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## Section Three: Classifying brain tumours

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Te whakarōpū i ngā puku  
roro



### Key points:

- Unlike other cancers, there is no staging system for primary brain tumours. Instead, they are grouped by:
  - grade
  - type
  - results of genetic testing.
- A brain tumour is given a grade (a number from 1 to 4) depending on how the cells look under a microscope.
  - Low-grade brain tumours (grade 1 and 2)
  - High-grade brain tumours (grade 3 and 4)
- Brain tumours are named after the type of brain cell that the tumour starts to grow in.

- There are many different brain tumours. They are divided into two main types.
  - Gliomas
  - Non-glial tumours
- Anyone diagnosed with a brain tumour is not allowed to drive. Your doctor will assess if and when it is safe for you to drive again.

## Ngā kōrero matua:

- Atu i ētahi atu matepukupuku, kīhai he pūnaha whakawāhanga mō ngā puku roro tuatahi. Oti rā, ka whakarōpūhia mā:
  - te māhiti
  - te momo
  - te whakatau o ngā whakamātautau iranga.
- Hoaturia ai he māhiti ki te puku roro (he nama mai i te 1 ki te 4) e ai ki te āhua o ngā pūtau ka tirohia ana i raro i te karu whakarahi
  - Ngā puku roro māhiti-iti (māhiti 1 me te 2)
  - Puku roro māhiti nui (māhiti 3 me te 4)
- Whakaingoatia ai ngā puku roro e ai ki te momo pūtau roro i tīmata ai te tipu o te puku ki roto.
- He maha tonu ngā puku roro rerekē. Kua ritua ki raro i ngā momo matua e rua.
  - Puku pūtau roro
  - Kore puku pūtau roro
- Kīhai ngā tāngata kua whakatauria kua puta he puku roro ki a rātou, e āhei ana ki te taraiwa. Mā tō rata e aromatawai mehemea he pai noa iho mōu ki te taraiwa anō

## Classifying brain tumours

Unlike most other types of cancer, there is no staging system for primary brain tumours. Instead, they are grouped by grade, type, and genetic testing.

The way brain tumours are classified is complicated, and many of the medical words used to describe them can be difficult to understand. Ask your treatment team to explain anything that you are unsure of.

## Grades of brain tumour

Brain tumours are given grades (numbered from 1 to 4) depending on how the cells look under a microscope.

- **Low-grade brain tumours (grade 1 and 2)**

Usually, low-grade brain tumours grow slowly and are unlikely to spread to other parts of the brain.

Often they are not cancer but can be difficult to cure. Because low-grade tumours can cause symptoms if they grow, they may need treatment.

Some low-grade brain tumours can change over time and become high-grade tumours (cancer).

- **High-grade brain tumours (grade 3 and 4)**

High-grade brain tumours are cancer. They grow more quickly than low-grade brain tumours, and cause problems by spreading into nearby parts of the brain or the spinal cord. They do not usually spread to other parts of the body.

## Types of brain tumour

Brain tumours are named after the type of brain cell that the tumour starts to grow in. For example, a brain tumour that starts in the brain's glial cells is called a glioma.

There are many brain tumour types. They are divided into two main types:

- **Gliomas** – these are the most common types of primary high-grade brain tumours. Astrocytomas are the most common glioma.

Less common types include oligodendroglioma, mixed gliomas (made of more than one type of cell) and ependymoma

- **Non-glial tumours** – these include meningioma, central nervous system (CNS) lymphomas, pituitary gland tumour and pineal gland tumour

# Gliomas

Gliomas start in the glial cells of the brain. Glial cells are glue-like cells that hold the brain together.

Gliomas are described as grade 1 to 4 according to how quickly they are likely to grow.

## Astrocytoma

Astrocytoma is the most common type of glioma. It starts in the astrocyte cells and is graded from 1 to 4.

<b>Grade 1</b>	Pilocytic astrocytoma	Slow growing and unlikely to spread.
<b>Grade 2</b>	Diffuse astrocytoma	Slow growing and may spread to nearby brain tissue. Can change to a higher-grade tumour over time.
<b>Grade 3</b>	Anaplastic astrocytoma	Can grow quickly and spread to nearby brain tissue.
<b>Grade 4</b>	Glioblastoma (GBM)	Grows very quickly and can spread to other parts of brain. GBM is the most common type of glioma in adults.

## Oligodendroglioma

Oligodendroglioma is a glioma that starts in a glial cell called an oligodendrocyte. Oligodendrocyte cells make myelin, which covers the nerves and helps signals from the brain travel quickly along the nerves.

Oligodendrogliomas can be low grade or high grade. High-grade tumours are also called anaplastic oligodendroglioma.

## Mixed glioma

A mixed glioma is made of different types of glial cells. They include, for example, oligoastrocytomas – a type of mixed glioma that affects the oligodendrocytes and astrocytes.

With genetic testing now available, a more specific diagnosis can often be given. A diagnosis of a truly mixed glioma is becoming less common.

## Ependymoma

In adults, most ependymomas start in the ependymal cells that line the spinal cord and the ventricles of the brain. They can spread into the fluid that surrounds the brain (the cerebrospinal fluid).

Ependymoma is very rare and can be low-grade or high-grade.

# Non-glial tumours

## Meningioma

Meningiomas start in the layers of tissue (meninges) that cover the brain and spinal cord. Most meningiomas are slow-growing, low-grade tumours.

## Primary central nervous system (CNS) lymphoma

A primary central nervous system lymphoma is a rare cancer that starts in the lymphatic system (part of the body's immune system). Lymphoma most often occurs in the cerebrum, but can also be found in the cerebrospinal fluid, the eyes, or the spinal cord.



For more information, you may want to visit the website of Leukaemia & Blood Cancer New Zealand: [www.leukaemia.org.nz](http://www.leukaemia.org.nz)

## Pituitary gland tumour

Pituitary gland tumours start in the pituitary gland. Most pituitary tumours are low-grade. They usually grow slowly and tend not to spread. They can cause problems with vision and the production of hormones.

## Pineal region tumours

Pineal region tumours start either in the pineal gland or in the tissues around it. The most common type of pineal tumour is a germinoma.



For more information on different types of brain tumours, you may want to read: [www.braintumoursupport.org.nz/brain-tumour-types](http://www.braintumoursupport.org.nz/brain-tumour-types)

## Driving after diagnosis of a brain tumour

**Anyone diagnosed with a brain tumour is not allowed to drive.**

Your doctor will assess if, and when, it is safe for you to drive again.

You can contact your local Cancer Society office for driving services available in your area.