRA** Consumer Advocates in Research and Related Activities, a program of the National Cancer Institute (NCI) that matches cancer advocates to a variety of NCI activities and programs.

**CAT** Computerized Axial Tomography. *Also called CT, Computerized tomography.*

**catheter** [kath´ ih tur] A thin, flexible, tube. Used to insert, remove or relocate fluids in the body.

**cauterize** [kaw´ tur eyes] To treat tissue with a hot instrument, an electric current or a caustic substance. Used during surgery to control bleeding.

**Cavitron** Brand name of an ultrasonic aspirator — sometimes used to break tumors apart and suction out the pieces during surgical removal of a tumor.

**CBA** Cost Benefit Analysis.

**CBC** Complete Blood Count.

**CBER** Center for Biologicals Evaluation and Research of the Food and Drug Administration. This office is responsible for ensuring the safety, effectiveness and timely delivery to patients of biological products, including blood and blood products, vaccines, human tissue for transplantation, allergenic materials and anti-toxins, and biological therapeutics. Biologics, in contrast to drugs that are chemically synthesized, are derived from living sources (humans, animals, and microorganisms.)

**CBTC** Canadian Brain Tumor Consortium.

**CBTNet** Canadian Brain Tumor Network.

**CBTRUS** Central Brain Tumor Registry of the United States. A private, not-for-profit agency committed to providing a resource for gathering and disseminating current data on all primary brain tumors, malignant and benign, for the purposes of accurately describing their incidence and survival patterns, evaluating diagnosis and treatment, facilitating etiologic studies, establishing awareness of the disease, and ultimately, for the prevention of all brain tumors.

**CC** Chief Complaint.

**CCC — SLP** Certificate of Clinical Competence — Speech- Language Pathologist. A speech-language pathologist is a healthcare professional educated and trained to evaluate and treat people with speech, language and swallowing problems.

**CCG** Children’s Cancer Study Group. An NCI funded clinical cooperative group organized to evaluate new treatments for pediatric patients. CCG, the Pediatric Oncology Group (POG) and two other pediatric clinical cooperative groups have merged to form a new group — the Children’s Oncology Group (COG).

**CCN** Certified Clinical Nutritionist.

**CCOP** Community Clinical Oncology Program, a National Cancer Institute effort that allows community physicians to work with scientists conducting NCI-supported clinical trials.

**CCRA** Certified Clinical Research Associate.

**CCRN** Critical Care Registered Nurse.

**CDC** Centers for Disease Control and Prevention, Department of Health and Human Services; located in Atlanta, Georgia.

**CDER** Center for Drug Evaluation and Research of the Food and Drug Administration. This office is responsible for ensuring the safety and effectiveness of drugs. An Office of Oncology Drug Products (ODP) in CDER’s Office of New Drugs is responsible for the review of drugs and biologic products used to diagnose, treat, and prevent cancer.

**cell** The basic living unit of body tissue. It contains a nucleus surrounded by cytoplasm and is enclosed by a membrane.

**CDRH** Center for Devices and Radiological Health of the Food and Drug Administration. This office helps ensure that medical devices are safe and effective and helps reduce unnecessary exposure to radiation from medical, occupational, and consumer products. Radiation emitting products include microwave ovens, televisions, medical x-ray machines, CT/MRI scans, and diagnostic ultrasound among others.

**CEA** carcinoembryonic antigen. This is a marker for a tumor of the arachnoid and/or pia mater membranes of the meninges.

**CED** Convection-Enhanced Delivery.

**cell adhesion** Refers to the bonding together of cells, their “stickiness.”

**cell cycle** The reproductive stages of a cell leading to cell division (mitosis).

**cell differentiation** The process that young, immature, unspecialized (undifferentiated) cells undergo as they take on individual characteristics and reach their mature, specialized (differentiated) form and function.

**cell kinetics** [ki net´ ix] The amount of time it takes for a tumor to attain a determined size.

**cell motility** The ability of a cell to move.

**cell proliferation** An increase in the number of cells as a result of cell division.

**cellular ependymoma** [ep en dih mow´ ma] A low grade tumor most commonly located in the fourth ventricle and the midline.

**cellular immunity** Immune protection provided by the direct action of immune cells as distinct from the action of antibodies (humoral immunity).

**centigray** One one-hundredth of a gray, the unit of measure in radiation therapy. *Abbreviated cGy.*

**central nervous system** Pertaining to the brain, cranial nerves and spinal cord. It does not include muscles or peripheral nerves. *Abbreviated CNS.*

**central neurocytoma** [nur o sigh toe´ ma] This rare, low grade tumor typically occurs in a lateral ventricle in the region of the foramen of Monro, and occasionally extends into the third ventricle as well.

**cerebellar astrocytoma** [sair uh bell´ ur • as tro sigh toe´ ma] A glial tumor of the cerebellum. About 80% are low grade, localized, cystic tumors although higher grades of tumor also occur. More common in children than adults.

**cerebellar glioma** [sair uh bell´ ur • glee o´ ma] The generic name given to a glial tumor of the cerebellum.

**cerebellar peduncle** [sair uh bell´ ur • pea dung´ kul] The nerve fibers connecting the cerebellum and the brain stem.

**cerebellopontine angle** [sair uh bell´ o pon´ teen] The angle between the cerebellum and the pons, a common site for the growth of vestibular schwannomas, which are also called acoustic neuromas.

**cerebellum** [sair uh bell´ um] Located just above the neck in the back of the head, the cerebellum is the second largest structure in the brain. It consists of two hemispheres or halves, is connected to the brain stem, and controls balance for walking and standing and other complex motor functions.

**cerebral aqueduct** [ser e´ brul • ok´ weh dukt] A narrow canal through the midbrain connecting the third and fourth ventricles through which cerebrospinal fluid flows. *Also called the aqueduct of Sylvius.*

**cerebral neuroblastoma** [ser e´ brul • nur o blas toe´ ma] The cerebral neuroblastoma is a malignant, rapid growing tumor. Eighty-five percent of cerebral neuroblastomas occur in children. It is also called a **PNET** (primitive neuroectodermal tumor) by some. Neuroblastoma more commonly occurs outside the central nervous system.

**cerebrospinal fluid** [ser ee´ bro spy´ nal] The clear fluid made in the ventricular cavities of the brain that bathes the brain and spinal cord. It circulates through the ventricles and the subarachnoid space. *Abbreviated CSF.*

**cerebrum** [ser e´ brum] The largest area of the brain, the cerebrum occupies the uppermost part of the skull. It consists of two halves called hemispheres. Each half of the cerebrum is further divided into four lobes: frontal, temporal, parietal and occipital. The right side of the cerebrum generally controls the left side of the body. *Also called cerebral hemispheres.*

**cervical** Refers to the neck.

**cervicomedullary brain stem glioma** [ser´ vih koh med´ you lair ee] This tumor arises in the medulla oblongata and extends into the cervical spinal cord. It is often a pilocytic or fibrillary astrocytoma.

**cervicomedullary junction** [ser´ vih koh med´ you lair ee] Where the extension of the spinal cord becomes the medulla oblongata of the brain.

**cGy** Centigray.

**CHAMPVA** Civilian Health and Medical Program of the Department of Veteran Affairs (United States), a federally funded health program that provides Uniformed Services beneficiaries with medical care supplemental to that available in military and Public Health Service facilities. All CHAMPVA beneficiaries move over to Medicare at age 65. CHAMPVA is like Medicare in that the government contracts with private parties to administer the program.

**checkpoint blockade** A type of immunotherapy that blocks natural immune responses that might support tumor growth.

**chemoresistance** [key mo resistance] Cellular resistance to a drug or group of drugs.

**chemoresponsive** [key mo responsive] Cellular sensitivity to a drug or group of drugs.

**chemotherapy** [key mo ther´ ah pee] The use of anticancer chemicals (drugs) to treat brain tumors.

**CHIP** Comprehensive Health Insurance Program, regulated by individual states.

**choked disc** Swelling of the optic nerve indicating increased intracranial pressure. *Also called papilledema.*

**chondroma** [kon drow´ ma] A rare, benign tumor that tends to arise at the base of the skull.

**chondrosarcoma** [kon drow´ sar ko´ ma] A very rare tumor, it is the malignant form of the chondroma and is most common in adult males.

**chordoma** [kor doe´ ma] A rare, slow growing, but often intractable, extradural tumor occurring at the base of the skull, or at the end of the spine.

**choriocarcinoma** *See germ cell tumor.*

**choroid plexus** [ko´ royd • pleks´ sus] Areas in the ventricles where cerebrospinal fluid is formed.

**choroid plexus carcinoma** [ko´ royd • pleks´ sus • kar sih no´ ma] Occurring primarily in children, this is the malignant form of the choroid plexus papilloma. It comprises about ten percent of all choroid plexus tumors and typically occurs in one of the lateral ventricles. *Also called anaplastic choroid plexus papilloma.*

**choroid plexus papilloma** [ko´royd • pleks´sus • pap ih low´ma] A rare, benign tumor most common in children under the age of two. The lateral ventricles are the most common location in young children, the fourth ventricle is the most common site in adults.

**chromosome** [crow´moe soam] Structures in the nucleus of a cell that carry genes. All human cells contain 46 chromosomes (23 pair). Chromosomes are composed of DNA.

**chromosome deletion** A portion of a chromosome is missing at least one gene.

**chronic** A disease or condition that persists over a long period of time. Not acute.

**cingulate cortex** [sin´gyou lat • kor´teks] A bundle of nerve fibers in the white matter located over the surface of the corpus callosum.

**circumscribed** [sir´come skribd] Having a border, localized. Often associated with a capsule and benign tumors of the brain, for example, meningiomas, pituitary adenomas and acoustic neuromas.

**CIS** **Cancer Information Service.** A service of the National Cancer Institute, it is a national information network for patients, the public and health professionals. Cancer Information Service provides the latest cancer information through a toll-free telephone service, and can respond in English or Spanish. Access by phone: 1-800-422-6237; TTY 1-800-332-8615.

**classification** A system for grouping tumors based on shared characteristics. Brain tumors are classified by their microscopic anatomy on the assumption that each kind of tumor results from the abnormal growth of a specific cell type. Classification is thought to help predict a tumor's behavior, the patient's prognosis and to serve as a guide to treatment.

**clear cell ependymoma** [ep en dih moe´ma] A low grade tumor most commonly located in the fourth ventricle and the midline.

**clinical** That which can be observed in or involves patients. Research treatments tested on patients, as opposed to laboratory or animal testing.

**clinical cooperative group** A network of physicians from various medical institutions investigating new treatments by planning and implementing research studies. Because of the relative rarity of brain tumors, most doctors and hospitals could not enter sufficient numbers of patients into a protocol (clinical trial) to derive meaningful data or it would take a very longtime to do so. Clinical cooperative groups and consortia were created by the National Cancer Institute so that new treatments could be evaluated quickly.

**clinical investigator** A physician who administers treatments being studied in clinical trials.

**Clinical Nurse Specialist** A registered nurse with a master's degree in nursing who has demonstrated a high degree of knowledge, skill and competence in a specialized area of clinical nursing.

**clinical trial** An organized process for testing new treatments on patients using a pre-defined treatment plan called a protocol. Clinical trials might be sponsored by the National Cancer Institute, another of the institutes of the National Institutes of Health, pharmaceutical companies, or individual treatment centers.

**ClinicalTrials.gov** The US National Institutes of Health web site listing of federally and privately supported clinical trials. The complete web site address is [www.clinicaltrials.gov](http://www.clinicaltrials.gov).

**clivus** [kli´vus] An area at the base of the skull composed of part of the sphenoid and occipital bones.

**clone** [klone] A group of genetically identical cells or organisms descended from a single common ancestor; to reproduce multiple identical copies.

**CMS** **Centers for Medicare & Medicaid Services.** The federal agency within the US Department of Health and Human Services responsible for Medicare, Medicaid, State Children's Health Insurance Program (CHIP), Health Insurance Portability and Accountability Act (HIPAA), and Clinical Laboratory Improvement Amendments (CLIA).

**CNP** **Certified Nurse Practitioner.**

**CNRN** **Certified Neuroscience Registered Nurse.**

**CNS** **Central Nervous System.** The brain, spinal cord and cranial nerves.

**CNS** **Congress of Neurological Surgeons,** a professional society.

**CNS metastasis** [meh tas´tah sis] Cancer that has spread from its original (primary) site to the brain or spinal cord.

**CNS prophylaxis** [pro fi lak´sis] Treatment to prevent a cancer from spreading or growing in the brain or spinal cord even if it hasn't yet been detected.

**CNS tumor** A tumor of the brain, its covering, or the spinal cord.

**cobalt machine** [ko´bawlt] Uses cobalt isotopes as the radiation source. A nuclear reactor manufactures the isotopes.

**co-deletion** [koh de le´shun] A deletion is a type of mutation involving the loss of genetic material. It can be small, involving a single missing DNA base pair, or large, involving a piece of a chromosome. A co-deletion is a deletion of two chromosomes that occurs simultaneously, such as the 1p19q co-deletion often found in oligodendrogliomas.

**cognition** [cog nih´shun] The mental process involving thinking, learning, understanding, and memory.

**colloid cyst** [kol´oyd • sist] A cyst is a tumor-like sphere filled with fluid, similar to a balloon filled with water. Colloid cysts are most frequently located in the third ventricle and almost always occur in adults.

**colony-stimulating factor** A substance that stimulates the production of blood cells. G-CSF is the abbreviation for granulocyte colony-stimulating factor; GM-CSF is the abbreviation for granulocyte-macrophage colony-stimulating factor.

**combination chemotherapy** Drugs given in combination to increase their individual effectiveness.

**community standard of care** The generally accepted prudent and appropriate practice of healthcare in a given locale.

**Compass System** A frameless stereotactic system that combines a microscope, laser and computer.

**complementary medicine** Therapies used in addition to conventional treatment primarily to manage or prevent pain, nausea and treatment related side-effects; to reduce stress and anxiety; to promote healing. *Also called holistic or natural medicine.*

**complete remission** The most common definition is that the tumor can no longer be seen on scans as a result of treatment. Remissions can be permanent or temporary. Also called complete response. *Abbreviated CR.*

**complex partial seizure** One of two types of focal seizure. It affects only one part of a cerebral hemisphere and symptoms depend on the specific part involved. The other type of focal seizure is called a simple partial seizure.

**concave** [kon kave´] Having a hollowed surface, like the following: ☺

**conformal** Shaped to follow the irregular borders of a tumor.

**conformal radiation** For therapy, the radiation beams are shaped in three dimensions to match the shape of the tumor. The shaping is accomplished by special equipment and special computer programs. *Abbreviated CRT. Also called 3D-CRT.*

**congenital** [kon jen´ih tul] Existing before or at birth.

**consortium** An NCI-funded network of hospital and physicians established to evaluate new treatments in Phase I and Phase II clinical trials. NABTT (New Approaches to Brain Tumor Therapy), NABTC (North American Brain Tumor Consortium) and PBTC (Pediatric Brain Tumor Consortium) are brain tumor specific consortia.

**contralateral** [kon trah lat´ur al] Affecting the opposite side.

**contrast enhancing portion** “Contrast” materials are the dyes used to make parts of the brain more obvious than others on scan. Contrast dyes create a difference of signal intensities, resulting in some tissues being displayed differently on the scan images. The portion of the tumor absorbing the dye, called the “contrast-enhancing portion” of a tumor, may be more dense than surrounding tissue, and will therefore stand out more in an MRI. Contrast enhancement is linked to breakdown of the blood-brain barrier and angiogenesis.

**control group** Patients receiving standard treatment. In clinical trials, the control group is compared to the group that received an investigational treatment.

**convection-enhanced delivery** A technique used to deliver a drug directly into the area of a tumor using the principles of constant pressure to “flow” substances. Following placement of catheters by a neurosurgeon to the desired area of the brain, a drug is delivered continuously through the catheters for the number of days specified by the study design. *Abbreviated CED.*

**conventional fractionation** A schedule for delivering radiation therapy. For brain tumors, usually defined as one fraction per day of 180 to 200 cGy, five times a week, for six weeks, for a total dose of 5400 to 6000 cGy.

**conventional medicine** The mainstream medical care practiced at most hospitals in the United States. Standards of care are set by government and regulatory agencies, and by individual health insurance companies.

**conventional radiation therapy** External beams of energy aimed at the tumor and delivered in daily fractions over a long period of time.

**convex** [kon veks´] Having a rounded surface, like the following: ☺

**convexity** [kon veks´ ih tee] The rounded, protruding surfaces of the brain.

**convulsion** A sudden attack that causes a wide range of unusual movements, behaviors and sensations; caused by abnormal electrical activity in the cerebral hemispheres of the brain. *Also called seizure.*

**cooperative group** A group of physicians and/or medical institutions cooperating to investigate new treatments. Because of the relative rarity of brain tumors, most hospitals or medical centers could not enter sufficient numbers of patients into a protocol (clinical trial) to derive meaningful data or it would take a very long time to do so. Cooperative groups and consortia were created by the National Cancer Institute so that new treatments could be evaluated quickly. *Also called clinical cooperative group.*

**coronal** [kor o´ nul] Circular. In scans, an image of the top of a thin layer of the brain showing both the right and left sides.

**corpus callosum** [kor´ pouz • ka los´ sum] Nerve fibers deep in the brain that pass through and connect the two halves of the cerebral hemispheres.

**cortical** Refers to the cerebral cortex which is also called the cerebral hemisphere.

**corticosteroids** [kor tih ko stair´ oidz] Medications used to decrease swelling and inflammation around tumors. *Also called glucocorticosteroids, or more commonly, steroids.*

**CR Complete Response.** As a result of treatment, the tumor can no longer be seen on scans. *Also called complete remission.*

**CRA Clinical Research Associate.**

**cranial cavity** [kray´ nee ul • kah´ vih tee] The skull.

**cranial nerves** [kray´ nee ul] Twelve pair of nerves, numbered from one to twelve. A part of the Central Nervous System.

**1st cranial nerve** Olfactory nerve, cranial nerve I. A pair of nerves for the sense of smell. Nerve endings in the nose send odor information to the brain.

**2nd cranial nerve** Optic nerve, cranial nerve II. A pair of nerves for the sense of sight. Nerve endings in the retina of the eyes send visual information to the brain.

**3rd cranial nerve** Oculomotor nerve, cranial nerve III. A pair of nerves that controls the muscles that control pupil size and move the eyes up, down, up sideways and the upper eyelid. Originates in the midbrain.

**4th cranial nerve** Trochlear nerve, cranial nerve IV. A pair of nerves that controls the muscles that move the eyes down and sideways. Originates in the midbrain.

**5th cranial nerve** Trigeminal nerve, cranial nerve V. A pair of nerves with three divisions: the ophthalmic division carries sensory information from the scalp, membranes of the nose, and parts of the eye to the brain; the maxillary division carries sensory information from the roof of the mouth, upper lip, jaw and teeth to the brain; the mandibular division carries sensory information and controls the muscles of chewing and a muscle of the middle ear. Originates in the pons.

**6th cranial nerve** Abducens nerve, cranial nerve VI. A pair of nerves that controls the muscles that move the eye sideways. Originates in the pons.

**7th cranial nerve** Facial nerve, cranial nerve VII. A pair of nerves with two divisions: one division carries taste information from the front 2/3 of the tongue; the other division controls muscles of the face, scalp and middle ear and the secretion of saliva and tears. Originates in the pons.

**8th cranial nerve** Acoustic nerve, vestibulocochlear nerve, cranial nerve VIII. A pair of nerves with two divisions: the vestibular division carries information about balance and position to the brain; the cochlear division carries information about hearing to the brain. Originates in the pons.

**9th cranial nerve** Glossopharyngeal nerve, cranial nerve IX. A pair of nerves that carries taste information from the rear 1/3 of the tongue to the brain, controls the muscles of swallowing in the throat and the secretion of saliva from the parotid gland. Originates in the medulla oblongata.

**10th cranial nerve** Vagus nerve, cranial nerve X. A pair of nerves that carries sensory information from the throat and windpipe to the brain, and controls the muscles of the throat, windpipe, heart, lungs, stomach, bowels and part of the ear. Originates in the medulla oblongata.

**11th cranial nerve** Accessory nerve, cranial nerve XI. A pair of nerves that controls the large muscles of the neck. Originates in the medulla oblongata.

**12th cranial nerve** Hypoglossal nerve, cranial nerve XII. A pair of nerves that controls the muscles of the tongue. Originates in the medulla oblongata.

**craniectomy** [kray nee ek´ toe me] Surgery performed on the skull during which pieces of bone are removed to gain access to the brain, and the bone pieces are not replaced at the end of the operation.

**craniopharyngioma** [kray´ nee o fah rin jee o´ ma] A benign tumor arising from small nests of cells located near the pituitary stalk. About sixty percent of craniopharyngiomas occur in patients older than sixteen. There are two types: adamantinomatous and squamous-papillary.

**craniotomy** [kray ne ot´ o me] Surgery performed on the skull during which pieces of bone are removed to gain access to the brain, and the bone is replaced at the end of the operation.

**cranium** The top portion of the skull. It encloses the brain and is composed of the ethmoid, frontal, sphenoid, temporal, parietal and occipital bones.

**cribriform plate** [krib´ ri form] The flat, perforated part of the ethmoid bone.

**CRT chemoradiation.** Combined modality therapy with radiation and chemotherapy.

**CRT Conformal Radiation Therapy.** Radiation beams are shaped to match the tumor. The shaping is accomplished by special equipment and special computer programs. *Also called 3D-CRT.*

**CSF Cerebrospinal Fluid.**

**CSF Colony-Stimulating Factor.**

**CT or CAT scan** Computed Tomography or Computed Axial Tomography. An x-ray device linked to a computer that produces an image of a predetermined cross-section of the brain. A special dye material might be injected into the patient's vein prior to the scan to help make any abnormal tissue more evident.

**CTC** Common Toxicity Criteria.

**CTEP** Cancer Therapy Evaluation Program, Division of Cancer Treatment & Diagnosis, National Cancer Institute. CTEP administers the Clinical Cooperative Groups funded by the National Cancer Institute.

**CXR** Chest x-ray.

**CyberKnife** Brand name of a machine used to deliver linear accelerator stereotactic radiosurgery.

**cyst** [sist] A fluid filled sac, similar to a balloon filled with water. Cysts occurring in the brain include the arachnoid cyst, colloid cyst, dermoid cyst and epidermoid cyst.

**cytokines** [sigh´ toe kynez] Part of the immune system, cytokines are biologic response modifiers. Both lymphokines and monokines are cytokines — powerful chemical substances secreted by special cells. T lymphocytes secrete lymphokines and monokines are produced by monocytes and macrophages.

**cytoreductive** [sigh´ toe re duct ive] Adjective form of cytoreduction. Literally, the reduction in the number of cells. Cytoreductive surgery is otherwise known as 'debulking,' and describes the surgical removal of as much as possible of a malignant tumor.

**cytostatic** [sigh toe stat´ ik] Capable of inhibiting the growth and multiplication of tumor cells.

**cytotoxic** [sigh toe tok´ sic] Capable of killing cells.

**cytotoxic T cells** [sigh toe tok´ sic] A subset of T lymphocytes that can kill body cells transformed by cancer or infected by viruses.

**dc** Discontinue. A healthcare professional's note to discontinue some medication or treatment.

**DCLG** Director's Consumer Liaison Group. The National Cancer Institute's patient/consumer advisory group.

**DDS** Doctor of Dental Science degree.

**DEA** Division of Extramural Activities of the National Cancer Institute.

**DEA** Drug Enforcement Administration of the US Department of Justice.

**debulk** [dee bulk´] A surgical procedure to reduce the size of a tumor by removing some portion of it; to remove dead tissue resulting from treatment.

**decompressive** [dee kom pres´ sive] Refers to a surgical procedure during which bone, tissue, or tumor is removed to lessen intracranial pressure.

**dedifferentiate** [dee dif fur en´ she ate] A mature cell returning to a less mature state.

**deliver** The method and route used to provide medication, for example, PO (by mouth), IV (intravenous), IM (intramuscular), intrathecal, intratumoral, spinal. Also called drug delivery.

**demyelination** [dee my linn ay´ shun] Loss of the myelin sheath of a nerve. The myelin sheath insulates the nerve and its loss interferes with electrical impulses between nerves.

**dendritic cells** A type of white blood cells that processes new antigens and then primes the immune system by its interactions with T cells and B cells to stimulate the body's immune response.

**density** [den´ sih tee] The amount of darkness or light in an area of a scan reflects the compactness and density of tissue. Differences in tissue density are the basis for CT and MR scans.

**dermatitis** [dur ma tie´ tis] Inflammation of the skin.

**dermoid cyst** [dur´ moyd • sist] A cyst is a fluid-filled sac, similar to a balloon filled with water. The dermoid cyst is almost always benign, and more common in the spine than in the brain in adults. The incidence in the brain is greatest in children under the age of ten.

**descending tract** The bundle of nerves running from the brain to the spinal cord that controls muscles and movement.

**device, medical** An instrument, machine, implant or similar article that is intended for use in the diagnosis, treatment, or prevention of disease. They can be anything from a thermometer to an artificial heart to an at-home pregnancy test.

**dexamethasone** Commonly used corticosteroid to decrease swelling around brain tumors. Mood changes, increased appetite, hyperactivity, and diabetes are some of the side effects.

**DHHS** US Department of Health & Human Services. This department is the federal government's principal agency for protecting the health of Americans and providing essential human services. Among its agencies are the National Institutes of Health (NIH), the Food and Drug Administration (FDA), Centers for Medicare & Medicaid Services (CMS), and the Centers for Disease Control (CDC) Also abbreviated *HHS*.

**diabetes insipidus** [di ah be´ tez • in sip´ id us] A problem with water balance in the body that causes excess urine production and great thirst due to pituitary-hypothalamic damage. Diabetes mellitus, which has the same symptoms but is far more common, is due to insufficient insulin production by the pancreas.

**diagnosis** [die ag no´ sis] The identity of a disease, decided by its signs and symptoms.

**dietician** A professional trained in diet and nutrition.

**differentiate** [dif fur en´ she ate] The process cells undergo as they mature into normal cells. Differentiated cells are normal cells, have distinctive characteristics, perform specific functions, and are less likely to divide.

**differentiators** Drugs used to make cancer cells more differentiated (or normal) are called differentiating agents.

**diffuse** [dif fuse´] Lacking a distinct border, not localized, spread out.

**diffuse brain stem glioma** A brain stem glioma that is invasive or poorly delineated. They represent about 60–70% of all brain stem tumors and often have a rapid onset of symptoms. The majority of these tumors are fibrillary or anaplastic gliomas.

**digestive system, digestive tract** The organs in the body that take in food and turn it into products the body uses to function and stay healthy. Waste products leave the body through bowel movements and urination. The digestive system includes the salivary glands, mouth, esophagus, stomach, liver, pancreas, gallbladder, intestines and rectum.

**DIPG** Diffuse Intrinsic Pontine Glioma. A Tumor growing within the pons, which is part of the brain stem.

**diploid** [dip´ loyd] A cell having two full sets of chromosomes, the normal number for human cells. Eggs and sperm contain a single set of chromosomes (haploid).

**diplopia** [dih plo´ pee ah] Double vision.

**direct cortical stimulation** A technique using a probe to pass a tiny electrical current to delicately stimulate a specific area of the brain. This causes a visible movement of the corresponding body part. Used to pre-determine the function of critical areas of brain tissue so those areas can be avoided during surgery and more extensive tumor removal can be achieved.

**distal** [dis´ tull] Located far from the reference point, the opposite of proximal.

**DMC** Data Monitoring Committee.

**DMD** Doctor of Dental Medicine degree.

**DNA** Deoxyribonucleic Acid [dee oks´ ee rye bow new clay´ ik] The material which makes up chromosomes and genes.

**DNP** Doctorate of Nursing Practice.

**DNR** Do Not Resuscitate.

**DO** Doctor of Osteopathy degree.

**DOD** Department of Defense (of the US government).

**DOE** Department of Energy (of the US government).

**dose-rate** The quantity of a treatment given over a period of time, e.g., 10cc per hour.

**double-blind study** A clinical trial where neither the doctor nor the patient knows which drug is being given. In a single-blind study, the patients don't know which treatment they are receiving but the doctors do.

**doubling time** The time it takes a cell to complete the cell cycle; the time it takes a cell to produce daughter cells.

**drug delivery** The method and route used to provide medication, for example, PO (by mouth), IV (intravenous), IM (intramuscular), intrathecal, intratumoral, spinal.

**drug resistance** Failure of cancer cells to respond to chemotherapy.

**DSc** Doctor of Science degree.

**dura mater** [du´ rah • ma´ tur] The outermost, toughest, and most fibrous of the three membranes (meninges) that cover the brain and spinal cord. *See meninges.*

**DVM** Doctor of Veterinary Medicine degree.

**DX, dx** Diagnosis.

**dynamic CT** or **dynamic MRI** CT or MRI combined with measuring the uptake of a contrast dye. Especially useful in showing the growth of new blood vessels around a tumor.

**dysarthria** [dis ar´ three ah] Impairment of speech (articulation), caused by damage or disorder of the tongue or speech muscles. A symptom that can indicate pressure on the brain stem or elsewhere in the posterior fossa.

**dysembryoplastic neuroepithelial tumor** [dis em bree o plas´ tik • nur´ o ep ih thee´ lee al] A grade I tumor that most commonly occurs in people under the age of twenty. When examined under a microscope, the tumor resembles an oligodendroglioma. *Abbreviated DNT.*

**dysfunctional** Working improperly or abnormally.

**dysphagia** [dis fay´ gee ah] Difficulty in swallowing or inability to swallow. This symptom usually indicates tumors involving the lower brain stem.

**dysphasia** [dis fay´ zee ah] Language disorder. Inability to speak words which one has in mind or to think of correct words, or the inability to understand spoken or written words. Symptom common to tumors of the dominant cerebral hemisphere, particularly the frontal, temporal, and parietal lobes.

**dysplasia** [dis play´ zee ah] Cells that are abnormal in size, shape and organization.

**dyspnea** [disp nee´ ah] Difficult, painful breathing or shortness of breath.

**e.g.** For example.

**EBRT** External Beam Radiation Therapy. This acronym is used to distinguish the most common type of radiation, as opposed to interstitial radiation (which employs radiation implants), or radiosurgery.

**echoplanar MRI** This technique produces MRI images in a faster sequence than traditional MRIs. The increased speed permits the tumor's use of oxygen to be depicted. *Also called functional, "real time," or fast MRI.*

**edema** [eh dee´ ma] Swelling caused by an excess of water.

**efficacy** [ef´ ih ka see] Able to achieve the desired results, produce beneficial effects.

**EGFR** An acronym for epidermal growth factor receptor, a protein found on the surface of some cells and to which epidermal growth factor binds, causing the cells to divide. It is found at abnormally high levels on the surface of many types of cancer cells, so these cells may divide excessively in the presence of epidermal growth factor. *Also called epidermal growth factor receptor, ErbB1, and HER1.*

**eloquent** [elo kwent] Refers to sections of the brain that control vital functions such as speech, motor functions, and vision. Tumors in the "eloquent areas" of the brain have higher risks, and may require mapping procedures.

**embolization** [em bol ih zay´ shun] Used to reduce the amount of blood supply to a tumor, it involves blocking the flow of blood in selected arteries.

**embryonal carcinoma** [em bree on´ al • kar sih no´ ma] A germ cell tumor. Germ cell tumors begin in the cells that give rise to sperm or eggs. They can occur anywhere in the body. Germ cell tumors of the brain most commonly occur in the pineal or suprasellar regions.

**embryonic** [em bree on´ ik] Undeveloped, related to the embryo.

**emesis** [em´ ih sis] Vomiting.

**encapsulated** [en kap´ sue lay ted] Refers to a tumor that is wholly confined to a specific area, surrounded by a capsule. Localized.

**encephalopathy** [n seff ah lopp´ ah thee] A loss of function in tissue of the brain; can be due to a wide variety of causes. *See leukoencephalopathy.*

**endocrine dysfunction** [en´ doe krin] With brain tumors, can refer to an increase, decrease or absence of hormone production by the pituitary gland. Symptoms depend on which hormone is affected and whether it is increased or decreased.

**endocrine system** [en´ doe krin] The tissues or glands in the body that secrete hormones into the circulatory system.

**endocrine therapy** [en´ doe krin] Treatment by removing, blocking or adding hormones. *Also called hormone therapy.*

**endocrinologist** A physician trained in diagnosing and treating disorders of hormone-secreting (endocrine) organs. These organs include the thyroid, parathyroid and adrenal glands, the pituitary, the pineal body and the gonads.

**endoscopy** [en dos´ ko pee] A procedure using an endoscope. An endoscope is a long, narrow, flexible tube that provides the surgeon with light and visual access as it is inserted and directed to the target area. The neuro-endoscope is particularly useful for surgery involving a ventricle: to correct a malfunctioning shunt; to

remove scar tissue blocking a shunt; or to remove intraventricular tumors. It is also useful during cyst removal.

**enhancement** Use of a dye that makes abnormal tissue more obvious during CT or MRI scans.

**enteral** [en´ tur al] Something which enters the body by way of the intestines such as by eating or drinking. When referring to medication, it is the opposite of parenteral, something that bypasses the intestines, e.g., medicine given through a vein.

**entry criteria** The conditions which must be met for a patient to enroll in a clinical trial. Usually includes the specific types of tumor, previous treatment allowable, age range and overall health requirements.

**enzyme** [en´ zime] A protein substance, secreted by certain cells, that stimulates chemical changes in the body without itself being changed. For example, the enzymes produced in the mouth and stomach are crucial for digestion.

**EORTC** European Organization for Research and Treatment of Cancer. A network of scientists and oncologists in the main cancer research institutions of the EU countries. They conduct clinical trials throughout Europe.

**eosinophil** [ee o sin´ o fil] The type of white blood cell (leukocyte) normally filled with granules containing potent chemicals. The chemicals cause inflammatory reactions or allow cells to digest microorganisms such as bacteria.

**ependymoblastoma** [ep en´ dih moe blas toe´ ma] A rare, grade IV tumor, most common in children. It might be classified as a PNET (primitive neuroectodermal tumor) by some. *See ependymoma.*

**ependymoma** [ep en´ dih moe´ ma] This tumor arises from the ependymal cells that line the ventricles and central canal of the spinal cord. It represents about 10% of all childhood brain tumors and also occurs in adults.

**epidemiology** [ep ih dee me ol´ o gee] The study of the distribution of disease and its impact upon a population, using measures such as incidence, prevalence, or mortality.

**epidermoid cyst** [ep ih dur´ moyd] A cyst is a fluid-filled sac, similar to a balloon filled with water. The epidermoid cyst is usually benign, but will slowly recur if not removed completely. It occurs more frequently in the brain than in the spine and is most common in middle-aged adults.

**epidural** [ep ih dur´ al] The space between the wall of the spinal canal and the outermost covering (dura mater) of the spinal cord. An epidural injection is given into this space.

**epilepsy** [ep´ ill ep see] Recurrent seizures. A seizure is a sudden change in the electrical activity within the brain that causes a wide range of unusual movements, behaviors and sensations.

**epithelial** [ep ih thee´ lee ul] Refers to cells that line the internal and external surfaces of the body, including the skin.

**equipoise** [eh´ kwi poyz] Uncertainty as to whether a new treatment is effective; the rationale for investigating a new treatment.

**ER** Emergency Room.

**ERISA** Employee Retirement Income Security Act of 1974. This act governs employment or union membership benefits, including disability, health, life insurance, pension and severance.

**erythema** [air ih theme´ ma] Red, inflamed skin.

**esophagitis** [ee sof ah ji´ tiss] Inflammation of the mucous membrane in the esophagus, a sometime side-effect of chemotherapy. One form of mucositis.

**estrogen receptor** [ess´ tro jen] A protein found on some cells to which the hormone estrogen will attach.

**etiology** [ee tee ol´ o gee] The study of the cause of a disease.

**evoked potentials** The use of electrodes to measure the electrical activity of nerves. Can be used as a guide during surgical removal of tumors growing around important nerves.

**exophytic brain stem glioma** [ek so fit´ ik] A brain stem glioma that grows outward into the

fourth ventricle. Symptoms are due to an increase in intracranial pressure caused by blockage of the flow of fluid from the ventricle.

**external radiation** Radiation therapy that uses a machine to aim high-energy rays at a cancer. Also called *external beam radiation*.

**extracerebral** [eks trah seh ree´ bral] Located outside the cerebral hemispheres.

**extradural** [eks trah du´ ral] External (outside) to the dura mater.

**extramedullary** [eks´ tra med´ you lair ee] “Extra” means outside. “Medulla” commonly refers to the medulla oblongata or its extension, the spinal cord. In reference to a tumor in the spine, extramedullary means that the tumor is located between the meninges and the surface of the spinal cord.

**extramural research, National Cancer Institute** This research is proposed and conducted by non-government scientists in laboratories and clinical facilities throughout the country. About two thirds of the NCI budget is devoted to extramural research project funding.

**extrinsic brain stem glioma** [ek strin´ sik • glee o´ ma] A brain stem glioma that grows out from the brain stem. These are often focal tumors and most commonly pilocytic astrocytomas or gangliogliomas.

**FACE** Functional Assessment of Changes in Elimination scale. A quality of life measurement tool.

**FACS** Fellow of the American College of Surgeons.

**FACT BR** A simple set of questions about a patient’s quality of life. This neuropsychological instrument may be one of the tools used in evaluating a new treatment.

**facial nerve** 7th cranial nerve.

**falx cerebri** [falks • sair ee´ bry] The fold of dura mater in the fissure between the cerebral hemispheres. Also called *the falcine area* [fall seen´].

**falx** [falks] Two major folds of dura mater in the cranial cavity, the large falx (falx cerebri) is between the cerebral hemispheres and the small falx is between the halves of the cerebellum.

**familial** [fa mil´ ee ul] Tending to occur repeatedly in family members, but is not genetic (inherited). Might indicate susceptibility to a common environmental influence or a shared exposure.

**fast MRI** This technique produces MRI images in a faster sequence than traditional MRIs. The increased speed permits the tumor’s use of oxygen to be depicted. This technique is important because it depicts an area of the brain “lighting up” when the patient performs a task, such as moving a finger, or speaking. In this way, brain maps of functional areas are generated, useful for preoperative surgical planning and intraoperative avoidance of functional or “eloquent” areas of the brain. Also called *functional*, “*real time*,” or *echoplanar MRI*.

**fatigue** [fuh´ teeg] Extreme tiredness, weariness, a feeling of being drained. Decreased ability to respond.

**FDA** Food and Drug Administration. An agency of the US Department of Health & Human Services (DHHS).

**FDAMA** Food and Drug Administration Modernization Act. Passed by Congress in 1997, FDAMA revamps and reforms many procedures and programs of the FDA. It also mandates the creation of a database of all clinical trials. Access online at [www.clinicaltrials.gov](http://www.clinicaltrials.gov)

**FDG-PET** Low-dose radioactive sugar (FDG) with Positron Emission Tomography. This type of scan is used to measure brain activity. Most useful in suggesting tumor grade or distinguishing between recurrent tumor and cells killed by radiation.

**fellow** A doctor who has completed medical school, internship and a residency, and has chosen to receive very specialized training in one particular treatment or research area. Also used to indicate membership in a learned society.

**fellowship** Salary or other financial support for a fellow.

**fibrillary astrocytoma** [fi´ brih lair ee • as tro sigh toe´ ma] A grade II, infiltrating, but relatively slow growing tumor. Diffuse brain stem tumors and optic gliomas are frequently fibrillary astrocytomas.

**flow sensitive MRI** [FS MRI] A scan that combines functional MRI with images of cerebrospinal fluid flow through the ventricles and, if needed, the spinal cord.

**FISH test** Acronym for **F**luorescence **I**n **S**itu **H**ybridization, this laboratory technique is used to look at genes or chromosomes in cells and tissues. Pieces of DNA that contain a fluorescent dye are made in the laboratory and added to cells or tissues on a glass slide. When these pieces of DNA bind to specific genes or areas of chromosomes on the slide, they light up when viewed under a microscope with a special light.

**focal** [foe´ kal] Limited to a specific area.

**focal brain stem glioma** [foe´ kal] A localized tumor of the brain stem. These tumors represent about ten to twenty percent of all brain stem tumors. They can be solid or cystic, and can occur in any part of the brain stem.

**focal radiation** [foe´ kal] High dose radiation delivered to an area just encompassing the tumor. Interstitial radiation and stereotactic radiosurgery (SRS) are two types of focal radiation.

**focal seizure** [foe´ kal] Also called partial seizures, these affect only one part of a cerebral hemisphere and symptoms depend on the specific part involved. There are two types: simple partial and complex partial.

**focal symptom** [foe´ kal] A symptom that helps identify the location of a tumor. The effect on a specific area of the brain.

**foci** [foe´ sigh] The origin or center of a disseminated disease.

**foramen** [foe ray´ men] An opening through a bone or membrane. The foramen magnum (literally, the large opening) is the hole in the occipital bone through which the spinal cord enters the skull and continues as the medulla oblongata.

**foramen of Monro** [foe ray´ men] The opening through which cerebrospinal fluid flows from the lateral ventricles to the third ventricle. *Also called interventricular foramen.*

**formulary** A limited list of medications approved by a hospital, an insurance company, etc. for use.

**fourth ventricle** A fluid-filled cavity located in the posterior fossa, it is an extension of the central canal of the medulla oblongata and connects to the third ventricle via the cerebral aqueduct.

**fractionated** Dividing the total dose of radiation to be given into several smaller, equal portions delivered over a period of days or weeks. Each portion is called a fraction.

**frontal lobe** One of the four sections of the cerebral hemisphere.

**frontal sinus** A hollow in the lower part of the frontal bone that communicates with the nasal cavity.

**FS MRI** **Flow Sensitive MRI.** A scan that combines functional MRI with images of cerebrospinal fluid flow through the ventricles and, if needed, the spinal cord.

**FSRS** **Fractionated Stereotactic Radio Surgery.** A radiation therapy technique that uses a large number of narrow, precisely aimed, highly focused beams of ionizing radiation, delivered in divided doses over a period of time (fractionated). The beams are aimed from many directions circling the head to meet at the tumor.

**FTE** **Full Time Equivalent** (employee).

**functional** Refers to function (performance) as opposed to form (structure).

**functional MRI** This technique produces MRI images in a faster sequence than traditional MRIs. The increased speed permits the tumor's use of oxygen to be depicted. This technique is important because it depicts an area of the brain "lighting up" when the patient performs a task such as moving a finger, or speaking. In this way, brain maps of functional areas are generated, useful for preoperative surgical planning and intraoperative avoidance of functional or "eloquent" areas of the brain.) *Also called echoplanar, "real time," or Fast MRI.*

**FUO** **Fever of Unknown Origin.**

**gait** [gate] Pattern of walking.

**Gamma Knife** Brand name of a machine that delivers stereotactic radiosurgery (SRS), a focal form of radiation therapy.

**ganglia** [gang´ lee ah] A mass of nerve tissue (gray matter), or a group of nerve cell bodies. Also refers to specific groups within the brain or spinal cord (as basal ganglia). Ganglion is the singular of ganglia.

**gangliocytoma** [gang´ lee o sigh toe´ ma] A rare, benign tumor arising from ganglia-type cells, which are groups of nerve cells. Most frequently occurs in children and young adults. *Also called a ganglioneuroma.*

**ganglioglioma** [gang´ lee o glee o´ ma] A rare, benign tumor arising from mature nerve and supportive cells.

**ganglioneuroma** [gang´ lee o nur o´ ma] A rare, benign tumor arising from ganglia-type cells, which are groups of nerve cells. Most frequently occurs in children and young adults. *Also called a gangliocytoma.*

**GAO** **US Government Accounting Office.**

**gastrointestinal tract** [GI] The stomach and intestines. *See digestive system.*

**GBM** **Glioblastoma.** A grade IV astrocytoma that commonly invades adjacent tissue and can spread widely within the brain. Its hallmark is areas of dead tumor cells (necrosis) found within the tumor. The GBM represents about one-quarter of all primary brain tumors.

**gemistocytic astrocytoma** [je miss toe sih´ tik • as tro sigh toe´ ma] A subtype of the astrocytoma, this tumor contains gemistocytes — plump glial cells that have undergone apoptosis. Their presence is associated with more frequent recurrences and progression to a higher grade of tumor.

**gene** The unit of heredity found on a chromosome, genes are pieces of DNA that contain the information to perform a specific function. Each gene occupies a specific location on a chromosome.

**gene amplification** The number of copies of a gene is increased; often seen in malignant cells.

**gene deletion** The absence of a specific gene on a chromosome.

**gene therapy** Treatment that seeks to replace or repair defective or abnormal genes; biologic response modification.

**generalized seizure** Refers to several types of seizures: absence seizure; atonic seizure; tonic-clonic seizure; myoclonic seizure.

**generic** [je ner´ ik] A drug not protected by a trademark. Also, the scientific name as opposed to the proprietary, brand name.

**genesis** [jen´ eh sis] The beginning of a process.

**genetic** [je net´ ik] Inherited. Passed from parents to children through genes in sperm and egg cells.

**genetic markers** Alterations in DNA that might indicate an increased risk of developing a disease, or are associated with the presence of a disease.

**genome** [je´ nome] A complete set of chromosomes.

**germ cell** A sperm or egg; a sex cell; a cell whose purpose is to reproduce the organism.

**germ cell tumors** Tumors that begin in the cells that give rise to sperm or eggs. They can occur anywhere in the body and can be either benign or malignant. Germ cell tumors of the brain arise in the pineal or suprasellar regions. They include the germinoma, the teratoma, the embryonal carcinoma and yolk sac (endodermal sinus) tumors, and the choriocarcinoma. Mixed germ cell tumors also exist.

**germinoma** [jer mih no´ ma] The most frequent tumor of the pineal region and the most common type of germ cell tumor in the brain. It typically occurs in the pineal or suprasellar region of the brain.

**GFAP** **Glial Fibrillary Acidic Protein.** This protein, found in microfilaments of glial cells, helps distinguish glial from non-glial tumors. A laboratory stain is used to test for its presence.

**giant cell glioblastoma** A variant of the glioblastoma tumor.

**gigantism** A disorder in children due to an excessive amount of growth hormone. Growth hormone, also called somatotropin, is secreted by the anterior lobe of the pituitary gland. A hormone secreting pituitary adenoma, a type of benign brain tumor, can cause this condition. In adults who have achieved their full height, excessive growth hormone causes acromegaly.

**gland** An organ of the body that produces materials (hormones) released into the bloodstream, such as the pituitary or pineal gland. Hormones have a widespread effect on the body and can influence metabolism and other body functions. Part of the endocrine system.

**Glasgow Coma Scale** A means of describing the severity of brain impairment. Can the individual respond verbally? Do the eyes open responsively? Is there a response when you speak the person's name, when you ask them to squeeze your hand, if you pinch their arm? *Abbreviated GCS.* The scale is from 3 (the lowest) to 15 (the highest) A score of 3 is a deep coma. A score of 15 is a very light coma with a much better prognosis.

**Gleevec** *See imatinib mesylate.*

**glia** [glee´ ah] Supportive tissue of the brain, includes astrocytes, oligodendrocytes, ependymal cells and microglia. Unlike neurons, glial cells do not conduct electrical impulses; and they can reproduce. The largest percentage of brain tumors arise from glia. *Also called glial tissue, glial cells, neuroglia.*

**Gliadel** Brand name of a biodegradable polymer wafer used to deliver BCNU chemotherapy.

**GliaSite RTS** Brand name of a balloon and catheter device used to deliver a form of interstitial radiation.

**glioblastoma** [glee o blas toe´ ma] A grade IV astrocytoma that commonly invades adjacent tissue and can spread widely within the brain. Its hallmark is areas of dead tumor cells (necrosis) found within the tumor. The glioblastoma represents about one-quarter of all primary brain tumors. *Abbreviated GBM.*

**glioma** [glee o´ ma] A general name for tumors that arise from the supportive tissue (called glial or neuroglial tissue) of the brain; they are a common primary brain tumor. Astrocytomas, ependymomas, oligodendrogliomas, and tumors with mixtures of two or more of these cell types are the most common gliomas.

**gliomatosis cerebri** [glee o ma toe´ sis • ser ee´ bry] This tumor is similar to glioblastoma, but the cells of gliomatosis cerebri are more scattered and widespread. It also lacks the necrotic center of the glioblastoma.

**gliosarcoma** [glee o´ sar ko´ ma] A variant of the glioblastoma tumor.

**gliosis** [glee o´ sis] An increase in quantity of neuroglia supportive cells of the brain.

**glomus jugulare** [glow´ mus • jug you lair´ ee] These usually benign, slow growing tumors are very rare. They widely invade the temporal bone and are the most common tumor of the middle ear. Glomus jugulare tumors occur most often in women in their 50s.

**glossopharyngeal nerve** [glos´ o fa rin´ je al] 9th cranial nerve.

**glucocorticosteroids** [glu ko kor tih ko stair´ oid] Medications used to decrease swelling and inflammation around tumors. Commonly called “steroids.” Example: **Decadron** [dek´ ah dron] a proprietary name for Dexamethasone.

**GM-CSF Granulocyte-Macrophage Colony-Stimulating Factor.** A substance that stimulates the production of white blood cells, especially granulocytes and macrophages.

**grade** A number from I (one) to IV (four) that indicates a tumor’s degree of malignancy, with IV being the most malignant.

**grading** A system for classifying tumors in terms of how abnormal they appear when examined under a microscope. The purpose of a grading system is to provide information about the probable growth rate of the tumor and its tendency to spread. This information is used in treatment planning and facilitates communication between the various healthcare specialists involved in the treatment.

**grand mal seizure** A type of generalized seizure, it causes a loss of consciousness, followed by tonic (twitching) and clonic (relaxing) muscle contractions. *Also called tonic-clonic seizure.*

**grant** Money given for a specific purpose, such as a research project.

**granulocyte colony-stimulating factor** A substance that stimulates the production of blood cells, especially platelets. It is a cytokine. *Abbreviated G-CSF.*

**granulocyte** [gran´ you low site] A white blood cell filled with granules containing potent chemicals that allow the cells to digest microorganisms, such as bacteria, or to produce inflammatory reactions. Neutrophils, eosinophils and basophils are granulocytes.

**Gray** Ionizing radiation is measured by the amount of energy the body absorbs, and the unit of measurement is the Gray (Gy) Other units include the centiGray (cGy) and the rad. One cGy equals one rad. One hundred cGy equals one Gray. For example, 60 Gy equals 6,000 cGy equals 6,000 rad. (The term rad is no longer used, but it is still found in the medical literature).

**gray matter** Gray matter, the “thinking brain,” appears gray because it is composed of numerous nerve cells and blood vessels. The outer layer of the cerebrum — the cerebral cortex, and areas deep within the brain — the basal ganglia, are made up of gray matter. *See white matter.*

**GRID** *See SFR (Spatially Fractionated Radiation)*

**growth factor** Several naturally occurring proteins that promote cell growth. They are produced by normal cells during embryonic development, tissue growth, and wound healing. Tumors, however, produce large, inappropriate amounts of growth factor. Manipulating growth factors or their receptors and the effects of doing so is the focus of much research.

**growth hormone** Stimulates growth; produced by the pituitary gland. If deficient, can be provided by replacement therapy. *Also called somatotropin.*

**GTV** Gross Tumor Volume.

**Gy** [Gray] Ionizing radiation is measured by the amount of energy the body absorbs, and the unit of measurement is the Gy. Others units include the centiGray (cGy) and the rad. One cGy equals one rad. One hundred cGy equals one Gy. For example, 60 Gy equals 6,000 cGy equals 6,000 rad. (The term rad is no longer used, but it is still found in the medical literature).

**gyrus** [ji´ rus] An interior, convoluted folding or ridge of the surface of the cerebral cortex. The precentral gyrus is a fold of the frontal lobe and the postcentral gyrus is a fold of the parietal lobe.

**H & N cancers** Head & Neck cancers. Cancers of the larynx, oral cavity and tongue, nose and sinuses, lips, thyroid and parathyroid glands and salivary glands.

**HCFA** Healthcare Finance Administration (Medicare). This agency became the Centers for Medicare & Medicaid Services (CMS).

**HCG** Human Chorionic Gonadotropin. A germ cell tumor marker found in the cerebrospinal fluid and blood.

**head and neck cancer** Cancers of the larynx, oral cavity and tongue, nose and sinuses, lips, thyroid, parathyroid glands and salivary glands. *Abbreviated H & N.*

**helper T cells** A subset of T cells that usually carry the T4 marker and are essential for turning on antibody production, activating cytotoxic T cells, and initiating many other immune responses.

**hemangioblastoma** [he man´ jee o blas toe´ ma] This benign, tumor-like mass arises from blood vessels and is often cystic. It represents about 2% of all primary brain tumors. Lindau disease or von Hippel-Lindau disease is an inherited condition which predisposes to this tumor and kidney cancer.

**hemangioma** [he man´ jee o´ ma] A congenital abnormality, it is a mass of overgrown blood vessels that resembles a tumor.

**hemangiopericytoma** [he man´ jee o pear ih sigh toe´ ma] This is a rare, grade II or grade III tumor, different from the meningioma although

arising from the same cells. It is attached to the dura mater (the outermost layer of the meninges) and does not usually invade the brain itself.

**hematogenous** [hem´ ah toj´ en us] Originating in the blood or spread through the bloodstream.

**hematopoiesis** [he´ ma toe poy ee´ sis] The formation and development of blood cells. *Also called hemopoiesis.*

**hematoporphyrin derivative** [he ma toe pour´ fih rin] A drug used in photodynamic radiation therapy (PDT) that is absorbed by tumor cells and, when exposed to light, becomes active and kills those cells.

**hemianopsia** [hem ee an op´ see ah] Loss of one half of the field of vision (the area that can be seen by each eye when staring straight ahead).

**hemiparesis** [hem ee pah ree´ sis] Muscle weakness on one side of the body.

**hemiplegia** [hem ee plee´ je ah] Complete paralysis of one side of the body.

**hereditary** [heh red´ ih tair ee] Transferred via genes from parent to child. *Also called genetic.*

**hereditary mutation** [heh red´ ih tair ee • mew tay´ shun] A change in the genes of a germ cell (egg or sperm) that is incorporated into the DNA of every cell in the body of the offspring. These mutations are passed on from parents to children.

**herniation** [her nee a´ shun] Tissue bulging through an opening in a membrane, muscle or bone.

**heterogeneous** [het er o gee´ nee us] Composed of varied cell types.

**HHS** Department of Health & Human Services, a department of the Federal Government under which falls all of the individual institutes of the National Institutes of Health (NIH), the Food and Drug Administration (FDA), the National Library of Medicine (NLM) and the Centers for Disease Control (CDC) *Abbreviated DHHS.*

**high-dose chemotherapy** Massive doses of chemotherapy are administered, then an antidote is given which reverses, or “mops up,” the excess drug.

**high-risk** Someone who is more likely than others to be diagnosed with a particular disease or the recurrence of their disease.

**high-throughput** Fast, automated analysis of a variety of substances, including chemicals and genes.

**HIPAA Health Insurance Portability and Accountability Act** of 1996. This act clarified and modified elements of the Consolidated Omnibus Budget Reconciliation Act of 1986 (COBRA). Among other provisions, HIPAA eliminated health insurance discrimination based on pre-existing conditions and addressed health information privacy.

**histology** [hiss tol´ o ji] Microscopic anatomy. Cell characteristics observed under the microscope.

**HMO Health Maintenance Organization.** A type of managed care health insurance that specifies the group of doctors, hospitals and other healthcare providers who will provide your healthcare. You must get your care from providers that are part of the plan.

**homogeneous** [ho mo gee´ nee us] Composed of identical cell types.

**hormone** A substance produced by a gland and released into the bloodstream. Hormones affect the function of distant organs in the body. The pituitary is sometimes called the “master gland” because of the wide variety of hormones it produces and secretes.

**hormone therapy** Treatment by removing, blocking or adding hormones. *Also called endocrine therapy.*

**hospice** A concept of care that provides medical, psychological and spiritual support to terminally ill patients and their loved ones. It stresses quality of life, including pain and symptom control so the patient can remain as alert and comfortable as possible. Hospice is available to persons who can no longer benefit from curative treatment. Hospice is provided in a variety of settings, including the home, hospice centers, hospital and skilled nursing facilities.

**HRQL Health Related Quality of Life.**

**human chorionic gonadotropin (HCG)** A germ cell tumor marker found in the cerebrospinal fluid and blood.

**human genome project** [je´ nome] A massive undertaking, largely sponsored by the US National Institutes of Health (NIH), to map the complete set of genes on all the chromosomes found in the human body.

**humoral immunity** Immune protection provided by substances such as antibodies which circulate in the blood and lymph fluid. (Long ago, body fluids were called humors.) Humoral immunity is distinct from the direct action of immune cells, which is called cellular immunity.

**HX, Hx** History. That part of a healthcare professional’s records that details your past illnesses, your family’s illnesses, your observations and concerns.

**hydrocephalus** [hi dro sef´ ah lus] Hydro = water, cephalo = head. Excess water in the brain due to blockage, increased production, or decreased absorption of cerebrospinal fluid.

**hyperfractionated radiation therapy** More fractions of smaller- than-usual daily doses without a change in overall treatment duration. Used to deliver a larger total dosage. Radiation therapy delivered two to three times a day.

**hyperfractionation** [hi per frak shun´ a´ shun] An increased number of smaller dosage treatments of radiation therapy.

**hyperthermia** [hi per ther´ me ah] The use of heat to kill tumor cells. Heat therapy.

**hypoglossal nerve** [hi po glos´ al] 12th cranial nerve.

**hypophysis** [hi pof´ ih sis] Another name for the pituitary gland.

**hypothalamus** [hy po thal´ ah muss] The region of the brain that forms part of the wall of the third ventricle and is the base of the optic chiasm. In partnership with the pituitary gland, the hypothalamus is part of the endocrine system. It controls body temperature, hunger and thirst.

**hypotonic, hypotonicity** [hi po ton´ ik • hi po toe nis´ ih tee] Diminished muscle tone; limp muscles.

**hypoxia** [hi pocks´ ee ah] Lack of oxygen.

**ibuprofen** [eye boo pro´ fin] The generic name for a drug used to control inflammation, relieve mild to moderate pain and reduce fever. Examples: Advil, Motrin.

**ICD International Classification of Diseases.**

**ICDO International Classification of Diseases for Oncology.**

**ICP Intracranial pressure.**

**ictal** [ick´ tal] Refers to a seizure or a stroke.

**ICU Intensive Care Unit.**

**IDE Investigational device exemption.** An FDA designation required before a new medical device can undergo testing in a clinical trial.

**IDH-1** Abbreviation for isocitrate dehydrogenase-1, a gene which, when mutated, has novel enzyme activity consistent with a cancer-causing gene, or oncogene. It may contribute to the formation and malignant progression of gliomas, the most common type of brain cancers. Clinical trials are evaluating anti IDH-1 agents.

**IF Interferon.**

**IICP Increased intracranial pressure.**

**IL-2 Interleukin-2.** One of the several interleukins, IL-2 is a cytokine produced by T cells. It stimulates the growth and activity of many immune cells that can destroy tumor cells. IL-2 occurs naturally in the body.

**imagery** A technique in which people focus in their minds on positive images.

**imaging** [ih´ muh jing] Methods, such as scans or x-rays, that produce pictures of areas inside the body. “Imaging” was previously referred to as “scanning.”

**imaging procedures** Methods, such a scans or x-rays, that produce pictures of areas inside the body.

**imatinib mesylate** An anticancer drug that belongs to the family of drugs called protein kinase inhibitors. Its brand name is Gleevec.

**immune enhancer gene** Injected into the tumor, it produces an immune response against the tumor.

**immune response** The activity of the immune system against foreign substances (antigens). A cancer cell can also be recognized as a foreign substance.

**immune system** The immune system is the body’s natural defense mechanism. It is composed of several different types of white blood cells and the products of those cells. The immune system’s purpose is to attack and destroy harmful substances or objects it identifies in the body.

**immunoassay** A test using antibodies to identify and quantify substances. To accomplish this, the antibody is often linked to a marker such as a fluorescent molecule, a radioactive molecule or an enzyme.

**immunocompetent** Capable of developing an immune response, having an effective immune system.

**immunocompromised** Having a weakened or ineffective immune system. May be due to disease or treatments. *Also called immunodeficient.*

**immunoglobulins** Protein substances that function as antibodies.

**immunosuppression** Reduction of the body’s immune response.

**immunotherapy** Treatment that stimulates the body’s immune system to fight tumors. *Also called biological response modifier (BRM) therapy.*

**immunotoxin therapy** An immunotoxin is created by linking a poison (toxin) or a radioactive substance to a monoclonal antibody.

**implant** In radiation therapy, refers to placing radioactive material sealed in needles, seeds, wires or catheters directly into or near a tumor. *Also called interstitial radiation or brachytherapy.*

**implantable pump** A small device installed under the skin to administer a steady, continuous dose of drugs.

**IMRT** Intensity Modulated Radiotherapy. Specialized equipment that shapes radiation beams to the size and shape of a tumor. The tumor is treated with many very small beams, each of which can have a different intensity. By cross firing, a relatively uniform dose of radiation is delivered to the tumor while sparing surrounding tissue from high doses. IMRT can be used to treat large malignant tumors and multiple tumors.

**in situ cancer** Cancer that has not spread.

**in vitro** Literally means “in glass,” referring to the tubes and glass dishes used in the laboratory. The opposite of *in vivo*. In research, reactions occurring in vitro might not occur in vivo and vice-versa.

**in vivo** Literally means “in the living being,” referring to something being tested in humans as opposed to the laboratory. The opposite of *in vitro*.

**inaccessible** [in ak ses´ sah bul] Refers to a tumor that cannot be reached during surgery without causing unacceptable neurological damage.

**incidence** The number of people newly diagnosed with a specific disease or disorder during a single year.

**incision** [in sih´ zhun] A cut made in the body during surgery.

**incontinent** [in kon´ ti nent] Inability to control the flow of urine from the bladder and/or stool from the bowel.

**IND** Investigational new drug. A drug approved by the FDA (Food and Drug Administration) for investigational use only (clinical trials).

**indolent** [in´ doe lint] Slow growing.

**infiltrating** Refers to a tumor that penetrates normal, surrounding tissue.

**inflammation** Redness, warmth, swelling, pain and sometimes loss of function resulting from the body’s protective response to infection or a

foreign object. Due to increased blood flow and an accumulation of immune cells and secretions in the area. *Also called inflammatory reaction.*

**informed consent** The process in which a patient learns about and understands the purpose of a treatment, and then agrees to accept it (or not). In a clinical trial, this process includes a document defining how much a patient must know about the potential benefits and risks of therapy before being able to undergo it knowledgeably. Informed consent is required by federally regulated studies.

**infratentorial** [in fra ten tor´ ee al] Below the tentorium. *Also called the infratentorium or the posterior fossa.*

**infusion** [in few´ zhun] The introduction of fluids, including drugs, into a vein, over a period of time.

**integrative medicine** Combines conventional medical care with complementary and/or alternative therapies. Includes chiropractic care, acupuncture, herbal medicine, massage therapy, behavioral therapies and mind-body self care.

**intensity modulated radiotherapy** *See IMRT.*

**interferons** [in ter fear´ onz] These biological response modifiers are thought to slow tumor growth by interfering with cell division and by stimulating the production of B cells. The interferons might also be angiogenesis inhibitors. The three families of interferon, the alpha, beta and gamma, are produced naturally in the body. *Commonly abbreviated IF.*

**interleukins** [in ter lou´ kinz] Interleukins are biological response modifiers. There are many naturally occurring interleukins, including IL-1 through IL-35. *Commonly abbreviated IL.*

**intern** A medical doctor who has completed medical school and is in the first year of additional training.

**internal radiation** *Also called interstitial radiation therapy or brachytherapy.*

**interstitial radiation therapy** [in ter stish´ al] Sources of radiation energy are implanted directly into or next to a tumor. Interstitial

radiation is a local therapy. *Also called brachytherapy, intracavitary radiation, radiation implants, radiation seeding or radioactive pellets.*

**interventricular foramen** [in ter ven trik´ you lur • foe ray´ men] The opening through which cerebrospinal fluid flows from the lateral ventricles to the third ventricle. *Also called the foramen of Monro.*

**intra-arterial** [in trah ar teer´ ee al] Injection into an artery (that supplies a tumor). Commonly *abbreviated IA.*

**intracavitary** [in trah cav´ ih tair ee] The administration during surgery of radiation or chemotherapy directly into a tumor or the space created when the tumor was removed.

**intracerebral** [in trah seh ree´ bral] Located within the cerebral hemispheres (cerebrum).

**intracranial** [in trah kra´ nee al] Within the skull.

**intradural** [in trah du´ ral] Within the dura mater.

**intramural research, NCI** Research performed by employees of the National Cancer Institute at the National Institutes of Health. As opposed to extramural research, which is performed by scientists employed by facilities other than NCI, such as universities, private clinics and laboratories.

**intramuscular injection** [in trah mus´ ku lar] Injection into a muscle. *Abbreviated IM.*

**intra-operative** [op´ er-ah-tiv] Occurring during a surgical operation

**intraoperative radiation therapy** Radiation treatment aimed directly at a tumor during surgery. *Abbreviated IORT.*

**intraoperative ultrasound imaging** Ultrasonic waves used during surgery to determine the depth of the tumor and its diameter. Pulsed waves are sent into the brain which then reflect back to the device. The time it takes for the “echoes” to return is measured by a computer and displayed as a TV image.

**intrathecal injection** [in trah thee´ kal] Injection into the subarachnoid space of the meninges. Usually done by lumbar puncture.

**intratumoral injection** [in trah too more´ al] Injection into a tumor, usually performed during surgery.

**intravenous injection, IV** [in trah vee´ nus] Injection into a vein.

**intraventricular injection** [in trah ven trik´ u lar] Injection into a ventricle.

**intrinsic brain stem glioma** [glee o´ ma] A brain stem glioma growing totally within the brain stem. These are diffuse tumors, often a fibrillary or anaplastic astrocytoma or a glioblastoma.

**invasive** [in vay´ siv] Refers to a tumor that infiltrates or diffuses into healthy tissues.

**investigator** A researcher in a clinical treatment study.

**investigational new drug** A drug approved by the FDA (Food and Drug Administration) for investigational use only. *Commonly abbreviated IND.*

**ionizing radiation** [eye´ on ize ing • ray dee a´ shun] The radiation used in medicine that creates ions by knocking electrons out of atoms. Ions penetrate and interfere with living tissue, causing tumor cells to die as they attempt to reproduce.

**ipilimumab** [i pi lim´ ue mab] A new checkpoint blockade inhibitor being tested in clinical trials.

**ipsilateral** [ip sah lat´ ur al] Affecting the same side.

**IRB** Institutional Review Board. A healthcare facility committee of scientists, doctors, clergy and consumers charged with protecting patients who take part in clinical trials. They must approve all protocols at their facility. IRBs check to see that studies are well-designed, do not involve undue risks, and include safeguards for patients.

**irradiation** [ih ray dee a´ shun] Treatment by ionizing radiation, such as x-rays, or radioactive sources such as radioactive iodine seeds. *Also called radiation therapy.*

**isotope** An unstable element that releases radiation as it breaks down. It can be used in imaging tests or as a treatment for cancer. *Also called a radioisotope.*

**Karnofsky Performance Scale** [car noff ´ ski] A score from 0 to 100 that expresses a person’s ability to function and perform normal daily activities. 100 indicates completely normal functioning for that individual. *Commonly abbreviated KPS.*

**karyotyping** [care ´ ee oh type ing] A technique for generating a “list” or profile of the genetic contents of a given piece of tissue; chromosome characteristics.

**ketogenic** [key toe jen ´ ik] A diet based on a very high intake of fat which causes a chemical imbalance. Sometimes used to treat epilepsy in children, especially when seizure medications are not effective. Clinical trials are being done to treat brain tumors.

**killer cells** A type of white blood cell that destroys cancer cells by recognizing them as a foreign invader and then producing chemical substances that bind to and kill them. They are commonly known as “natural” killers because they attack without first having to recognize specific antigens.

**labeling index** The speed at which cells reproduce.

**LAK cells** Lymphokine activated killer cells are transformed in the laboratory from lymphocytes. They attack tumor cells. LAKs are “super charged” natural killer cells created by exposing natural killer (NK) cells to IL-2 (interleukin 2).

**laser** [lay ´ zur] Light Amplification by Stimulated Emission of Radiation. A tool used in addition to or in place of a scalpel. It creates intense heat and power when focused at close range, destroying cells by vaporizing them. Lasers are frequently used with stereotactic localization to direct their beams. They are used in microsurgery, photodynamic therapy and for a variety of diagnostic purposes.

**laser-capture microdissection** A new technique for examining tumor tissue. It allows specific cells to be removed from a sample of tissue for detailed study. *Abbreviated LCM.*

**lateral** On the side, as the lateral ventricles are located on both the right and left sides of the brain.

**lateral ventricles** [ven ´ tri kls] The two fluid-filled cavities located in the cerebral hemispheres.

**LCSW** Licensed Clinical Social Worker.

**LENT** Late effects on normal tissue. Long-term side-effects of treatment, especially radiation therapy.

**leptomeningeal cancer** Cancer cells in cerebrospinal fluid which flows throughout the subarachnoid space, the area between the pia mater and arachnoid layers of the meninges. *Also called leptomeningeal metastasis.*

**leptomeningeal cyst** [lep ´ toe meh nin jee ´ al • sist] An enlarged, fluid-filled area of the subarachnoid space — the space between the arachnoid and pia mater layers of the meninges. Can occur in both adults and children. *Also called an arachnoid cyst.*

**leptomeninges** The arachnoid and pia mater layers of the meninges.

**lesion** [lee ´ zhun] An area of abnormal tissue due to disease or injury.

**lethargy** [leth ´ ar gee] Sluggishness, drowsiness, indifference.

**leukocytes** [lou ´ ko sitez] White blood cells, including eosinophils, basophils, mast cells, neutrophils, lymphocytes and monocytes, etc.

**leukoencephalopathy** [loo koe n seff ah lopp ´ ah thee] An adverse effect on the white matter of the brain. Can be due to infection, drugs, radiation, or disease. Symptoms range from mild to severe.

**Li-Fraumeni syndrome** A rare, inherited predisposition to multiple cancers including brain tumors. It is caused by an alteration in the p53 suppressor gene. *Abbreviated LFS syndrome.*

**limbic system** The part of the brain involved with behavior, emotion, and the sense of smell. With the hypothalamus, it controls hunger, thirst, and biological rhythms.

**Linac Radiosurgery** An adapted linear accelerator that delivers a single, high-energy beam, computer-shaped to the tumor.

**linear accelerator** An electrical device that creates ionizing radiation in the form of x-rays (photons) The higher the voltage of the device, the more penetrating are the x-rays produced.

**lipoma** A rare, benign tumor composed of fat tissue.

**lobe** One of four sections of the cerebral hemispheres.

**lobectomy** [low bek ´ toe mee] The surgical removal of one lobe of the brain.

**local** In the area of the tumor; confined to one specific area. Also referred to as *localized*.

**local therapy** A treatment directed only to the tumor and perhaps a small area beyond it.

**loss of 1p 19q** The combined loss of genetic material on chromosomes 1p and 19q is strongly associated with favorable outcome in patients with certain types of oligodendroglial tumors (oligodendrogliomas).

**low-frequency electromagnetic fields** Low energy fields, called EMFs, emitted by power lines and household appliances.

**lower toxicity drugs** A generation of chemotherapy drugs with milder side-effects.

**LPN** Licensed Practical Nurse.

**LRRFS** Local/Regional Recurrence-Free Survival.

**LSW** Licensed Social Worker.

**lumbar** [lum ´ bar] The area of the spine between the ribs and the pelvis (the waist and lower back).

**lumbar puncture** Needle penetration into the subarachnoid space of the lumbar spine. Used to withdraw a sample of spinal fluid for examination or to inject a dye into the spine prior to a myelogram. *Also called spinal tap.*

**lymph** [limf] A transparent, slightly yellow fluid that carries lymphocytes, bathes body tissues and drains into the lymphatic vessels.

**lymph nodes** [limf] Small bean-shaped organs of the immune system, distributed widely throughout the body and linked by lymphatic vessels. Clusters of lymph nodes are found in the underarms (axilla), groin, neck, chest and abdomen. *Also called lymph glands, although they are not actually glands.*

**lymphatic system** [lim fat ´ ik] The tissues and organs that produce, store and carry white blood cells that fight infections and other diseases.

**lymphatic vessels** [lim fat ´ ik] A bodywide network of channels, similar to the blood vessels, which transport lymph fluid to the immune organs and into the bloodstream.

**lymphocyte** [lim ´ foe site] A lymph cell, the main type of immune cell. They are one type of white blood cell and are formed in the lymph system. Lymphocytes produce antibodies and interferons.

**lymphokine activated killer cells** Cells transformed in the laboratory from lymphocytes. They attack tumor cells. Lymphokine activated killer cells are “super charged” natural killer cells created by exposing natural killer (NK) cells to IL-2 (interleukin 2). *Abbreviated LAK cells.*

**lymphokines** [lim ´ foe kinez] Powerful chemical substances that help direct and regulate immune responses. Lymphokines are biological response modifiers.

**lymphoma** [lim foe ´ ma] Cancer that arises from cells of the lymphatic system. In the brain, this type of cancer is called Primary CNS Lymphoma (PCL).

**MA** Master of Arts degree.

**MAB or MoAB** Monoclonal antibodies.

**macrophages** [mak ´ roe faj] Large and versatile immune cells that dispose of foreign substances in our body. Garbage pick-up cells.

**maintenance therapy** Treatment used to prevent a recurrence in patients who are in remission.

**malignant** [mah lig´nant] Cancerous or life-threatening, tending to become progressively worse. Cancer can invade and destroy nearby tissue and spread to other parts of the body.

**malignant melanoma** [mel ih no´ma] A form of skin cancer that arises in melanocytes, the cells that produce skin pigment. It often begins as a dark, irregularly shaped mole. This form of cancer can spread to the brain.

**malignant meningioma** A very rare form of meningioma, it includes the anaplastic meningioma and papillary meningioma. The atypical meningioma is not clearly malignant, but can invade and spread within the brain.

**malignant peripheral nerve sheath tumor** The rare, malignant form of an acoustic neuroma. *Abbreviated MPNST.*

**Mannitol** [man´ih tol] A medication used to reduce brain swelling and elevated intracranial pressure. Also used to temporarily disrupt the blood brain barrier prior to some forms of chemotherapy.

**mass effect** Swelling or enlargement of the brain due to the bulk of a tumor, the blockage of fluid, and/or excess accumulation of fluid within the skull.

**MBA** Master of Business Administration degree.

**MD** Medical Doctor degree.

**MDiv** Master of Divinity degree.

**MDL** Medulloblastoma.

**measurable disease** A tumor that can be accurately measured in size. This information can be used to judge response to treatment.

**median survival** Median means the middle value. An equal number of people live longer as die earlier than the median survival number.

**medical device** An instrument, machine, implant or similar article that is intended for use in the diagnosis, treatment, or prevention of disease. It can be anything from a thermometer to an artificial heart to an at-home pregnancy test.

**medical oncologist** Cancer specialist. A physician trained in diagnosing and treating cancer.

**Medicaid** A joint federal and state program that helps with medical costs for some people with low incomes and limited resources. Medicaid programs vary from state to state.

**Medicare** The federal health insurance program for people 65 years of age or older, certain younger people with disabilities, and people with End-Stage Renal Disease. It is the largest health insurance program in the US. It is administered by the Centers for Medicare & Medicaid Services (CMS) of the Department of Health and Human Services of the US government. Medicare Part A is hospital insurance, covering inpatient hospital stays, care in a skilled nursing facility, home healthcare, and hospital care. Part B is medical insurance. It helps pay for doctors' services, outpatient hospital care, and other medical services not covered by Part A.

**MEDLINE** Provides searches for published medical literature from an extensive database.

**medulla** [meh dull´ah] The center or inner region. In the CNS, refers to the spinal cord and its continuation in the skull — the medulla oblongata.

**medulla oblongata** [meh dull´ah • ob long ah´ta] Part of the brain stem, it connects the brain with the spinal cord.

**medulloblastoma** [med´you low blas toe´ma] This tumor represents 15-20% of pediatric brain tumors, although 30% of these tumors occur in adults. It is always located in the cerebellum, is fast growing, and can spread to other parts of the central nervous system. It is sometimes called a primitive neuroectodermal tumor (PNET). *Commonly abbreviated MDL.*

**MEG** Magnetoencephalogram. A scan that measures the magnetic fields created by nerve cells.

**melanoma** [mel ih no´ma] A form of skin cancer that arises in melanocytes, the cells that

produce skin pigment. It often begins as a dark, irregularly shaped mole. This form of cancer can spread to the brain.

**melatonin** [mel ah toe´nin] A hormone produced by the pineal gland and thought to control biological rhythms. May also be a radiosensitizer for brain tumors and is currently being tested for that purpose.

**membrane** [mem´brain] A thin layer of tissue covering a surface, lining a body cavity, or dividing a space or organ. The meninges consists of three membranes.

**meningeal** [meh nin jee´al] Refers to the meninges.

**meninges** [meh nin´jeez] Three, thin membranes that cover the brain and spinal cord. The outermost layer is the thick dura mater, the arachnoid is in the middle and the thin pia mater lies directly over the brain, following all its curves and indentations.

**meningioma** [meh nin jee o´ma] This usually benign tumor arises from the arachnoid cells of the meninges of the brain and spinal cord, represents about 34% of all primary brain tumors and occurs most commonly in middle-aged women.

**mental changes** A common symptom of brain tumors. Includes alterations in memory, speech, communication and concentration. Also, intellectual problems, confusion and changes in behavior, temperament and personality.

**meta-analysis** [meh´ta uh-nal-ysis] A statistical method for combining and analyzing the results of several independently published studies in search of conclusions that may not have been immediately apparent when looking at the results of the smaller, single studies.

**metabolism** [meh tab´o lizm] The chemical and physical processes that occur to maintain the body and produce energy.

**metastasize** [meh tas´tah siz] To spread to another part of the body, usually through blood vessels, lymph channels, or spinal fluid.

**metastatic brain tumor** [meh tah stat´ick] A secondary brain tumor formed by cancer cells that began elsewhere in the body and traveled to the brain. Cancers that commonly spread to the brain include: lung cancer; breast cancer; colon cancer; melanoma; kidney cancer. A metastatic brain tumor can appear anywhere in the brain or spine. Multiple tumors can occur.

**methylated** [meth´il-ated] (adjective). Methylation is the process of adding -CH<sub>3</sub> (methyl) groups to specific DNA protein, which silences those genes and may contribute to tumor cell growth.

**MGMT** Abbreviation for O<sup>6</sup>-methylguanine-DNA methyltransferase, a gene thought to play a role in DNA repair.

**microenvironment** [mi´kro en-vi´ron-ment] A small, specialized, isolated environment at the microscopic or cellular level, for example, the area immediately surrounding a tumor. The microenvironment plays a critical role in tumor initiation and progression, and may be an important factor in developing treatment approaches.

**microglia** Tiny “scavenger” glial cells that play a role in the immune functions of the brain.

**microspheres** Controlled-release drugs in a capsule. They are designed to dissolve slowly and release their contents over a pre-determined amount of time.

**microsurgery** The use of a high-powered microscope during surgery. Microsurgery is widely used for brain tumor surgery.

**midbrain** The short part of the brain stem between the pons and the cerebral hemispheres.

**mitosis** [my toe´sis] Cell division.

**mitotic index/activity** [my tot´ik] An indication of how fast a tumor is growing. The proportion of cells in a sample that are undergoing mitosis.

**mitotic inhibitor** [my tot´ik] Drugs that kill cancer cells by interfering with cell division (mitosis).

**mixed glioma** [glee o´ ma] These tumors contain a high proportion of more than one type of cell. Mixed gliomas commonly contain both astrocytes and oligodendrocytes. Occasionally, ependymal cells are also found. They are commonly grade II or III tumors. *Also called oligoastrocytoma.*

**MMPI** **M**innesota **M**ultiphasic **P**ersonality **I**nventory test.

**MMSE** **M**ini **M**ental **S**tatus **E**xam. Used to assess cognitive neuropsychological changes due to disease or its treatment.

**MoAB or MAB** **M**onoclonal **A**ntibodies.

**modality** [moe dal´ ih tee] A method. Chemotherapy and surgery are two different treatment modalities.

**molecular marker** [muh leh´ kyoo ler] A biological molecule found in blood, other body fluids, or tissues that is a sign of a normal or abnormal process, or of a condition or disease. A molecular marker may be used to see how well the body responds to a treatment for a disease or condition. *Also called biomarker and signature molecule.*

**molecule** [moll ek´ yule] The smallest amount of a specific chemical substance that can exist alone. If it is broken down into its component parts, it is no longer recognizable. For example, if water (H<sub>2</sub>O) is broken down it becomes one atom of oxygen and two atoms of hydrogen.

**monoclonal antibodies** [mon o klon´ al • an´ te bod eze] Mass produced in the laboratory, they are substances (antibodies) that can locate and bind to a specific antigen (a unique property on the surface of a cell) wherever it is in the body. They are biological response modifiers with “homing device” properties. Chemicals or radiation tagged to the monoclonals might be delivered directly to tumor cells. Or, monoclonal antibodies themselves may be capable of tumor cell destruction. *Often abbreviated MoAB or MAB.*

**monocytes** [mon´ o sitez] Large white blood cells that travel into tissues and develop, when needed, into macrophages, as part of the immune

response. Monocytes and macrophages play a key role in phagocytosis, a process by which some cells “eat” other cells and foreign invaders. Monocytes produce monokines, a cytokine.

**monokine** [mon´ o kyne] Powerful chemical substances secreted by monocytes and macrophages. These molecules help direct and regulate the immune response. Monokines are one type of cytokine.

**morbidity** [more bid´ ih tee] The presence of a disease, or complications resulting from treatment.

**mortality rate** [more tal´ ih tee] The number of people who die within a specified period of time, such as a year, five years, 6 months etc.

**motor** Movement, control of muscles. The “motor cortex” is located in the precentral gyrus of the frontal lobe.

**mouse model** A breed of mouse genetically engineered to approximate the human tumor environment.

**MPH** **M**aster of **P**ublic **H**ealth degree.

**MRI angiography** [an gee og´ rah fee] A diagnostic procedure done in the x-ray department to help visualize blood vessels. The person receives an injection of dye to outline the vessels on the x-ray or scan. *Also called angiogram, arteriogram.*

**MRI scan** **M**agnetic **R**esonance **I**maging. MRI is a scanning device that uses a magnetic field, radio waves, and a computer. Signals emitted by normal and diseased tissue during the scan are assembled into an image.

**MRS** **M**agnetic **R**esonance **S**pectroscopy. An imaging device that depicts tissue function rather than shape.

**MS** **M**aster of **S**cience degree.

**MSN** **M**aster of **S**cience in **N**ursing degree.

**MST** **M**edian **S**urvival **T**ime.

**MSW** **M**aster of **S**ocial **W**ork degree.

**MTD** **M**aximum **T**olerated **D**ose, a term used in Phase I studies where the goal is to achieve a balance between dosage and side effects.

**mucositis** [mew ko sigh´ tiss] Inflammation of a mucous membrane. Mucositis in the mouth is called stomatitis; in the esophagus, it is called esophagitis.

**multi-disciplinary treatment team** Health care provided by a range of specialists.

**multidrug resistance** Adaptation of tumor cells to anticancer drugs in ways that make the drugs less effective.

**multimodality treatment** Therapy that combines more than one method of treatment.

**mutation** [myoo tay´ shun] Any change in the DNA of a cell. Mutations may be caused by mistakes during cell divisions, or they be caused by exposure to DNA damaging agents in the environment. Mutations can be harmful, beneficial, or have no effect. If they occur in cells that make eggs or sperm, they can be inherited; if mutations occur in other types of cells, they are not inherited. Certain mutations may lead to tumor growth, cancer, or other diseases.

**myelin** [my´ eh lin] The fatty substance that covers and protects nerves.

**myelogram** [my´ eh low gram] An x-ray study of the spine using a special dye.

**myelosuppression** [my´ eh low sue presh´ un] A decline or absence of blood cell production.

**myoclonic seizure** [my o klon´ ick] A type of generalized seizure that causes single or multiple muscle twitches, jerks or spasms.

**myxopapillary ependymoma** [mix o pap´ ih lair ee • ep en dih moe´ ma] A low grade ependymoma more commonly found in the spine than the brain.

**NAACCR** **N**orth **A**merican **A**ssociation of **C**entral **C**ancer **R**egistries. An organization of the thirty-four population-based cancer registries in North America.

**NABTC** **N**orth **A**merican **B**rain **T**umor **C**onsortium, was an NCI funded clinical cooperative group organized to evaluate new

treatments for adult brain tumor patients. NABTC merged with NABTT to create ABTC — the Adult Brain Tumor Consortium.

**NABTT** **N**ew **A**pproaches to **B**rain **T**umor **T**herapy, was an NCI funded clinical cooperative group organized to evaluate new treatments for adult brain tumor patients. NABTT merged with NABTC to create ABTC — the Adult Brain Tumor Consortium.

**nanometer** [na´ noh mee ter] A unit of measurement in the metric system. One nanometer is one-billionth of a meter.

**nanoparticle** [na´ noh par´ tih kul] A particle that is smaller than 100 nanometers (one-billionth of a meter). In medicine, nanoparticles can be used to carry antibodies, drugs, imaging agents, or other substances to certain parts of the body. Nanoparticles are being studied in the detection, diagnosis, and treatment of cancer.

**nanotechnology** [na´ noh tek nah´ luh jee] The field of research that deals with the engineering and creation of things from materials that are less than 100 nanometers (one-billionth of a meter) in size, especially single atoms or molecules. Nanotechnology is being studied in the detection, diagnosis, and treatment of cancer.

**natural killer cell** A type of white blood cell that destroys cancer cells by recognizing them as foreign invaders and then produces chemical substances that bind to and kill them. They are known as “natural” killers because they attack without first having to recognize specific antigens. *Abbreviated NK cell.*

**NCCN** **N**ational **C**omprehensive **C**ancer **N**etwork. An alliance of several US cancer centers. They develop oncology practice guidelines as one of their programs.

**NCI** **N**ational **C**ancer **I**nstitute, one of the institutes of the National Institutes of Health of the US Department of Health and Human Services.

**NCNSC** **N**ational **C**NS **T**umor **C**onsortium, an NCI funded clinical cooperative group organized to evaluate new treatments for adult brain tumor patients.

**NCOG** Northern California Oncology Group, an NCI funded clinical cooperative group organized to evaluate new treatments for adult cancer patients.

**NCQA** National Committee for Quality Assurance.

**NDA** New Drug Application. The application a pharmaceutical company files with the Food and Drug Administration (FDA) to obtain approval for marketing a drug.

**necrosis** [neh kro´ sis] Dead cells.

**NED** No evidence of disease.

**needle biopsy** A biopsy performed by making an incision in the skin and then drilling a small hole into the skull. A narrow, hollow needle is inserted through the hole and into the tumor then a small amount of tumor is drawn up into the needle.

**neoadjuvant therapy** [nee o ad´ ju vant] Treatment given before the primary treatment to reduce the size of the tumor or to improve the effectiveness of the primary treatment.

**neoplasia** [nee´ o play zha] Abnormal and uncontrolled cell growth.

**neoplasm** [nee´ o plazm] A tumor, either benign or malignant.

**nerve, cranial** See *cranial nerves*.

**nervous system** The entire integrated system of nerve tissue in the body: the brain, brain stem, spinal cord, nerves and ganglia.

**neuroblastoma, cerebral** [nur o blas toe´ ma] The intracranial neuroblastoma is a malignant, rapid growing tumor. Eighty-five percent of cerebral neuroblastomas occur in children. Some call it a PNET (primitive neuroectodermal tumor). Neuroblastoma more commonly occurs outside the central nervous system.

**neurocytoma, central** [nur o sigh toe´ ma] This is a low grade tumor that typically occurs in a lateral ventricle in the region of the foramen of Monro and occasionally extends into the third ventricle.

**neuroectoderm** [nur o eck´ toe durm] The region of the embryo that eventually develops into the nervous system.

**neuroepithelial** [nur´ o ep ih thee´ lee al] The layer in the embryo which develops into the nervous system.

**neurofibromatosis** [nur´ o fi bro ma toe´ sis] Neurofibromatosis refers to two different genetic diseases. Neurofibromatosis type I, called NF1 or von Recklinghausen’s Disease, is the more common of the two disorders. It causes tumors called neurofibromas to form on nerves throughout the body and skin discolorations called café-au-lait spots. Optic gliomas are associated with NF1. Neurofibromatosis type II, called NF2, causes tumors to form in the central nervous system, particularly bilateral acoustic neuromas (tumors of the 8th cranial nerve). Meningiomas, ependymomas and tumors of other cranial nerves may also develop. NF2 may be inherited or arise independently.

**neuroglia** [nur´ o glee´ ah] Supportive tissue of the brain, includes astrocytes, oligodendrocytes, ependymal cells and microglia. Unlike neurons, neuroglial cells do not conduct electrical impulses and can reproduce. The largest percentage of brain tumors arise from neuroglia. *Also called glia*.

**neurologist** A physician trained in the diagnosis and treatment of diseases and disorders of the nervous system.

**neuron** [nur´ on] A nerve cell body and its processes (dendrites and axon). It conducts electrical signals.

**neuro-navigational system** Pre-operative MRI information, fed into a specialized computer system, that allows the surgeon to view 3-D images in the operating room during surgery.

**neuro-oncologist** A physician who specializes in treating patients with brain tumors, and/or the consequences of cancer upon the nervous system. The physician is often a trained neurologist, oncologist or neurosurgeon.

**neuropathologist** A pathologist who establishes the diagnosis in diseases of the nervous system by careful microscopic examination of the tissue.

**neuropathy** [nur op´ ah thee] A general term that refers to changes in sensation or function in the peripheral nervous system. Common

symptoms include weakness; numbness; burning, tickling, prickling or tingling sensations; or pain in the arms, legs, hands and feet. There are numerous causes. *Also called peripheral neuropathy*.

**neuropsychologist** A psychologist who specializes in ailments of the mind and mental processes caused by disease of the nervous system.

**neuroradiologist** A radiologist who specializes in the use of radioactive substances, x-rays and scanning devices for the diagnosis of diseases of the nervous system.

**neuroscience** [nur´ o science] The scientific study of the nervous system, an interdisciplinary field that includes molecular and cellular structure and function, cognitive neuroscience, psychophysics, computational modeling and diseases of the nervous system.

**neurosurgeon** A physician trained in surgery of the nervous system.

**neurotoxicity** [nur row tok sis´ ih tee] Damage to the nervous system; may be a side-effect of some chemotherapy agents. Numbness, tingling and muscle weakness are common symptoms.

**neutropenia** [new trow pee´ nee ah] An abnormal decrease in the number of neutrophils, a type of white blood cell.

**neutrophil** [new´ trow fil] A granulocyte, a type of white blood cell involved in protecting the body from infection. It is an abundant and important phagocyte.

**NHGRI** National Human Genome Research Institute, one of the institutes of the National Institutes of Health of the US Department of Health and Human Services.

**NIA** National Institute on Aging, one of the National Institutes of Health of the US Department of Health and Human Services.

**NIH** National Institutes of Health. An agency of the US Department of Health and Human Services (DHHS), it is comprised of 25 separate institutes and centers, including the National Cancer Institute (NCI), the National Institute on Aging (NIA), the National Institute of Neurological Disorders and Stroke (NINDS),

the National Human Genome Research Institute (NHGRI) and the National Library of Medicine (NLM).

**NINDS** National Institute of Neurological Disorders and Stroke (the Neurology Institute), one of the institutes of the National Institutes of Health, US Department of Health and Human Services.

**nitrosoureas** [nye tro sou ree´ ahz] A group of anticancer drugs able to cross the blood brain barrier. Examples: Carmustine (BCNU) and lomustine (CCNU).

**NK cell** Natural Killer cell. A type of white blood cell that destroys cancer cells by recognizing them as foreign invaders and then produces chemical substances that bind to and kill them. They are known as “natural” killers because they attack without first having to recognize specific antigens.

**NLM** National Library of Medicine, of the National Institutes of Health, US Department of Health and Human Services. Among its services, NLM provides searches for published medical literature from the extensive database Medline and also maintains ClinicalTrials.gov, the database of publicly and privately sponsored clinical trials.

**NMR** Nuclear Magnetic Resonance. More commonly called Magnetic Resonance Imaging (MRI).

**non-eloquent** [non elo-kwent] Describes parts of the brain that do not control speech, motor functions, or senses. *Also known as “silent” areas of the brain*. Surgical removal of tumors is generally safer in these areas.

**non-enhancing** An area that does not take up contrast materials; does not appear highlighted on a scan.

**non-randomized study** A clinical trial in which all patients receive the same investigational treatment.

**NOS** Not Otherwise Specified.

**nosology** The science of the systematic arrangement or classification of diseases.

**Novalis** Brand name of a system used to deliver linear accelerator stereotactic radiosurgery.

**NP** See *Nurse Practitioner*.

**NPH** Normal pressure hydrocephalus.

**NSAID** Non-Steroidal Anti-Inflammatory Drug. Over-the-counter medications used to treat swelling due to inflammation such as that caused by arthritis. These drugs include Advil, Motrin, and Aleve among others.

**NTCP** Normal Tissue Complication Probability.

**nuclear atypia** [new´ klee ur • a tip´ ee ah] An abnormal appearing cell nucleus.

**nuclear medicine** [new´ klee ur] The branch of medicine that deals with the use of radioisotopes in therapy and diagnosis.

**nucleic acids** [new´ klay ik] Large, naturally occurring molecules composed of chemical building blocks known as nucleotides. There are two kinds of nucleic acids: DNA and RNA.

**nucleus** [new´ klee us] The center of the cell containing the genetic information (genes and chromosomes, DNA, etc). The appearance of the nucleus is used as a criterion to determine the malignant potential of a cell or tissue.

**nurse clinician** A registered nurse with an advanced degree in a particular area of patient care; e.g., neurosurgery clinical nurse specialist. These individuals have earned a Master's degree in nursing (MSN).

**nurse practitioner** An advanced practice nurse. A registered nurse who has met advanced educational and clinical practice requirements beyond those of the basic nursing education required of all RNs. The majority of the nurse practitioner programs in the US provide preparation at the master's degree level.

**NV, N & V** Nausea and Vomiting.

**nystagmus** [nis tag´ mus] Rapid, involuntary movement of the eyeballs.

**observation** The person's condition is closely monitored but treatment does not begin unless symptoms appear or change. *Also called "watchful waiting."*

**occipital lobe** [ock sip´ ih tul] The lobe of the cerebral hemispheres in the back of the head just above the neck; involved in the understanding of visual images and the meaning of written words.

**occupational therapist** A professional trained to help people manage the daily activities of living, such as dressing, grooming or cooking, and regaining vocational skills. *Abbreviated OT.*

**OCN** Oncology Certified Nurse.

**oculomotor nerve** 3rd cranial nerve.

**ODAC** Oncology Drugs Advisory Committee. A group of physicians, scientists, patients and consumers assembled by the FDA to review a cancer drug NDA (new drug application).

**ODP** Office of Oncology Drug Products. See *CDER*.

**off-label use** The use of a medication or device for a condition other than that approved by the Food and Drug Administration; the use of FDA approved drugs or devices in new ways outside a clinical trial setting. When an approved drug or device will be used in a new way during a clinical trial, an Investigation New Drug Application (IND) or an Investigational Device Exemption (IDE) is required.

**OHRP** Office for Human Research Protections, of the Department of Health and Human Services [HHS]. Monitors programs for the protection of human subjects at DHHS-funded universities, hospitals and other medical and behavioral research institutions in the US and abroad. The programs must meet the requirements for protection of human research subjects. Replaces the Office of Protection from Research Risks (OPRR) of the National Institutes of Health.

**OLA** Office of Liaison Activities of the National Cancer Institute (NCI). This office supports the institute's research and related programs by fostering strong communications and relationships with the cancer advocacy community, professional societies, scientific organizations, and Federal Agencies. *Includes CARRA and DCLG.*

**olfactory bulb** [ol fak´ tor ee] The connection between the nerves in the nose and the olfactory tract.

**olfactory nerve** [ol fak´ tor ee] 1st cranial nerve.

**oligoastrocytoma** [o´ lig o as tro sigh toe´ ma] These tumors contain a high proportion of more than one type of cell, most frequently astrocytes and oligodendrocytes. Occasionally, ependymal cells are also found. They are usually grade II or III tumors. *Also called mixed glioma.*

**oligodendroglial** [ah lih goh den´ droh glee al] An adjective that describes oligodendroglioma, a rare, slow-growing tumor that begins in oligodendrocytes (cells that cover and protect nerve cells in the brain and spinal cord). Example: oligodendroglial tumor.

**oligodendroglioma** [o´ lig o den dro glee o´ ma] These tumors arise from oligodendrocytes, a type of supportive brain tissue. They most frequently occur in young and middle-aged adults but are also found in children. Pure oligodendrogliomas are rare. Mixed gliomas, tumors containing both oligodendrocytes and astrocytes, are far more common.

**Ommaya reservoir** [o my´ ah] A small "container" implanted under the scalp and attached to a ventricle by a catheter (tubing). It allows for medication to be given directly to the CSF and into the brain.

**oncogene** [on´ koh jeen] A gene that is a mutated (changed) form of a gene involved in normal cell growth. Oncogenes may cause the growth of cancer cells. Mutations in genes that become oncogenes can be inherited or caused by being exposed to substances in the environment that cause cancer.

**oncogenesis** [on ko jen´ eh sis] The cause or production of tumors. Literally, "beginning of cancer."

**oncologist** [on koll´ o jist] A cancer specialist. A physician trained in diagnosing and treating tumors and cancer. *Also called medical oncologist.*

**oncology** [on koll´ o gee] The study of cancer.

**ONS** Oncology Nursing Society, a professional society.

**open biopsy** A biopsy performed during surgery after the tumor has been exposed and can be seen by the surgeon.

**ophthalmologist** [of thal moll´ o jist] A physician trained in diagnosis and treatment of diseases of the eye.

**ophthalmoscope** [of thal´ moh skope] A lighted instrument used to examine the inside of the eye, including the retina and the optic nerve.

**OPRR** Office of Protection from Research Risks, National Institutes of Health, Department of Health and Human Services (HHS). Responsible for the administration and interpretation of HHS policy and regulations for the protection of human subjects and the care and use of animals in research. Is being replaced by the Office for Human Research Protections (OHRP) of the US Department of Health and Human Services.

**optic chiasm** [op´ tik • ky´ azm] The area under the hypothalamus where the optic nerve crosses over to the opposite side of the brain.

**optic glioma** [op´ tik • glee o´ ma] The generic name given to a glial tumor of the optic region. These tumors can involve the optic chiasm, the optic nerve and the optic tract. They might affect the optic nerve alone, or extend along the visual pathway. Optic gliomas most often occur in children under the age of 10, and are sometimes linked to the presence of neurofibromatosis type 1. *Also called optic tract glioma.*

**optic nerve** 2nd cranial nerve.

**orphan disease** A disease with an annual incidence in the United States of fewer than 200,000.

**OSHI** Office of Special Health Issues. An FDA Cancer Liaison Program linking patients and consumers with FDA cancer-related activities.

**otolaryngologist** [o toe lair in gol´ o jist] A physician trained in diagnosing and treating diseases of the ear, the nose, and throat.

**ototoxicity** [oh toe tock sis´ ih tea] Harmful to the ear and hearing.

**OTR** Registered Occupational Therapist.

**OTSG Oligodendroglioma Tumor Study Group**, an NCI funded clinical cooperative group organized to evaluate new treatments in adult patients with oligodendroglioma brain tumors.

**overexpress** An excess of a particular protein on the surface of a cell.

**P01 Grant** Research Program Project Grant awarded by the National Cancer Institute. This type of grant provides support for a broadly based, multidisciplinary, often long-term research program which has a specific major objective or basic theme. A program project is directed toward a range of problems having a central research focus, in contrast to the usually narrower thrust of the traditional research project.

**p16 gene** A tumor-suppressor gene which, if lost, permits tumor progression.

**P30 Grant** Cancer Center Core Grant awarded by the National Cancer Institute. This type of grant provides support for the necessary shared resources and facilities of Cancer Centers.

**P50 Grant** Specialized Center Grant awarded by the National Cancer Institute. This type of grant supports research activities focused on a specific disease. They are usually developed in response to a program announcement for a SPORE.

**p53 gene** A gene that normally inhibits the growth of tumors. This gene is altered (mutated) in many types of cancer.

**PA-C** Physician's Assistant, Clinical.

**PAG** Patient Advocacy Groups.

**palliative care** [pal' ee ah tiv] Therapy with a goal of relieving symptoms and improving quality of life. Also involves offering support and guidance to the patient and family. It does not attempt to alter the course of the disease.

**palsy** [pawl' zee] Paralysis or paresis.

**papillary craniopharyngioma** [pap' ih lair ee • kray' nee o fah rin jee o' ma] A type of craniopharyngioma that occurs most commonly in adults and is a usually a solid tumor.

**papillary ependymoma** [pap' ih lair ee • ep en dih moe' ma] A rare, low grade tumor most commonly located in the cerebellopontine angle.

**papilledema** [pap il eh dee' ma] Swelling of the optic nerve indicating increased intracranial pressure. *Also called choked disc.*

**paralysis** [pah ral' ih sis] Loss of muscle function so the person is unable to move all or part of their body. Can be caused by injury or a disease of the nervous system.

**parasagittal** [pear ah saj' ih tul] Parallel to the sagittal (front to rear) plane.

**parasellar** [pear ah sell' ur] Around or near the sellar region.

**parenteral** [pah ren' tur al] Something that bypasses the intestines; to give medicines through a vein or artery, into a muscle, through the skin, etc.

**paresis** [pah ree' sis] Weakness, partial paralysis.

**paresthesia** [pear es thee' ze ah] Abnormal sensations, such as tingling, burning or prickling.

**parietal lobe** [pah rye' ih tal] One of four lobes of the cerebral hemisphere.

**partial response** The shrinking, but not complete disappearance, of a tumor in response to therapy. *Also called partial remission.*

**partial seizure** A seizure affecting one part of a cerebral hemisphere. Symptoms depend on the part involved. There are two types: simple partial and complex partial. *Also called a focal seizure.*

**pathologist** A physician trained in the nature, cause, process and effects of disease. Using a microscope, they examine samples of tissue removed during surgery to determine an exact diagnosis.

**pathway** A chain of interconnected neurons. Neural pathways are also called tracts. Can also refer to treatment pathways which are guidelines for treating specific diseases such as those developed by medical institutions, health insurance companies and others.

**PCL Primary CNS Lymphoma** [lim foe' ma] A brain tumor arising from cells of the lymphatic system.

**PCV Procarbazine + CCNU + Vincristine.** A common combination chemotherapy regimen.

**PDQ Physician Data Query.** A dynamic database that lists ongoing clinical trials sponsored by the National Cancer Institute and others. Can be accessed by calling the Cancer Information Service at 1-800-422-6237.

**PDR Physician's Desk Reference.** A compilation of prescription drug product information provided by the products' manufacturers and widely distributed by the publisher to all physicians in the US. Can also be purchased by consumers wherever medical reference books are sold.

**PDT** See Photodynamic Radiation Therapy.

**Peacock System** Brand name of a method used to conform the radiation beams used in 3D-CRT and IMRT.

**pediatric** [pee dee at' rik] Pertains to children.

**perimetry** [peh rim' eh tree] A diagnostic test that measures the size of visual fields.

**peripheral neuropathy** [peh rif' uh ral • nur op' ah thee] A general term that refers to changes in sensation or function in the peripheral nervous system. Common symptoms include weakness; numbness; burning, tickling, prickling or tingling sensations; or pain in the arms, legs, hands and feet. There are numerous causes.

**peripheral nervous system** [peh rif' uh ral] The nervous system outside the Central Nervous System, consisting of nerves and ganglia.

**permeable** [pur' me ah bul] Allows substances to pass through. The blood brain barrier is selectively permeable, allowing only certain substances to enter the brain from the blood vessels.

**PET scan** Positron Emission Tomography. A scanning device which uses low-dose radioactive sugar to measure brain activity.

**petechia** [peh tee' kee ah] Pinpoint size, flat, round red spots under the skin caused by bleeding.

**petit mal seizure** [pe tee' • mall] A type of generalized seizure that causes an impairment of consciousness. *Also called absence seizure.*

**PFS Progression Free Survival.** The patient is alive and the tumor is stable — not growing or shrinking.

**phagocytes** [fag' o sitez] Large white blood cells that contribute to immune defenses by swallowing up (ingesting) microbes or other cells and foreign particles much like scavengers or garbage collectors.

**pharmacist** A professional trained in preparing and dispensing medicines.

**pharmacopoeia** [far ma ko pea' ah] An official book containing a list of medications, their formulas, and standards for their strength. In the United States, the book is abbreviated USP (for Pharmacopoeia of the USA).

**Phase I Clinical Trial** Designed to find out how much of a new substance can safely be given and the best way to give it. A small number of patients (15-25) with various kinds of tumors receive the experimental treatment.

**Phase I/II Clinical Trial** If the drug under investigation is well known in other diseases, but the correct dosage with brain tumors is not yet determined, phases I and II may be combined.

**Phase II Clinical Trial** Designed to determine the effectiveness of a new treatment using pre-defined criteria. Phase II treatments are offered to patients with specific types of tumors. The study stays open until the entry of about 20-50 patients with each type of tumor to be tested. An effective therapeutic treatment is one in which patients' tumors stop growing or shrink in size. Clinical trials may also include quality of life criteria.

**Phase III Clinical Trial** Designed to compare the new, experimental treatment to standard treatment to determine which is more effective. Typically, several hundred patients are enrolled in a Phase III trial.

**Phase IV Clinical Trial** After a treatment has been approved by the Food and Drug Administration (FDA), a phase IV trial might be needed to evaluate side effects that were not apparent in the phase III trial or to answer unresolved questions. Very large numbers of people are enrolled in this type of trial.

**PhD** Doctor of Philosophy degree.

**PHN** Public Health Nurse.

**phosphorylation** [fos´ for ih lay´ shun] A molecular energy process through which a phosphate group is added to a molecule, such as a sugar or a protein.

**photodynamic radiation therapy** [foe toe dye nam´ ik] Combines the use of a sensitizing drug and laser surgery. A light sensitive drug is given through a vein and concentrates in the tumor. During surgery, tumor cells containing the drug appear fluorescent. The physician aims a laser at those cells, which activates the drug. The activated drug then kills the tumor cells. Only operable tumors can be treated with this procedure. Commonly abbreviated *PDT*.

**photofrin** [foe´ toe frin] A drug used in photodynamic radiation therapy that is absorbed by tumor cells. When exposed to light, it is activated to kill the cancer cells in which it has concentrated.

**photon** [foe´ tonn] A kind of ionizing radiation. It consists of x-rays (light energy) created by a linear accelerator or gamma rays emitted by radioactive isotopes (e.g., cobalt).

**photosensitizer** A drug used in photodynamic radiation therapy that is capable of concentrating in tumor cells and is activated by laser light. Photofrin is one such drug.

**PHRMA** Pharmaceutical Research and Manufacturers of America. A trade organization of US pharmaceutical companies. Maintains a website containing several publications that might be of interest to patients and their families.

**physiatrist** [fizz eye´ ah tryst] A physician trained in rehabilitative medicine.

**physical therapist** A healthcare professional concerned with improving physical impairments and disability and the promotion of mobility and motion. Commonly abbreviated *PT*.

**physician’s assistant** An individual qualified by academic and clinical education to provide patient services in a variety of settings under the supervision and direction of a licensed physician. Commonly abbreviated *PA*.

**PI** Principal Investigator.

**pia mater** [pee´ ah • mott´ ur] The innermost layer of the meninges; the thin membrane covering and in direct contact with the brain and spinal cord.

**pilocytic astrocytoma** [pie low sit´ ik • as tro sigh toe´ ma] A low grade astrocytoma that occurs mainly in children and is generally the most benign of the astrocytomas. Many optic gliomas and cerebellar astrocytoma are pilocytic astrocytomas.

**pilot study** The initial, small study examining a new method or treatment. Treatment administered to a small group of patients to learn if it will be effective and safe before offering it to a larger group.

**pineal gland** [pine´ eel] Located below the corpus callosum, this gland secretes the hormone melatonin which controls biological rhythms.

**pineal tumors** [pine´ eel] Pineal tumors represent fewer than 1% of all primary brain tumors. However, 3% to 8% of childhood brain tumors occur in this area. These tumors include germinomas, teratomas and other germ cell tumors, the pineocytoma, pineoblastoma and mixed pineal tumors, as well as astrocytomas. Mixed pineal tumors contain a mixture of cell types.

**pineoblastoma** [pine´ ee o blas toe´ ma] Pineoblastoma is an aggressive, high grade pineal tumor.

**pineocytoma** [pine´ ee o sigh toe´ ma] The pineocytoma is generally a slow-growing, pineal tumor.

**pituitary carcinoma** [pih two´ ih tare ee • kar sin o´ ma] The rare, aggressive form of pituitary adenoma. It is diagnosed only when there are proven metastases.

**pituitary gland** [pih two´ ih tare ee] A bean sized organ lying just behind the bridge of the nose at the base of the brain, it consists of two lobes: the anterior (adenohypophysis) and the posterior (neurohypophysis). The pituitary is connected to the hypothalamus by a stalk. The “master” endocrine gland, the pituitary secretes several very important hormones. Also called the *hypophysis*.

**pituitary tumors** [pih two´ ih tare ee] These are almost always benign, slow growing adenomas and represent about 15% of all primary brain tumors. Pituitary adenomas occur at any age but are rare before puberty. These tumors might be classified by the symptoms they cause; by the hormone they secrete, if any; or by their size or appearance. Microadenomas are less than 10mm in size, larger tumors are called macroadenomas.

**placebo** [pluh see´ boe] An inactive substance. A harmless substance that has no biological effect.

**placebo study** [pluh see´ boe] A clinical trial that has an inactive substance as one of its treatment arms. This type of study is very rare for brain tumors.

**PLAP** placental alkaline phosphatase. A germ cell tumor marker found in the cerebrospinal fluid and blood.

**plasma** [plas´ ma] The clear, yellowish, fluid portion of the blood in which cells are suspended.

**plasma cells** [plas´ ma] Large antibody-producing cells that develop from B cells. Part of the immune system.

**plasticity** The capability of being shaped or changed or having a function altered.

**platelets** [plait´ letz] Granule-containing cell fragments circulating in the blood that help prevent bleeding by causing blood clots to form. Also called thrombocytes. Platelets are part of the immune response.

**pleomorphic xanthoastrocytoma** [plea o more´ fik • zan´ tho as tro sigh toe´ ma] An astrocytoma that most frequently occurs in the temporal lobe of children and young adults.

**pleiocytosis** [plea´ oh sy toh´ sis] An abnormal increase in cell count, such as the white blood cell count in a bodily fluid such as cerebrospinal fluid which may indicate infection or inflammation.

**pluripotent** A stem cell capable of maturing into almost any type of body cell.

**PNET** Primitive Neuroectodermal Tumor. PNET is a name used for tumors which appear identical under the microscope to the medulloblastoma, but occur primarily in the cerebrum. PNETs are most common in very young children.

**PNP** Pediatric Nurse Practitioner.

**polymer wafer implants** During surgery, biodegradable wafers soaked with a chemotherapy drug are placed into the cavity left by the tumor’s removal. Gliadel is the proprietary name of one such wafer.

**pons** [ponz] The part of the brain stem between the medulla oblongata and the midbrain, between the left and right halves of the cerebellum.

**POS** Point Of Service. A health maintenance organization (HMO) type of managed care health insurance plan that allows you to use doctors and hospitals outside the plan for an additional cost.

**postictal** [post ick´ tal] After a seizure or a stroke.

**posterior** [pos tier´ ee or] The rear.

**posterior fossa** [pos tier´ ee or • foss´ • ah] The posterior fossa is a shallow hollow of the occipital bone in which the cerebellum and fourth ventricle are located. Also called the *infratentorium*.

**potentiate** [po ten´ she ate] To make more effective.

**PPO Preferred Provider Organization.** A managed care health insurance plan in which you use doctors, hospitals and providers that belong to a specific network. You can use doctors, hospitals and providers outside the network for an additional cost.

**PR Partial Response.** Refers to a tumor that has stopped growing or shrunk only minimally in size. Full response means the tumor has disappeared completely.

**premotor area** The region of the frontal lobe in front of the primary motor area.

**prevalence** [prev' ah lens] The number of people in a given country currently surviving with a specific disease.

**PRG Progress Review Group.** A cancer-specific planning process designed to complement the science-based planning process of the National Cancer Institute.

**primary auditory area** [aw' dih tore ee] The area of the temporal lobe involved with hearing.

**primary brain tumor** Original source of tumor is the brain rather than other areas of the body.

**primary CNS lymphoma** [lim foe' ma] A brain tumor that arose from cells of the lymphatic system. Commonly *abbreviated PCL.*

**primary motor area** The area of the frontal lobe involved with voluntary movement. It is located just forward of the parietal lobe and the central fissure.

**primary somesthetic area** [so' mess thet ik] The area of the parietal lobe involved with sensation. It is located just back of the frontal lobe and the central fissure.

**primary therapy** The initial treatment.

**primary tumor** The original tumor.

**primitive neuroectodermal tumor** The name used for a tumor which appears under the microscope to be identical to a medulloblastoma, but is not located in the cerebellum. These tumors are most common in very young children. *Abbreviated PNET.*

**primitive** Undeveloped or in early stages of development, undifferentiated.

**probability** A measure of how likely it is that some event will occur; a number expressing the ratio of favorable cases to the whole number of cases possible

**progenitor** [pro jen' i tur] In cell biology, a parent cell that gives rise to a distinct cell lineage by a series of cell divisions.

**prognosis** [prog no' sis] A forecast as to likely outcome, the chance of recovery. *Abbreviated PX.*

**progressive disease** A disease that is increasing in severity.

**proliferate** [pro lif' uh rate] To grow by cell reproduction.

**promoter** [pro mo' ter] A segment of DNA which controls the production of cell by-products. The word also refers to a substance or product created by the cell which is capable of promoting the rapid reproduction of mutated cells.

**prophylactic** [pro fih lak' tic] Preventative. *Also called prophylaxis.*

**proprioception** [pro pree o sep' shun] The sense of body position. Information from nerve endings in muscles, tendons and joints enables people to determine the position of their body parts and where to move them.

**proteins** [pro' teenz] Substances composed of long sequences of amino acids. Proteins are the major component of all cells and are involved in structure, hormones, enzymes, muscle contraction, the immune system and essential life functions.

**proteomics** [pro tea ahm' iks] Analysis using information technology (bioinformatics) to categorize the identity, quantity, structure, size, character, and function of the proteins in blood and tissue samples in health and disease. The results of these studies can influence future drug discovery and development.

**proto-oncogenes** [pro' toe ong' koe jeans] Genes that normally control cell growth and repair but are capable of becoming oncogenes.

**protocol** [pro' toe kol] A written outline of care for a clinical trial. The plan states what will be done in the study and why. It outlines how many people will take part, what types of patients may take part, what tests they will receive and how often, and the treatment schedule.

**proton beam radiosurgery** A cyclotron is an adapted nuclear reactor that produces charged particle beams of protons. These beams are used for small, deep-seated tumors such as a pituitary tumor. Also called heavy particle radiation therapy.

**proximal** [prock' sih mal] Located closest to the reference point.

**pseudotumor cerebri** [sou' doe too' mor • ser ee' bry] Increased pressure in the brain for reasons unknown. Pseudotumor cerebri literally means "false brain tumor." It is most common in women between the ages of 20 and 50. *Also called benign intracranial hypertension.*

**pseudomargins** [sue' do margin] In histochemical staining, a condition where dye delineates a false margin. The cancer may actually extend beyond this dyed pseudomargin to a real margin.

**pseudoprogession** [sue' do pro greh' shun] Radiographic worsening of disease, seen on scans, which is caused by treatment rather than the disease itself. Pseudoprogession is sometimes thought to be tumor growth, but may actually be changes in tissue caused by the treatment. This is not uncommon in tumors treated with a combination of radiation and chemotherapy.

**psycho-oncologist** [sīk o on-KAH-loh-jist] A psychologist focusing on lifestyle, psychological and social aspects of cancer.

**PsyD** Doctor of Psychology degree.

**PT Physical Therapist.** A professional trained to assist people in restoring muscle function.

**ptosis** [toe' sis] Drooping of the upper eyelid.

**PTV Planning Tumor Volume.** A term used in planning radiation therapy, it is the area to be irradiated including the tumor and (usually) a small additional area surrounding it.

**PubMed** A system provided by the US National Library of Medicine to search MEDLINE, the computerized database of medical articles, references and abstracts.

**pulmonary** [pull' mon air ee] Refers to the lungs.

**QOL** Quality of life.

**quality of life** Refers to level of comfort, enjoyment and ability to pursue daily activities. Often used in discussions of treatment options. Many clinical trials measure aspects of a person's sense of well-being and ability to perform various tasks in order to assess the effects that cancer and its treatment have on the person. *Commonly abbreviated QOL.*

**R01 Grant** A Research Project Grant awarded by the National Cancer Institute. This type of grant provides support for a specific research project initiated by an investigator in the field.

**RA** Research Assistant; Research Associate.

**radiation oncologist** A radiologist who specializes in the use of radioactive substances and x-rays for the treatment of tumors and cancer.

**radiation therapist** A health professional who gives radiation therapy.

**radiation therapy** The use of radiation energy to interfere with tumor growth. *Also called irradiation.*

**radical** Radical surgery is the resection of a tumor and a wide margin around the tumor in an attempt to remove any spreading cells.

**radioactive** Giving off radiation.

**radioactive monoclonal antibodies** An antibody is a substance produced by white blood cells in response to a foreign object (an antigen). The human body often considers tumor cells to be foreign objects because they have unique proteins (antigens) Because an antibody binds only to a specific antigen, it can act as a homing device to a tumor cell. Monoclonal antibodies, manufactured in large quantity in the laboratory, can be mated to radioactive isotopes which kill tumor cells.

**radioisotope** An unstable element that releases radiation as it breaks down. It can be used in imaging tests or as a treatment for cancer. *Also called isotope.*

**radiolabeled** Any material that has been joined to a radioactive substance.

**radiologist** A physician trained in the use of radioactive substances, x-rays, and other imaging techniques to arrive at a diagnosis.

**radionuclide scanning** A technique to produce images of internal parts of the body. A small amount of radioactive material is injected or swallowed. A scanning machine then measures the radioactivity in certain organs.

**radioprotectors** Drugs used to protect normal brain cells from the effects of radiation therapy.

**radioresistant** Resistant to radiation therapy.

**radiosensitive** Responsive to radiation therapy.

**radiosensitizers** Drugs used before or during radiation therapy to make tumor cells more sensitive or vulnerable to radiation therapy.

**radiosurgery** Stereotactic radiosurgery. A special, focal form of radiation therapy that uses a large number of narrow, precisely aimed, high dose beams of ionizing radiation. The beams are aimed from many directions circling the head to meet at the tumor. The treatment is delivered in one session. Stereotactic radiotherapy or fractionated stereotactic radiosurgery (FSRS) is stereotactic radiosurgery delivered in multiple fractions of the National Cancer Institute (NCI) to facilitate translation to the clinic of novel, scientifically meritorious therapies originating in the academic community.

**randomized study** A study having two or more “arms.” The treatment arm (standard versus new) assigned to each patient is determined by a computer. Randomization is used to prevent bias and ensure that an equal number of patients are assigned to each arm of the study.

**rate** A measure of the amount of a disease in a specific population, calculated by counting the number of patients with the disease and dividing

by the total population at risk. Rates are expressed as a unit of person-years (usually 100,000). A person-year is one person for one year.

**rCBV** [r c b v] Acronym for **regional Cerebral Blood Volume**, a measure of the flow of oxygenated blood through the brain.

**RCT** **Randomized Clinical Trial.**

**RD** **Registered Dietician.**

**real time MRI** This technique produces MRI images in a faster sequence than traditional MRIs. The increased speed permits the visualization of the use of oxygen by the tumor and the brain tissue. This technique is important because it depicts an area of the brain “lighting up” when the patient performs a task, such as moving a finger, or speaking. In this way, brain maps of functional areas are generated, useful for preoperative surgical planning and intraoperative avoidance of functional or “eloquent” areas of the brain. *Also called echoplanar, functional, or Fast MRI.*

**receptor-mediated permeabilizers** A way of delivering drugs through the blood brain barrier. Receptor-mediated permeabilizers are synthetic substances modeled after naturally occurring compounds. These substances temporarily increase the openings of the blood brain barrier, allowing drugs to pass into the brain. *Abbreviated RMP.*

**RECIST** **Response Evaluation Criteria in Solid Tumors.** A set of rules that defines when tumors shrink (respond), stay the same (stable), or grow (progress) during treatment. Clinical trials investigating new treatments often use RECIST to evaluate response to treatment. The basic criteria (simplified) are:

**Complete Response (CR):** Disappearance of a tumor(s)

**Partial Response (PR):** At least a 30% decrease in the diameter of a tumor

**Progressive Disease (PD):** At least a 20% increase in the diameter of a tumor

**Stable Disease (SD):** Neither PR nor PD

**recurrence** Reappearance of the tumor. The return of symptoms or the tumor itself, at the same site as the original (primary) tumor or in another location, after the tumor had disappeared for a time.

**red blood cells** Cells that carry oxygen to all parts of the body. *Also called erythrocytes or RBCs.*

**registered nurse** A trained professional who uses nursing process to provide health care and teach patients, their families and the public about disease management. *Abbreviated RN.*

**rehabilitation** The process of restoring mental and/or physical function after illness or injury, often with the assistance of specialized healthcare professionals.

**relapse** The return of signs and symptoms of a disease after a period of improvement.

**remission** The disappearance of symptoms or the disappearance of the tumor. A remission can be permanent or temporary.

**resectable** [re sect´uh bull] Suitable for resection, i.e., surgical removal.

**resection** [ree sek´shun] Surgical removal of a tumor. Often used with an adjective, for example, macroscopic total resection — removal of all visible tumor; partial or subtotal resection — some visible tumor could not be removed.

**reservoirs** A small “container” such as an Ommaya Reservoir is surgically placed under the scalp. A tube leads from the reservoir into a ventricle of the brain. Medications are injected via syringe into the reservoir and then the reservoir is pumped. The pumping begins the flow of drug through the ventricles and lining of the spine. Chemotherapy administered this way is usually repeated on a regular schedule.

**resident** A medical doctor who has completed medical school and internship, and is receiving further training in a specialized area. Completion of a residency program is required for board certification in a medical or surgical specialty.

**residual tumor** [ree zid´yu all] Tumor remaining after treatment.

**respiration** Breathing. To inhale and exhale.

**reticular formation** [reh tik´you lar] A network of nerves in the center of the brain stem.

**retinoid** Vitamin A or a vitamin A-like compound.

**RFA** **Request for Applications.**

**RFP** **Request for Proposals.**

**risk/benefit ratio** The relationship between possible risks and potential benefits of a treatment. Patients and their families must decide if the ratio is reasonable for them.

**risk factor** Anything that increases the chance of developing a disease.

**Ribonucleic Acid** One of the two nucleic acids found in all cells. The other is DNA. RNA transfers genetic information from DNA to proteins produced by the cell. RNA directs the manufacture (synthesis) of proteins.

**RN** **Registered Nurse.**

**RNA** **Ribonucleic Acid.**

**robotic surgery** [row bot´ik] An experimental system consisting of a computer, microscope and mechanical arms to hold instruments that assists surgeons when performing delicate and prolonged surgeries.

**ROM** **Range of motion.**

**RPA** **Recursive Partitioning Analysis.** A statistical method of identifying patient subgroups with significantly different survival rates. A tool used to improve the design of clinical trials.

**RPT** **Registered Physical Therapist.**

**RT or XRT** **Radiation Therapy.**

**RTT** **Radiation Therapy Technician.**

**RX, Rx** **Treatment; prescription.**

**sagittal** [saj´ih tal] The front to rear plane of the body (chest to back).

**SAQ** **Sexual Adjustment Questionnaire.** A quality of life assessment tool.

**sarcoma** [sar ko´ma] A tumor that arises from connective tissue, bone, cartilage or striated muscle. It spreads by extension into neighboring tissue or by way of the blood stream. Sarcomas are often highly malignant.

**scans** Images of structures inside the body for diagnosis and to monitor progress. The most common scans are the CT and MRI. To improve clarity of the images, contrast agents (special dyes) or radioactive substances might be prescribed and allowed to circulate in the body before the scan is made.

**schwannoma** [schwahn no´ ma] A benign brain tumor that originates in the Schwann cells which produce the myelin that protects a nerve. If the schwannoma is on the 8th cranial nerve (the nerve of hearing), it is called a vestibular schwannoma or an acoustic neuroma.

**screening** Checking for disease when there are no symptoms; usually performed on high-risk individuals, e.g. lung x-rays for those who smoke.

**second primary** A second type of cancer in an already diagnosed cancer patient. The second cancer is not related to the first.

**secondary tumor** Cancer that has spread from the organ in which it arose to a new site. *Also called a metastatic cancer.*

**SEER** Surveillance, Epidemiology and End Results. A program of the National Cancer Institute, SEER is the source of most of the published cancer statistics in the United States. It collects data from cancer registries representing about 15% of the total US population to represent the country as a whole.

**seizure** [see´ zhur] A sudden attack that causes a wide range of unusual movements, behaviors and sensations; caused by abnormal electrical activity in the cerebral hemispheres of the brain. *Also called convulsion, epilepsy.*

**selective** Discriminating, choosy. A term used in relation to

- 1) the blood brain barrier, which is selectively permeable;
- 2) antibodies, where antibodies will bind only to particular cells, a trait that is crucial for effective drug or radiation delivery; 3) other forms of treatment whose success relies on limiting the types of tissue affected.

**sella** [sel´ ah] The saddle-shaped, hollowed extension of the sphenoid bone that contains the pituitary gland. *The full name is sella turcica.*

**sella turcica** [sel´ ah • tur´ sik ah] The saddle-shaped, hollowed extension of the sphenoid bone that contains the pituitary gland.

**senses, somatic** Senses other than the special senses — touch, pain, temperature, pressure, vibration, tickling, proprioception (sense of body position).

**senses, special** Sight (vision), hearing (auditory or acoustic), balance (vestibular), taste (gustatory), smell (olfactory).

**sensitive** Responsive to, affected by.

**sensory** Sensation, the senses. Information from the external or internal environment. The “sensory cortex” is located in the postcentral gyrus in the parietal lobe.

**sequela** [sih kwel´ ah] A condition caused by a disease, a consequence of a disease. For example, hearing loss due to an acoustic neuroma.

**serum** [sere´ um] The clear liquid that separates from blood when it clots. This fluid retains any antibodies that were present in the whole blood.

**SFR** Spatially Fractionated Radiation. A method of delivering radiation based on the knowledge that if radiation is limited to small areas, a much larger dose can be used without undue risk. SFR directs many small beams of radiation to a large tumor instead of one or more larger beams. *Also called GRID.*

**shunt** A drainage system. Spinal fluid flows through a surgically implanted tube from a ventricle in the brain into a body cavity. Often used to relieve increased intracranial pressure caused by brain tumors blocking the flow of spinal fluid. The ventriculo-atrial shunt empties into the heart; the ventriculo-peritoneal shunt empties into the abdomen.

**side effects** Symptoms related to treatment or experienced following treatment. Common side effects of cancer treatments include nausea and vomiting, hair loss, decreased blood counts and/or mouth sores.

**signaling pathways** The molecular steps preceding and following an action by any gene or gene product. The way cells regulate functions such as cell replication, movement, etc. The way cells communicate, signal, or “talk” to one another.

**single blind study** A technique that might be used in a clinical trial to prevent bias on the part of a patient. Patients are not told whether they are receiving standard treatment or the new treatment being tested, but their doctors know.

**sinus** A cavity or channel from one area to another; in the brain, veins drain through several sinuses.

**site** Location in the brain or spinal cord.

**skull base** The bony areas that support the bottom of the brain.

**skull base tumors** Tumors located along the bones that form the bottom of the skull, or along the bony ridge in back of the eyes are called skull base tumors. These tumors are most often chordomas, meningiomas, glomus jugulare, schwannomas or metastatic tumors.

**SmartBeam** Brand name of a method used to shape the radiation beam used in IMRT.

**SNDA** Supplemental New Drug Application. The application a pharmaceutical company files with the Food and Drug Administration (FDA) to obtain approval to market a drug for an indication in addition to its original purpose.

**SNO** Society for Neuro-Oncology. A multidisciplinary professional organization dedicated to promoting awareness in neuro-oncology through research and education.

**SOB** Shortness of breath.

**social worker** A licensed professional who provides counseling to patients, their families and other healthcare professionals, as well as connecting them to essential community resources.

**SOMA** Subjective Objective Management Analytic. A mental ability scoring tool used to assess the effects of radiation on normal brain tissue.

**somatic cells** [so mat´ ik] All cells in the body except for eggs and sperm (germ cells).

**somatic** Refers to the wall of the body. Excludes the internal organs (viscera) of the abdomen and chest.

**Somatosensory Evoked Potentials**

Somatosensory-evoked potentials measure the electrical response (evoked potential) of an area of the brain which has been delicately stimulated by a special probe. Used to pre-determine the function of critical areas of brain tissue so those areas can be avoided during surgery and more extensive tumor removal can be achieved. *Abbreviated SSEP.*

**somatotropin** Growth hormone, produced by the anterior lobe of the pituitary gland.

**spasticity** [spas tis´ ih tee] Increased involuntary muscle contraction.

**spatially fractionated radiation** A method of delivering radiation based on the knowledge that if radiation is limited to small areas, a much larger dose can be used without undue risk. SFR directs many small beams of radiation to a large tumor instead of one or more larger beams. *Also called GRID.*

**specialists** Highly trained individuals: doctors who are board certified in their area of expertise who usually have undergone some years of additional training via fellowships; health care professionals who have undergone specialized training and are certified or licensed in their area of expertise. Some of the specialists involved in caring for brain tumor patients are: neurosurgeons, neurologists, radiation oncologists and therapists, medical oncologists, dietitians, psychologists, endocrinologists, physiatrists, physical and occupational therapists, social workers, nurses, anesthesiologists, neuro-oncologists, neuropathologists, ophthalmologists, otolaryngologists, pharmacists, physician’s assistants, and speech pathologists.

**SPECT** **S**ingle **P**hoton **E**mission **C**omputed **T**omography. A scanning technique that uses radioactive materials.

**speech (and language) therapist** A professional trained to assist patients in restoring speech and communication functions.

**SPF** **S**un **P**rotection **F**actor. A system indicating the amount of sun screen protection in a product.

**sphenoid sinus** [sfe´noyd • sigh´nus] An opening through the sphenoid bone of the skull that connects with the nasal cavity.

**spinal cord** Nerve fibers that begin in the medulla oblongata of the brain stem and continue through the hollow center of the bones of the spine.

**spinal cord tumors** Tumors of the spine or spinal cord. Common tumor types include metastatic tumors, chordomas, schwannomas, meningiomas, astrocytomas and ependymomas.

**spinal fluid** The clear fluid made in the ventricular cavities of the brain that bathes the brain and spinal cord. It circulates through the ventricles and the subarachnoid space. *Also called cerebrospinal fluid, and abbreviated CSF.*

**spinal tap** Needle penetration into the subarachnoid space of the lumbar spine. Used to withdraw a sample of spinal fluid for examination or to inject a dye into the spine prior to a myelogram. *Also called lumbar puncture.*

**spine** The backbone, consisting of 33 segments called vertebrae:

- 7 cervical (the neck); 12 thoracic (the chest);
- 5 lumbar (the waist and lower back); 5 sacral (fused into one sacrum); and 4 coccygeal (fused into one coccyx), the tailbone.

**SPORE** **S**pecialized **P**rograms of **R**esearch **E**xcellence. A National Cancer Institute funded program of clinical research that focuses on research designed to convert novel ideas into interventions that can help people with cancer or those at risk for cancer.

**SRS** **S**tereotactic **r**adiosurgery.

**SRT** **S**tereotactic **r**adiotherapy.

**S/S, S&S** **S**igns and **S**ymptoms of a disease. Signs are what doctors see or measure; symptoms are what the patient feels.

**SSA** **S**ocial **S**ecurity **A**dministration.

**SSI** **S**upplemental **S**ecurity **I**ncome.

**SSDI** **S**ocial **S**ecurity **D**isability **I**nsurance.

**stable disease** The tumor is staying the same size; it is not getting bigger or smaller.

**stage, staging** A method of indicating if a tumor has spread beyond its site of origin. Malignant brain tumors might spread into the cerebrospinal fluid, to the spinal cord and throughout the brain. The system of staging for cancers elsewhere in the body (called the TNM system) is not widely applied to brain tumors.

**stalk** A stem. Often refers to the pituitary stalk that connects the pituitary gland to the hypothalamus.

**standard treatment** An effective, approved treatment — as opposed to an investigational treatment.

**state-of-the-art treatment** Treatment using the most current and effective tools and techniques available. Individuals practicing state-of-the-art health care attend and participate in professional meetings and often participate in clinical research.

**stem cells** Immature, uncommitted cells that can develop into one of various different types of cells. Stem cells are of interest to the research community because of their ability to replace injured or absent cells, and for other potential therapeutic uses.

**stem cell or bone marrow transplantation**

1. A procedure to replace bone marrow destroyed by high doses of anticancer drugs or radiation. Transplantation can be autologous (the person's own marrow or stem cells saved before treatment), allogenic (marrow or stem cells donated by someone else) or syngenic (marrow or stem cells donated by an identical twin).
2. Stem cell transplantation is also being investigated as a source of replacement cells for those that have been injured or are absent and to treat a host of other diseases.

**stereotactic** [steh ree o tak´tik] Precise positioning in three dimensional space. Refers to surgery or radiation therapy directed by various scanning devices. *Also called stereotaxis.*

**stereotactic needle biopsy** A needle biopsy accomplished with stereotactic guidance systems — a combination of computers and MRI or CT scanning equipment.

**stereotactic radiosurgery** [steh ree o tak´tik] A special, focal form of radiation therapy that uses a large number of narrow, precisely aimed, high dose beams of ionizing radiation. The beams are aimed from many directions circling the head, and meet at a specific point: the tumor. The treatment is delivered in one session. Stereotactic radiotherapy or fractionated stereotactic radiosurgery is stereotactic radiosurgery delivered in multiple fractions over a period of time. Commonly *abbreviated SRS.*

**stereotactic radiotherapy** [steh ree o tak´tik] A radiation therapy technique that uses a large number of narrow, precisely aimed, highly focused beams of ionizing radiation, delivered in divided doses over a period of time (fractionated). The beams are aimed from many directions circling the head, and meet at a specific point. Stereotactic radiotherapy is *abbreviated SRT.*

**stereotactic surgery** The use of computers to create a three dimensional image is called stereotaxy. Its purpose is to provide precise information about a tumor's location and its position relative to the many structures in the brain. Stereotaxy can be used by the surgeon to map out the surgical procedure beforehand and “rehearse” or during the surgery itself.

**stereotaxic biopsy** A computer guided needle biopsy. A needle biopsy is performed by making an incision in the skin and then drilling a small hole into the skull. A narrow, hollow needle is inserted through the hole and into the tumor. A small amount of tumor is drawn up into the needle. *Also called a stereotactic needle biopsy.*

**steroids** [stair´oidz] Medications used to decrease swelling and inflammation around tumors. *Also called glucocorticosteroids or corticosteroids.*

**stomatitis** [sto ma tie´tus] Inflammation of the cells (mucous membrane) lining the mouth, a possible side-effect of chemotherapy. One form of mucositis.

**STR** **S**ubtotal resection.

**strabismus** [strah biz´mus] Imperfect eye coordination (crossed eyes) due to an eye muscle imbalance.

**stratify** Grouped by like characteristics. In a clinical trial, patients are stratified into sub-groups so that more accurate comparisons can be made. For example, astrocytoma patients might be stratified by the grade of their tumor or the extent of their resection.

**study arm** One of the treatments offered in a clinical trial. *Also called arm, treatment arm.*

**subarachnoid space** [sub ah rack´noyd] The space between the arachnoid and the pia mater membranes of the meninges through which cerebrospinal fluid flows.

**subcutaneous** [sub cue tay´nee us] Beneath the skin.

**subependymal giant cell astrocytoma** [sub ep en´dih mul • as tro sigh toe´ma] A grade I astrocytoma, it is the ventricular tumor associated with tuberous sclerosis.

**subependymoma** [sub ep en dih mow´ma] A grade I, benign tumor that most often arises in the 4th ventricle or one of the lateral ventricles.

**suicide gene** Carried to the tumor by a harmless virus, the gene changes the tumor's genetic structure slightly so that a unique protein is produced. An anti-viral drug is then given which converts the protein into a toxin that kills the tumor cells.

**sulcus** [sull´kus] A groove, crease or crevice on the surface of the brain. *Also called a fissure.* The lateral fissure (fissure of sylvius) divides the temporal lobe from the frontal and parietal lobes; the central fissure divides the frontal and parietal lobes; the parieto-occipital fissure divides the parietal and occipital lobes. Sulci occur between adjacent gyri. The singular of gyri is gyrus. The plural of sulcus is sulci.

**superficial** [sou purr fish´ al] Close to the surface.

**support group** A group of people with a similar disease or illness who meet to discuss how better to cope with their illness and its treatment.

**suppressor T cells** A subset of T cells that turn off antibody production and other immune responses.

**supratentorial** [sou pra ten tor´ ee al] Above the tentorium, in the upper part of the brain. *Also called the supratentorium.*

**surgery** [sir´ jer ee] The physical removal of a tumor during an operation. *Also called resection.* Often used with an adjective, for example, macroscopic total resection — removal of all visible tumor; partial or subtotal resection — some visible tumor could not be removed.

**SWOG** **Southwest Oncology Group.** A clinical cooperative group funded by the National Cancer Institute organized to test new treatments in adult cancer patients.

**symptom** A change from normal function, sensation or appearance as described by the patient or someone close to them.

**syngenic transplant** [sin jen´ ik] Material such as blood, bone marrow or stem cells that is donated and received between identical twins.

**systemic** [sis tem´ ik] Affecting or circulating throughout the body.

**systemic therapy** [sis tem´ ik] Treatment using substances that circulate in the bloodstream thereby affecting the entire body.

**targeted therapy** [tar´ geh ted • thayr´ uh pee] Treatment individualized to match a biologic characteristic of a tumor, for example, treatment specifically developed to interact with a particular gene or a specific enzyme.

**T cells** A type of lymphocyte (small white blood cell) that directly attacks foreign substances in the blood. T cells direct and regulate the immune response by signaling other immune system defenders.

**T1 weighted image** MRI image showing structures; cerebrospinal fluid appears black on this scan picture.

**T2 weighted image** MRI image showing water; edema and cerebrospinal fluid appear white on this scan picture.

**tectal glioma** [tek´ tal • glee o´ ma] Located at the back of the midbrain, these are usually solid, focal, slow-growing tumors with a gradual onset of symptoms. They are often pilocytic or fibrillary astrocytomas.

**tectum** [tek´ tum] The roof of the midbrain.

**Temodar** *See temozolomide.*

**temozolomide** An anticancer drug that belongs to the family of drugs called alkylating agents. Its brand name is Temodar.

**temporal lobe** [tem´ po ral] One of the four lobes of the cerebral hemispheres.

**tentorium** [ten tor´ ee um] A flap of the meninges separating the cerebral hemispheres from the brain structures in the posterior fossa.

**teratoma, mature** [tare ah toe´ ma] A rare, benign germ cell tumor which most frequently occurs in male infants and young children. It is the most common brain tumor in newborns.

**tetracycline** An antibiotic drug, used to treat an infection.

**thalamus** [thal´ ah muss] The area surrounding the third ventricle. It acts as a relay station for other parts of the brain.

**thalidomide** A drug being investigated for its potential as an angiogenesis inhibitor.

**third ventricle** The fluid filled cavity connected to the lateral ventricles and the fourth ventricle. It is located beneath the corpus callosum and surrounded by the thalamus.

**thoracic** [thor ass´ ik] Refers to the chest, the part of the body that contains the heart and lungs.

**thrombocyte** [throm´ bo site] Blood cells that help prevent bleeding by causing blood clots to form. *Also called platelets.*

**thrombocytopenia** [throm bo sigh toe pea´ nee ah] A decrease in the normal number of platelets in the blood. This can cause easy bruising and excessive bleeding from injuries.

**thymus** [thigh´ mus] The thymus gland is a primary lymphoid organ. It is located high in the chest just below the neck and it is where T lymphocytes multiply and mature.

**TIL** **Tumor Infiltrating Lymphocytes.** These immune cells are extracted from an individual's tumor, treated in the laboratory and reinjected into the patient.

**tinnitus** [tin nye´ tus] Buzzing or ringing in the ear. Symptom common to tumors of the acoustic nerve.

**tissue** A group of similar cells united to perform a specific function.

**Toca 511 & Toca FC** Controlled active gene transfer technology that is a retroviral replicating vector that causes a complete complement of gene viruses and delivery of a therapeutic gene throughout a tumor. Presently being tested in clinical trials.

**tomotherapy** A three-dimensional method of delivering radiation therapy. The beam source is rotated around the patient.

**topoisomerase inhibitors** [toe poe eye som´ ur aze] A family of anticancer drugs. These enzymes are responsible for the arrangement and rearrangement of DNA in the cell and for cell growth and replication. Inhibiting these enzymes may kill cancer cells or stop their growth.

**totipotent** Stem cells that have the ability to mature into embryonic or postembryonic tissues and organs.

**toxins** [tok´ sinz] Poisons produced by certain animals, plants or bacteria that are very damaging to human cells, but can be delivered directly to target tumor cells by linking them to monoclonal antibodies or lymphokines.

**toxoplasmosis** [tok so plaz moe´ sis] A generalized infection of the central nervous system caused by a small parasite, the toxoplasma gondii. At risk for severe disease are individuals

with compromised immune systems such as AIDS patients, those who have undergone organ transplants, and those who have a weakened immune system.

**tract** A bundle of nerve fibers with a common origin and termination, e.g., the optic tract.

**trajectory** [truh ject´ o ry] Two very different medical definitions: Trajectory may describe the process of a disease or the sequence of encounters a patient will have with the health care system in the course of treating a disease. Also describes the angle, or pathway, taken through the brain during biopsy.

**transfusion** [trans fyu´ zhyn] The infusion of components of blood or whole blood into the bloodstream. The blood may be donated from another person or it may have been taken from the person earlier and stored until needed (autologous).

**translational research** Studies that provide the bridge between basic research and human testing. They provide the data to support the opening of clinical trials, or additional scientific evidence as to how a substance works.

**transsphenoidal surgery** [tranz sfe noyd´ al] A surgical approach often used for pituitary adenomas and craniopharyngiomas. Transsphenoidal means through the sphenoid bone — the bone under the eyes and over the nose.

**trauma** Any wound or injury. The result of an accident, a birth injury, surgery, etc.

**treatment arm** One of the different treatments being compared in a clinical trial. *Also called study arm.*

**trigeminal nerve** 5th cranial nerve.

**trochlear nerve** 4th cranial nerve.

**TSH** **Thyroid Stimulating Hormone.**

**TTP** **Time to Progression** (of tumor or disease).

**tuberous sclerosis** This is a hereditary, autosomal dominant disorder. Subependymal giant cell astrocytoma is the brain tumor associated with tuberous sclerosis. *Also called Bourneville's Disease.*

**tumor** [too´mur] An abnormal growth resulting from excessive cell division. Tumors can be benign or malignant by cell type, or life-threatening (malignant) by their location.

**tumor infiltrating lymphocytes** [lim´foe site] White blood cells that have left the bloodstream and migrated into a tumor.

**tumor invasion** A tumor's ability to spread into the normal tissue around it.

**tumor marker** Substances found in blood or other fluids that identify the presence of a tumor, and/or the tumor type. CA 125 is a marker for ovarian cancer; CA 15-3 is a marker for breast cancer; CEA is a marker for ovarian, lung, breast, pancreas and GI tract cancers; PSA is a marker for prostate cancer.

**tumor necrosis factor** A cytokine, one type of biological response modifier. They are produced by macrophages, part of the immune system, and can kill tumor cells directly. *Abbreviated TNF.*

**tumor suppressor gene** A gene that normally restrains cell growth, but, when missing or inactivated due to mutations, allows cells to grow uncontrolled and form tumors. If carried to the tumor by a special virus, it can restore normal function to existing but changed tumor suppressor genes or replace missing genes.

**tumorigenesis** [too mor ih jen´ih sis] Causing or producing tumors.

**TX, Tx** Treatment.

**UCR** Usual, Customary and Reasonable. A term used by insurance companies when evaluating claims.

**ultrasonic aspirator** A tool used to break tumors apart and then aspirate (suction out) the pieces. Ultrasonic waves cause vibration which fragments the tumor.

**ultrasound** A study in which sound waves (called ultrasound) are bounced off tissues and the echoes are converted into a picture (sonogram). Can be used during an operation to help guide the surgeon.

**uncommon brain tumors** With about 70,000 people diagnosed each year in the United States, all primary brain tumors are "uncommon." But, some tumors are more rare than others because of their tissue type, or because the tumor developed at an atypical age, or because the tumor grew in an uncommon location.

**undifferentiated** An immature, embryonic, or primitive cell. It has a nonspecific appearance with multiple nonspecific activities and functions poorly.

**unresectable** Inoperable. Cannot be surgically removed.

**vaccine** [vak seen´] A substance, generally injected into the body, that contains parts of antigens from an infectious organism or a substance purposefully engineered to trigger an immune response against a tumor or disease.

**vagus nerve** 10th cranial nerve.

**vascular** [vas´cue lur] Relating to blood vessels.

**vascularity** [vas ku lair´ih tee] The blood supply of a tumor.

**vector** [veck´to re] A carrier. A mechanism for delivering therapy to the cells of a tumor.

**ventilation** To supply air to the lungs.

**ventricles** [ven´trih kl] Four connected cavities in the brain through which cerebrospinal fluid flows.

**ventriculo-atrial shunt** [ven trik´you low - a´tree al] A drainage tube that carries fluid from a ventricle in the brain and empties into the right atrium of the heart. *Abbreviated VA shunt.*

**ventriculo-peritoneal shunt** [ven trik´you low - pear ih ton ee´al] A drainage tube that carries fluid from a ventricle in the brain and empties into the abdominal cavity. *Abbreviated VP shunt.*

**vermis** [vur´miss] The midline portion of the cerebellum located between the cerebellar hemispheres.

**vertebrae** [vur´tih bray] The 33 bones of the spine: 7 cervical (neck area); 12 thoracic (they are attached to the ribs); 5 lumbar (lower back);

5 sacral (joined together and called the sacrum); 4 coccygeal (joined together and called the coccyx or tailbone).

**vertigo** [ver´tih go] Dizziness. Symptom common to tumors of the acoustic nerve.

**vestibular schwannoma** [ves tib´you lar • shwah no´ma] A benign tumor of the nerve of hearing (the 8th cranial nerve) located in the angle between the cerebellum and the pons. Bilateral tumors may be associated with neurofibromatosis 2. *Also called acoustic neuroma or acoustic neurilemmoma.*

**vinca alkaloids** Anticancer drugs that inhibit cell growth by stopping cell division. They are also called antimetabolic or antimicrotubule agents, or mitotic inhibitors.

**viscera** [viss´ur ah] The internal organs of the chest and abdomen.

**visual area** Areas in the occipital lobe that are involved with vision.

**vitamins** Substances found in various foods that are necessary for normal functioning in the body.

**von Hippel-Lindau syndrome** A rare inherited disorder in which blood vessels grow abnormally in the eyes, brain, spinal cord, adrenal glands and other parts of the body. Those with the syndrome are at a higher risk for developing some types of cancer. *Abbreviated VHL.*

**Wada test** A test used to determine the location of the speech center in the brain. Named for the neurologist John Wada.

**wafer implants** During surgery, bio-degradable wafers soaked with a chemotherapy drug are placed into the cavity left by the tumor's removal. Gliadel is the brand name of this wafer. *Also called polymer wafer implants.*

**watchful waiting** Observation. The person's condition is closely monitored but treatment does not begin unless symptoms appear or change.

**WBRT** Whole Brain Radiation Therapy.

**Wernicke's area** An area of the temporal lobe involved in the understanding of verbal language.

If damaged, the ability to comprehend spoken words is lost. Located in the left hemisphere in about 97% of people.

**white blood cells** Cells that help the body fight infection and disease.

**white matter** Brain tissue composed of myelin-coated nerve cell fibers. White matter carries information between the nerve cells in the brain and spinal cord. The inner portion of the cerebrum is composed of white matter.

**WHO** World Health Organization. The author of the most widely used brain tumor classification system.

**WNL** Within Normal Limits.

**X-Knife** Brand name of a machine used to deliver linear accelerator stereotactic radiosurgery.

**xray** High-energy radiation used in low doses to diagnose disease and in high doses to treat cancer.

**XRT or RT** Radiation therapy.

**yolk sac tumor** A type of germ cell tumor. *Also called endodermal sinus tumor.*

**Zubrod Performance Scale** Performance status from zero (fully active) to four (completely disabled) that expresses a person's ability to function and perform normal daily activities.

**MEDICAL ABBREVIATIONS**

**BX** biopsy  
**DX** diagnosis  
**HX** history  
**IA** intra-arterial  
**IM** intramuscular  
**IV** intravenous  
**NPO** nothing by mouth  
**PO** by mouth  
**PX** prognosis  
**R/O** rule out  
**RX** treatment  
**↑** increase  
**↓** decrease

**PERTAINING TO MEDICINES**

**BID** twice a day  
**H** hour  
**Q** every  
**Q 4 H** every four hours  
**Q 6 H** every six hours  
**Q 12 H** every twelve hours  
**QD** every day  
**QID** four times a day  
**TID** three times a day  
**i** one  
**ii** two  
**iii** three

**MEDICAL PREFIXES**

**a, an** absent, without  
**anti** against  
**bi** two  
**dys** difficult, abnormal, not functioning properly  
**extra** outside  
**hemi** half  
**hetero** different  
**homo** alike, similar  
**hyper** high, excessive, increased  
**hypo** low, deficient, insufficient  
**infra** below, under  
**inter** between  
**intra** within, inside  
**macro** large  
**micro** small  
**mono** one  
**para** beside, next to, beyond  
**patho** disease  
**peri** around, surrounding  
**post** after  
**pre** before  
**sub** under, near, almost, moderately, less than  
**supra, super** above, over  
**tri** three

**MEDICAL ROOTS**

**aden, adeno** pertaining to a gland  
**angi, angio** pertaining to a blood vessel  
**cephal** pertaining to the head  
**cerebr, cerebri** pertaining to the brain  
**cyt, cyto** pertaining to cells  
**glossa** pertaining to the tongue  
**hema, hemo** pertaining to blood  
**idio** peculiar to a specific individual  
**immuno** pertaining to the immune system  
**neuro** pertaining to nerves  
**ocul, oculo** pertaining to eyes  
**onco** pertaining to a tumor or malignancy  
**phag** pertaining to eating or swallowing  
**pleb** pertaining to a vein  
**plegia** paralysis  
**psych** pertaining to the mind  
**thromb** pertaining to a blood clot  
**veni, veno** pertaining to veins

**MEDICAL SUFFIXES**

**algia** pain  
**cide** capable of killing  
**cyte** cell  
**ectomy** surgical removal  
**genesis** formation of  
**itis** inflammation  
**ology** study of  
**oma** tumor  
**otomy** opening  
**plasia, plasm** growth, formation  
**suppression** slowing down, restraint, inhibition

**MEASUREMENT TABLES**

**Length inches (in)** converted to meters (m)

1 inch = 2.54 centimeters (cm) = 25.4 millimeters (mm)

1000 millimeters (mm) = 100 centimeters (cm) = 1 meter

12 inches = 1 foot = .3 meter

3 feet = .9 meter

INCHES TO MILLIMETERS & CENTIMETERS		
INCHES/FEET	MILLIMETERS	CENTIMETERS
1/8"	3.2 MM	.3 CM
1/4"	6.4 MM	.6 CM
1/2"	12.7 MM	1.3 CM
3/4"	19.0 MM	1.9 CM
1"	25.4 MM	2.5 CM
1 1/2"	38.1 MM	3.8 CM
2"	50.8 MM	5 CM
2 1/2"	63.5 MM	6.4 CM

INCHES/FEET TO METERS	
INCHES/FEET	METERS
1 INCH	.0254 METER (2.5 CENTIMETERS)
12 INCHES (1 FOOT)	.3 METER
2 FEET	.6 METER
2.5 FEET	.8 METER
3 FEET	.9 METER
3.5 FEET	1.1 METERS
4 FEET	1.2 METERS
4.5 FEET	1.4 METERS
5 FEET	1.5 METERS
5.5 FEET	1.7 METERS
6 FEET	1.8 METERS
6.5 FEET	2 METERS

**MEASUREMENT TABLES**

**Length centimeters (cm)** converted to inches (in)

2.54 centimeters (cm) = 1 inch

CENTIMETERS TO INCHES	
CENTIMETERS	INCHES
1 CM	.39"
2 CM	.78"
3 CM	1.18"
4 CM	1.57"
5 CM	1.96"
6 CM	2.36"
7 CM	2.75"
8 CM	3.14"
9 CM	3.54"
10 CM	3.93"

 1/4 inch = about .6 cm

 1/2 inch = about 1.3 cm

 1 inch = about 2.5 cm

 1 1/2 inch = about 3.8 cm



This circle is 2 cm in diameter

**Weight pounds (lb)** converted to kilograms (kg)

1 ounce = 28 grams = .028 kilograms

16 ounces = 1 pound = .45 kilograms

1 gram = .035 ounces

1000 grams = 1 kilogram

POUNDS TO KILOGRAMS	
POUNDS	KILOGRAMS
1 POUND	.45 KILOGRAMS
2.2 POUNDS	1 KILOGRAM
5 POUNDS	2.25 KILOGRAMS
10 POUNDS	4.5 KILOGRAMS
15 POUNDS	6.75 KILOGRAMS
20 POUNDS	9 KILOGRAMS
25 POUNDS	11.4 KILOGRAMS
30 POUNDS	13.5 KILOGRAMS
35 POUNDS	15.8 KILOGRAMS
40 POUNDS	18 KILOGRAMS
45 POUNDS	20.3 KILOGRAMS
50 POUNDS	22.7 KILOGRAMS
75 POUNDS	34.1 KILOGRAMS
100 POUNDS	45.5 KILOGRAMS
110 POUNDS	50 KILOGRAMS
125 POUNDS	56.8 KILOGRAMS
150 POUNDS	68.2 KILOGRAMS
165 POUNDS	75 KILOGRAMS
175 POUNDS	79.5 KILOGRAMS
200 POUNDS	90.9 KILOGRAMS
222.2 POUNDS	100 KILOGRAMS

**MEASUREMENT TABLES**

**Weight kilograms** (kg) converted to pounds (lb)

1 gram = .035 ounce

28.35 grams = 1 ounce

1000 grams = 1 kilogram

1 kilogram = 2.2046 pounds

KILOGRAMS TO POUNDS	
KILOGRAMS	POUNDS
.45 GRAMS	1 POUND
1 KILOGRAM	2.2046 POUNDS
2 KILOGRAMS	4.4 POUNDS
5 KILOGRAMS	11 POUNDS
10 KILOGRAMS	22 POUNDS
25 KILOGRAMS	55 POUNDS
50 KILOGRAMS	110 POUNDS
100 KILOGRAMS	220 POUNDS

Educational brochures are available on our website or can be requested in hard copy format for free by calling the ABTA. Most brochures are available in Spanish, with exceptions marked with an asterisk.

**GENERAL INFORMATION**

About Brain Tumors: A Primer for Patients and Caregivers

Brain Tumor Dictionary\*

Brain Tumors Handbook for the Newly Diagnosed\*

Caregiver Handbook\*

**TUMOR TYPES**

Ependymoma

Glioblastoma and Anaplastic Astrocytoma

Medulloblastoma

Meningioma

Metastatic Brain Tumors

Oligodendroglioma and Oligoastrocytoma

Pituitary Tumors

**TREATMENT**

Chemotherapy

Clinical Trials

Conventional Radiation Therapy

Proton Therapy

Stereotactic Radiosurgery\*

Steroids

Surgery



# AMERICAN BRAIN TUMOR ASSOCIATION

To find out how you can get more involved locally, contact [volunteer@abta.org](mailto:volunteer@abta.org) or call 800-886-1281

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