

Brain tumors are created by abnormal and uncontrolled cell division within the brain tissue. Primary brain tumors, which are tumors that begin within the brain itself rather than spreading from cancers in other organs, can be either benign or malignant. A benign brain tumor can be life-threatening because of its location or behavior.¹

Facts and Figures

- In 2008, an estimated 44,500 new cases of primary brain tumors were diagnosed in the United States,¹ and an estimated 13,000 Americans die each year from primary brain tumors.² Primary brain tumors are named according to the cell of origin from which they are derived.
- Although primary brain tumors rarely metastasize, if they do spread, it is within the brain and spinal cord rather than to other organs.

Risk Factors

- The cause of primary brain tumors is unknown, however certain genetic and environmental factors have been associated with an increased risk of their development:³
 - **Gender:** More common in men than women
 - **Race:** Occur more often among Caucasians than any other race
 - **Family history:** People with family members who have gliomas are at greater risk
 - **Radiation exposure**
 - **Chemical exposure:** Including formaldehyde (pathologists and embalmers), vinyl chloride (used in making plastics) and acrylonitrile (used in making textiles and plastics)

Symptoms

- Symptoms are determined by tumor size and location and are triggered when a tumor damages a certain area of the brain or a nerve, either by direct pressure, invasion or associated swelling of the surrounding brain tissue, or when a tumor causes an increase in intracranial pressure.
- The most common symptoms of brain tumors are:³
 - Headaches
 - Seizures or convulsions
 - Nausea or vomiting
 - Vision or hearing problems
 - Weakness in the arms, legs or face muscles
 - Behavioral and cognitive problems

Glioblastoma Multiforme (GBM)

- The most common primary brain tumors are gliomas which are derived from glial (supportive) cells.⁴ Glioblastoma multiforme (GBM), also known as grade IV astrocytoma, is the most aggressive form of glioma. It is also the most common and most aggressive type of primary brain tumor, accounting for 50-60 percent of all primary brain tumors and 12-15 percent of all intracranial tumors.⁴
- There are an estimated 10,000 new cases of GBM annually in the United States. GBM predominantly affect adults aged 50-70⁵.

Diagnosis and Treatment

- Current treatments for brain tumors include surgery, radiation therapy, and chemotherapy (separately or in combination).¹
- Despite scientific advancements, the incidence and mortality rates for primary brain tumors have changed little in the last decade.⁶
- Data from the Central Brain Tumor Registry of the United States for 2005 indicate that the five-year survival rate for all brain and central nervous system tumors was 29.1 percent. However, the five-year survival rate for GBM was 3.3 percent and the median survival only 7.5 months, underscoring the need for treatment advances for this patient population.⁷
- Few patients with GBM survive longer than three years and only a handful survive five years.⁴

For additional information, please visit: <http://www.pfizer.com/asco>.

¹ North American Brain Tumor Coalition. Know the Facts. Available at <http://nabraintumor.org/facts.html>. Accessed April 21, 2009..

² Greenlee RT, Murray T, Bolden S, Wingo PA. *Cancer statistics, 2000*. CA Cancer J Clin 2000;50:7-33.

³ National Cancer Institute: What You Need to Know about Brain Tumors. Brain Tumors: Who's at Risk? Available at <http://www.cancer.gov/cancertopics/wyntk/brainpage8>. Accessed April 21, 2009.

⁴ Uddin S, Jarmi T. *Glioblastoma Multiforme*. Available at <http://www.emedicine.com/NEURO/topic147.htm>. Accessed on April 21, 2009.

⁵ Tse, Victor. Brain Metastasis. Available at [http:// http://emedicine.medscape.com/article/1157902-overview](http://emedicine.medscape.com/article/1157902-overview). Accessed April 21, 2009.

⁶ National Cancer Institute. A Snapshot of Brain and Central Nervous System Cancers. Available at: <http://searchosp1.nci.nih.gov/disease/Brain-Snapshot.pdf>. Accessed on April 28, 2009.

⁷ Central Brain Tumor Registry of the United States (2005) Statistical Report: Primary Brain Tumors in the United States, 1998-2002. Published by the Central Brain Tumor Registry of the United States, p. 9.