University Hospital of South Manchester
NHS Foundation Trust

Making Choices

For women at **moderate risk** deciding whether to take **raloxifene** for prevention of breast cancer

genesis preventing breast cancer

UHSM Your Hospital

This decision aid booklet was developed by the breast cancer prevention research team from the Nightingale and Genesis Breast Cancer Prevention Centre at the University Hospital of South Manchester (UHSM) in collaboration with the Centre for Medical Psychology & Evidence-based Decision-Making (CeMPED) at the University of Sydney, Australia.

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Introduction

A substantial number of women are at increased risk of developing breast cancer.

This booklet is designed to assist you in deciding whether or not to take raloxifene (ral-ox-e-feen) as one of your risk management options.

At the back of the booklet (page 29) you will find a page labelled “Your notes”, where you can write down any questions that you would like to ask your doctor. A glossary of medical terms is also included.

We would like to encourage you to pay particular attention to the sections on the potential benefits and risks of each of the options. The diagrams are included to complement the text. It is not necessary to read both. The worksheets at the end of this booklet are optional; you do not have to complete them.

Understanding breast cancer risk

In this booklet, we use the term **"risk"** to mean the chance of developing breast cancer in the future. Everyone, including men, has some chance of developing breast cancer in their life.

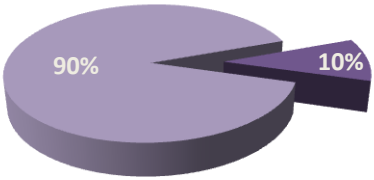
Increased risk of breast cancer

Some people are more likely than others to develop breast cancer for various reasons. These people are said to be at an increased risk. *Having a family history of breast cancer* is a major factor.

General population breast cancer risk

In developed countries, close to 1 out of 10 women develop breast cancer at some point in their life.

Most women will NEVER develop breast cancer.



1 woman in 10 will develop breast cancer in her lifetime.

What is your risk of developing breast cancer in the future?

Your risk is at least twice that of the general population. Your precise risk will depend on the number and degree of risk factors that apply to you. Your doctor can tell you more about your precise risk.

Most women at **increased** risk will NEVER develop breast cancer.

At least 2 women in 10 will develop breast cancer in their lifetime if they have risk factors.

If breast cancer develops, there is an excellent chance that it can be detected early. Effective treatment means that the majority of women can be cured and return to their normal life.

Other risk factors include:

- **Never having had children**
- **Being 30 years or older at the birth of your first child**
- **Going through menopause after the age of 55**
- **Starting your periods at an early age**

What can you do to reduce your risk of breast cancer?

Since you are at increased risk of developing breast cancer, you may wish to consider options to minimise the risk. The following pages will explore some of the advantages and disadvantages of these options.

Option 1

STANDARD CARE

(mammograms)

Option 2

STANDARD CARE

(mammograms)

+

Raloxifene

OPTION 1: Standard Care

You may choose to continue with standard risk management, which includes breast screening (breast screening). This helps to ensure that any potential problems are identified as early as possible. In addition, other options include weight management and exercise.

Advantages	Disadvantages
▪ You would not have the potential side effects that can occur when taking medication. ▪ You would not have the daily reminder of cancer that bothers some women when taking medication to prevent breast cancer.	▪ Mammograms may alert you and your doctor to the fact that there is something wrong, but they do not prevent or reduce the risk of developing breast cancer. ▪ You may feel you have not done enough to maximise your chance of preventing breast cancer. ▪ You may not have the reassurance of taking daily medication to prevent breast cancer.

OPTION 2: Standard care + raloxifene

The second option is to continue with standard risk management, but also to take preventative treatment in the form of a medication called raloxifene.

What is raloxifene?

Raloxifene is a tablet that has been widely used to treat osteoporosis. In women at moderate risk of developing breast cancer, raloxifene is known to reduce this chance. Recently, four large studies have explored the use of raloxifene in women at increased risk. The results indicate that raloxifene may be effective in reducing breast cancer risk by up to 30%.

How is raloxifene taken?

Raloxifene is taken as a tablet once a day for 5 years.

Raloxifene: how does it work?

Raloxifene is a drug which blocks the action of oestrogen (sometimes called an anti-oestrogen). **Oestrogen** is a female hormone which is produced mainly by the ovaries in women before menopause. After menopause, low levels of oestrogen continue to be produced in fat, liver, muscle and breast tissue itself. Oestrogen stimulates the growth of breast tissue. Should this tissue contain cancerous cells then it will stimulate the growth of the cancerous tissue.

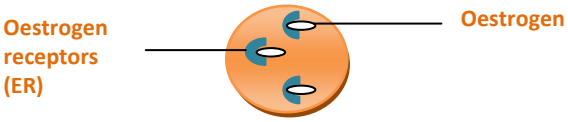
Some breast cells have molecules within them called **oestrogen receptors**. These molecules attach to oestrogen, starting a chain reaction which causes the cell to multiply and grow. Breast cancer cells sensitive to oestrogen are called “oestrogen receptor positive” (ER positive or ER+) and those that are not sensitive are called “oestrogen receptor negative” (ER negative or ER-).

Raloxifene is a drug that can block the effects of oestrogen. The easiest way to understand the way raloxifene works is to liken the process to that of a lock and key. The oestrogen receptor is the lock and oestrogen is the key. When oestrogen comes into

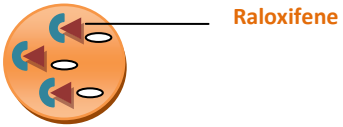
contact with the receptors, they unlock or activate the breast cell to multiply and growth increases. Raloxifene imitates the action of the oestrogen and fits into the lock, but the key does not turn and the cells do not multiply. The raloxifene key remains in place and prevents the oestrogen from reaching the cancer cells. The cells either grow more slowly or stop growing altogether.

Raloxifene is only effective against breast cells that are ER positive (ER+). We know that many cells in the breast as well as abnormal early growths contain oestrogen receptors.

Oestrogen enters the cell, binds with the receptors and
→ **encourages breast cell growth.**



Raloxifene covers the receptor (ER), preventing oestrogen from binding with the receptor and
→ **stops or slows breast cell growth.**



Raloxifene: potential benefits

Prevents breast cancer

The previous page explains how raloxifene prevents breast cancer.

Reduces breast complaints

By blocking the effect of oestrogen on breast tissue, raloxifene appears to reduce breast complaints such as cysts, non-cancerous (benign) breast disease, soreness and tenderness.

Lowers cholesterol levels

Raloxifene can lower the level of cholesterol in the blood.

Raloxifene increases bone strength

Raloxifene has been used to treat osteoporosis (fragile bones) for many years. It reduces the chance of a fracture of the spine by about one third and there is also a small reduction in hip fractures.

Effectiveness of raloxifene

Raloxifene can reduce ER+ breast cancer risk by up to 30%. Out of 1,000 women at **moderate** risk, we would expect to see:

Number of ER+ breast cancers we expect to see	Without taking raloxifene	With raloxifene	Number breast cancers prevented
In 5 years	25	17	8
In 10 years	50	25	25

Potential side effects and risks

Raloxifene, like most medications, may cause unwanted side effects in some women. Each woman responds differently and many have very few or no side effects. Whilst you are taking raloxifene you may also experience symptoms by chance which are unrelated to the drug. The best way to work out if symptoms are related to raloxifene is to see if they begin soon after you start taking the drug. We have learned a lot about the true risks and benefits of raloxifene by comparing the side effects in women taking raloxifene and those taking a placebo (a pill with no active ingredients). For example, we found that 21% of women had hot flushes on the placebo, but this increased to 28% for women taking raloxifene.

A recent study of over 17,000 women taking raloxifene indicated that raloxifene had very few side effects.

If you experience side effects and decide to take a break from taking raloxifene, it is likely that the side effects will reappear once you start taking the drug again.

Side effects

Common side effects

Night sweats, hot flushes and cold sweats

Menopausal-like symptoms are fairly common in women generally. In the raloxifene trials 21% of women on placebo had these symptoms which were usually mild and tended to reduce with time.

There are a number of ways to help reduce or control hot flushes and sweats. Some women find it helpful to avoid or cut down on tea, coffee, nicotine and alcohol. Others find that regular exercise helps. Complementary therapies to ease these side effects may also be helpful (e.g. herbal medication).

Less common side effects

Leg cramps

In raloxifene trials 6-12% of women on the placebo had leg cramps whereas 10-17% of women taking raloxifene had them.

Leg cramps are a discomfort or pain which usually occur in the calf muscle but resolve in a short time. Longer term pain in the calf on one side can be a sign of a blood clot and you should see your GP as soon as possible.

Swelling of the ankles

In raloxifene trials 6-12% of women taking a placebo had ankle swelling whereas 7-14% of women taking raloxifene had swollen ankles.

What do we mean by common?

The following diagrams represent 100 women taking raloxifene for five years. The area shaded in pink shows the number of women likely to develop each side effect. The area shaded in purple shows the number of **additional** women likely to develop each side effect over five years because they are taking raloxifene.

Hot Flushes

Out of 100 women at increased risk of breast cancer, 21 women will experience hot flushes.

If the same 100 women take raloxifene, an additional 7 women will experience hot flushes.

Leg cramps

Out of 100 women at increased risk of breast cancer, 9 women will experience leg cramps.

If the same 100 women take raloxifene, an additional 4 women will experience leg cramps.

RARE but potentially serious RISKS

(only about 1-2 in 1,000 women experience these)

Blood clots (thrombosis)

Raloxifene may cause a two-fold increase in the risk of blood clots, particularly in the veins of the legs. This side-effect is rare and can also occur if you take HRT or 'the pill'. In a study of raloxifene compared to a placebo, around 1 in 1000 women taking the placebo developed a clot, whereas approximately 2 in 1,000 women taking raloxifene developed a clot.

Clots can develop after major surgery or if you are immobile for a long period of time. If these clots break loose, they can block smaller vessels in the heart, lungs and brain (stroke).

Clots can be prevented to some extent by exercise and treatments prescribed by your doctor. Clots are most common at times when you are immobilised, such as after an operation or a leg fracture. Talk to your doctor about stopping raloxifene temporarily in these circumstances.

Summary of main advantages & disadvantages

Advantages	Disadvantages
▪ Known to prevent or delay breast cancer developing for the first time ▪ Reduces breast complaints ▪ Known to reduce the level of cholesterol in the blood ▪ Increases bone strength and prevents osteoporosis	Increased risk of: ▪ Flushes and sweats ▪ Leg cramps ▪ Swelling of ankles ▪ Blood clots ▪ Stroke

Arriving at a treatment decision

The previous pages have outlined the main risk management options available to you now. The following steps may help you to make the decision whether or not to take raloxifene for the prevention of breast cancer. The decision-making process can be helped by following these six steps:

1. **Understand your future risk of breast cancer as fully as you can.**
2. **Understand your options for further management and the risks and benefits of these options.**
3. **Review the advantages and disadvantages of those options.**

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4. **Assess the importance to you of the advantages and disadvantages.**
5. **Prioritise the advantages and disadvantages of raloxifene for you and your family.**
6. **Get more information or clarification for any uncertain areas.**

You have already gone through steps 1-3.
To help you complete steps 4-6 and come to the decision that suits you best, we have included examples of how some women reached their decision.

Worksheets

This section starts with examples of how some women view the advantages and disadvantages of the standard treatment plus raloxifene. This is followed by your own worksheet, where we invite you to list the advantages and disadvantages of the statements in the boxes and rate how important these are to you.

Each statement has three options underneath it, each describing a level of importance. By circling one of the options, you can indicate and see at a glance how important each issue is to you:

Circling **Not Important**	➡	indicates that the issue is of **no concern** to you
Circling **Somewhat Important**	➡	indicates that the issue is **a small concern** to you
Circling **Very Important**	➡	indicates that the issue is **a big concern** to you

The column with more “very important” options circled may indicate that you are more inclined to choose that option. There is also space for you to add your own advantages and disadvantages and rate their importance.

Example:

One of the disadvantages is the side effects of raloxifene. If the woman using the worksheet feels that she will be able to handle this, she would circle “somewhat important” for this statement, because side effects are a small concern for her.

	‘I think I’ll be able to handle that”		
Side effects from raloxifene	Not Important	Somewhat Important	Very Important

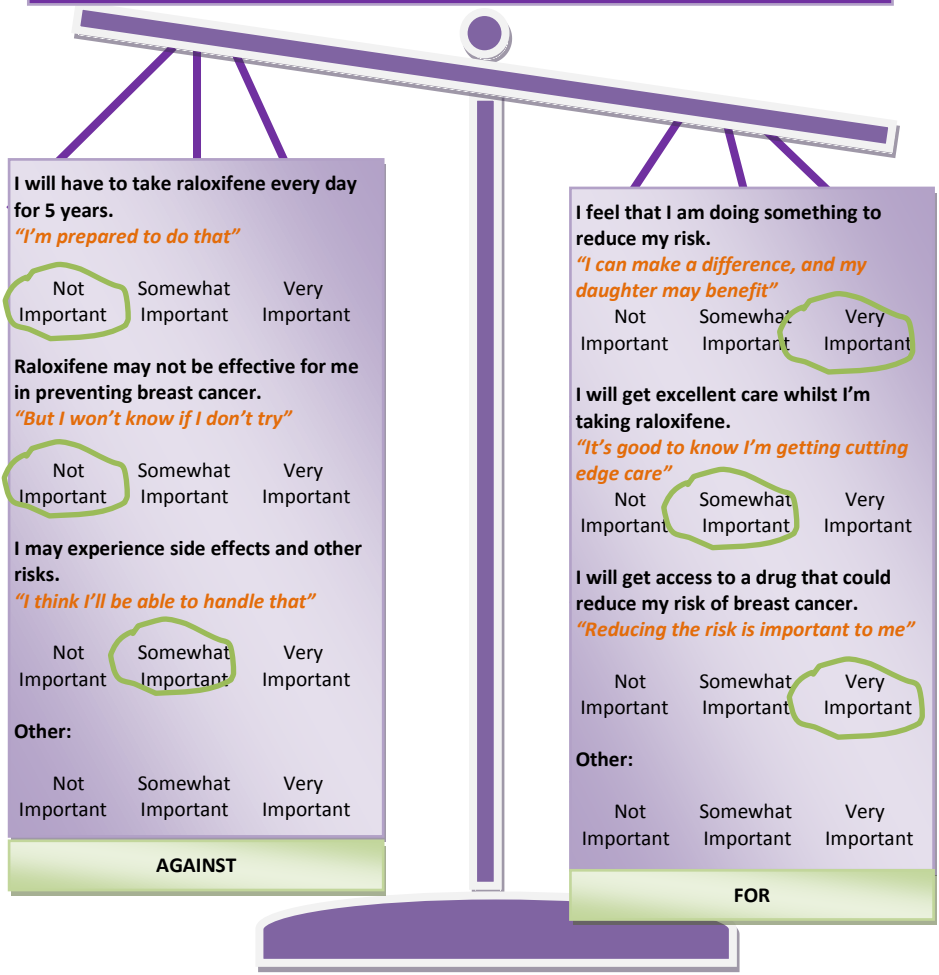
At the bottom of the worksheet you can indicate (by circling **one** of the 1-7 stars) which way you are leaning in your decision.

Not taking raloxifene ★ ★ ★ ★ ★ ★ ★ Taking raloxifene

By circling the 4th (middle) star, this person is still unsure whether or not to take raloxifene. In this case, they may need to find out more information and discuss their options with their doctor.

Worksheet: example 1

Anna's thoughts: "will taking raloxifene for prevention suit me?"



I will have to take raloxifene every day for 5 years.
"I'm prepared to do that"

Not Important | Somewhat Important | Very Important

Raloxifene may not be effective for me in preventing breast cancer.
"But I won't know if I don't try"

Not Important | Somewhat Important | Very Important

I may experience side effects and other risks.
"I think I'll be able to handle that"

Not Important | Somewhat Important | Very Important

Other:

Not Important | Somewhat Important | Very Important

AGAINST

I feel that I am doing something to reduce my risk.
"I can make a difference, and my daughter may benefit"

Not Important | Somewhat Important | Very Important

I will get excellent care whilst I'm taking raloxifene.
"It's good to know I'm getting cutting edge care"

Not Important | Somewhat Important | Very Important

I will get access to a drug that could reduce my risk of breast cancer.
"Reducing the risk is important to me"

Not Important | Somewhat Important | Very Important

Other:

Not Important | Somewhat Important | Very Important

FOR

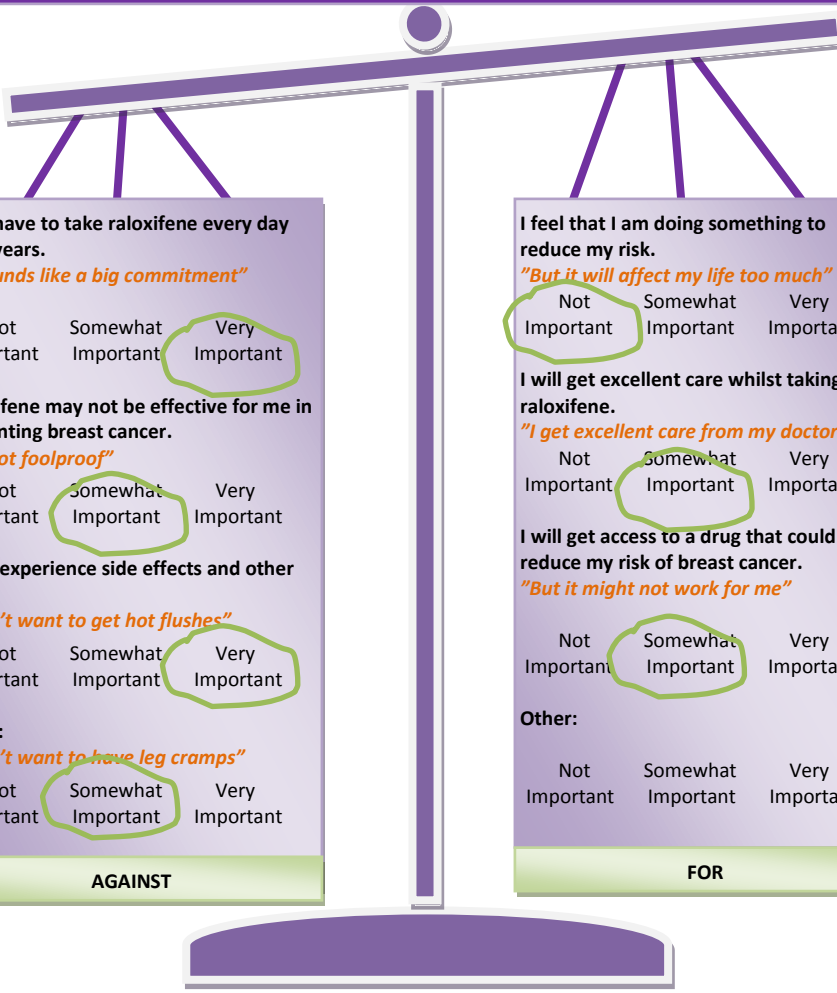
Any further questions? **"Can I continue taking the drugs when the 5 year treatment period is over?"**

Which way is Anna leaning?

Not taking raloxifene ★ ★ ★ ★ ★ ★ ★ **Taking raloxifene**

Worksheet: example 2

Dianne's thoughts: "will taking raloxifene for prevention suit me?"



I will have to take raloxifene every day for 5 years.
"It sounds like a big commitment"

Not Important | Somewhat Important | **Very Important**

Raloxifene may not be effective for me in preventing breast cancer.
"it's not foolproof"

Not Important | **Somewhat Important** | Very Important

I may experience side effects and other risks.
"I don't want to get hot flushes"

Not Important | Somewhat Important | **Very Important**

Other:
"I don't want to have leg cramps"

Not Important | **Somewhat Important** | Very Important

AGAINST

I feel that I am doing something to reduce my risk.
"But it will affect my life too much"

Not Important | Somewhat Important | Very Important

I will get excellent care whilst taking raloxifene.
"I get excellent care from my doctor now"

Not Important | **Somewhat Important** | Very Important

I will get access to a drug that could reduce my risk of breast cancer.
"But it might not work for me"

Not Important | **Somewhat Important** | Very Important

Other:

Not Important | Somewhat Important | Very Important

FOR

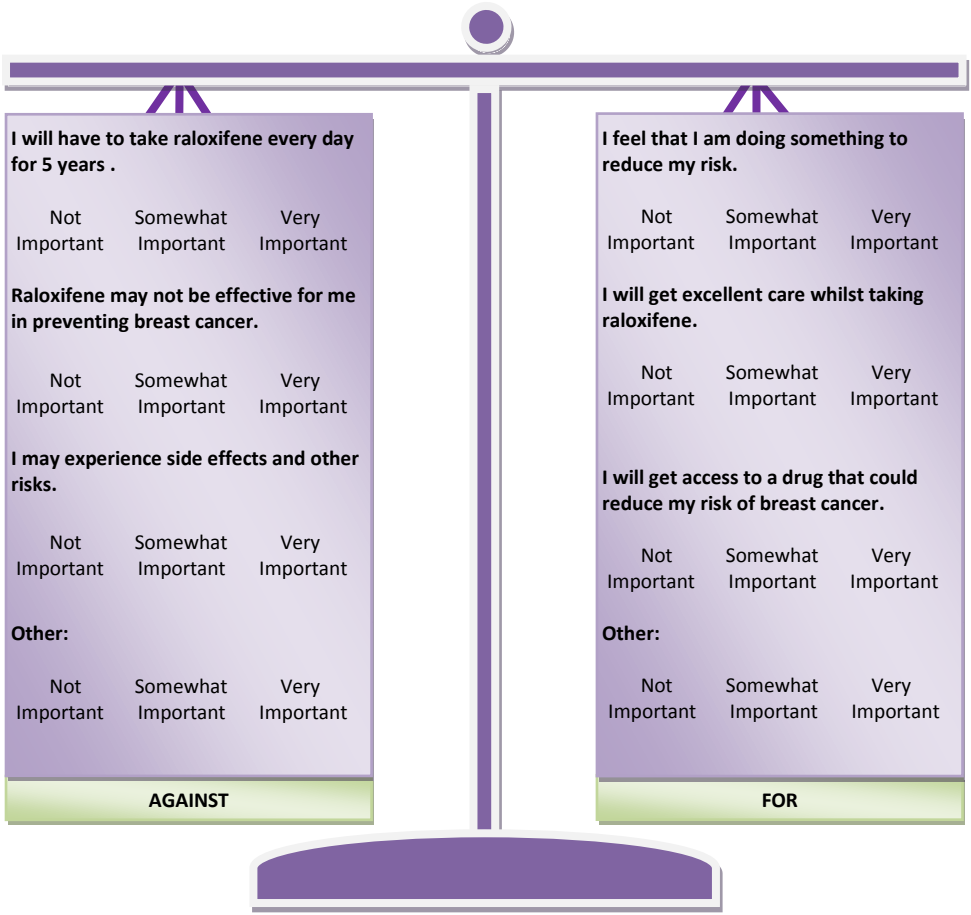
Any further questions? **"Can raloxifene interfere with other medication?"**

Which way is Dianne leaning?

Not taking raloxifene ★ ★ ★ ★ ★ ★ **Taking raloxifene**

Your worksheet

Your thoughts: “will taking raloxifene for prevention suit me?”



I will have to take raloxifene every day for 5 years .

Not Important | Somewhat Important | Very Important

Raloxifene may not be effective for me in preventing breast cancer.

Not Important | Somewhat Important | Very Important

I may experience side effects and other risks.

Not Important | Somewhat Important | Very Important

Other:

Not Important | Somewhat Important | Very Important

AGAINST

I feel that I am doing something to reduce my risk.

Not Important | Somewhat Important | Very Important

I will get excellent care whilst taking raloxifene.

Not Important | Somewhat Important | Very Important

I will get access to a drug that could reduce my risk of breast cancer.

Not Important | Somewhat Important | Very Important

Other:

Not Important | Somewhat Important | Very Important

FOR

Any further questions?

Which way are YOU leaning towards? ***(Circle one star only)***

Not taking raloxifene ★ ★ ★ ★ ★ ★ ★ **Taking raloxifene**

Further contacts

Many women seek information on the internet about breast cancer treatments, research, clinical trials and support services. However, not all information reported is accurate or reliable.

Listed below are a number of websites that are prepared by cancer organisations. As the information may only be general and not specific to your situation, it is important to discuss any questions you have with your doctor.

Websites about breast cancer	
Genesis Breast Cancer Prevention Appeal	www.genesisuk.org
Cancer Research UK	www.cancerresearchuk.org
Breast Cancer UK	www.breastcanceruk.org.uk
Macmillan Cancer Support	www.macmillan.org.uk
Breast Cancer Care UK	www.breastcancercare.org.uk
Breakthrough Breast Cancer	www.breakthrough.org.uk/
Breast Cancer Campaign	www.breastcancercampaign.org

Glossary of terms you may come across

A

Advanced breast cancer: Cancer cells have spread past the breast and armpit to other parts or organs of the body.

B

Body composition: The relative amounts of bone, muscle and fat in your body.

Bone mineral density test: An X-ray test to determine the amount of calcium and other minerals in the bone, used to diagnose osteoporosis.

C

Cancer: A group of diseases in which malignant cells grow out of control and may spread to other parts of the body.

Cholesterol: A substance found in fats in the bloodstream.

Clinical trial: A scientific test of the effectiveness and safety of a drug using consenting human participants.

Cysts: An accumulation of fluid or semisolid material within a sac in the breast.

D

Diagnosis: Process of identifying a disease from symptoms & tests.

E

Endometrial cancer: A cancer of the lining of the uterus.

ER: Oestrogen receptor. Molecules inside the cells that allow oestrogen to enter.

G

Gynaecological problems: Problems affecting the female reproductive organs.

H

Hysterectomy: Surgical operation for removing the uterus.

I

Invasive breast cancer: Breast cancer which has spread beyond the tissue in which it developed and is growing into surrounding, healthy tissues.

M

Mammogram: A low-dose X-ray of the breast to check for any abnormal tissue in the breasts.

O

Oestrogen: Female sex hormones produced primarily by the ovaries.
Osteoporosis: A condition that makes bones prone to fracture.

P

Pre-menopausal: The time in a woman's life when they have menstrual periods.

R

Raloxifene: A current treatment for breast cancer which stops the action of oestrogen.

S

Standard risk management: The current way to minimise your risk of breast cancer.

T

Treatment holiday: Stopping the treatment for a period of time.

Your notes