

Understanding histology independent therapies (HITs)



Created in partnership with

Accelerated
Access
Collaborative



CANCER
RESEARCH
UK



SarcomaUK
The bone & soft tissue
cancer charity

About this leaflet

This leaflet is about histology independent therapies (HITs). HITs are a new type of cancer treatment. They are drugs used to treat cancers that have a certain gene change.

HITs can be used to treat any cancer that has the gene change. It does not matter where in the body the cancer started.

There are 2 HIT drugs currently available. These drugs are larotrectinib (Vitrakvi®) and entrectinib (Rozlytrek®). They can be used to treat people with a cancer that has a gene change called NTRK gene fusion.

This leaflet has been developed in partnership with NHS England, the charities Cancer Research UK, Sarcoma UK and Teenage Cancer Trust, and a working group of people affected by cancer. It is supported by the Accelerated Access Collaborative at NHS England.

How to use this leaflet

This leaflet is split into sections to help you find what you need. You can use the contents list on page 3 to help you.

If you find this leaflet helpful, you could pass it on to your family and friends. They may also want information to help them support you.

On pages 24 to 26, there are details of organisations that can help. There is also space to write down questions and notes for your doctor or nurse (page 28).



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What are HITs?

Histology independent therapies (HITs) are a new type of cancer treatment.

They are a type of cancer treatment called targeted therapy. Targeted therapies are drugs that find and attack cancer cells. They target something in or around the cancer cell that is helping it grow and survive. There are many different types of targeted therapy.

Different targeted therapies are used to treat different cancer types. Some targeted therapies are only effective if the cancer cell has a certain gene change (page 8).

Cancers are usually treated according to where they start in the body. For example, bowel cancer is treated with drugs that have been shown, in clinical trials, to work on bowel cancer cells. Even if the bowel cancer cells have spread to other parts of the body, such as the lungs or liver, they are still bowel cancer cells. So you would be given drugs that treat bowel cancer.

HITs are different to other targeted therapies. This is because they can be used to treat any type of cancer that has a certain gene change. For example, there is a gene change called NTRK gene fusion, which can be found in over 20 different types of cancer. HIT drugs can treat any cancer with this gene change.

We have more information about targeted therapies on our website. Visit [macmillan.org.uk/targeted-therapy](https://www.macmillan.org.uk/targeted-therapy)

Doctors will choose this type of treatment based on the gene change, rather than on where in the body the cancer started. If the cancer cells have the NTRK gene fusion, then the drugs may be used.

Other HIT drugs are being developed that may be effective for cancers that have different gene changes.

To help you understand HiTs and gene changes, it is useful to know what genes are and what they do (pages 6 to 8).



What are genes?

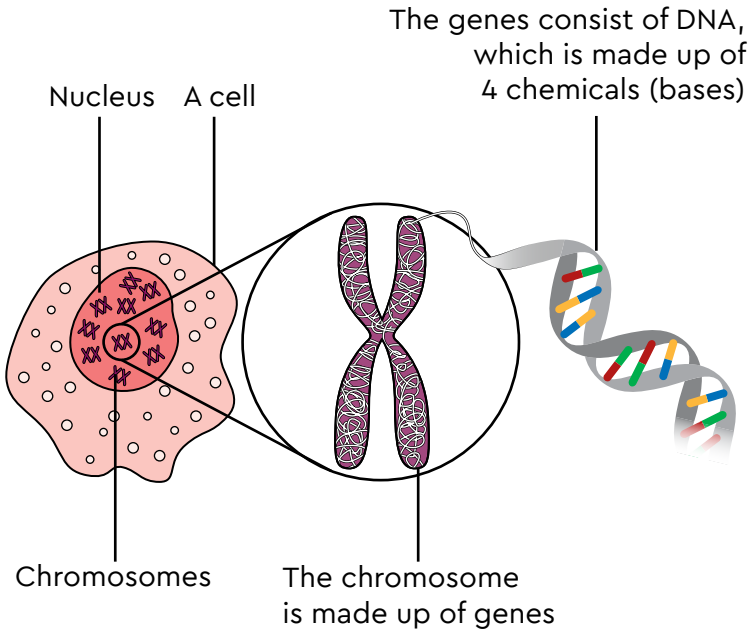
Your body is made up of tiny building blocks called cells. Inside nearly every cell is a set of genes. These are the instructions the cell needs to work properly. Different genes instruct different cells. For example, you have a gene that instructs your eyes about eye colour.

Genes are made up of a chemical called DNA (deoxyribonucleic acid). Your DNA is unique to you.

Genes are organised into structures called chromosomes. Chromosomes are arranged in pairs. They are contained in the centre (nucleus) of nearly every cell in your body.

You can learn more about genes, genomes and DNA at Health Education England. Visit **www.genomicseducation.hee.nhs.uk**

Cells, chromosomes and genes



Gene changes

Cells in your body divide to make new cells all the time. Sometimes when the cell divides, something goes wrong and a gene changes. A change in a gene is called a gene variant or mutation. If a gene is changed, it may not give the correct instructions anymore. Cancer may develop if cells like this multiply in an abnormal way and grow out of control.

There are different gene variants that affect different types of cancer cells. The histology independent therapy (HIT) drugs larotrectinib (Vitrakvi®) and entrectinib (Rozlytrek®) work on any cancers that have a gene variant called NTRK gene fusion.

We have more information about these drugs on our website. Visit [macmillan.org.uk/larotrectinib](https://www.macmillan.org.uk/larotrectinib) and [macmillan.org.uk/entrectinib](https://www.macmillan.org.uk/entrectinib)

Who are HITs for?

Histology independent therapies (HITs) can treat certain cancers that start in the organs of the body. HITs are not currently used to treat blood cancers such as leukaemia or lymphoma. This is because they are not effective at treating these types of cancer.

You may be offered treatment with a HIT drug if you have a cancer that has a specific gene change. Currently, there are 2 HIT drugs available in the UK through the NHS. These are larotrectinib and entrectinib. They may be used to treat people with a cancer that has a gene change called NTRK gene fusion.

We have more information about different cancer types on our website. Visit [macmillan.org.uk/cancer-types](https://www.macmillan.org.uk/cancer-types)



Testing for a gene variant

If your cancer doctor thinks a histology independent therapy (HIT) drug is a possible treatment for you, they will arrange a test on the cancer cells to see if they have the gene variant.

Your doctors may be able to test a sample of the tissue they took from the cancer when you were first diagnosed. This is called a biopsy. Sometimes they need to take another sample. They will explain if they need to do this, and how they will take the sample.

The NTRK gene fusion has been found in some very rare cancers. It is only found very occasionally in more common cancers. Your cancer doctor can tell you more about this and how likely it is that you might have a tumour with the NTRK fusion.



HIT drugs

There are currently 2 histology independent therapy (HIT) drugs available:

- larotrectinib
- entrectinib

They are both used to treat a number of different types of cancer. They may be used when the cancer has tested positive for the NTRK gene fusion and:

- the cancer has begun to spread from where it started to the surrounding area (locally advanced)
- the cancer has spread to other parts of the body further away from where it started (metastatic)
- surgery to remove the cancer is likely to cause complications
- other treatment has not worked or is not suitable.

We have more information about these drugs on our website. Visit [macmillan.org.uk/larotrectinib](https://www.macmillan.org.uk/larotrectinib) and [macmillan.org.uk/entrectinib](https://www.macmillan.org.uk/entrectinib)



It can help to read this information about HIT drugs alongside information about the type of cancer you have. We have a range of booklets about different types of cancer (page 18). You can also find information on our website by visiting [macmillan.org.uk/cancer-types](https://www.macmillan.org.uk/cancer-types)

Side effects of HITs

Like other cancer treatments, histology independent therapies (HITs) can cause side effects. You may have side effects while you are taking the drugs.

The side effects you get will depend on which drug you are taking. Different drugs cause different side effects. The drugs may also affect different people in different ways. Talk to your cancer doctor, specialist nurse or pharmacist if you have any side effects.

Some side effects are mild and can be easily treated. Other side effects can be harder to manage. But these can often be reduced or controlled in some way. Your doctor, nurse or pharmacist may prescribe drugs to help control them.



Side effects of HIT drugs may include the following:

- An increased risk of infection – this is because the drugs may reduce the number of white blood cells in your blood. Your healthcare team will give you advice about this.
- Feeling sick (nausea) – your doctor can give you anti-sickness drugs to help.
- Constipation – your healthcare team can advise you about how to manage this.
- Feeling tired (fatigue) – try to pace yourself and allow time to rest.
- Effects on the nervous system – the treatment may make you feel dizzy or unsteady. Some people may have mood changes, memory problems or feel confused. Contact the hospital straight away if you have any of these effects.

Some cancer treatments may cause long-term side effects. Because HIT drugs are a new treatment, we do not yet know whether there are long-term side effects, or what they might be. Your doctors and nurses will monitor you regularly. You should tell them about any new symptoms or side effects.

You may find our booklets **Coping with fatigue (tiredness)** and **Side effects of cancer treatment** helpful (page 18).

Treatment decisions

You and your cancer doctor will decide together the best treatment for you. There are a few things to consider when you are making a decision about treatment. You might want to think about:

- the aim of the treatment
- how successful the treatment is likely to be
- the possible side effects
- how often you will need to go to the hospital, and for how long.

Treatment can be given for different reasons and the potential benefits will vary depending on your individual situation. The most important thing to remember is that you are making a decision that is right for you at the time. There are no right or wrong decisions.

Your doctors will not be able to give you any treatment until you have given your consent.

We have more information in our booklet **Making treatment decisions**.

You can order our booklets and leaflets for free.
Visit [be.macmillan.org.uk](https://www.be.macmillan.org.uk) or call us on **0808 808 00 00**.



Talking about HITs

Before you go to an appointment, it can help to prepare any questions you would like to ask. You may also find it helpful to do the following:

- Take notes during your appointments so you can read them later.
- Record the conversation so you can listen to it later. You should always ask for permission to record a conversation first.
- Ask your healthcare team for a copy of any letters that have the details of your discussions.
- Ask someone to come with you to your hospital appointments, such as a family member or friend. They can support you by making notes or asking questions.

Here are some questions that you may want to ask your cancer doctor or specialist nurse:

- What tests do I need?
- Am I eligible for this treatment? If not, are there other treatments I can have?
- How often will I have this treatment?
- Will I need any other tests before or after treatment?
- What are the side effects of this treatment?
- Are there possible long-term side effects of this treatment?
- What can I do to support myself?

Your feelings

If you have a rare cancer or are having a new type of treatment, it can be harder to connect with other people in the same situation. You may feel lonely and isolated. You could ask your cancer doctor or specialist nurse if they know other people in the same situation. They may be able to help you contact someone.

It can also help to:

- talk to family or friends
- join a self-help or support group
- contact a support organisation.

Different things work for different people. You may need to try a few approaches to see what you find most helpful.

Some people find online support groups or communities helpful.

You can use online communities to:

- talk to people in chat rooms
- blog about your experiences
- make friends
- join support groups.

You can share your experiences and talk to other people with cancer on Macmillan's Online Community. Visit [macmillan.org.uk/community](https://www.macmillan.org.uk/community)

Cancer Research UK also has an online forum called Cancer Chat. You can talk to others affected by cancer, share experiences and get support.

You can also call:

- the Macmillan Support Line free on **0808 808 00 00**, 7 days a week, 8am to 8pm
- the Cancer Research UK Information Nurse Helpline on **0808 800 4040** from Monday to Friday, 9am to 5pm
- the Sarcoma UK support line on **0808 801 0401**, from Monday to Friday 10am to 3pm – this support line is for everyone affected by sarcoma.



About our information

We provide expert, up-to-date information about cancer. And all our information is free for everyone.

Our information has the PIF Tick quality mark for trusted health information. This means our information has been through a professional and strong production process.

Order what you need

You may want to order more booklets or leaflets like this one. Visit **be.macmillan.org.uk** or call us on **0808 808 00 00**.

We have booklets about different cancer types, treatments and side effects. We also have information about work, financial issues, diet, life after cancer treatment and information for carers, family and friends.

Online information

All our information is also available online at **macmillan.org.uk/information-and-support** You can also find videos featuring stories from people affected by cancer, and information from health and social care professionals.

Other formats

We also provide information in different languages and formats, including:

- audiobooks
- Braille
- British Sign Language
- easy read booklets
- interactive PDFs
- large print
- translations.

Find out more at [macmillan.org.uk/otherformats](https://www.macmillan.org.uk/otherformats)

If you would like us to produce information in a different format for you, email us at cancerinformationteam@macmillan.org.uk or call us on **0808 808 00 00**.

The language we use

We want everyone affected by cancer to feel our information is written for them.

We try to make sure our information is as clear as possible. We use plain English, avoid jargon, explain any medical words, use illustrations to explain text, and make sure important points are highlighted clearly.

We use gender-inclusive language and talk to our readers as 'you' so that everyone feels included. Where clinically necessary we use the terms 'men' and 'women' or 'male' and 'female'. For example, we do so when talking about parts of the body or mentioning statistics or research about who is affected. Our aims are for our information to be as clear and relevant as possible for everyone.

You can read more about how we produce our information at [macmillan.org.uk/ourinfo](https://www.macmillan.org.uk/ourinfo)

Other ways we can help you

At Macmillan, we know how a cancer diagnosis can affect everything, and we are here to support you.

Talk to us

If you or someone you know is affected by cancer, talking about how you feel and sharing your concerns can really help.

Macmillan Support Line

Our free, confidential phone line is open 7 days a week, 8am to 8pm. We can:

- help with any medical questions you have about cancer or your treatment
- help you access benefits and give you financial guidance
- be there to listen if you need someone to talk to
- tell you about services that can help you in your area.

Our trained cancer information advisers can listen and signpost you to further support. Call us on **0808 808 00 00**. We are open 7 days a week, 8am to 8pm.

You can also email us, or use the Macmillan Chat Service via our website. You can use the chat service to ask our advisers about anything that is worrying you. Tell them what you would like to talk about so they can direct your chat to the right person. Click on the 'Chat to us' button, which appears on pages across the website. Or go to **macmillan.org.uk/talktous**

If you would like to talk to someone in a language other than English, we also offer an interpreter service for our Macmillan Support Line. Call **0808 808 00 00** and say, in English, the language you want to use. Or send us a web chat message saying you would like an interpreter. Let us know the language you need and we'll arrange for an interpreter to contact you.

If you are deaf or hard of hearing, call us using Relay UK on **18001 0808 808 00 00**, or use the Relay UK app

Macmillan Information and Support Centres

Our Information and Support Centres are based in hospitals, libraries and mobile centres. Visit one to get the information you need and speak with someone face to face. If you would like a private chat, most centres have a room where you can speak with someone confidentially.

Find your nearest centre at [macmillan.org.uk/informationcentres](https://www.macmillan.org.uk/informationcentres) or call us on **0808 808 00 00**.

Help with money worries

Having cancer can bring extra costs such as hospital parking, travel fares and higher heating bills. If you have been affected in this way, we can help. Please note the opening times may vary by service.

Financial guidance

Our financial team can give you guidance on mortgages, pensions, insurance, borrowing and savings.

Help accessing benefits

Our welfare rights advisers can help you find out what benefits you might be entitled to, and help you complete forms and apply for benefits. They can also tell you more about other financial help that may be available to you. We can also tell you about benefits advisers in your area. Visit [macmillan.org.uk/financialsupport](https://www.macmillan.org.uk/financialsupport) to find out more about how we can help you with your finances.

Help with energy costs

Our energy advisers can help if you have difficulty paying your energy bills (gas, electricity and water). They can help you get access to schemes and charity grants to help with bills, advise you on boiler schemes and help you deal with water companies.

Macmillan Grants

Macmillan offers one-off payments to people with cancer. A grant can be for anything from heating bills or extra clothing to changes to your home.

Call us on **0808 808 00 00** to speak to find out more about Macmillan Grants.

Help with work and cancer

Whether you are an employee, a carer, an employer or are self-employed, we can provide support and information to help you manage cancer at work. Visit [**macmillan.org.uk/work**](https://www.macmillan.org.uk/work)

Work support

Our dedicated team of work support advisers can help you understand your rights at work. Call us on **0808 808 00 00** to speak to a work support adviser.

Talk to others

No one knows more about the impact cancer can have on your life than those who have been through it themselves. That is why we help bring people together in their communities and online.

Support groups

Whether you are someone living with cancer or a carer, family member or friend, we can help you find support in your local area, so you can speak face to face with people who understand. Find out about support groups in your area by calling us or by visiting [macmillan.org.uk/selfhelpandsupport](https://www.macmillan.org.uk/selfhelpandsupport)

Online Community

Thousands of people use our Online Community to make friends, blog about their experiences and join groups to meet other people going through the same things. You can access it any time of day or night. Share your experiences, ask questions, or just read through people's posts at [macmillan.org.uk/community](https://www.macmillan.org.uk/community)

You can also use our Ask an Expert service on the Online Community. You can ask a financial guide, cancer information nurse, work support advisor or an information and support advisor any questions you have.

Macmillan healthcare professionals

Our nurses, doctors and other health and social care professionals give expert care and support to individuals and their families. Call us or ask your GP, consultant, district nurse or hospital ward sister if there are any Macmillan professionals near you.

Other useful organisations

Details correct at time of printing.

Cancer Research UK

Helpline **0808 800 4040**

www.cancerresearchuk.org

A UK-wide organisation that has patient information on all types of cancer. Also has a clinical trials database.

Health and Social Care in Northern Ireland

www.northerntrust.hscni.net

Provides information about health and social care services in Northern Ireland.

NHS.UK

www.nhs.uk

The UK's biggest health information website. Has service information for England.

NHS 111 Wales

111.wales.nhs.uk

NHS health information site for Wales.

NHS Inform

Helpline **0800 22 44 88**

www.nhsinform.scot

NHS health information site for Scotland.

Patient UK

www.patient.info

Provides people in the UK with information about health and disease. Includes evidence-based information leaflets on a wide variety of medical and health topics. Also reviews and links to many health- and illness-related websites.

Sarcoma UK

Helpline **0808 801 0401**

www.sarcoma.org.uk

Offers support and information to anyone affected by sarcoma. The website has information about various types of sarcoma, as well as links to support groups and helpful videos.

Teenage Cancer Trust

Tel **0207 612 0370**

www.teenagecancertrust.org

A UK-wide charity devoted to improving the lives of teenagers and young adults with cancer. Runs a support network for young people with cancer, their friends and families.

Cancer registries

The cancer registry is a national database that collects information on cancer diagnoses and treatment. This information helps the NHS and other organisations plan and improve health and care services.

There is a cancer registry in each country in the UK. They are run by the following organisations:

England – National Disease Registration Service (NDRS)

www.digital.nhs.uk/ndrs/patients

Scotland – Public Health Scotland (PHS)

www.publichealthscotland.scot/our-areas-of-work/conditions-and-diseases/cancer/scottish-cancer-registry-and-intelligence-service-scris/overview

Wales – Welsh Cancer Intelligence and Surveillance Unit (WCISU)

Tel **0292 010 4278**

www.phw.nhs.wales/wcisu

Northern Ireland – Northern Ireland Cancer Registry (NICR)

Tel **0289 097 6028**

www.qub.ac.uk/research-centres/nicr/AboutUs/Registry

Your data and the cancer registry

When you are diagnosed with cancer in the UK, some information about you, your cancer diagnosis and your treatment is collected in a cancer registry. This is used to plan and improve health and care services. Your hospital will usually give this information to the registry automatically.

There are strict rules to make sure the information is kept safely and securely. It will only be used for your direct care or for health and social care planning and research.

Talk to your doctor or nurse if you have any questions. If you do not want your information included in the registry, you can contact the cancer registry in your country to opt out (page 26).

Disclaimer

We make every effort to ensure that the information we provide is accurate and up to date but it should not be relied upon as a substitute for specialist professional advice tailored to your situation. So far as is permitted by law, Macmillan does not accept liability in relation to the use of any information contained in this publication, or third-party information or websites included or referred to in it. Some photos are of models.

Thanks

This leaflet has been written and edited by Macmillan Cancer Support's Cancer Information Development team. It has been developed in partnership with NHS England, the charities Cancer Research UK, Sarcoma UK and Teenage Cancer Trust, and a working group of people affected by cancer. It is supported by the Accelerated Access Collaborative at NHS England.

It has been approved by our Chief Medical Editor, Prof Tim Iveson, Consultant Medical Oncologist, and our Senior Medical Editor, Rajinder Nijjar, Clinical Lead Cancer Pharmacist.

With thanks to: Dany Bell, Treatment, Medicines and Genomics Strategic Advisor; Sara Herrero, Specialist Clinical Pharmacist – Oncology Services and Specialist Clinical Trials Pharmacist; and Deborah Wright, Principal Pharmacist Cancer Services.

Thanks also to the other professionals and the people affected by cancer who reviewed this edition, and those who shared their stories.

We welcome feedback on our information. If you have any, please contact **cancerinformationteam@macmillan.org.uk**

Sources

Below is a sample of the sources used in our HITS information. If you would like more information about the sources we use, please contact us at **cancerinformationteam@macmillan.org.uk**

Drilon et al. TRK fusion-positive cancers and TRK inhibitor therapy. Up To Date. October 2022.

Federman N and McDermott R. Larotrectinib, a highly selective tropomyosin receptor kinase (TRK) inhibitor for the treatment of TRK fusion cancer. Expert Review in Clinical Pharmacology. 2019 Oct;12(10):931–939.

Larotrectinib for treating NTRK fusion-positive solid tumours. NICE guidance. 2020.

Can you do something to help?

We hope this leaflet has been useful to you. It is just one of our many publications that are available free to anyone affected by cancer. They are produced by our cancer information specialists who, along with our nurses, benefits advisers, campaigners and volunteers, are part of the Macmillan team. When people are facing the toughest fight of their lives, we are here to support them every step of the way.

We want to make sure no one has to go through cancer alone, so we need more people to help us. When the time is right for you, here are some ways in which you can become a part of our team.

5 ways you can help someone with cancer

1. Share your cancer experience

Support people living with cancer by telling your story, online, in the media or face to face.

2. Campaign for change

We need your help to make sure everyone gets the right support. Take an action, big or small, for better cancer care.

3. Help someone in your community

A lift to an appointment. Help with the shopping.
Or just a cup of tea and a chat. Could you lend a hand?

4. Raise money

Whatever you like doing you can raise money to help. Take part in one of our events or create your own.

5. Give money

Big or small, every penny helps.
To make a one-off donation see over.

Please fill in your personal details

Mr/Mrs/Miss/Other

Name

Surname

Address

Postcode

Phone

Email

Please accept my gift of £
(Please delete as appropriate)

I enclose a cheque / postal order /
Charity Voucher made payable to
Macmillan Cancer Support

OR debit my:

Visa / MasterCard / CAF Charity
Card / Switch / Maestro

Card number

Valid from

Expiry date

Issue no

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Do not let the taxman keep your money

Do you pay tax? If so, your gift will be worth 25% more to us – at no extra cost to you. All you have to do is tick the box below, and the tax office will give 25p for every pound you give.

I am a UK tax payer and I would like Macmillan Cancer Support to treat all donations I make or have made to Macmillan Cancer Support in the last 4 years as Gift Aid donations, until I notify you otherwise.

I understand that if I pay less Income Tax and/or Capital Gains Tax than the amount of Gift Aid claimed on all my donations in that tax year it is my responsibility to pay any difference. I understand Macmillan Cancer Support will reclaim 25p of tax on every £1 that I give.

Macmillan Cancer Support and our trading companies would like to hold your details in order to contact you about our fundraising, campaigning and services for people affected by cancer. If you would prefer us not to use your details in this way please tick this box.

In order to carry out our work we may need to pass your details to agents or partners who act on our behalf.

If you would rather donate online go to macmillan.org.uk/donate



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Please cut out this form and return it in an envelope (no stamp required) to: Supporter Donations, Macmillan Cancer Support, FREEPOST LON15851, 89 Albert Embankment, London SE1 7UQ

This leaflet is about histology independent therapies (HITs). HITs are a new type of cancer treatment. This information is for anyone who may have this treatment, and their family and friends.

The leaflet talks about histology independent therapies (HITs). It has information about genes and who may be offered HITs. It also has information about making decisions, and about emotions.

At Macmillan, we give people with cancer everything we've got. If you are diagnosed, your worries are our worries. We will help you live life as fully as you can.

For information, support or just someone to talk to, call **0808 808 00 00** or visit **macmillan.org.uk**

Would you prefer to speak to us in another language? Interpreters are available. Please tell us in English the language you would like to use. Are you deaf or hard of hearing? Call us using NGT (Text Relay) on **18001 0808 808 00 00**, or use the NGT Lite app.

Need information in different languages or formats? We produce information in audio, eBooks, easy read, Braille, large print and translations. To order these, visit **macmillan.org.uk/otherformats** or call our support line.



Patient Information Forum