Radiotherapy
Irradiation of the chest

azdelta
Uw ziekenhuis.

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Dear patient,

You have been referred to the radiotherapy department at AZ Delta hospital by your specialist doctor or your general practitioner. This brochure is intended to inform you about the course of your treatment in our department. This brochure is a supplement to the conversations you will have with your radiotherapist (this is a doctor specialised in radiation treatment) and the various staff members of our department. The aim of this brochure is to help you better understand the changes to your throat, lungs, oesophagus..., etc. due to the radiation.
You will be given a general explanation here that applies to most patients. Your situation may be slightly different from what is described here. If you have any questions about your situation during your treatment, please ask one of our staff members.

We wish you a good recovery.

Doctors and staff of the radiotherapy centre.

Radiotherapy

Radiotherapy is a treatment with ionising radiation. These are invisible high-energy rays. Malignant tumours can be treated with these rays. Radiotherapy can be used in two ways:

- external radiation, which is common
- internal radiation, which is used less.

This brochure only contains information on external radiation. All human organs and tissues consist of cells. These cells renew themselves to replace old or damaged cells. If cell division is dysregulated and the cells start to divide uncontrollably, a tumour can develop.
Radiation kills or damages cells. Tumour cells are more sensitive to radiation than the healthy cells around the tumour. Healthy cells are also better able to recover from mild radiation damage than cancer cells. That is why the beam of radiation is directed very precisely at the area to be radiated. Radiotherapy is a local treatment that only has an effect in the area that is radiated.

The dose of radiation used on the tumour or the site where the tumour was before surgery must be high enough to reduce the tumour and finally make it disappear or to make it possible to remove any remaining malignant cells with surgery. The surrounding healthy tissues are protected as much as possible so that they are damaged as little as possible and can subsequently recover.

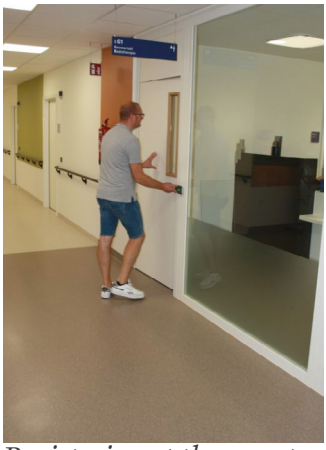
Because the radiation needs to be done so precisely, each patient is given his or her own precise treatment plan. A radiation technique is chosen with the best energy or radiation intensity and with one or more radiation beams from different radiation angles.

You cannot see, smell or feel radiation. It doesn't hurt. You are not radioactive after the radiation. No radiation remains in the urine, stool, sweat or sperm. You are free to interact with anyone, including children and pregnant women.

The Course of treatment

Registration

On the day of your initial visit to our Radiotherapy Department, you must first register at the kiosk at the entrance to the hospital. You are then directed to the Radiotherapy Department's administration, where you will register again. The secretary will identify you by your surname, first name and date of birth. Please hand the labels you received at the reception/hospital kiosk to the secretary. You can then take a seat in the waiting room. One of our doctors will collect you there.



Registering at the secretariaat

Consultation

Consultations with the radiotherapists take place by appointment from Monday through Friday from 8:30 a.m. to 12 p.m. and from 1:30 p.m. to 4 p.m. You can make an appointment by telephone on 051 23 75 82.

From left to right: Dr Caroline Sweldens, Dr Barbara Bussels Dr Lorenzo Staelens, Dr Didier Verniers

During this initial consultation, the radiotherapist will ask you various questions to gain an understanding of your personal medical history and current condition. Your current medical information has usually already been forwarded by your referring specialist physician or general practitioner.

It is important that you tell the radiotherapist what medicines you are taking.

Consultation with the radiotherapist

A physical examination will also take place. The radiotherapist will discuss with you the most suitable treatment for you. He/she will explain the way our department works and how often you will be radiated. The duration of treatment does not say anything about the severity of your disease.
The radiotherapist will explain to you the possible side effects that may occur and the expected outcome of the treatment.
A new appointment is made for the simulation. Then the further preparations that you need for the radiation treatment take place.

Simulation

To prepare for the radiation, you will go to the simulator. The simulator is a CT scanner that takes tomography images in the same position in which you will lie for your radiation treatment. A contrast dye may be administered at the instruction of the radiotherapist. The employee will insert an infusion for this.

When you enter the simulator, you will be asked for your surname, first name and date of birth. This is a check for the nurses to know they have the right patient in front of them. Because the staff at the radiation machine are often not the same as the nurses during the simulation, a photo of your face is taken. This is included with your information so that the staff members at the machine can be sure that they are treating the right patient.

For the treatment, you must lie on the treatment table in exactly the same way every day. The nurses will help you position yourself on the table. This position is determined by the place where you receive your radiation treatment. The nurses use various aids such as cushions in a specific shape. It is important that you indicate whether you are comfortable in that position so that you can lie still in that position for a longer period of time (the time needed for your radiation treatment). It is very important that you do not move or change your position.

You may need to drink a contrast agent or you will be given it by infusion so that a clear CT scan can be made. A small block may be placed at the bottom of your chest to monitor your breathing while taking the CT. You do not need to adjust your breathing. Simply continue to breathe normally (see further under CT scan).

Important when preparing the radiation:

- **Try to relax as much as possible in the position indicated.**
- **Try to lie as still as possible in the same position. If you are unable to do so, please tell the nurses why it is not possible. They will then help you to get into a more comfortable position.**

A nurse draws the lines that are needed on your skin. Then standard photos are taken of the lines drawn.

Drawing the lines

For patients receiving radiation treatment on the chest, the skin is marked with special ink. This ink is difficult to remove. These ink lines must remain visible throughout the series of radiation treatments so that the nurses can position you in exactly the same position that is needed for your treatment

every day. The location of the block used to track your breathing will also be marked with the same ink. You can certainly still wash yourself or shower, but do not wash away what was drawn. You may not take a bath or go swimming. If the lines become less clear during the course of your treatment, a nurse at the unit will redraw the lines. You may not redraw these lines yourself.

Every time the ink is used, it can transfer to your clothing. This ink is difficult to wash out. Therefore, we advise you not to wear new clothing or underwear as the ink may leave permanent stains.
It is usually necessary to tattoo a few dots on the lines that have been drawn. A nurse at the simulation will apply these dots to the skin with a small needle. These are small, permanent dots: tattoo dots. The nurse will tell you where and when these will be tattooed. These dots will never be applied with a needle in your neck.

After the simulation, the nurse will give you an appointment list with the dates and times of all radiation sessions. This appointment list is made in consultation with you, the radiotherapist and any patient transport service that is used. This list indicates which machine is used, and the telephone number of the Radiotherapy Department is also given.

Explanation of simulation by the nurse

You will also receive a card with your name, date of birth, file number and a barcode. You have to bring this card with you

every day during your treatment. This card is scanned daily when you arrive.
This system confirms that you are indeed the right person for whom the treatment has been prepared.

Barcode card

The simulation takes between half an hour and three-quarters of an hour.
After the simulation, your GP will receive a letter about your treatment at our department.

CT scan

A CT scan is always taken during simulation.

A CT scan or computed tomography involves making cross-sections of a part of your body, namely, where you will be radiated. This CT scan accurately visualises the area to be radiated and indicates the location of the surrounding healthy tissues.

During the scan, the table slowly slides through a large ring where the X-ray beam rotates around the body. To make your condition or certain organs more visible, you may be given a contrast agent just before or during the scan. If so, an employee will insert an infusion needle in your arm, hand or port-a-cath. The contrast agent is delivered through this needle.

When the product is injected, you will feel a sensation of warmth throughout your body, especially in your lower

abdomen and throat. This feeling of warmth disappears quickly and is normal.

Important for a CT scan with a contrast agent

- **You have fasted. This means that you must not eat or drink anything for three hours before the CT scan.**
- **If you are allergic to a contrast agent, tell the doctor and nurse beforehand.**

Taking a CT scan in radiation position

A CT scan is taken during the simulation.

Drawing up a radiation plan

The radiotherapist and the physicist will draw up an individual radiation treatment plan for you on the basis of the CT scan images, any NMR images that were taken or PET images taken earlier and the data from the CT scan taken during simulation. In this plan, they ensure that the area to be radiated is treated as precisely as possible and that the healthy tissues are spared as much as possible. They determine the number of radiation fields, their spatial orientation and their size, the intensity of the radiation beams and the distribution of the radiation dose in accordance with international guidelines.

After the radiation plan has been created, all data are transferred to the computer of the radiation machine.

You do not need to be present at the unit while your radiation plan is being drawn up. Drawing up such a plan takes some time. This is why there are usually a few days between your simulation and your actual radiation.

The radiation treatment

The first radiation treatment

You do not need to have fasted before the radiation. When you come for your first radiation treatment, report to the administration. If no one is present, take a seat in the waiting area opposite the secretariat waiting area.

When it is your turn, a nurse will ask you to enter the dressing room. There you will remove any of your clothing so that the lines are visible. Keep your card with the barcode ready to have it scanned. Accompanied by a nurse, you go to the radiation room. To go to the radiation room, you may keep another item of clothing on so that you do not have to walk half naked to the treatment table from the dressing room. You can remove this item of clothing at the treatment table.

A nurse scans your card so that your treatment plan can be accessed. You will see your name and photo on the screen

in the treatment room. You may check this daily. This is an additional safety feature built into the system.

Scanning the unique barcode

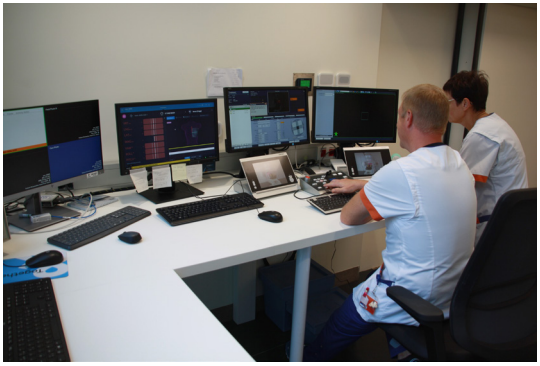
You will be positioned on the treatment table in exactly the same position as during the simulation. Your position is precisely adjusted by using the lines on your body and the laser lights projected from the wall.

Positioning on the treatment table

When all the data are correct, the nurses leave the radiation room. They can then see you through cameras and hear you through an intercom. If something happens during your treatment, e.g. you have to cough, the radiation is interrupted and the nurses come back into the treatment room.

On the first day of your radiation, a doctor may come to monitor your treatment. Control images are taken, which are immediately checked. All of these checks will make your first radiation treatment longer than subsequent treatments. The taking of control images is repeated daily.

Once the nurses have set up your radiation, it is important that you do not move during the radiation session until it is over. You will lie still even if the nurses come in during your treatment to reset the device. The machine can also be operated from the outside so that it moves around you, or the table moves without anyone coming in.



The control room of the radiation machine

You just lie still during your treatment. You can breathe and swallow. You do not see or feel the radiation. You also do not become radioactive from the radiation.

During radiation, the machine may make a sharp buzzing sound.

When the radiation time is finished, the machine will switch off automatically. Once the treatment is over, the nurses will come back in and help you get off the table. The duration of radiation is calculated individually for each patient and therefore varies per patient and per treatment.

It is not legally possible (for safety reasons) for family members or companions to accompany you in the treatment room.

Subsequent radiation treatments

Subsequent radiation treatments take place in the same way as for the first treatment. Control images are taken daily. If you have any problems or complaints, you can always contact one of the nurses at the unit. They will try to help you the best they can, or they will refer you to other care providers.

Treatment session

The radiotherapist will see you at regular intervals to see if you are tolerating the radiation well. If you have any questions, please ask them at that time. The nurses can also arrange an appointment for you with your attending physician if you have urgent questions or problems.
The radiation treatments take place from Monday to Friday. There are no radiation treatments on weekends and public holidays. There are also no radiation treatments on days when technical maintenance is carried out. Thus, your treatment may go ahead using another radiation machine. Or a radiation treatment can exceptionally be scheduled on a Saturday.

Last radiation treatment

You will see your radiotherapist on the last day of your radiation treatment. He/she will want to know how the radiation went for you. You will be given advice on the further treatment of any side effects and possibly an appointment for your next check-up with your referring physician. If you have skin problems, you may be given a later appointment with your radiotherapist or skin care nurse if necessary.
The effects of the radiation will continue for some time even though the treatment has ended.
You will receive a note for the reimbursement of your transport costs. You must submit this note to your health insurance fund or give it to the patient transport driver.

Side effects

The side effects only occur in the radiated body part. Some patients suffer a lot from side effects, while others notice very little. The presence or severity of side effects has nothing to do with the outcome of the treatment. However, you must follow your treatment until the last day.
Side effects are usually transient. They disappear a few weeks after the end of treatment.
If you experience certain side effects, talk to a nurse or your radiotherapist about them. They can give you the appropriate advice. The doctor can prescribe medicines to ease the problem.

General side effects

The side effects are local to where the radiation was directed. However, there are also some general reactions that may occur during the course of your radiation treatment, such as fatigue and loss of appetite. These symptoms are annoying but temporary.

Fatigue

As radiation therapy progresses, fatigue usually increases. This is due to the treatment itself, possibly the combination with other treatments and the daily trips to and from the radiation treatments.

Advice: sufficient rest combined with light activity, such as walking.

Decreased appetite

Your appetite may have decreased as a result of your treatment.

Advice: try to keep eating as healthy a diet as possible. Eat

small portions several times a day with foods you can tolerate. Drink enough: 1.5 to 2 litres of fluid (water) per day. Advice can always be sought from a dietician associated with the Radiotherapy Department.

Local side effects

These side effects only occur if you are radiated on this part of the body. They are local and dependent on the treated area. The most common side effects are listed below. Your doctor may provide additional information or treatment advice.

Skin

This skin advice only applies to areas where the skin is radiated. You do not need to care for the skin of the rest of your body in the same way.

Skin side effects may occur from the third week of your treatment. Then they gradually get worse. The side effects on the skin disappear again a few weeks after the end of the treatment.

- Wash radiated skin with neutral soap and lukewarm water. Use your hands to wash radiated skin; this is gentler.
- You can safely take a shower, preferably not a bath, because this can make the lines on the skin disappear.
- Gently pat the skin dry with a soft towel.
- If you wish, you can place a soft cloth in the skin folds.

Neck

- Difficulty swallowing and inflammation of mucous membranes
- Hoarseness

Oesophagus

- Difficulty swallowing, pain when swallowing
- Irritable cough
- Hoarseness

Lungs

- Difficulty swallowing
- Difficulty coughing up mucus
- Irritable cough
- Shortness of breath
- Decreased appetite

Nutrition

Our department has a dietician to whom you can be referred in case of problems with your diet. A good nutritional status increases your chances of getting through the treatment in good shape, recovering more easily and being more resistant to infections. Your diet does not directly affect your disease, but rather, it is supportive.

During your treatment, you may experience problems with food due to your disease or your treatment. These problems with food intake vary from patient to patient and can change over the course of treatment. Also, not every patient has the same symptoms.

Complaints such as loss of appetite, nausea, vomiting, sore throat and fatigue must be relieved as far as possible. All of these complaints listed can cause reduced food intake and weight loss.

A good and healthy diet is a varied, delicious diet with sufficient nutrients to meet your daily needs.

You can usually continue the same diet as before your

treatment if this is a healthy and balanced diet. Depending on the symptoms you develop during your disease and treatment, you may sometimes deviate from the normal healthy diet.

The Radiotherapy Department has leaflets available on an adapted diet based on your complaints. You may always ask about it. It is also advisable to discuss your nutritional problems (about food) with the nurses or with your radiotherapist. They can give you advice or refer you to the dietitian.

The dietitian can give you additional advice on choosing and preparing your food so that you consume sufficient fluid, calories and nutrients. If the adapted diet does not help or does not help adequately, special liquid nutrition or tube feeding may be appropriate.

Appointment with the dietitian

Practical information

The appointment system

On the day of your simulation, you will be given a list of all the appointments for the remaining radiation treatments. If certain appointments are difficult for you during the course of treatment, you can discuss this with a nurse at the treatment facility a few days in advance. We try to meet your needs within the possibilities of the service.

After the first radiation, you can keep going straight to the waiting room for your radiation machine.

If it is not yet your turn half an hour after the appointment time noted on your list, you may always ask the nurses at the unit about this.

Travel

Coming to the hospital every day for your treatment sometimes requires some organisation for transport.

Public transport

The hospital is easily accessible by bus. There is also a bus connection from the station to the hospital.
If you come by public transport, we always try to adapt your appointment list to the times of the bus and/or train schedule.

Your own means of transport

If you drive a car yourself or are taken by a family member, friend or neighbour, you can park in the car park at the East entrance every day after your simulation.
You can have your parking ticket converted into a free ticket at the department. This way you can leave the car park with your ticket without having to pay.

Patient transport

You can use a patient transport service to get to the hospital every day. Most health insurance funds have agreements with certain companies that are responsible for transporting patients at reasonable prices. It is advisable to always discuss your wish for patient transport with the nurses at the simulation, then they can check whether this is the most advantageous transport for you. If necessary, advice can be obtained from the social services of our hospital.

Reimbursement

Radiation treatment entitles you to a legally determined transport allowance. On the last day of your radiation, you will receive a certificate signed by the radiotherapist for the reimbursement of your travel expenses. Send this certificate to your health insurance fund.

Additional costs

The costs of radiation treatment are borne by the health insurance fund. You will have to pay the patient contribution for a maximum of two consultations, regardless of how many times you are seen by a doctor. You will also have to pay the patient contribution for the imaging (CT scan) in preparation for the radiation treatment. If you have any questions about the cost of this treatment, please contact the hospital's invoicing department: **t** 051 23 76 66 or **e** factuur@azdelta.be

More information

Flemish League against Cancer (Vlaamse liga tegen kanker, VLK)

The VLK aims to inform and support people and those close to them during and after their treatment. A wide range of services has been developed for this purpose.

Kom op tegen kanker

Koningsstraat 217
1210 Brussels
t 02 227 69 69
f 02 223 22 00
www.komoptegenkanker.be

Stichting tegen Kanker

The Stichting tegen Kanker provides various services to promote the well-being of people with cancer and their loved ones.

Stichting tegen Kanker
Leuvensesteenweg 479
1030 Brussel
t 02 736 99 99
f 02 734 92 50
www.kanker.be

Notes

Contact

Radiotherapy Department

RUMBEKE CAMPUS
Deltalaan 1
8800 Roeselare

Administration
t 051 23 75 82
e secr.radiotherapie@azdelta.be

Availability by telephone on working days
between 8:30 a.m. and 4:30 p.m..

Consultation by appointment only.
Monday through Friday, 8:30 a.m. - 12 p.m. and
1:30 p.m. - 4 p.m.

Social Services
sociale.dienst.rumbeke@azdelta.be

www.azdelta.be

Source: Radiotherapy Department

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