

The Radiotherapy Department  
**Stereotactic  
radiosurgery  
to the brain**

Information for patients





You have been given this leaflet as your doctor has recommended that you have stereotactic radiosurgery to your brain. This leaflet will give you more detail about stereotactic radiosurgery, specifically about the type of treatment planned for you and how you can help yourself during and after treatment.

This leaflet has been written as a general guide, because the timing and effects of treatment may vary from one person to another. The leaflet will highlight the key points of the discussions you will have had with your doctor and treatment team. Your family members and friends may also find it helpful to read.

We will also give you our general radiotherapy leaflet which will explain what radiotherapy treatment involves, common side effects and some general information about the department.

## What is stereotactic radiosurgery?

Radiotherapy is the use of high energy X-rays to treat tumours. It works by damaging tumour cells in a way that may stop them from growing or cause them to die.

Stereotactic radiosurgery (SRS) is a very accurate way of giving radiotherapy treatment to small areas of the brain. It allows us to use very small beams of high energy X-rays to treat the tumour. You will have the radiosurgery as a single treatment called a 'fraction' of radiotherapy. It is not traditional surgery in an operating theatre.

As we can direct the radiotherapy very accurately, this increases the chances of controlling your tumour, whilst at the same time minimising the amount of X-rays that pass through your healthy tissue. This reduces the chance of possible side effects from the treatment.

In Oxford we use a piece of equipment called ExacTrac which works with the radiotherapy machine (Linear Accelerator) to help us to position you before the treatment. It also allows us to track the position of the tumour throughout your radiotherapy treatment, to within a distance of less than 1 millimetre.

## Why do I need stereotactic radiosurgery?

Stereotactic radiosurgery is suitable for small, clearly defined tumours which may be difficult to remove surgically, or where surgery is likely to be associated with a high risk of side effects.

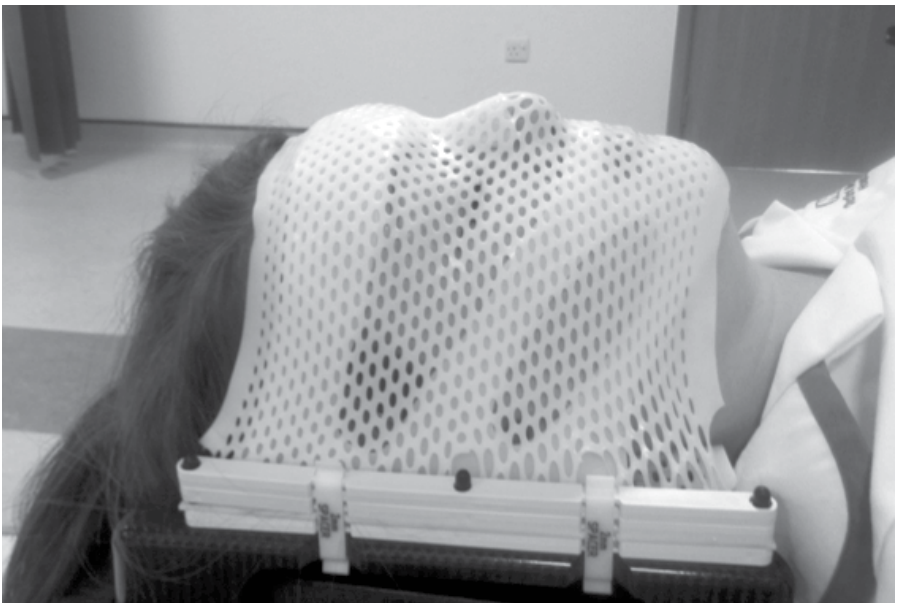
After discussing your case, your team of doctors (neurosurgeons, neuro-oncologists and neuro-radiologists) have recommended SRS as a suitable treatment option.

You can discuss with your consultant whether alternative options for treatment are available and suitable for you.

## Preparing for your stereotactic radiosurgery

Before you come for your stereotactic radiosurgery we will need to prepare you for the treatment.

You will need to wear a close-fitting plastic treatment mask, as shown in the photograph below. This mask is individually made to fit you and needs to be worn at each stage of your radiotherapy planning and treatment. It will keep your head steady during the radiosurgery, to make sure the treatment is delivered accurately to the area your doctor has planned to treat.



Your first appointment will be a 'planning appointment'. You will be taken to the Mould Room where we will make the plastic mask for you. The radiographer making your mask will talk you through the process and any concerns you may have.

The mask starts off as three plastic sheets. The radiographer making your mask will warm them one by one in warm water until they are soft and flexible. The first sheet is moulded around

the back of your head, the second and third sheets are gently moulded around your face. The plastic will be warm and a little damp but this process is not uncomfortable.

There are lots of holes in the plastic so that you can still breathe comfortably whilst the moulding is being done. The two halves of the mask are secured together at the sides with plastic clips to keep everything in place. It is then allowed to set; this takes about ten minutes. The radiographer can release these clips at any time if you want to have a break. The whole mask making process will take approximately half an hour.

The process of making the mask is not painful but if you have a beard or moustache we will ask you to shave it off before you come, as the hairs can interfere with making the mask.

After the mask is made, usually on the same day, the next step is to for you to have a planning CT scan whilst wearing the mask. This scan will provide accurate information for the doctor, so that they can plan your treatment.

During this scan, you may need to have an injection of contrast (a type of dye) to help show up the tumour more clearly. If you have ever had an allergic reaction to dye given during a scan before, please let the radiographer know when you come to this appointment.



## How is the treatment prepared?

Before your radiosurgery can begin, we need to produce an individual treatment plan for you. This makes sure that all the area needing treatment is included and that other unaffected tissues are avoided as much as possible.

The neuro-oncologists and neuro-radiologists will look at your planning CT scan to define the exact area to be treated and areas to be avoided. Our physicist will then use this information to design your individual treatment plan.

## Coming for your treatment

On the day of your radiosurgery treatment, the specialist radiographer will collect you from the waiting room and have a discussion with you before the treatment starts. They will confirm the details of the treatment with you again and you will have the opportunity to ask any final questions you may have.

During the treatment you will need to lie on your back on a hospital couch, wearing your mask. The radiographers will then move the couch and the treatment machine into position. They will use a localising frame (pictured below) and ExacTrac equipment to position you accurately, using lights and lasers. The treatment machine may come close to you but it will not touch you.



When you are in the correct position, the radiographers will leave the room to start your treatment. You will have to lie still but can breathe normally. The radiographers will be watching you on



cameras from outside the room. If you want them to come back in just raise your hand. You will not see or feel anything during the treatment.

When your treatment is finished the specialist radiographer or nurse will talk to you about what to expect and how to look after yourself following the radiosurgery. They will make sure that you have the correct medication to take home with you. You can go home after they have spoken with you.

It is advisable to have a family member or friend to accompany you to and from your appointment, as you may feel very tired after the treatment, although you shouldn't feel unwell.

## Steroid medication

When you have stereotactic radiosurgery, there is a risk of swelling developing around the area that is being treated. To reduce this risk we will normally recommend that you take a course of a steroid medication called dexamethasone, which we will prescribe for you. If you are already taking this steroid medication, we may advise that the dose you are taking is temporarily increased.

The doctor, specialist nurse or specialist radiographer will explain how to take your steroid medication. You will also be given medication to protect your stomach from irritation caused by the steroid.

## Follow-up

A few weeks after your treatment you will be asked to return to the Outpatient Clinic to be reviewed by your oncology consultant or a member of their team. Radiotherapy takes time to work, so it is at this appointment that your doctor will assess you and discuss your progress and any continuing side effects with you.

## Side effects of stereotactic radiosurgery

There are some side effects which are associated with radiotherapy. Stereotactic radiosurgery has fewer side effects than conventional radiotherapy, as less healthy tissue is exposed to high doses of radiation. Side effects may build up gradually for a couple of weeks after you have had your radiosurgery and can take a number of weeks to wear off.

- **Tiredness**

You may feel very tired immediately after your stereotactic radiosurgery. This may continue for a few weeks after your treatment.

- **Skin reaction**

SRS to tumours close to the skin surface may cause a skin reaction over the area being treated. The area may become red, dry, sensitive or begin to peel. We will give you a skin care leaflet, which will tell you how to care for the skin in this area.

- **Hair loss**

Loss of hair is a problem which happens with nearly all radiotherapy treatments to the head. How much hair you may lose varies from person to person, but it will only occur in small patches where the X-rays have been directed.

Your doctor or specialist radiographer will explain if this is likely to happen and where to expect some hair loss. Any hair re-growth usually starts four to five months after you have had SRS. It is unlikely that you will have significant permanent hair loss.

If you feel conscious about your hair loss we can arrange for you to be fitted with a wig on prescription. The specialist nurse or radiographer can help you to arrange this.

Further information can be found in the MacMillan Leaflet "Coping with Hair Loss" which we can give to you at any time.

- **Seizures or fits**

There is a slight increased risk that you may have a seizure (fit) after your treatment. However, this is usually more likely if you have had seizures in the past. Your doctor or specialist radiographer will discuss the likelihood of having a seizure with you and what to do if this happens.

- **Nausea**

You are quite likely to experience nausea and dizziness after your treatment. This can last for a couple of weeks. The neuro-oncology team will give you advice on how to cope with this. You may be prescribed some anti-sickness medication to take for a short while.

## Possible longer term side effects

Long term side effects can occur many months to years after radiotherapy has finished. These later side effects are hard to predict and unfortunately, if they do occur, they can sometimes be permanent. We carefully plan your treatment to avoid the surrounding areas around the tumour as much as possible. This reduces the chance of these side effects developing, which are generally very rare.

- **A further brain tumour**

There is a rare chance of developing a second tumour as a result of radiotherapy treatment. This occurs in less than 1% of people treated (less than 1 in every 100) and would usually develop at least 10-20 years after radiotherapy treatment has been completed.

- **Vestibular Schwannoma treatment only**

If you are having treatment for a Vestibular Schwannoma you may develop some weakness in your face following treatment. This usually improves, but 1 in 20 people treated (5%) may have longer term weakness in their face

If your Vestibular Schwannoma is large, there is a risk of swelling affecting the flow of fluid through your brain. 1 in 20 people (5%) may need to have a shunt inserted into their skull by a neurosurgeon to help drain away this fluid. Your doctor can explain this procedure to you.

1 in 20 people (5%) treated may find that their balance is not as good following treatment.

There is a chance that your Vestibular Schwannoma may increase in size during the first four years after treatment, before reducing in size again. We will check and monitor the size of your Vestibular Schwannoma on follow-up scans after your treatment has finished.

If your hearing has been affected by the Vestibular Schwannoma you may experience a further decline in your hearing after treatment. However, this should be slower than if we left the tumour untreated.

## Driving

If you have a brain tumour or pituitary tumour and you drive any type of vehicle, you must contact the DVLA and inform them of your diagnosis. Depending on the type of tumour you have you may have to stop driving for a certain length of time. The DVLA also has strict guidelines if you have suffered from seizures (fits) either before, during, or after your treatment.

Failure to comply with these regulations is illegal and potentially dangerous; your insurance will be invalid and you may be fined up to £1,000.

The DVLA can be contacted either by phone or in writing:

Tel: **0300 790 6806**

Address:

Drivers Medical Group

DVLA

Swansea

SA6 7JL

Full details and advice are also available on their website at:

**[www.gov.uk/contact-the-dvla](http://www.gov.uk/contact-the-dvla)**

## How to contact us

If you have any queries during your radiotherapy treatment, please do not hesitate to contact us by telephone, or speak with us when you come for treatment.

### **Neuro-oncology Specialist Radiographer**

Tel: 01865 235 465 – please ask to bleep 5087

(Monday to Friday, 9.00am to 5.00pm)

### **Neuro Nurse Practitioner team**

Tel: 01865 234 372

(Monday to Friday, 9.00am to 5.00pm – answer machine available outside of hours)

Alternatively, outside of these hours, please contact:

### **Oxford Triage Assessment team**

Tel: 01865 572 192

## Helpful websites

### **The Brain Tumour Charity**

Website: [www.thebraintumourcharity.org](http://www.thebraintumourcharity.org)

Support and Information Line: 0808 800 0004

Email: [support@thebraintumourcharity.org](mailto:support@thebraintumourcharity.org)

### **Macmillan Cancer Support**

Website: [www.macmillan.org.uk](http://www.macmillan.org.uk)

Tel: 0207 840 7840



If you have a specific requirement, need an interpreter, a document in Easy Read, another language, large print, Braille or audio version, please call **01865 221 473** or email **[PALSJR@ouh.nhs.uk](mailto:PALSJR@ouh.nhs.uk)**

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