



RADIATION THERAPY INFORMATION GUIDE

Brain radiosurgery or multifraction
stereotactic radiosurgery

Name of my radiation oncologist: _____

Department phone no.: **418-691-5264**

Consult this document on: www.chudequebec.ca/Radiochirurgie_cerebrale

Introduction

Your health condition requires you to have brain radiosurgery or multifraction stereotactic radiosurgery. This guide contains information about:

- what radiosurgery/multifraction stereotactic radiosurgery is;
- the steps involved in planning your treatments;
- what will happen during your treatment(s);
- the possible side effects;
- recommendations during and after the treatments.

The centre

The radiation oncology centre at CHU de Québec-Université Laval is a supraregional centre with a mission to:

- provide quality treatments;
- promote research;
- participate in student training;
- evaluate new technologies.

You may be asked to participate in research projects during your treatments. You may also be seen by students during your appointments. Students are always closely supervised by a health professional in their field.

Your team

- Your **doctor** will meet you for a consultation. After reviewing your file, speaking to you and examining you, the doctor will decide whether you are a candidate for radiosurgery/multifraction stereotactic radiosurgery. He will oversee every step of your treatment.
- The **nurse** will be involved in assessing your physical and mental condition and will manage your symptoms during your treatments.
- **Radiation therapists** will be there to support you during your treatments (from preparation to administration).
- Depending on your condition, you may need to see other team members before or after your radiosurgery treatment, including a **social worker**, **psychologist** or **pivot nurse**.

What are radiosurgery and multifraction stereotactic radiosurgery?

Radiosurgery and multifraction stereotactic radiosurgery are types of non-invasive radiation therapy allowing to treat different kind of lesions with high and focused beams of radiation. You will receive 1 to 5 treatments.

The goal of the treatment is to destroy the cancer cells with a high dose of radiation, while protecting the surrounding healthy tissue.

A specialised radiation therapy machine (linear accelerator) is used to give the treatment. This machine gives a predetermined dose of radiation at the part of the body where the tumour is located. It can be moved in different directions.

The treatment is painless, odourless and invisible. As soon as the treatment is over, the machine stops releasing radiation. You will not become radioactive after your treatments, and there is no danger to anyone around you.



Radiosurgery, multifraction stereotactic radiosurgery and other treatments

The treatment choice is based on accepted practices and a joint decision between you and your doctors.



First visit

Review of your medical file

In most cases, you will not have any treatment at your first radiation oncology visit. Your radiation oncologist will review your medical file and examine you, after which he will prescribe the appropriate treatment.

It's important to know that other steps need to be taken before your first treatment, which explains the delay between your first appointment and your first treatment.

At this visit, it's important to tell your doctor if you have an implantable electronic or other medical device (e.g., pacemaker, insulin pump, hearing aid). To avoid breakage, manufacturers recommend removing some of these devices during pre-treatment examinations or treatments.



Second visit

Planning your treatment

These steps take anywhere from 3 to 4 hours.



Some accessories may be used to help you stay in this position

1. Molding

The radiation therapists will help you find the most comfortable position for your treatments. This is the same position that will be used for all the treatments. Therefore, it's important to mention any discomfort or pain. A mask will be made to hold your head still. This is needed to ensure the quality of your treatment. If you have a beard, you will need to shave it before the mask is made.

2. CT scan

A CT scan will be done to pinpoint the area to be treated. It will give measurements to decide the best way to administer the radiation needed to treat the tumour.

You must lie completely still during the CT scan.

Your doctor may order a CT scan with contrast (iodine injection). If so, you'll be given the instructions for this test.

Marks will be drawn on your skin and on your mask. They will be used as landmarks by the radiation therapists during your treatments. Don't worry—the marks are often bigger than the area to be treated.

- **The red markings are temporary.** You will need to keep them on throughout your treatments. Do not remove them, as they are needed to ensure accuracy.

A few tips:

- When washing, do not place your marks directly under the running water.
- Pat yourself dry with a towel. Do not rub the skin.
- The ink will stain clothing.

If the marks look like they're fading, call the radiation oncology department. We will tell you what to do.

- **A few dots can be tattooed on your skin.** These are permanent, so there's no risk of them being washed off.



3. Magnetic resonance imaging (MRI)

An MRI will be done to help us locate the area to be treated. Gadolinium will be injected intravenously for this exam.

You must lie completely still during the MRI.

4. Pre-treatment waiting period

After those exams, there will be a delay while the team plans your treatment. The radiation therapists will let you know how long this will take. In all cases, we will adhere to the standards set by the Ministère de la Santé et des Services sociaux. You will be notified by phone of the date and time of your first treatment. Treatments can begin any day of the week.

Treatments

Number of treatments required

The number of radiation therapy treatments depends on the assessment of your health condition and your file. This number is not a reflection of the seriousness of your cancer.

If you have more than one treatment, treatments are given daily, five days a week, from Monday to Friday.

You will meet other patients during your visits, but it's important to remember that your treatments are personalized and tailored to your individual needs.

During the treatment

You will always be greeted by radiation therapists. They are familiar with your treatment plan. They will take the time to answer your questions.

Based on the marks on your skin and on your mask, you will be lined up under the machine in the proper position.

For accuracy reasons, it's important to lie very still during the treatments. However, you can breathe normally.

The radiation therapists will leave the room while the machine is running. They will be in an adjacent control room watching you on a screen. They can hear everything you say and speak to you over an intercom.

The total time of the treatment can take from 20 to 90 minutes

Verification images are taken throughout the treatment to check the accuracy and the position. They are not meant to see how your tumour is responding to treatment.





Side effects

Radiation therapy is a treatment that can affect normal tissue and cause side effects.

These side effects don't always happen. Their seriousness depends on the person, the type of disease, the dose of radiation, and the mainly area treated.

Here is a list of possible side effects and when they tend to appear

After the first treatment and a few days after

Most of these side effects are temporary and disappear within a few weeks after the radiosurgery and the multifraction stereotactic radiosurgery

Most common side effects

- Fatigue
- Headache
- Heartburn (nausea)
- Recurrence or worsening of the initial symptoms that led you to consult
- Hair loss (if you have more than 1 treatment)

Less common side effects

- Hair loss (if you have only one treatment)
- Epileptic seizures (convulsions)
- Bleeding at the treatment area

In the months/years following treatment

Possible side effects

- Hearing loss (if the treatment area is close to the ear)
- Damage can appear on cerebral tissues that received radiation (we call this radionecrosis). This will appear as visible changes on the images from the follow up MRI. Neurological symptoms can be involved or not. These will be discussed with your doctor.



418 691-5264

Rarely, other side effects may occur that we cannot predict.

However, if you develop side effects that are causing you discomfort, feel free to contact us.



Medical follow-up

About 3 months after the radiosurgery or multifraction stereotactic radiosurgery, you will have a medical follow-up.

An MRI will usually be done before this appointment.

Recommendations after the treatment

General advice



- If you receive only one treatment, **you cannot drive your car or any motorized vehicle for 48 hours after the treatment** because of the risk of epileptic crisis.
- If you notice new neurological symptoms or worsening of already existing symptoms, tell a member of your medical team. Medication could be prescribed to minimize those symptoms.
- If you have a headache, you can take acetaminophen (Tylenol).
- Make sure you get plenty of rest but still stay active.
- **If you have the potential to get pregnant, use an effective method of birth control during your treatments.**

Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



Radio-oncologie

This guide contains recommendations consistent with the scientific information available at the time of publication in september 2023. However, these recommendations are no replacement for medical advice. If you have any questions, please speak to your health provider.

This document may not be reproduced, in whole or in part, without written authorization from the CHU de Québec-Université Laval.



The translation of the Information Guides is courtesy of the User committee of CHU de Québec-Université Laval.

© CHU de Québec-Université Laval, 2025

09/25, produced by the communications department

Printed on FSC®-certified, ECOLOGO®-certified, and chlorine-free



100 % post-consumer recycled paper



Manufactured using biogas energy