



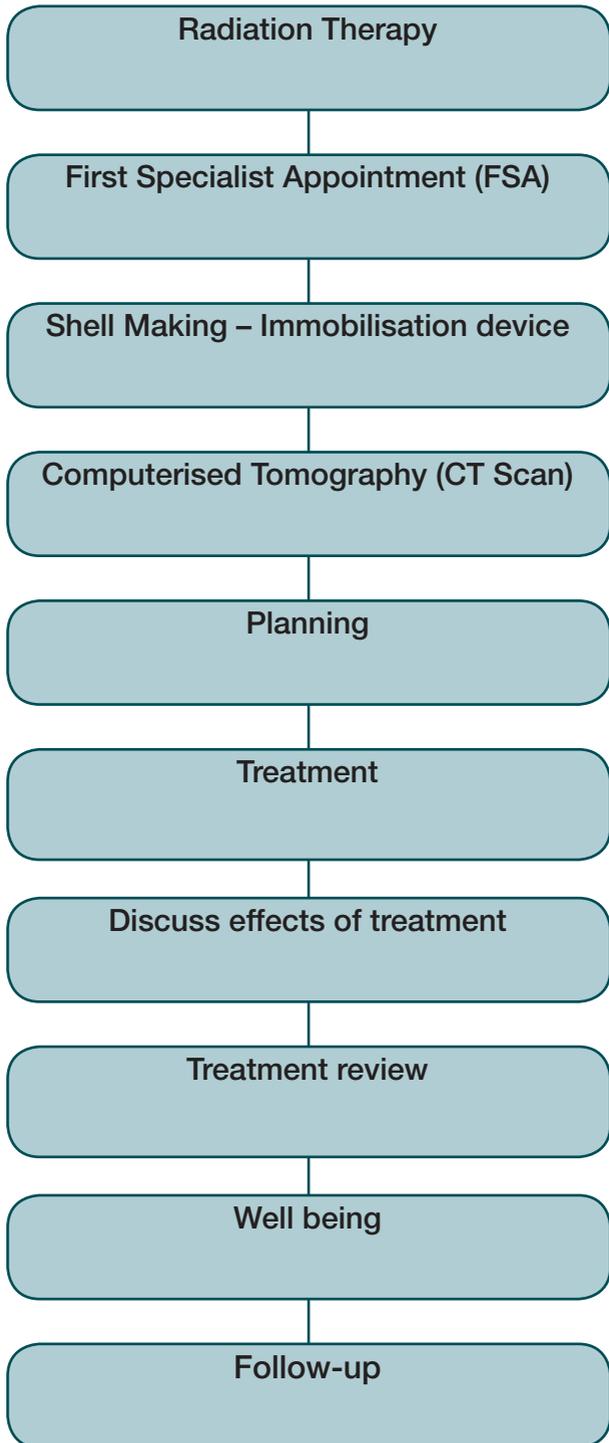
**Information for patients receiving
external beam radiation therapy
to the brain**



Waikato Regional Cancer Centre



Welcome to Waikato Regional Cancer Centre. The aim of this booklet is to provide information on the radiation therapy treatment procedure and to explain the journey from your first meeting with the radiation oncologist to the completion of your treatment.



What is radiation therapy?

Radiation therapy is the use of high energy x-rays to damage the DNA (genetic code) in the cancer cells. Radiation therapy is planned to treat as little of the normal cells in the body as possible. Special care is taken to limit this by the use of advanced planning techniques and treatment delivery methods.

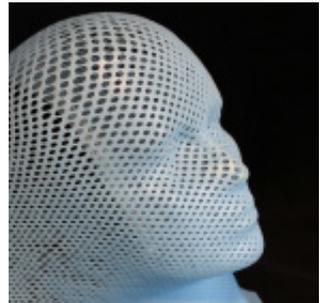
Radiation therapy is delivered in small treatments called fractions. This allows the normal cells to recover between each daily treatment. Treatment fractions vary depending on an individual needs. This can depend on the type of cancer, staging and intent of the treatment. Fractions can be delivered five days a week up to seven weeks.

First specialist appointment (FSA)

Your consultant (radiation oncologist or registrar) will explain the radiation therapy procedure to you. Your diagnosis, treatment options and potential side effects of treatment will be discussed. If you consent to having radiation therapy treatment, a signature will be obtained at this stage. For the potential side effects please refer to section 'Effects of Treatment' on page five in this brochure.

Shell making

When you have radiotherapy it is important to stay as still as possible. A shell (mask) is used to keep your head in the correct position while being scanned and treated. The shell will be made before your planning CT appointment. The radiation therapist will get you lying on a bed; a neck rest will be positioned under your head, in some cases a custom neck rest will be made to ensure you are in a position that is



both comfortable and stable. Following this the radiation therapist will make your shell. The shell is placed in warm water to soften the plastic and it is then formed over your face. The shell is made of a plastic mesh which allows breathing the entire time. The whole process will take about 20 minutes as the shell needs time to cool adequately before being removed for the first time.

Please inform the radiation therapist if you are claustrophobic. Reassurance will be given throughout the process to try make you as relaxed as possible. In certain situations the radiation oncologist may

prescribe a medication to relax you.

Your procedure may have specific preparation requirements including but not limited to trimming your hair or beard or having dental work done prior.

Computerised Tomography (CT scan)



A CT scan is performed in order to deliver the treatment accurately and at the correct dose. We need to be able to locate the position of the tumour in relation to the surrounding normal tissue in the body. You will be set up in a comfortable position with your shell on.

You may be required to undergo an injection of radiographic contrast into your veins during the scan. If this is required, it will be discussed with you prior to the procedure.

After the scan, photos will be taken of your position and measurements recorded to assist in the daily set-up for treatment.

Please inform a member of staff if there is any possibility that you could be pregnant.

Planning

Using the information obtained from the CT scan an individual plan is produced. A 'target volume' is identified on the computer planning system. We calculate the best method and beam arrangement for the dose of radiation to be delivered to the 'target volume', while at the same time avoiding as much normal tissue as possible. Time is required for the planning calculations and checks to be done. Treatment is started as soon as possible following the completion of this process.

Treatment – External Radiation Therapy



At treatment you will be set-up in the same position you were in at your planning CT scan, with your shell on. Your daily treatment requires specific positioning, so it is important to relax and allow the radiation therapists to move you as necessary. Once you are positioned correctly you will be required to keep still until the treatment is completed.

The radiation therapists must leave the room during treatment; however, they will monitor you on cameras from outside the room. There is also an intercom system. If you were to need assistance you can call out.

On your first day and sometimes on subsequent days, imaging devices on the treatment machine will be used to ensure you are in the right position before the treatment can be delivered. The direction of the beam is set by moving the machine and the couch, on which you will be resting, to the correct position. At times during your treatment we will take images, occasionally adjustments to the bed will be made before continuing with the treatment.

Treatment is usually given once a day. The time you spend in the department can vary for each individual depending on the area being treated and the treatment preparation that you may be required to undertake. Depending on your beam arrangement you will spend approximately 20 minutes in the treatment room but the actual prescribed daily dose of radiation is only a few minutes. During treatment you will not see or feel anything. You will just hear a buzzing sound and that will let you know that the machine is on.

Waikato Regional Cancer Centre is a teaching hospital and at times we have students in our department. If you don't wish to have these students involved with your treatment please advise a member of staff.

For more information please refer to:
<http://www.waikatodhb.health.nz/radiationoncology>

Effects of treatment

After your first treatment a radiation therapist will discuss your treatment plan, including potential side effects, skin care and how long you will be in the department for each day. This is a chance for you to ask any questions. It might be a good idea to write these down in the back of this book.

Radiotherapy is a localised treatment, so most side effects vary depending on the body site being treated. Everyone is affected differently by radiation therapy and the severity of side effects varies from person to person. If you experience any of the following side effects please notify a member of staff.

Potential side effects include but are not limited to:

Early side effects (can occur days to weeks starting radiation therapy treatment)	Late side effects (may occur months or years after radiation therapy treatment)
<ul style="list-style-type: none">• Fatigue (tiredness)• Skin changes (redness, dry, itchy, blister. Increased if on anticonvulsant medication)• Hair loss in treatment area• Cerebral Oedema (swelling of the brain)• Headaches / drowsiness• Nausea / vomiting• Ears (tinnitus, hearing loss)	<ul style="list-style-type: none">• Neurocognitive effects (effects on higher brain function)• Brain necrosis (tissue damage)• Eyes (risk of visual impairment due to damage to optic nerves, retina or cataracts)• Ears (permanent tinnitus, hearing loss)• Endocrine problems (pituitary gland)
Early – delayed side effects <ul style="list-style-type: none">• Somnolence syndrome (sleepy, irritable, headaches, nausea, vomiting, loss of appetite)	

There is an extremely small risk of developing a second cancer many years after radiation therapy treatment.

The peak of any reactions/side effects you may experience will occur approximately 7-14 days after the completion of your radiation treatment. This is due to the cumulative nature of the treatment.

Treatment review

You will see your oncologist or registrar in a regular review clinic while you are on treatment. Clinic days and times are specific for each oncologist. We try our best to coordinate these times with your treatment time but it is not always possible. If you have any concerns before these appointment times please speak to the radiation therapists and where necessary they can organise for a nurse or oncologist to see you.

Well Being

Driving

There is a strong likelihood that your medical condition and/or side effects from your diagnosis will mean you are no longer legally able to drive (the link to the NZTA website is below). Your radiation oncologist will discuss this with you and advise you accordingly. There are several different transport providers that can help with driving you to and from your hospital appointments. Please discuss with your treatment team if you require more information.

<https://www.nzta.govt.nz/driver-licences/getting-a-licence/medical-requirements>

Mental wellness

The diagnosis of cancer and undergoing treatment can add additional stress to your life. Anxiety and depression are common among patients during and following cancer treatment. It is perfectly normal to feel emotional about the journey you are going through and everyone deals with the situation differently. You may find it helpful to talk to family and friends about how you are feeling or if you would like outside professional and psychosocial support please mention this to a radiation therapist.

Healthy diet and weight

It is recommended that you have a well-balanced diet. It is important that you remain the same body size while receiving radiation therapy treatment. Significant weight loss or gain can influence treatment accuracy and may result in your treatment needing re-planning. You may be weighed throughout your treatment to ensure your weight remains stable and a referral to a dietician may be made for additional advice if necessary.

Hair loss/wigs

Radiation therapy can affect the hair follicles within the treatment area, sometimes causing hair loss if a certain dose is reached. This hair loss can either be temporary, (hair will grow back after treatment) or at times it can be permanent. Your radiation oncologist will discuss this with you and can provide referrals for hats, scarfs and wigs if required. There are several providers with further information available.

Follow-up

At the completion of your treatment an appointment will be made for you to see your radiation oncologist. This interval will depend on the area that you are having treated and what side effects you may have experienced during treatment. Your radiation oncologist will see you at regular intervals continuing for several years. You may be requested to have further tests or scans done at the request of your radiation oncologist.

If you have any questions or concerns between the end of your radiotherapy treatment and this follow up appointment, you can contact your GP or one of the numbers below.

Useful numbers

- Waikato Hospital switchboard 07 839 8899
- Blue machine ext: 98073
- Green machine ext: 98249
- Pink machine ext: 98221
- Yellow machine ext: 96191
- Neurology nurse specialist ext: 24005
- Adolescent and young adult coordinator ext 95643
- Oncology Outpatient reception 07 839 8604
- The Cancer Society's Lions Lodge 07 834 2351
- Cancer Society - Hamilton 07 838 2027
- Cancer Society Information Helpline Staff 0800 226 237
- Wilson Parking 07 839 8901

For more information on radiation therapy please visit:

<http://www.waikatodhb.health.nz/radiationoncology>

<http://www.waikatodhb.health.nz/radiotherapy>

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