ovacome..
ovarian cancer

Reducing and managing genetic risk

Ovacome is a national charity providing support and information to anyone affected by ovarian cancer.

We run a free telephone and email support line and work to raise awareness and give a voice to all those affected by ovarian cancer.

This booklet is part of a series giving clinical information about ovarian cancer.

It is one of three booklets discussing genetics, genetic testing and reducing genetic risk.

Trusted Information Creator

Patient Information Forum

Reducing and managing genetic risk

Genetic testing may mean that you find out you have a higher risk of developing ovarian cancer.

In the UK the risk of developing ovarian cancer is two per cent (2 in 100) *(1)*. The increased risk can be passed on to your children.

You and your family may want to know if this risk can be reduced, or how it can be managed. There are ways of doing this that can involve regular check-ups, hormones, surgery, and drug treatments.

Increased risk if you are BRCA positive

- BRCA1 gene change can increase the risk of getting ovarian cancer by age 70, to 40 to 60 per cent (40 to 60 per 100).
- BRCA2 gene change can increase the risk to 10 to 30 per cent (10 to 30 in 100) from age mid to late 40s *(2)*.

Lynch syndrome risk

Lynch syndrome involves a range of changed genes which can increase the risk of colorectal, endometrial, bladder and stomach cancers, as well as ovarian cancer.

Your cancer risk will depend on which gene change you have. You can talk to your genetic counsellor about your individual situation and your family's medical history.

Lynch syndrome involves a range of changed genes which can increase the risk of colorectal, endometrial, bladder and stomach cancers, as well as ovarian cancer.

These genes can increase ovarian cancer risk when they are changed:

- MSH2 increases the risk of ovarian cancer to about 17 per cent (17 in 100).
- MLH1 and MSH6 both increase the risk to about 11 per cent (11 in 100) *(4)*.

Ovarian cancer surveillance

Formal check-ups for BRCA positive and other high-risk people are not routinely offered because it is not known how reliable and effective this is at picking up early symptoms.

You may be able to access regular CA125 blood tests and scans by joining a trial so you could ask your GP about this, and other services that may be available for you.

It is important to stay aware of your body and notice any changes. If you are concerned, you should see your GP or contact your hospital team.

Lynne says: "I am now monitored once a year for ovarian cancer and have a high-risk breast screening appointment for a mammogram. I also see the familial breast clinic for an examination annually and to have a chat which is very reassuring for me.

"I decided against breast removal as a precaution against developing breast cancer, as I am in my 70s now and I will face it, if I have to, in the future. I've been through ovarian cancer, now nearly 10 years ago, and fingers crossed I stay well."

Taking the pill

Taking the combined contraceptive pill (COC) which contains female hormones oestrogen and progestogen can reduce the risk of ovarian cancer by 30 to 60 per cent (30 to 60 in 100). This is because it can reduce the number of times you ovulate (release an egg from your ovaries). But it can increase the risk of breast cancer, and so may not be recommended for those aged more than 35 *(7+8)*.

Risk reduction surgery

If you have had a predictive genetic test because of your family history and found to have a changed gene, you may be thinking of surgery as a way of reducing your cancer risk.

Having an operation to remove your ovaries and fallopian tubes is an effective way of reducing your chances of developing ovarian cancer. If you are BRCA positive you may be advised to have this surgery when you are in your early to mid 40s *(2)*. You can find out more in the current NICE (the National Institute guideline *(10)*.

If you have not yet reached your menopause (not having a period for a year), then after this operation you will experience surgical menopause, and be infertile.

The operation is called a bilateral salpingo-oophorectomy.
It uses keyhole surgery (laparoscopic surgery) and is for people at increased risk of ovarian cancer. It can be carried out when you have finished having children.

This surgery can reduce the risk of ovarian cancer to just five per cent (5 in 100) *(2)*.

It can also reduce the risk of breast cancer in women with BRCA1 and BRCA2 mutations by 37 per cent (37 in 100) or up to 64 per cent (64 in 100) if it is carried out before they have reached their natural menopause *(3)*.

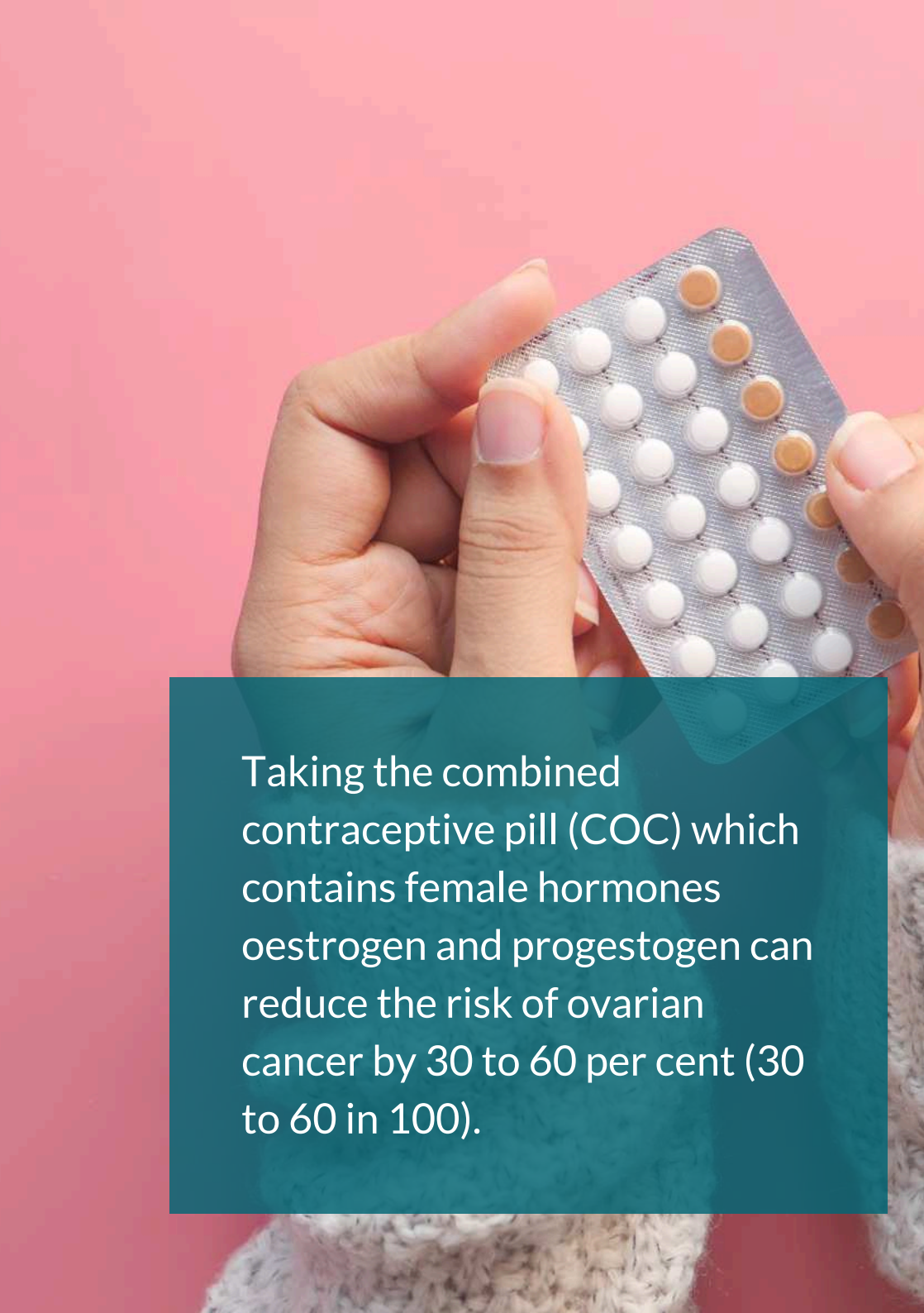
You may be able to have surgery that removes the fallopian tubes only, as ovarian cancer often starts at the end of a fallopian tube. This operation, a salpingectomy, avoids a surgical menopause as your ovaries are left in your body.

If you have not yet had your menopause, have completed your family, and been planning a sterilisation operation, you could ask for your fallopian tubes to be removed in this surgery. This would give some protection from ovarian cancer.

Although taking out the fallopian tubes can cut the risk of ovarian cancer by half, it may not work so well in patients who are BRCA positive. It may be less effective than removing the ovaries at the same time, so you may need a later operation to remove them too. However, NICE recommends that the risk reducing removal of the fallopian tubes, followed later by removal of the ovaries is only offered as part of a clinical trial *(10)*.

No risk reduction method can take away all the risk of ovarian cancer. It is still possible to have cells in the pelvis or abdomen that can't be seen by the naked eye. These may have started to grow before the ovaries were taken out.

There is a one to three per cent chance (1 to 3 in 100) that a very early ovarian cancer may be found during risk reduction surgery. If this happens you will need a hysterectomy (removal of the womb) and biopsies.



Taking the combined contraceptive pill (COC) which contains female hormones oestrogen and progestogen can reduce the risk of ovarian cancer by 30 to 60 per cent (30 to 60 in 100).

Sue says: "*My daughter was tested and was positive for the BRCA2 mutation. She was a bit shocked at first, but was then really grateful … because it gave her the opportunity to do something about it, so she had a good chance of preventing herself from developing breast or ovarian cancer. She subsequently went ahead and had a double mastectomy and reconstruction and, later on, had her ovaries removed.*"

Surgical menopause, HRT and breast cancer

If you are aged under 50 and have had your ovaries and fallopian tubes removed in risk reduction surgery, you might want to use hormone replacement therapy (HRT) to avoid the symptoms of surgical menopause and minimise the risk of bone loss and heart disease.

At this point in your life, the HRT will be replacing hormones that would be naturally present if your ovaries had not been removed. There is evidence that HRT used in this way for three to five years does not increase the risk of breast cancer *(9)*.

The Royal College of Obstetricians and Gynaecologists says: "HRT is usually advisable for women up to 51 years of age (the average age of menopause for women in the UK) who are undergoing early menopause and have not had breast cancer, to minimise the health risks linked to early menopause." *(6+10)*

Once you reach the menopause (when you have had no periods for a year) using HRT may increase the risk of breast cancer. You will not be able to use it at all if you have already had breast cancer.

There is a need for further research to assess the safety of HRT use for longer than five years in the BRCA positive population.

Once you reach the menopause (when you have had no periods for a year) using HRT may increase the risk of breast cancer. You will not be able to use it at all if you have already had breast cancer.

If you have ovarian cancer- targeted therapies and prolonging remission

If you have been diagnosed with ovarian cancer and are BRCA positive you will be able to use targeted therapies. These can reduce the risk of a recurrence. They are drugs that can be taken at home, at the end of your treatment.

They aim to control the cancer and keep you in remission for as long as possible. These drugs are available on the NHS only to patients with BRCA gene changes.

You are likely to be offered olaparib or niraparib. They are PARP inhibitors.

Olaparib is used to treat advanced cancer after chemotherapy. It works by targeting the DNA of the cancer.

It is routinely available on the NHS in England as a maintenance treatment if you are BRCA1 or BRCA2 positive. You need to have responded to platinum chemotherapy, and not to have used PARPs before.

If you have late-stage ovarian cancer you can use olaparib with Avastin (bevacizumab). These are routinely available on the NHS for this use.

To get this treatment you need to have responded to first-line platinum-based chemotherapy, and the cancer needs to show signs of homologous recombination deficiency (HRD). This treatment can be used if you are BRCA1 or BRCA2 positive. It is routinely available on the NHS in England and Scotland.

Niraparib is a maintenance treatment for patients with relapsed platinum-sensitive high grade serous epithelial ovarian cancer. Your cancer will need to have responded to the most recent course of platinum-based chemotherapy. It is routinely available in England.

If you are newly diagnosed, you can still access niraparib through the Cancer Drugs Fund. This is with or without the BRCA gene change.

In Scotland niraparib is available for the maintenance treatment of advanced epithelial high-grade ovarian cancer, which has responded to the first-line platinum-based chemotherapy. You can also have it if you do not have a BRCA gene change.

You can find out more about targeted therapies here:
https://www.ovacome.org.uk/targeted-therapies-booklet

Risk reduction for breast cancer

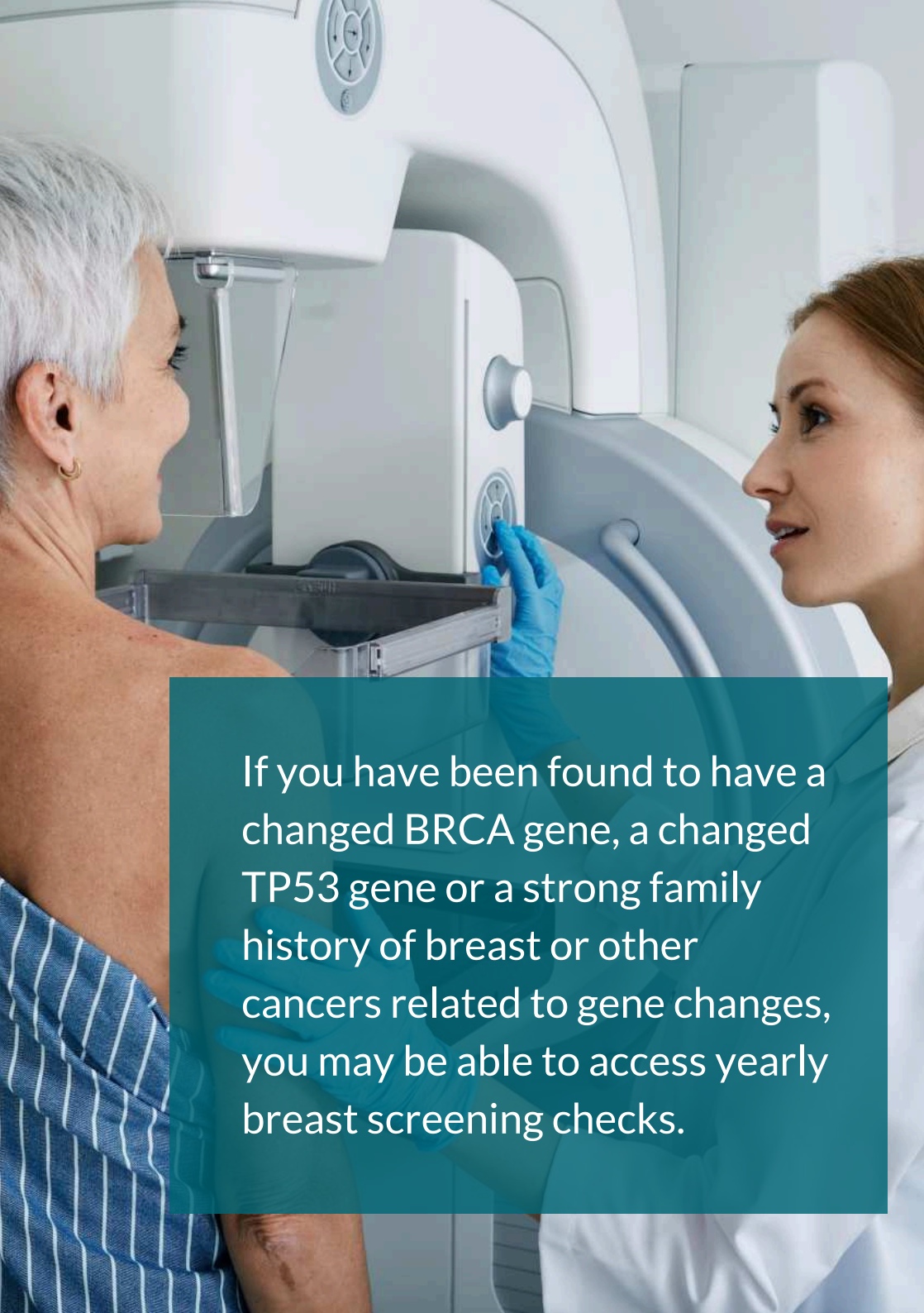
Annual screening

If you have been found to have a changed BRCA gene, or a changed TP53 gene (a gene which shows changes in 30 per cent (30 in 100) of breast cancers) or a strong family history of breast or other cancers related to gene changes, you may be able to access yearly breast screening checks. This is surveillance screening using MRI.

You will need to meet the guidance set by , the National Institute for Health and Care Excellence, to get this on the NHS. Otherwise, you could ask your GP if there is a trial that could offer these checks or use a private screening service.

NICE (the National Institute for Health and Care Excellence) recommends that MRI annual surveillance breast screening should be offered to:

- Women aged 40 years or over with a moderate (30 per cent or 30 in 100) or high (40 per cent or 40 in 100) risk of breast cancer.
- It should be considered for women aged 30 to 39 years who have a high risk of breast cancer but a 30 per cent (30 in 100) or lower chance of having a changed BRCA or TP53 gene.
- Those who have not had genetic testing but have a greater than 30 per cent (30 in 100) chance of having a BRCA gene change.
- Women aged 30 to 49 years who have a known BRCA1 or BRCA2 mutation or who have not been tested but have a more than 30 per cent (30 in 100) chance of being BRCA positive.
- Women aged 30 to 39 years at moderate risk of breast cancer (30 per cent (30 in 100) are not offered breast surveillance screening.



If you have been found to have a changed BRCA gene, a changed TP53 gene or a strong family history of breast or other cancers related to gene changes, you may be able to access yearly breast screening checks.

MRI surveillance screening is not offered to women of any age at moderate risk of breast cancer 30 per cent (30 in 100) or those at high risk of breast cancer but with a 30 per cent (30 in 100) or lower chance of having a BRCA or TP53 gene change.

Drugs

There are treatments that can reduce the risk of developing breast cancer.

NICE (the National Institute for Health and Clinical Excellence) recommends the following drugs.

- Tamoxifen can be used for five years if you have not had your menopause.
- Anastrozole can be taken for five years if you have had your menopause (no periods for a year).
- You can take raloxifene or tamoxifen for five years if you can't use anastrozole.

Surgery

If you have a high risk of breast cancer due to a changed gene, you may be offered risk reducing surgery.

This is the removal of healthy tissue from both breasts, called a bilateral mastectomy, which lowers the risk by about 95 per cent (95 in 100).

You can be considered for this treatment if you have a strong family history of breast or ovarian cancer or both. Or if you have tested positive for a change on any of the following genes: BRCA1, BRCA2, TP53, PTEN, ATM, PALB2, CHEK2, STK11, CDH1.

Lynch syndrome risk reduction - surveillance

One of the main risks for people with Lynch syndrome is colorectal cancer. You will probably be offered regular colonoscopies to monitor your bowel.

If you have changed genes MLH1 or MSH2 you should be offered a surveillance colonoscopy every two years from the age of 25. For changed genes MSH6 and PMS2 this should be every two years from age 35 *(5)*.

The caPP3 trial

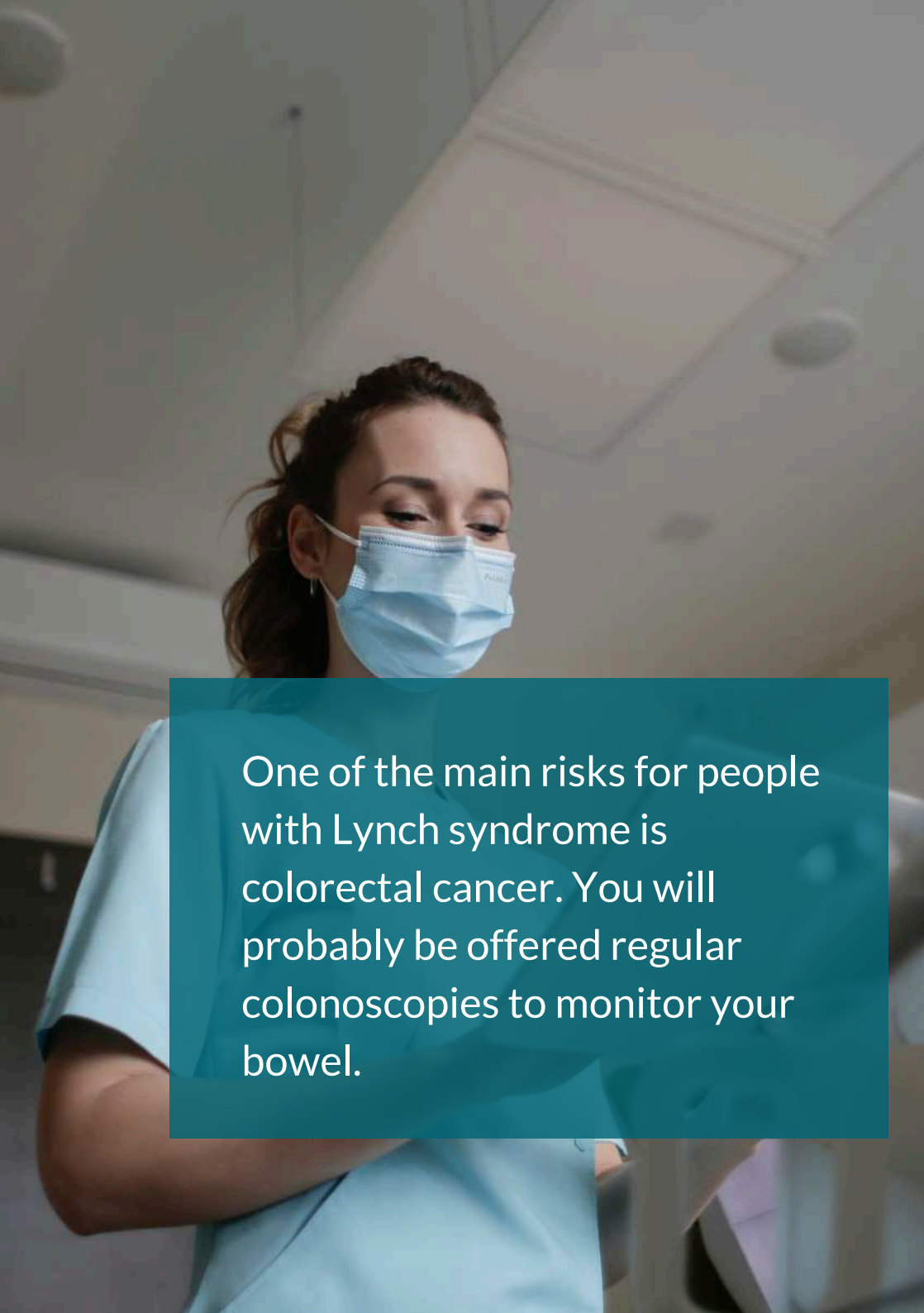
The Cancer Prevention Project 3 (caPP3) trial is run by Leeds University and funded by Cancer Research UK. It is for people diagnosed with Lynch syndrome which means their greatest cancer risk is colorectal cancer.

The earlier caPP2 trial found that aspirin could reduce the risk of colorectal, womb (endometrial) and other cancers in people with Lynch syndrome.

The current trial, caPP3, is to find the dose of aspirin that will reduce cancer risk with the fewest side effects.

You can find out more here https://www.capp3.org

Hilary says: "My particular gene mutation, MSH6, predisposes to various gynae cancers, especially endometrial, but puts me at very high risk of colon cancer, so I have a colonoscopy every two years. I am now on the caPP3 trial, which is a dose-ranging study of aspirin in Lynch syndrome patients."



One of the main risks for people with Lynch syndrome is colorectal cancer. You will probably be offered regular colonoscopies to monitor your bowel.

There will always be risk, despite all the procedures that can be used to reduce it. There is no right or wrong way to deal with your individual risk. Be well informed and make the best decisions for you and your family.

References

1. Lifetime risk of ovarian cancer: Life experiences and population projections. CRUK + ONS 2016.
2. A beginner's guide to BRCA1 and BRCA2. Royal Marsden Hospital 2023.
3. NHS patient information fact sheet. University Hospital Southampton NHS Trust 2022.
4. Prevalence of Lynch syndrome in women with mismatch repair-deficient ovarian cancer. Cancer medicine 2021 Rachel Hodan Kerry Kingham et al.
5. Brief guide to the management of Lynch syndrome. British Society of Gastroenterology 2022.
6. Risk-reducing salpingo-oophorectomy and use of HRT below the age of natural menopause. Royal College of Obstetricians and Gynaecologists Scientific impact paper 66 2022.
7. Modification of the associations between duration of oral contraceptives use and ovarian, breast and colorectal cancers. JAMA Oncology 2018 Michels K Pfeiffer R Brinton L et al.
8. Working group on the Evaluation of Carcinogen Risk to Humans. Pharmaceuticals. Combined estrogen-progestogen contraceptives. International Agency for Research on Cancer Monographs 2012.
9. Long term non-cancer risks in people with BRCA mutations following risk-reducing bilateral salpingo-oophorectomy and the role of HRT: A review.
Cancers (Basel) 2023 Amanda S Nitschke Helene Abrev do Valle et al
10. NICE Ovarian cancer: identifying and managing familial and genetic risk (NG241) 2024.

We welcome your feedback on this booklet, email ovacome@ovacome.org.uk or call us on 0800 008 7054. Calls are free. If you would like to discuss anything about ovarian cancer, please phone our free support line on 0800 008 7054 Monday to Friday between 10am and 5pm.

You can also visit our website at www.ovacome.org.uk

Reviewed by Charlotte Hitchcock, Associate Director of Genomic Nursing and Midwifery, Central and South Genomic Medicine Service Alliance

Version 1 | Date last updated May 2024 | Date for review May 2027

ovacome..
ovarian cancer

Support line: 0800 008 7054
Office phone: 0207 299 6654
Website: www.ovacome.org.uk
Email: ovacome@ovacome.org.uk

Ovacome is a charity. We receive no government funding and most of our funding is provided by our community of supporters. We want to continue providing free support and information to people when they need it most. If you can, then please help us by making a donation. You can **scan the QR code** to the right or visit **www.ovacome.org.uk/donate.**

Registered Charity Number: 1159682

Registered with FUNDRAISING REGULATOR