

Understanding total body irradiation

Multi-fraction treatment



Together with high dose chemotherapy, total body irradiation (TBI) may be given to people as part of the preparation for a stem cell or bone marrow transplant.

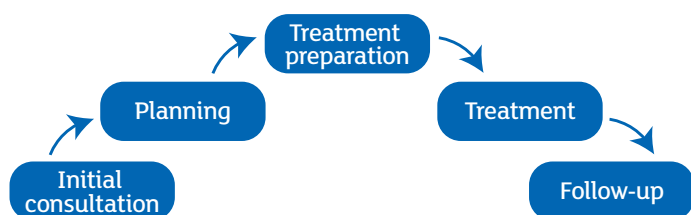
What is total body irradiation?

TBI is radiation treatment to the whole body using high energy x-rays (called ionising radiation).

- TBI can be used to:
 - clear away existing bone marrow to allow space for the transplanted cells
 - destroy remaining tumour cells that may be left behind following chemotherapy
 - lower your immune system (immunosuppression) to help reduce the risk of your body rejecting transplanted cells.
- The number of treatments (fractions) given for TBI varies for each person. This information sheet outlines the process for people undergoing more than one treatment fraction, called multi-fraction treatment.

What can I expect during TBI?

There are a number of steps and appointments that will occur as part of your TBI treatment.



Initial consultation

- Your first radiation therapy appointment is an initial consultation where you will see your radiation oncologist (specialist doctor).
- The radiation oncologist will talk to you about:
 - your medical history and test results
 - your treatment options
 - the purpose of radiation therapy for you
 - the benefits and risks of radiation therapy for you
 - possible side effects
 - consent for treatment.

You may also have a physical examination at this appointment.

Important!

Before radiation therapy begins and during treatment, if you are pregnant or feel that there is any chance that you may be pregnant, it is important to discuss this with your doctor.

Both men and women should use contraception during and after radiation therapy. Do not try to get pregnant or father a child. **Talk to your doctor if you have any questions.**

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Who is involved in a radiation therapy team?

Your radiation therapy team is a team of health professionals that specialise in radiation therapy treatment. This team includes:

Radiation oncologists	Doctors that specialise in radiation therapy. They plan and manage your care during radiation therapy.
Radiation oncology registrars	Doctors training to specialise in the field of radiation therapy.
Radiation oncology medical physicists	Physicists that specialise in ensuring safety and quality in radiation therapy.
Radiation therapists	Allied health professionals trained in radiation therapy. They work with radiation oncologists and radiation oncology medical physicists to plan and deliver radiation therapy.
Radiation oncology nurses	Nurses trained in caring for patients undergoing radiation therapy.

Other professionals that may be involved in your care include social workers, dietitians, occupational therapists, speech therapists, psychologists and physiotherapists.

Simulation and planning

You may have a simulation or planning appointment before you start TBI treatment. A simulation appointment is not the same as TBI treatment.

- At the appointment, you may be asked to change into a gown and to remove dentures, hearing aids or metal objects such as jewellery and hair clips.
- During this appointment, important information and measurements of your body are collected by the treatment team. They may take photos of the position you are in.
- You may have an imaging scan (computed tomography (CT) scan) taken during this appointment. This is called a planning or simulation scan.
- This information is then used to plan exactly how to deliver your radiation therapy treatment and position you correctly for treatment. This is called 'planning'.
- Your treatment team will tell you if you need to do anything to prepare for the simulation appointment.

This appointment may take approximately one hour.



Potential side effects of TBI multi-fraction treatment

TBI treatment can cause damage to normal cells in your body, which can cause side effects. Everyone gets different side effects, and some people will have more problems than others.

Some of the side effects that you may experience with this treatment are listed below. You are unlikely to get all of these, and you may also get some side effects that have not been listed. It is important to note that TBI treatment is usually given with chemotherapy and the side effects may be from either treatment.

Ask your radiation therapy team which side effects you may experience and how to manage them. For more information on side effects and how to manage them, see the patient information sheets at eviq.org.au/patients-and-carers/patient-information-sheets/radiation-therapy

Short-term side effects

These may occur during or within a few weeks post radiation therapy (usually temporary).

- Nausea and vomiting
- Diarrhoea
- Feeling tired (fatigue)
- Skin redness
- Sore mouth (mucositis)
- Hair loss (alopecia)
- Swelling of the parotid gland (parotitis)

Long-term side effects

These may occur months to years after treatment has finished and may be permanent.

- Infertility
- Early menopause
- Hormone changes
- Feeling tired (fatigue)
- Vision changes (cataracts)
- Dry eye syndrome
- Heart problems
- Lung changes or inflammation
- Secondary cancer

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Treatment preparation

- You will be admitted to hospital before or immediately after your first TBI treatment session.
- Before each TBI treatment appointment, you will be set-up in the position you will be in for treatment.
- Your setup may be slightly different for each treatment session.
- The position you will be in for TBI treatment can vary.
 - You may be on a bed lying on your back, on your side or sitting up. Often this bed has clear plastic (Perspex) walls.
 - You may also be standing up.
 - Your treatment team will explain what position you will be in for treatment.
- You may have some small devices placed on your body by your treatment team.
 - These measure the radiation you receive and ensure you receive the correct dose.
 - These are temporarily stuck to your body or clothes using tape or bandages, and they are painless.
 - Some of these devices are connected to thin plastic wires.
- Another measuring device called an ion chamber may be placed between your legs.
- You will have different materials placed on and around your body for TBI treatment. For example, rice bags, wax blocks, jelly-like sheets (bolus) or clear plastic.
 - These materials ensure that the radiation dose is distributed evenly.
 - This should not be painful.
- The treatment preparation may take approximately 15 to 45 minutes.

TBI treatment

- When you are in the treatment room, the lights will be dimmed and laser lights will be visible.
- The treatment team will take additional measurements and check your position is correct and then leave the room.
- While you are receiving radiation therapy, you will be on your own in the treatment room. However, the radiation therapists can see and hear you via a video camera.
- During your treatment, the treatment team may turn the machine off and come into the room to make some changes or rotate the bed you are on.
- It is important you remain still until the therapist tells you that you can move.

How long will treatment take?

- You will be in the treatment room for up to one and a half hours.
- This time is used to set you up in the position and also deliver the treatment.
- The treatment beam is usually on for a total of 20 to 30 minutes.

Treatment follow-up

Ask your treatment team what follow-up you will need after you finish treatment.

IMMEDIATELY go to your nearest hospital Emergency Department, or contact your doctor or nurse, if you:

- develop a temperature of 38°C or higher
- develop chills, sweats, shivers or shakes
- feel short of breath.

Emergency contact details

Ask your doctor or nurse from your treating team who to contact if you have a problem

Daytime:

Night/weekend:

Other instructions:

Frequently asked questions

How many treatments will I have?	<ul style="list-style-type: none">• The number of treatments (fractions) given for TBI varies for each person.• Most people will have between five and eight treatments. This is called multi-fraction treatment. These treatments are given over three to four days. Each day, there will be two treatments, with at least six hours between each.• Ask your radiation oncologist how many treatments you will have, and why.
What happens if I feel ill during treatment?	<ul style="list-style-type: none">• If you are feeling sick when you come for your treatment, let the treating team know.• If you feel you need to vomit during your treatment, call out to the radiation therapist and they will stop the treatment and come in to help you.
Will I be radioactive after treatment?	<ul style="list-style-type: none">• You will NOT be radioactive during or after your treatment.• You can safely mix with other people, including children and pregnant women, at any time during and after your treatment.
Can I eat and drink before treatment?	<ul style="list-style-type: none">• If you are feeling well, you can eat and drink before your treatment.• Keep in mind you may be in the treatment room and treatment position for an hour or more, so will not be able to use the bathroom during that time.
What should I wear to treatment?	<ul style="list-style-type: none">• Wear light comfortable clothing (without metal zips or buttons).• Avoid wearing clothes that are very loose or baggy.• You must also remove all jewellery, piercings, safety pins and any metallic objects for your treatment.
What happens if I move during treatment?	<ul style="list-style-type: none">• It is important that you remain as still as possible during your treatment.• Normal breathing movements and small movements or twitches will not affect your treatment.• Tell your treatment team before you move if you feel uncomfortable.
Will I feel anything when the treatment machine is on?	<ul style="list-style-type: none">• When the treatment machine is turned on you may hear a buzzing noise, but you will not feel anything.• Some people may see a flash of light when the treatment begins, have a metallic taste in their mouth or smell an odd scent. These things are normal.
Will I feel claustrophobic or nervous?	<ul style="list-style-type: none">• Some people may feel claustrophobic or nervous before or during their radiation therapy treatment. Talk to the radiation therapy team about this and ask them to explain what is happening.• They can support you by giving you some options that may help. These may include listening to music or podcasts; breathing exercises or meditation; or medication prescribed by your doctor.
Is it safe to take vitamin tablets and herbal medicines?	<ul style="list-style-type: none">• Some medicines can interact with your treatment.• Tell your doctor, radiation therapist, nurse or pharmacist before starting any medicines. This includes prescription, over-the-counter medicines, vitamins and alternative, natural or herbal medicines.

Where can I get more information?

- The Cancer Council NSW: cancercouncil.com.au
- The Cancer Council Australia: cancer.org.au
- The Cancer Council Helpline: 13 11 20
- The Leukaemia Foundation: leukaemia.org.au
- Targeting Cancer: targetingcancer.com.au
- Look Good Feel Better lgfb.org.au
- Canteen (support for young people living with cancer 12-24 years) canteen.org.au