

**Carl R Darnall Army Medical Center  
Cancer Registry Data, Study, and Analysis  
of Primary Brain and Central Nervous  
System Tumors: Years 2000-2008**

**12/01/2011: This outcome study was performed to meet Standard 8.1 of the American College of Surgeons, Commission on Cancer, Cancer Program Standards, Revised 2009**

**Study Topic:** Analysis of Primary Brain Tumors diagnosed in CRDAMC between years 2000-2008

**Method:** We extracted the data from our Tumor Registry data base and combined both malignant and non-malignant brain tumors since our brain tumor population is small.

The Central Brain Tumor Registry of the United States (CBTRUS) estimated there would be 64,530 new cases of primary brain and CNS tumors reported in the United States (US) in 2011, including both malignant and non-malignant brain tumors.

The American Cancer Society most recently estimated about 22,340 malignant tumors of the brain or spinal cord (12,260 in males and 10,080 in females) will be diagnosed in 2011. About 13,110 people (7,440 males and 5,670 females) will die from these tumors. The chance that a person will develop a malignant tumor of the brain or spinal cord in his or her lifetime is less than 1% (about 1 in 150 for a man and 1 in 185 for a woman).

Survival rates for this disease will vary widely, depending on the type of tumor.

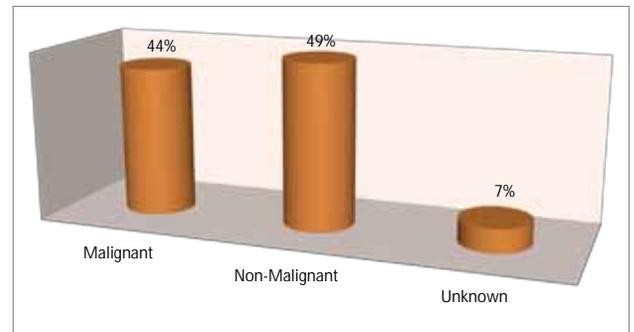
The CBTRUS reported that in Texas alone an estimated 4,700 new cases of malignant and non-malignant primary brain and CNS tumors will be diagnosed in 2011. They also estimated that 840 cases will die from malignant tumors.

In Darnall, from years 2000-2008 our registry accessioned 57 new cases of primary brain and CNS tumors. The results of our study are as follows.

**Results:**

Figure 1

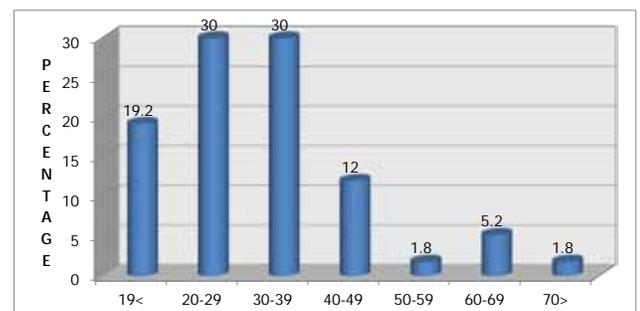
All Primary Brain and CNS Tumors by Behavior



We had a slightly higher number of non-malignant than malignant brain and CNS tumors; forty four percent (44%) of all tumors were malignant and 49% were non-malignant.

Figure 2

Age At Diagnosis

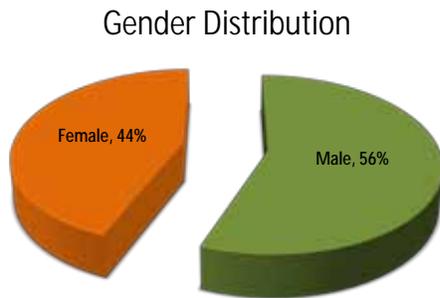


The CBTRUS reported that the incidence for all brain and CNS tumors is higher among ages 75-84 years old and lowest among children less than 20 years old. In Darnall thirty percent (30%) of all cases occurred among young adults and adults ages 20-39. The lowest

percentage of brain and CNS tumors was in patients over 50 years of age with 8.8% of the cases.

The 2<sup>nd</sup> group with the highest percentage of brain and CNS tumors was children ages 0-19 years old, accounting for 19% of all cases. Our median age at diagnosis for all primary brain and CNS tumors was 30 years old.

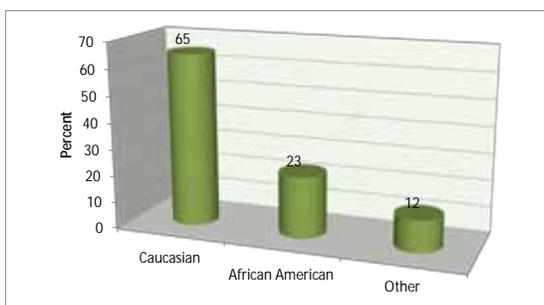
Figure 3



Our gender distribution shows that we diagnosed more males than females. Males accounted for 56% of the cases and females for 44%.

Figure 4

Race Distribution

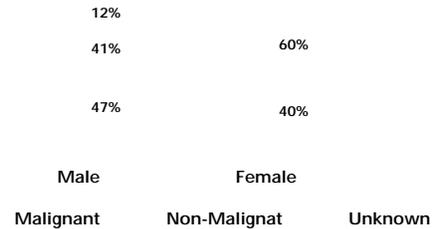


More Caucasians were diagnosed with brain and CNS tumors than any other ethnic group and accounted for 65% of all cases. Based on

CBTRUS and SEER, this is consistent with the nation.

Figure 5

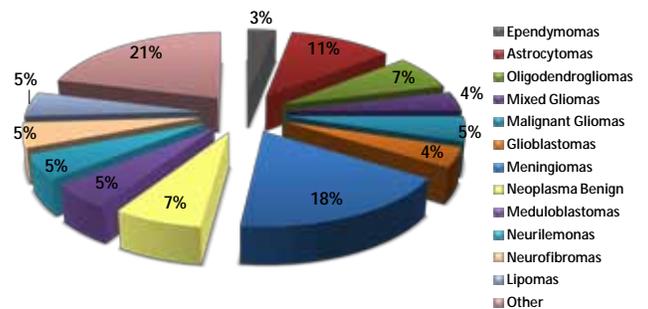
Primary Brain and CNS Tumors by Gender and Behavior



More males were diagnosed with malignant brain and CNS tumors than females. Males accounted for 47% of all malignant tumors and females accounted for 40% of malignant cases.

Figure 6

Distribution of All Primary Brain and CNS Tumors by Histology



The most common histology group was the non-malignant meningioma which accounted for 18% of all tumors, followed by astrocytomas with 11% of all cases.

Meningioma is a tumor that grows in the meninges, the layers of tissue covering the brain and spinal cord and as they grow, meningiomas compress adjacent brain tissue. The symptoms are often related to the compression of brain tissue, which can also affect cranial nerves and blood vessels. Per

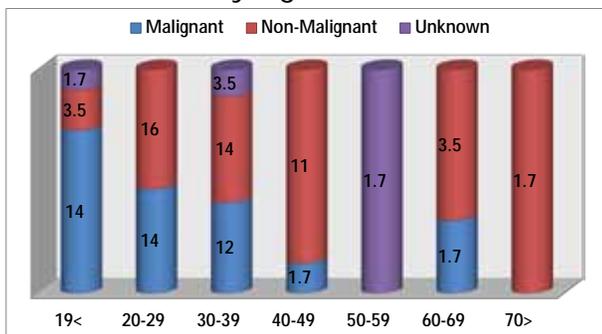
CBTRUS, meningiomas are more than twice as common in females as compared to male. In Darnall, 80% of these meningiomas were diagnosed in females.

Astrocytoma is a glioma type tumor, developed from star-shaped glial cells called astrocytes. They may occur in many parts of the brain, but most commonly in the cerebrum, they occur less commonly in the spinal cord. People of all ages can develop astrocytomas, but they are more prevalent in adult, middle-aged, men and children or younger people and account for the majority of children's brain tumors.

In Darnall, Gliomas in general accounts for 34% of all Brain and CNS tumors and 76% of all malignant tumors.

Figure 7

Percent of Primary Brain and CNS Tumors by Age and Behavior



The highest percent of malignant cases were among children and young adults, younger than 29 years of age, with 14% of all cases respectively. Astrocytomas and medulloblastomas were the most common primary tumors in children, ages 0-19, and meningiomas were the most common tumor found in older adults (30>) mostly females. CBTRUS indicated that the incidence of all primary brain and CNS tumors appears to increase with age; but in Darnall, as the

population aged the incidence of brain and CNS tumors decreased.

### Conclusion

Darnall had a small population of primary brain and CNS tumors, during this time frame.

Our numbers indicated that this disease affected a younger population more frequently than an older population. The highest percentage of cases were among ages 20-39, followed by children 0-19 years of age. The highest percent of malignant cases were between ages 0-29. This finding may be due to the fact that we serve a young population. Most of our over-65 year old patients have civilian primary care providers; hence, they would be diagnosed and treated off post and would not be eligible for inclusion in our Cancer Registry.

Males were the gender with the highest number of diagnosed tumors, as well as with the highest diagnosed malignant tumors.

The total number of primary brain and CNS tumor deaths to date was 5 cases, which is 9% overall.

The 5 year overall survival rate from years 2000- 2006 was 93%.