

Malignant Brain Tumour

Brain Health in Ontario Project



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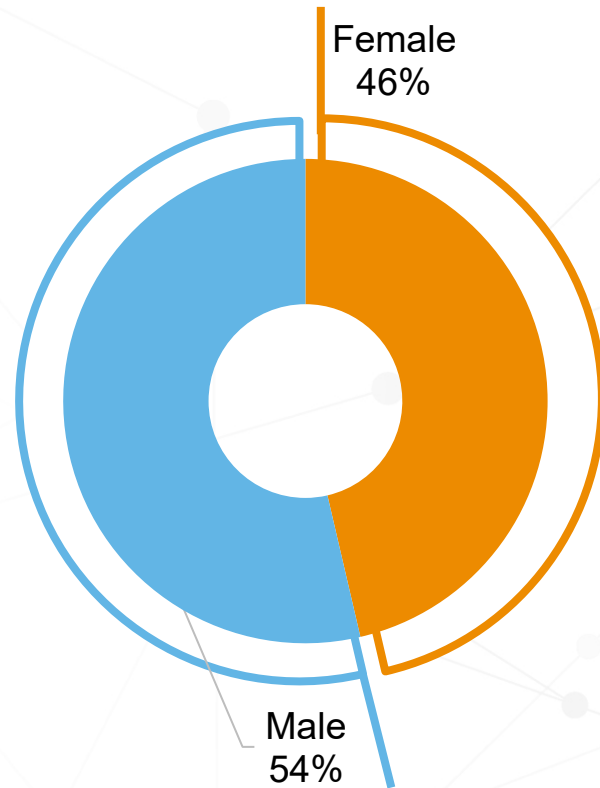
WELCOME TO BRAIN CENTRAL



Malignant Brain Tumour

- Malignant brain tumours are cancerous growths in the brain and are classified as either primary or secondary brain tumours.
- Primary tumours originate in cells of the brain, while secondary tumours originate in other types of cells that travel to the brain. Primary malignant brain tumours grow rapidly and can invade surrounding structures and tissues. Some types of primary malignant brain tumours may spread to other central nervous system sites.
- Secondary malignant brain tumours, also known as brain metastases, arise from a site outside the brain. An example is lung cancer that has spread to the brain. These types of cancers may also spread to other body organs.
- While some tumours can be surgically removed, surgery is not always an option due to the location of the tumour in the brain. In these cases, chemotherapy or radiation may be used to treat the malignant brain tumour.

Demographics: Sex distribution

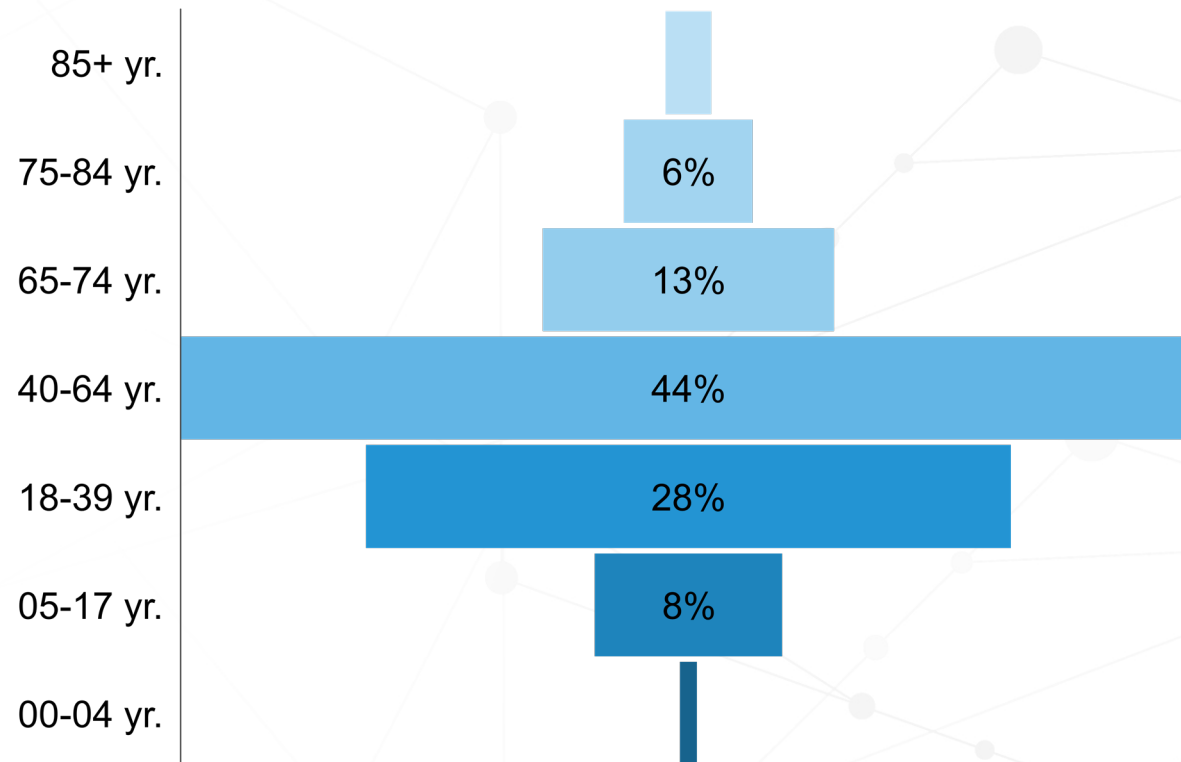


On April 1, 2019 males accounted for 54% of the 6,103 Ontarians identified with a malignant brain tumour.

*Note, years represent the fiscal year. For example, 2019 is from April 1, 2019 to March 31, 2020.



Demographics: Age distribution

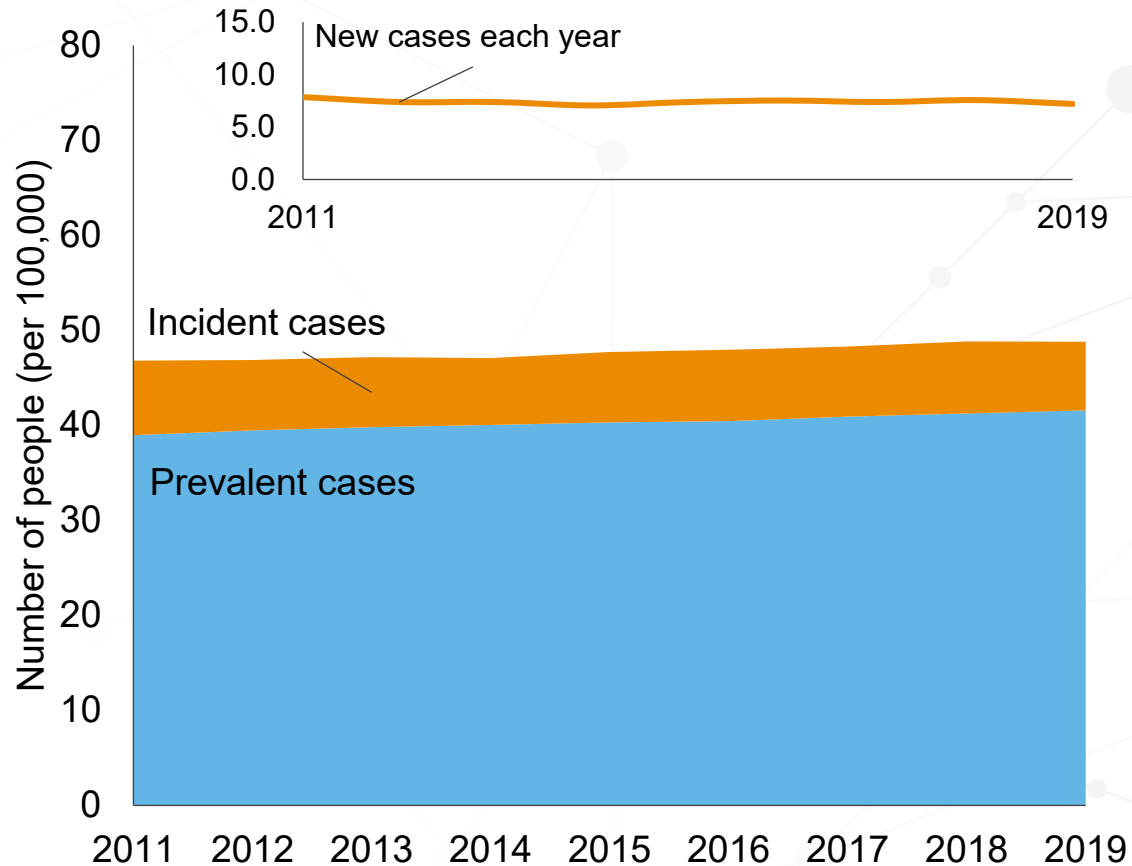


On April 1, 2019 the majority of people with a malignant brain tumour were between the ages of 40 and 64 years, with 80% of people being under the age of 65. The mean age of a person with malignant brain tumour was 47 ± 20 years.

*Note, years represent the fiscal year. For example, 2019 is from April 1, 2019 to March 31, 2020.



Prevalence and incidence over time



Incidence is the number of people newly diagnosed with a disorder within a given time period while prevalence is the number of people existing with the disorder at a given time.

The incidence and prevalence of Ontarians with a malignant brain tumour are depicted in orange and blue, respectively. Between 2011 and 2019, incidence changed from 7.85 to 7.21 per 100,000 people and prevalence increased from 38.97 to 41.59 per 100,000 people.

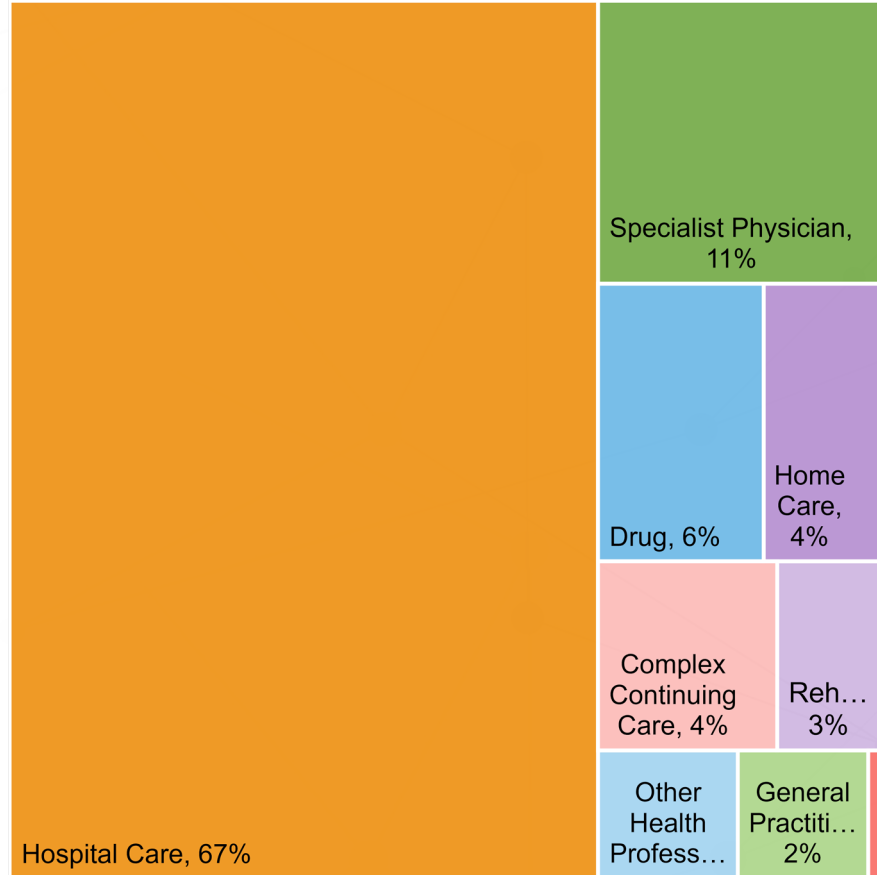
In total, the number of people with malignant brain tumour increased from 5,156 in 2011 to 6,103 people in 2019.

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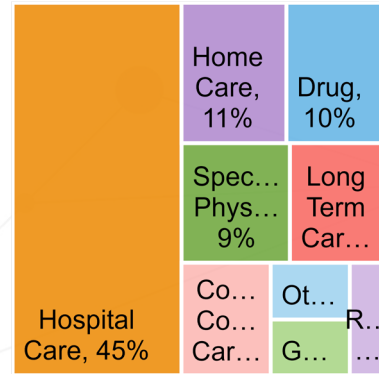


Cost Drivers: Incident vs. prevalent

Incident case cost drivers



Prevalent case cost drivers



- General Practitioner
- Specialist Physician
- Other Health Professional
- Hospital Care
- Drug
- Rehab
- Home Care
- Complex Continuing Care
- Long Term Care

*Cost drivers examined include: Hospital care, home care, general practitioner, specialist physician, other health professional, drug cost, rehab, complex continuing care, and long term care.



Cost Drivers: Incident vs. prevalent

In 2019, the average total cost to the health system for an Ontarian with a malignant brain tumour was 5.1X more for an incident case than a prevalent case. Cost relationship is indicated by total box size. The largest cost driver of both incident and prevalent cases was attributable to hospital care at 67% and 45% respectively.

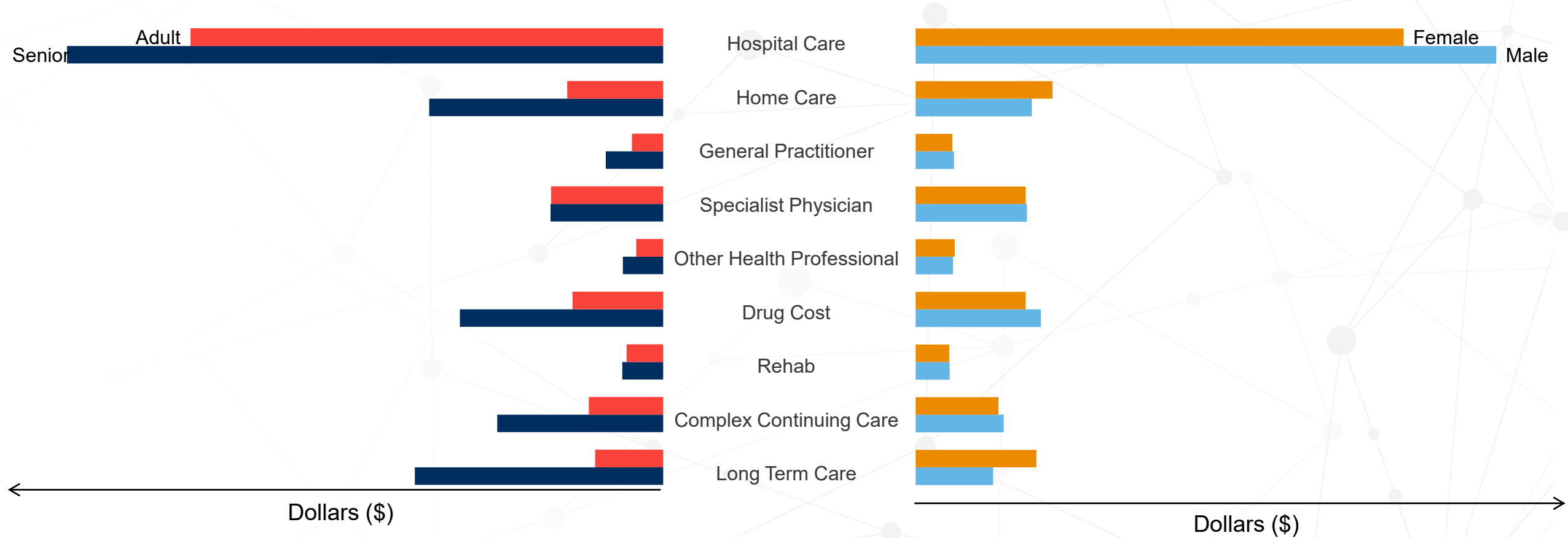
The average total health care costs for a person with a malignant brain tumour (prevalent case) for 1 year are 6X higher compared to the average Ontarian.

*Note, years represent the fiscal year. For example, 2019 is from April 1, 2019 to March 31, 2020.

*Cost drivers examined include: Hospital care, home care, general practitioner, specialist physician, other health professional, drug cost, rehab, complex continuing care, and long term care.



Cost Drivers vary by age and sex for prevalent cases



*Note, years represent the fiscal year. For example, 2019 is from April 1, 2019 to March 31, 2020.



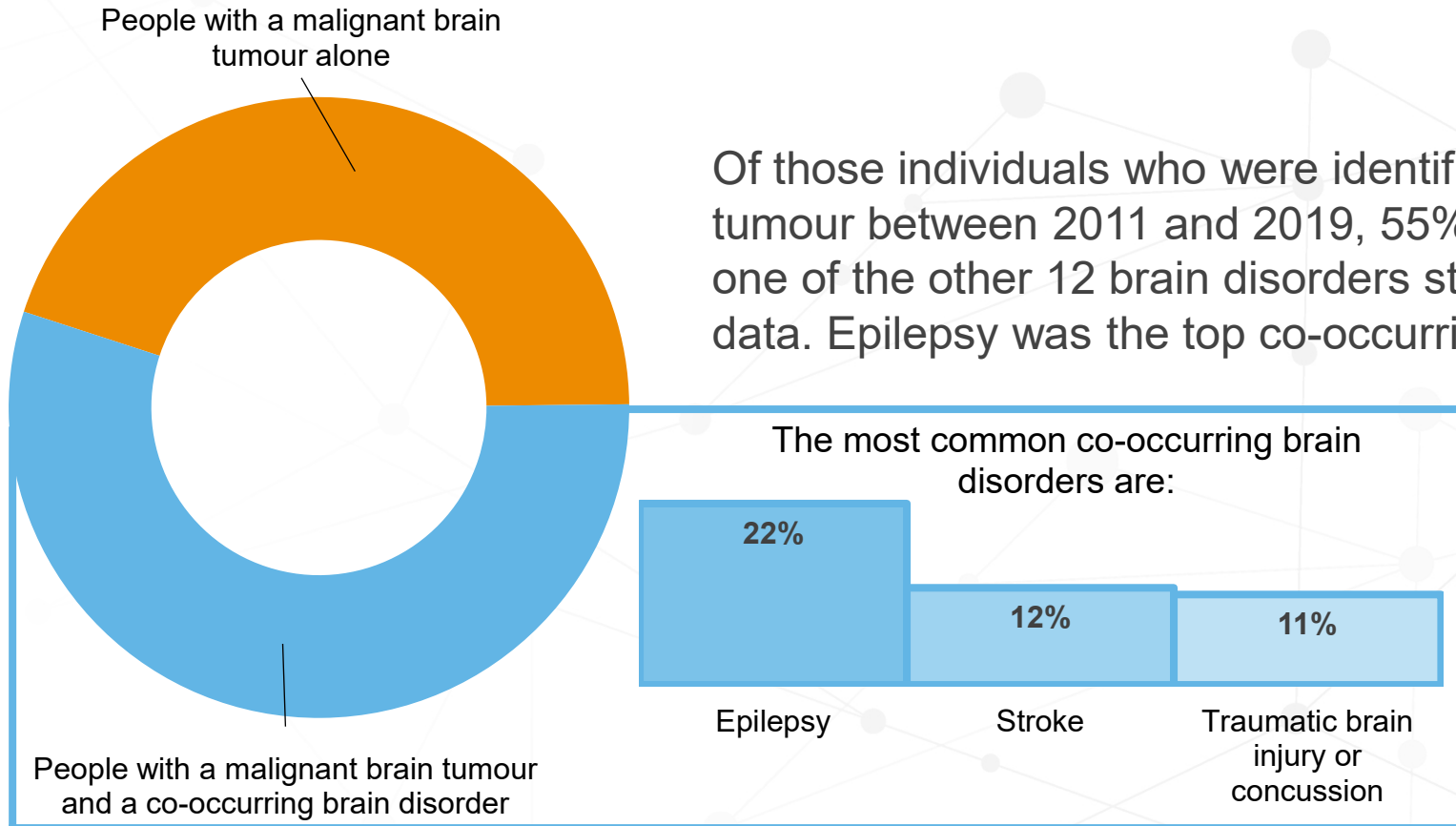
Cost Drivers vary by age and sex for prevalent cases

Overall, health care costs (in Canadian dollars, 2019) for people with a malignant brain tumour are higher for the senior (65+ years) population compared to adults (18 - 64 years) and are similar for females than males. The cost drivers, those services that drive health care costs, vary depending on age and sex. Amongst adults and seniors, hospital care accounts for the largest cost driver at 47% and 35% of all costs respectively. Hospital care is also the largest cost driver in females and males representing 42% and 48% of the health care costs respectively.

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Co-occurring brain disorders



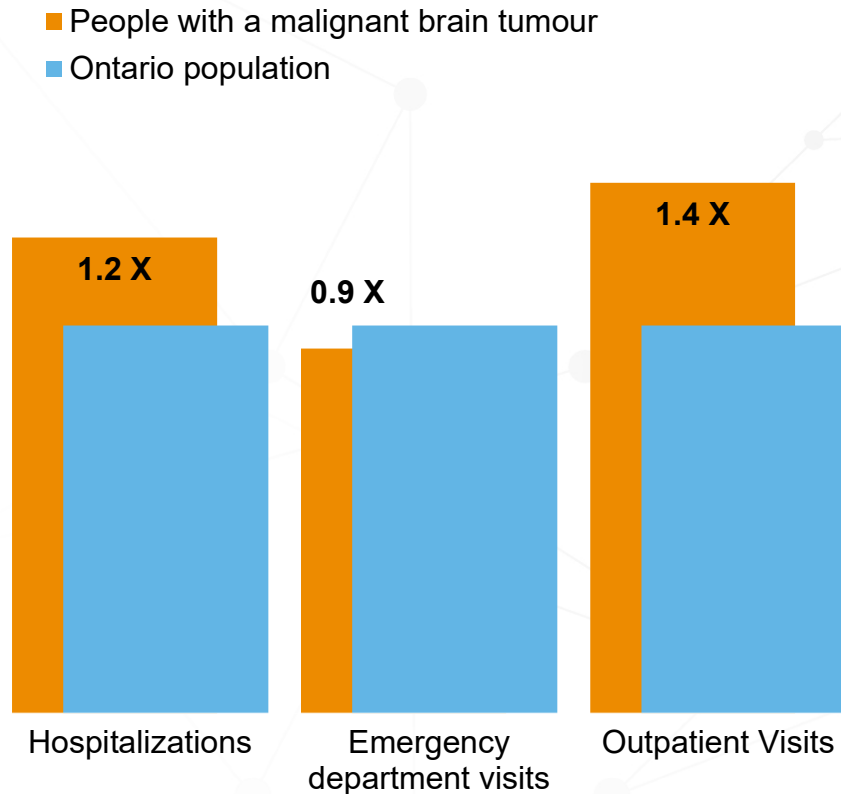
Of those individuals who were identified as having a malignant brain tumour between 2011 and 2019, 55% (blue) were also identified as having one of the other 12 brain disorders studied using health administrative data. Epilepsy was the top co-occurring brain disorder, with 22% of those with a malignant brain tumour also having epilepsy, followed by 12% having had a stroke and 11% a traumatic brain injury or concussion.

*Note, years represent the fiscal year. For example, 2019 is from April 1, 2019 to March 31, 2020.

*Note, other brain disorders studied include: non-malignant brain tumour, benign brain tumour, dementia (incl. Alzheimer's disease), epilepsy, motor neuron disease, multiple sclerosis, parkinsonism, schizophrenia, spina bifida, spinal cord injury, stroke, and traumatic brain injury & concussion.



Mental Health and addictions service use



Of those individuals who were identified as having a malignant brain tumour in 2019, their visit rates for mental health and addictions related services were similar to the general Ontario population, with the rates ranging from 0.9X to 1.4X the general Ontario population depending on visit type.

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Additional study information

Brain Disorder	Evidence Grade	Reference	Algorithm	ICD-09 (CM) codes	ICD-10 codes	OHIP Dx codes	ODB drugs name	OMHRS codes	Age Restriction
Brain tumor, primary malignant	I	Validated algorithm	1 cancer registry record with histologic confirmation	OCR: ICD (curr_topog_cd) = C71	N/A	N/A	N/A	N/A	None

Brain health in Ontario project main page: www.braininstitute.ca/BrainHealth
Methods and Considerations: www.braininstitute.ca/brainhealth-methodology



Publication information

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