

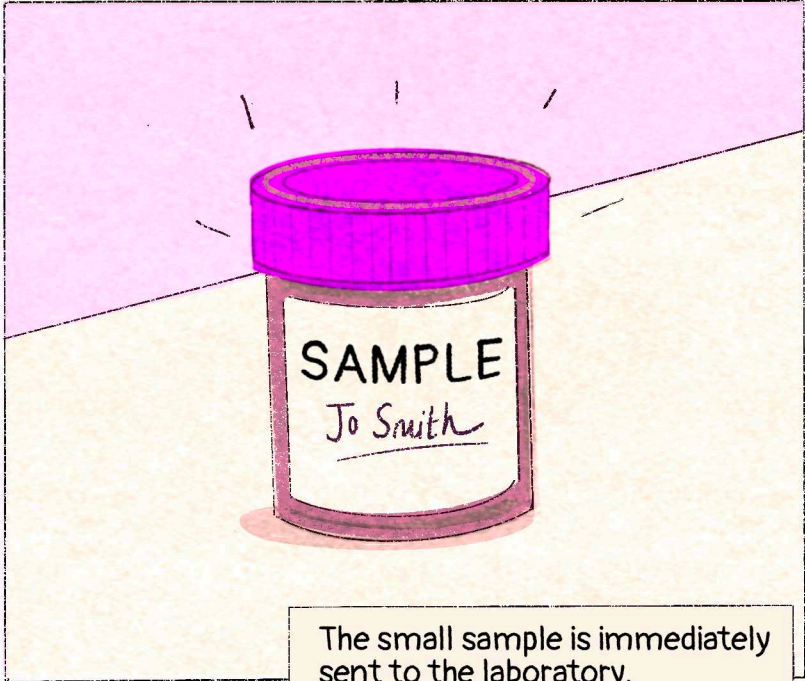
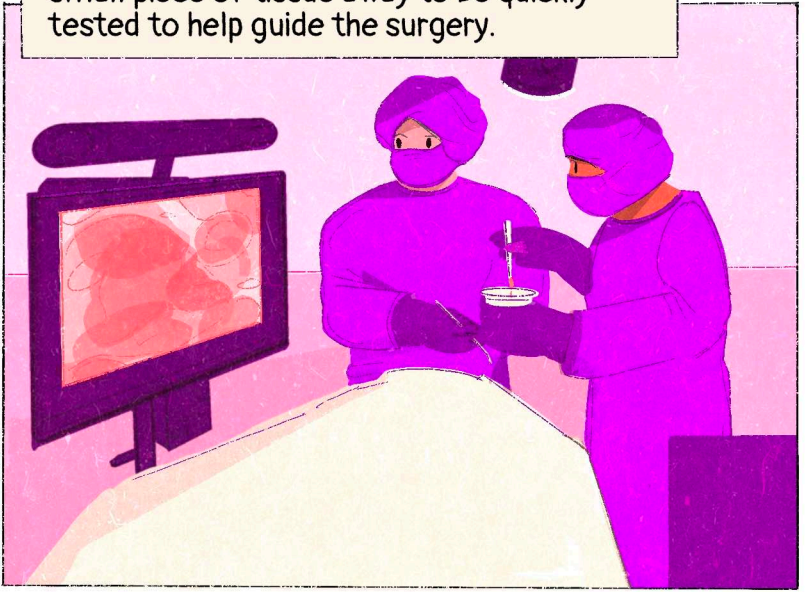
# PROCESSING YOUR TISSUE SAMPLE IN THE LAB

Tissue samples are sent to the lab during and after an operation to help us confirm your diagnosis.

Unless extensive molecular testing is required or the sample needs to be sent overseas for analysis, the process takes approximately 7-14 days. Here's what happens:



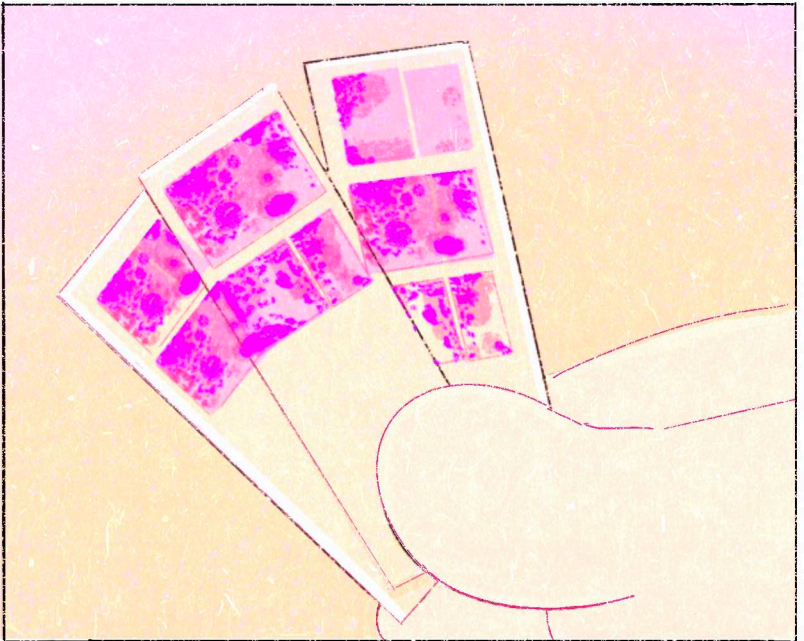
During an operation a surgeon may send a small piece of tissue away to be quickly tested to help guide the surgery.



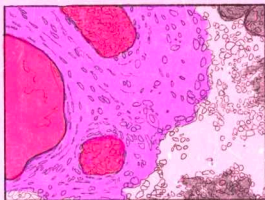
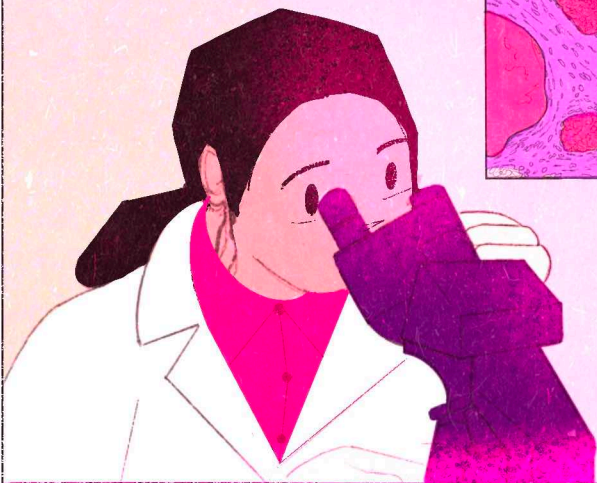
The small sample is immediately sent to the laboratory.



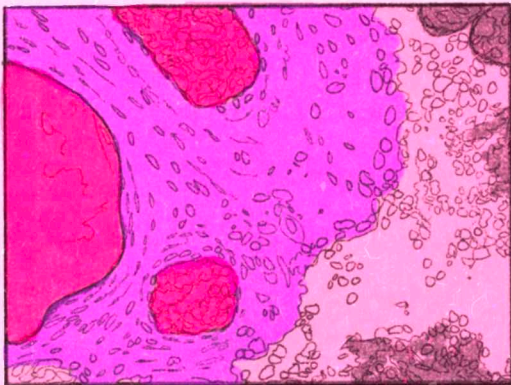
The sample is quickly frozen and stained for testing.



The pathologist then looks at the tissue down the microscope.

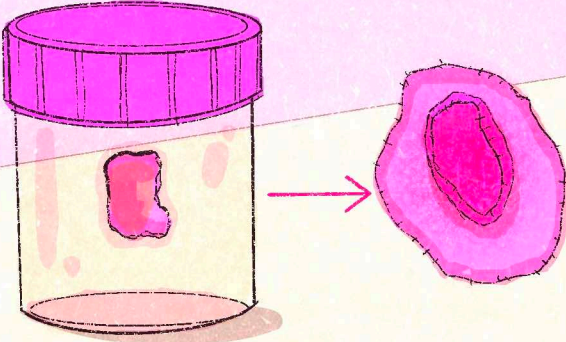


They give a provisional opinion which is relayed back to the surgeon during the operation.

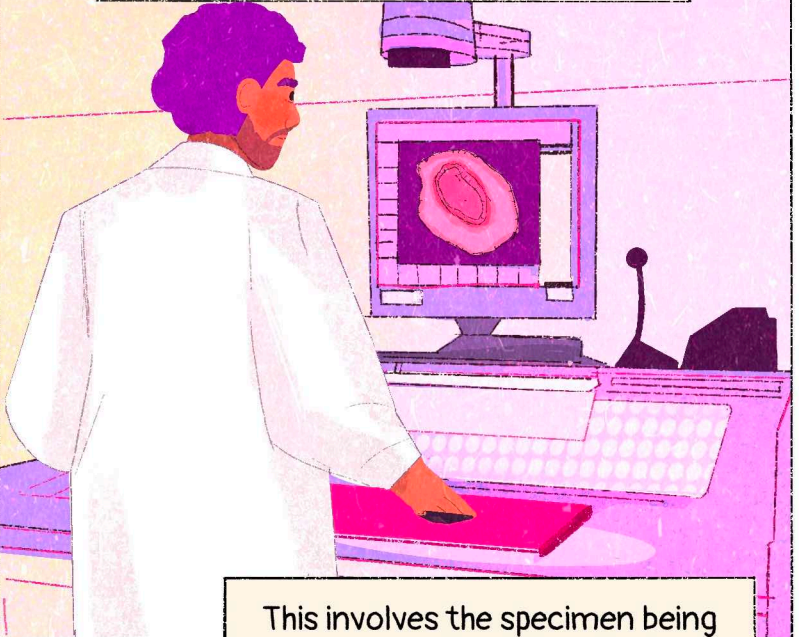


This sample is called a Frozen Section. Not all tissue samples are sent for Frozen Section testing.

After the operation, the main tissue sample is sent to the lab for testing. They keep the tissue in a preserving fluid called formalin.

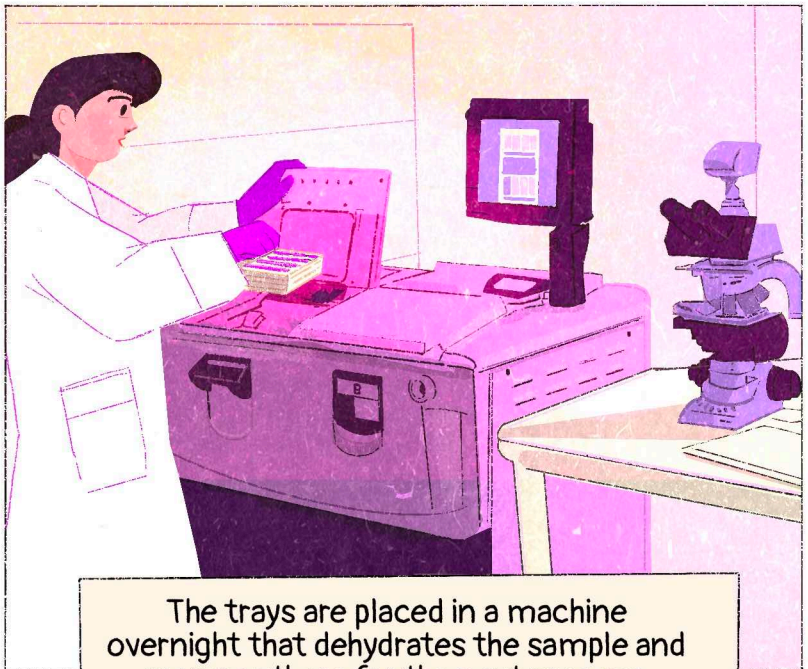
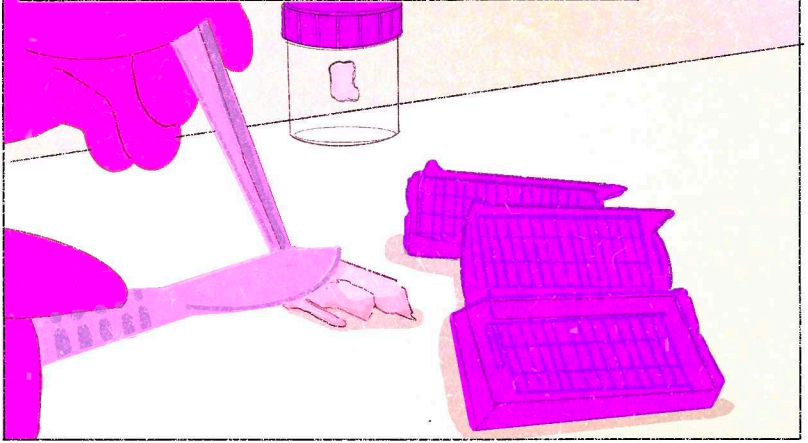


Each sample is macroscopically assessed by medical laboratory staff.



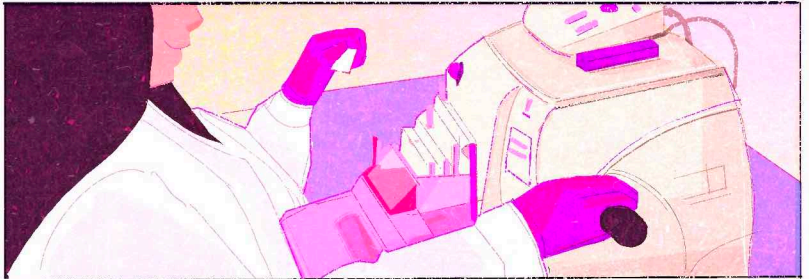
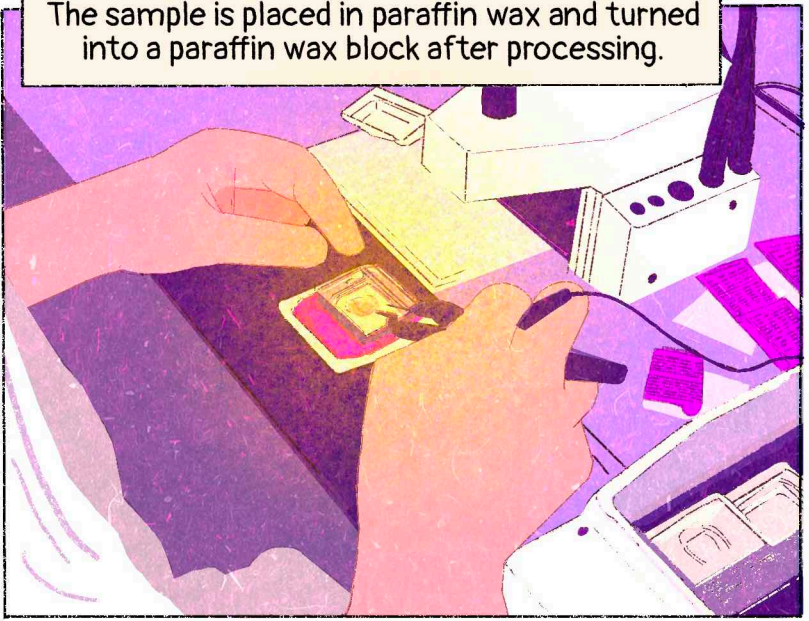
This involves the specimen being measured and described.

The sample is placed into a small plastic tray to allow for further testing.



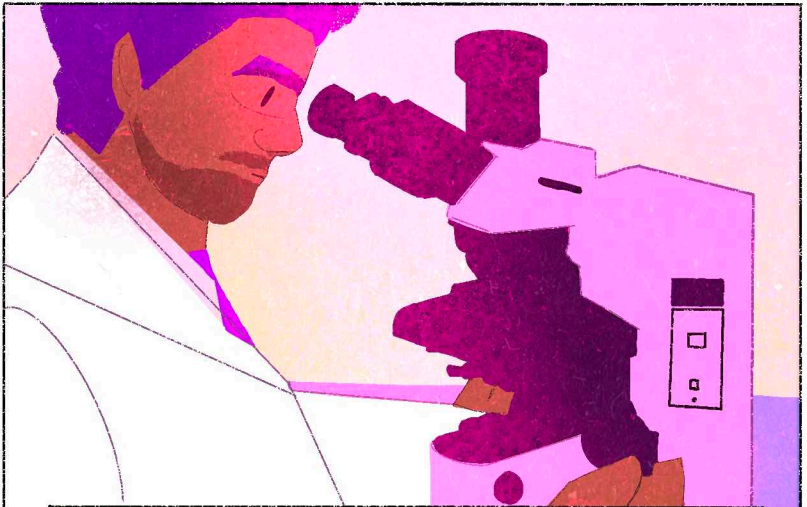
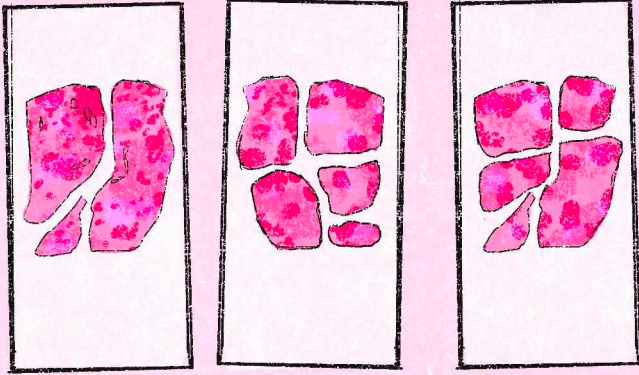
The trays are placed in a machine overnight that dehydrates the sample and prepares them for the next process.

The sample is placed in paraffin wax and turned into a paraffin wax block after processing.



The paraffin block is cut into thin sections (around 0.004mm). The samples are then placed on glass slides.

The glass slides are stained with a dye which allows the pathologist to visualise the tissue structure and note any abnormalities.



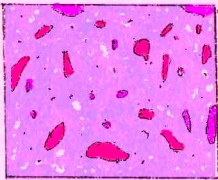
The glass slides are reviewed by the pathologist for a possible diagnosis. In some cases a diagnosis can be made from the standard staining process and a report will be signed out and sent back to the surgeon.



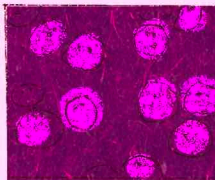
Often in brain tissue samples, the pathologist will require additional testing to be done to confirm the diagnosis. Any additional tests involve cutting new glass slides from the wax blocks for special staining or testing.



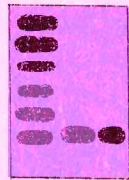
Other tests that could help the pathologist make a diagnosis include staining for specific proteins (immunohistochemistry) or various molecular tests such as fluorescence in-situ hybridisation ("FISH"), specific mutation analysis, next generation sequencing (NGS) or methylation profiling.



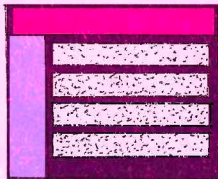
Immunohistochemistry



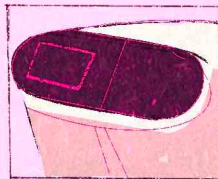
Fluorescent in-situ hybridisation (FISH)



MGMT promoter methylation



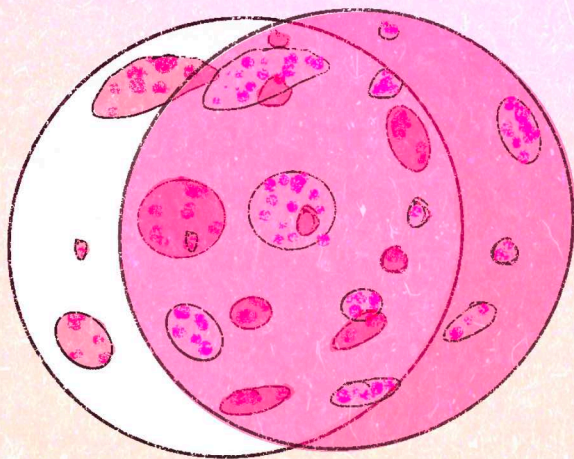
Methylation profiling



NGS

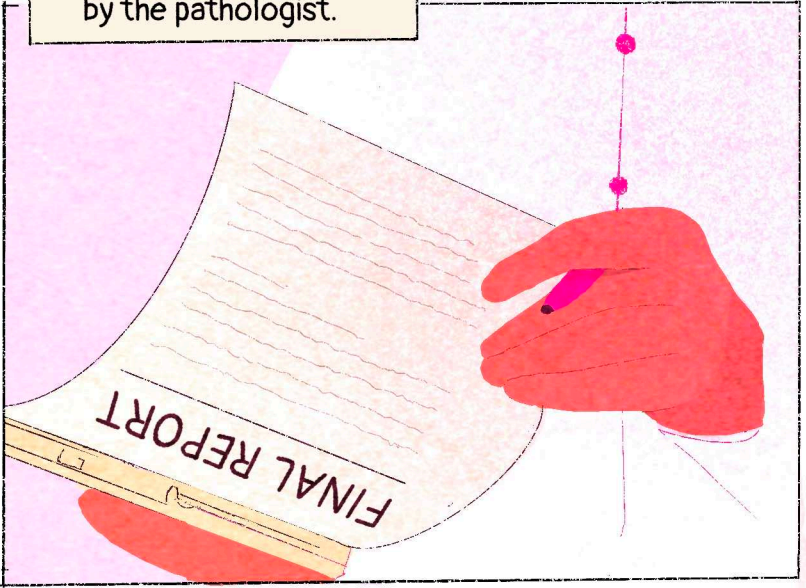
These additional tests can take multiple days or weeks for a result.

The additional test results are reviewed by the pathologist.



The molecular and microscopic information are gathered together and reviewed to determine the diagnosis.

The final report is issued by the pathologist.



The pathology results are then discussed at a neuropathology meeting with many clinical specialists including your neurosurgeon, pathologists, radiologists and oncologists.

The neurosurgery team will inform you of the results and the recommended treatment or follow up plan.

So that's the process. If you have any questions you can get in touch with your neurosurgery team.



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THE UNIVERSITY OF AUCKLAND**

## **CREDITS**

Clinton Turner, Janina Gaudin,  
Awhina Walters, Thomas Park, Neal Curtis.