High dose (radical) radiotherapy to the lung or bronchus
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This information is for patients who are going to receive high dose (radical) radiotherapy to their chest (i.e. lung or bronchus). The aim of radical radiotherapy is to shrink and control the cancer for as long as possible. This leaflet will:

- Explain when radiotherapy is given
- Tell you about the side effects during and after radiotherapy
- Give advice on how to cope with these side effects
- Give contact details if you need further advice

You might find it helpful to read The Clatterbridge Cancer Centre booklet Radiotherapy, which explains how radiotherapy works and what to expect when you attend.

When radiotherapy is given

- For inoperable lung cancer as an alternative to surgery
- After surgery when following the examination of the tissues removed if there is any suspicion of cancer cells close to the edge of the specimen
Chemotherapy and Lung cancer

Chemotherapy can be used at the same time as radiotherapy in the treatment of lung cancer. If this applies to you it will be discussed with you in detail by your oncology doctor. You will be admitted on to one of our wards for the weeks you have both types of treatment. This approach is likely to cause more troublesome side effects and so your recovery may be slower.

Lung Cancer Clinical Nurse Specialist (CNS) Service

The Lung Cancer CNS is based at The Clatterbridge Cancer Centre on the Wirral to ensure that all patients (and/or carers) who have a diagnosis of lung cancer have access to written and verbal information on all issues surrounding the management of lung cancer, advice on treatment options, psychological support and symptom management. Ask for more information if you think you may benefit from a referral.

Side effects during and immediately after completion of radiotherapy

Every patient is different and you may not have the same side effects as somebody else. The usual pattern for the development of the short term (acute) side effects is to gradually start about 5-10 days after the first treatment. They usually persist and worsen, the effects being most troublesome about 10 days after the last radiotherapy treatment. You will be reviewed during your treatment and given medicines and advice to help you cope.
this, the healing process begins and the side effects usually settle over the following 2-3 weeks.

**Discomfort when Swallowing (Dysphagia)**

If your treatment includes the central area of your chest, you may develop pain and discomfort. The gullet (oesophagus) passes through the middle of the chest and can become inflamed (sore) as a result of your radiotherapy. Often it feels like heartburn or indigestion and is worse when swallowing.

**You can help yourself by:**

- Informing your radiographers or nurse if you have discomfort when you swallow so that they can give you advice and get medication for you
- Eating soft foods that are easy to swallow. Adding extra moisture such as gravy and sauces can help
- Drinking more fluid, small sips frequently is best
- Eating smaller meals more often if your gullet is sore
- Avoid, until any discomfort has settled, any food or drink that is very hot, cold or highly spiced. You may find fruit juice and drinks containing alcohol worsen the symptoms

**Nutritional Care**

Eating as well as you can, helps you to cope with and recover from the treatment. Our dieticians have written a leaflet “Eating Well Coping with Side Effects” which is available to you. It includes advice on suitable foods and how to improve your nutritional intake. If you need further advice from a dietician, this can be arranged. You may be seen at the hospital during your treatment and /or, once at home following referral by hospital dietician, G.P. or district nurse.
**Breathlessness and cough**

If you have a cough or breathlessness before treatment it may worsen and you may produce more phlegm. This should settle within a few weeks of finishing treatment. If at any time you produce phlegm that is thick and yellow/green it may indicate that you have a chest infection. Seek advice from healthcare staff.

With lung cancer it is common to see streaks of blood in the phlegm. Do not be alarmed if this continues or starts over the course of treatment. Tell us about it especially if it is more than usual.

If breathlessness affects your daily activities there are many simple ways of improving this including simple exercises and advice on learning to plan and prioritise tasks. Please ask us for more information, contact Macmillan Cancer Support or the Roy Castle Lung Cancer Foundation or ask to see our Lung Clinical Nurse Specialist. See later for details.

Adequate treatment requires some radiation dose to normal lung tissue. However, we try to ensure that this dose is kept as low as possible. Temporary inflammation of the lungs (called pneumonitis) can develop 1-3 months after finishing your radiotherapy. The symptoms are a dry cough, an increase in shortness of breath and possibly a fever. Should these symptoms occur please contact oncology healthcare staff or contact our triage help line. Treatment with steroids (rather than antibiotics) improves these symptoms.
Tiredness and Fatigue (low energy levels)
You may feel increasingly tired during your course of radiotherapy and for a number of weeks afterwards. Remaining as active as you can helps you to feel less tired. Active means anything that requires effort such as walking, preparing a meal etc. Try to include things you enjoy, no matter how simple the activity.

Skin Care and Hair Loss
Areas of skin around your chest may become dry, red or uncomfortable. If you develop any skin soreness, report it to your radiographer or nurse who will advise you further on skin care. You can help yourself by wearing loose fitting clothes across your chest area preferably made of natural fibres. Wash the area gently in lukewarm water using a mild unperfumed soap. A shower is best. Pat the area dry with a soft towel.

Loss of chest hair may occur in the areas being treated, which usually re-grows following treatment.

Other effects
The diagnosis of cancer together with the impact of treatment e.g. needing radiotherapy can have a major impact on how you feel, which can affect how you behave. Symptoms, for example, breathlessness may affect other areas of your life e.g. sexual intimacy.

If you are able, talking about how you feel with your nurse (ward or specialist), radiographer or doctors can be a great help. Sometimes more help is required to help you cope and overcome any negative feelings.
Often, these feelings become more apparent once you have completed all your treatments and you are beginning to recover. Consider discussing these issues with your G.P. or your oncology doctor at your follow-up appointments. Referrals to specialist staff e.g. a psychologist or occupational therapist can be beneficial.

**Long term effects**

These are effects that can develop from a few months to several years following radiotherapy treatment.

**Your breathing**

Radiotherapy can cause scarring of lung tissue, which may cause a permanent increase in breathlessness. If this affects your daily activities there are many simple ways of improving this. Please ask for advice from your G.P. Lung Cancer CNS or your oncology doctor at follow-up appointments.

Macmillan Cancer Support and the Roy Castle Lung Cancer Foundation have booklets about coping with breathlessness that may be of use. See contact details. These can be ordered over the telephone. Referral to other professionals may be beneficial e.g. physiotherapist. Many healthcare staff can do this for example G.P. and specialist nurses.
Swallowing

The tissues of the gullet can be affected by radiation treatment to the lung, causing persistent difficulty in swallowing. Eating softer foods can help. If this affects you, talk to your G.P or your oncology doctor at your follow up appointments. Having a procedure that stretches the gullet may be offered.

Risk of spinal cord damage

Radiotherapy to the chest carries a small risk of permanent damage to the spinal cord; in general this risk is low.

Risk of changes to the bones

In the years following radiation treatment, the bones in the treatment field can become increasingly weak and may cause discomfort. In some people these changes can result in ongoing symptoms. Please discuss any concerns with your G.P. Lung Cancer CNS or with your oncology doctor at your follow-up appointments.

Follow-up and recovery

As you complete your radiotherapy, your care needs will be assessed. If you develop any new nursing needs as a result of radiotherapy we can make arrangements for a district nurse to visit you.

In the first few weeks after finishing treatment your condition is likely to worsen due to possible side effects - this is usual. If you are finding it hard to cope and you need help, contact our triage help line at The Clatterbridge Cancer Centre.
If you have been affected by tiredness and fatigue it may persist. Planning ahead, doing only the things that are necessary and having plenty of rest breaks in your routine helps. Ensure you eat as well as you can. Slowly, it should improve but it can take a number of weeks to recover.

You will be seen by your oncology doctor a few weeks after finishing your radiotherapy. This appointment will be at your local hospital. The next routine CT scan of your chest will be a couple of months after finishing treatment. Scanning too soon is not helpful as the effects of radiotherapy make it difficult to get an accurate assessment of response to treatment. After that you will be seen at regular intervals but if you have any concerns that you think may be related to your cancer, you should not wait for that appointment. Talk to your G.P. or specialist nurse. You can be seen earlier if required.

You and/or your carers may find it useful to talk to others who have been treated for lung cancer by joining a support group. Contact the local Macmillan Cancer Support or the Roy Castle Lung Cancer Foundation for more details. They have booklets about coping and living with lung cancer that may be of use. See contact details. These are free and can be ordered over the telephone. Alternatively if you are familiar with using the internet, the major cancer charities have on-line communities.
Who to contact for advice

For more information and advice contact Macmillan Cancer Support or the Roy Castle Lung Cancer Foundation. Alternatively contact the Lung Cancer CNS based at The Clatterbridge Cancer Centre. See later for details.

Contact details

The Clatterbridge Cancer Centre NHS Foundation Trust
0151 334 1155 or www.clatterbridgecc.nhs.uk

Lung Cancer CNS based at CCC
Ring hospital number and ask for their office

Macmillan Cancer Support
0808 808 00 00 or www.macmillan.org.uk

Macmillan Cancer Information and Support at
The Clatterbridge Cancer Centre
0151 482 7722 (Wirral) 0151 514 6411 (Liverpool)

Roy Castle Lung Cancer Foundation
0151 254 7200 or www.roycastle.org

If you have any general enquiries prior to starting your treatment, please contact the Information and support radiographer at The Clatterbridge Cancer Centre, Monday to Friday during office hours (9am-5pm) on 0151 482 7889 ext 4908.

If you have any concerns during or after treatment contact the Triage help line (24 hours) on 0151 334 1155 bleep 5555.
How we produce our information

All of our leaflets are produced by staff at The Clatterbridge Cancer Centre and this information is not sponsored or influenced in any way. Every effort is made to ensure that the information included in this leaflet is accurate and complete and we hope that it will add to any professional advice you have had. All our leaflets are evidence based where appropriate and they are regularly reviewed and updated. If you are concerned about your health in any way, you should consult your healthcare team.

We rely on a number of sources to gather evidence for our information. All of our information is in line with accepted national or international guidelines where possible. Where no guidelines exist, we rely on other reliable sources such as systematic reviews, published clinical trials data or a consensus review of experts. We also use medical textbooks, journals and government publications.

References for this leaflet can be obtained by telephoning 0151 482 7722.

If you need this leaflet in large print, Braille, audio or different language, please call 0151 482 7722.

If you have a comment, concern, compliment or complaint, please call 0151 482 7927.