This fact sheet is for people with pancreatic cancer who are having the chemotherapy treatment FOLFIRINOX.

FOLFIRINOX is one of the main chemotherapy treatments for pancreatic cancer. It is several different chemotherapy drugs, which are:

- fluorouracil (5-FU)
- irinotecan
- oxaliplatin

It also includes folinic acid (leucovorin). This is a vitamin that helps 5-FU work better.

Each hospital may do things slightly differently, and treatment will vary depending on your cancer. Speak to your doctor or nurse about your treatment.

**Contents**

- How is FOLFIRINOX used? ................................................................................... 2
- How is FOLFIRINOX given? .................................................................................. 3
- What are the side effects of FOLFIRINOX? .......................................................... 5
- Further information and support ........................................................................ 11

You can speak to our specialist nurses on our Support Line about any questions you have about chemotherapy. You can call them free on **0808 801 0707**, or email **nurse@pancreaticcancer.org.uk**

Read about the other chemotherapy drugs used for pancreatic cancer at [pancreaticcancer.org.uk/chemotherapydrugs](http://pancreaticcancer.org.uk/chemotherapydrugs)

Read more about chemotherapy in our fact sheet **Chemotherapy for pancreatic cancer**, or on our website at [pancreaticcancer.org.uk/chemotherapy](http://pancreaticcancer.org.uk/chemotherapy)
How is FOLFIRINOX used?

FOLFIRINOX is used in different ways.

- If you have cancer that can be removed with surgery (such as the Whipple’s procedure), you may be offered FOLFIRINOX after surgery to try stop the cancer coming back.

- If you have cancer that has grown close to major blood vessels near the pancreas (borderline resectable cancer), you may have FOLFIRINOX to try to shrink the cancer to make surgery possible. This depends on which blood vessels are affected, and how far the cancer has grown. We need more research into this, and you may be offered chemotherapy before surgery as part of a clinical trial.

- If you have locally advanced or advanced pancreatic cancer and surgery is not possible, you may have FOLFIRINOX to try to control the growth of the cancer.

FOLFIRINOX is only given to people who are well enough for a few different chemotherapy drugs. This is because FOLFIRINOX can cause side effects that can be hard to deal with. Read about side effects on page 5.

Read more about how chemotherapy is used in our fact sheet [Chemotherapy for pancreatic cancer](http://pancreaticcancer.org.uk/chemotherapy), or on our website at [pancreaticcancer.org.uk/chemotherapy](http://pancreaticcancer.org.uk/chemotherapy)
How is FOLFIRINOX given?

You will have your chemotherapy at the hospital as an outpatient. This means that you will go into hospital for treatment, but you won’t need to stay overnight.

FOLFIRINOX is given in a two-week cycle. This is the time it takes to have your treatment and to have a break before you have the next cycle. The break allows your body to recover. The number of cycles you have will depend on how the treatment is working and how chemotherapy affects you. Your doctor or nurse will talk to you about your treatment cycles.

The FOLFIRINOX drugs are given as an injection or infusion into a vein. You may hear an infusion called a ‘drip’. You will have the infusion through a cannula, or through a central line.

- A cannula is a thin tube which is put into a vein in the back of your hand or lower arm. Chemotherapy is given through an infusion into the cannula.
- A central line, such as a PICC line or a portacath, is a long tube that is put into a vein in your arm or chest. Part of the tube remains outside of the body and is attached to a drip to give you your chemotherapy.

Read about how chemotherapy is given at pancreaticcancer.org.uk/havingchemotherapy

Allergic reaction

Some people have an allergic reaction while FOLFIRINOX is being given. Signs of an allergic reaction are:

- an itchy rash
- a high temperature
- feeling dizzy or faint
- feeling short of breath.

You may also have runny poo (diarrhoea) or tummy pain. An allergic reaction needs treating straight away, so if you have any of these symptoms tell your chemotherapy team.
**FOLFIRINOX cycle**

On your first day of each treatment cycle, you will have an infusion of oxaliplatin, folinic acid, 5-FU and irinotecan.

- You will have oxaliplatin for two hours.
- You will have folinic acid for two hours.
- Half an hour after the folinic acid infusion starts, you will have irinotecan for 90 minutes.
- You will then have an injection of 5-FU into a vein – you may hear this called a ‘bolus injection’.
- You will be given an infusion of 5-FU over 46 hours. This is given through a small pump that attaches to your central line. The pump also attaches to a belt, so that you can carry it around and have your infusion at home.
- After 46 hours, the pump is disconnected at the hospital, or at home by a nurse.
- You will then have a break from chemotherapy for the next 12 days.

Each chemotherapy team will give FOLFIRINOX slightly differently. For example, you may have oxaliplatin and folinic acid one after the other, or you may have them at the same time. Speak to your doctor or nurse about how you will be given FOLFIRINOX.
What are the side effects of FOLFIRINOX?

FOLFIRINOX can cause side effects, but these can affect everyone differently, and you may not get all of the side effects mentioned here. Your chemotherapy team should give you information about any possible side effects and how to manage them. Make sure you ask them any questions you have. Knowing what to expect can help you deal with any side effects.

If you have lots of side effects, your doctor may change the dose of some of the FOLFIRINOX drugs to make it easier to deal with. This is sometimes known as mFOLFIRINOX (modified FOLFIRINOX). Your chemotherapy team can talk to you about this.

Common side effects

Infection

FOLFIRINOX can increase your risk of getting an infection. An infection is an emergency if you are having chemotherapy, and needs treating straight away. Signs of an infection include:

- a high temperature
- feeling shivery and cold
- headaches and sore muscles
- a cough or sore throat
- having pain or burning when you pass urine
- feeling generally unwell or tired.

A high temperature is 37.5°C or 38°C depending on the advice of your chemotherapy team. If you have a high temperature, or any other signs of an infection, call your chemotherapy team on the emergency number, or go to A&E and tell them you are having chemotherapy.
You should also phone your chemotherapy team if you suddenly feel unwell and have flu-like symptoms, even if your temperature is normal or low (a low temperature is 35°C and below).

Read more about infections and how they can be treated in our fact sheet *Chemotherapy for pancreatic cancer*, or at [pancreaticcancer.org.uk/chemotherapy](http://pancreaticcancer.org.uk/chemotherapy)

**Runny poo (diarrhoea)**

If you have diarrhoea, make sure you drink lots of water. If you have it more than four times a day, tell your chemotherapy team. They can give you medicines to control it. Your chemotherapy may be delayed until the diarrhoea is better, or the dose of your chemotherapy drugs may be lowered.

Read our tips for coping with diarrhoea at [pancreaticcancer.org.uk/diettips](http://pancreaticcancer.org.uk/diettips)

**Problems emptying your bowels (constipation)**

If you get constipation, try to eat high fibre foods, such as fruit and vegetables. Gentle exercise such as walking can also help. Speak to your doctor about medicines that can help.

**Fatigue (extreme tiredness)**

Fatigue is a common side effect of FOLFIRINOX. It isn’t the same as feeling tired. Fatigue can make you feel weak and have problems concentrating.

Some people find that the fatigue starts a few hours to a few days after having chemotherapy, and starts to get better after a few days. There are things that you can do to help with fatigue.

Oxaliplatin may also make you feel dizzy. Feeling tired and dizzy can affect your ability to drive. If you have these side effects, speak to your doctor about driving.

Read about managing fatigue at [pancreaticcancer.org.uk/fatigue](http://pancreaticcancer.org.uk/fatigue)
Feeling or being sick (nausea or vomiting)

This is a common side effect of FOLFIRINOX. You will normally be given anti-sickness medicines before your chemotherapy starts. If these medicines don’t help, speak to your chemotherapy team about changing to a different medicine.

Read more about feeling and being sick, and our tips for coping with it, at pancreaticcancer.org.uk/sickness

Tingling and numbness in your fingertips and toes

FOLFIRINOX can affect the nerves in your hands and feet, which can cause tingling and numbness (peripheral neuropathy). This normally gets better after treatment, but for some people it may never go away. This can be worse in the cold, so wrap up warm if you are going outside.

Talk to your chemotherapy team if you have any tingling or numbness in your fingers or toes.

Problems swallowing and breathing

Oxaliplatin can affect your throat, which can make it hard to swallow or breathe (laryngeal spasm). If this happens when you are being given oxaliplatin, tell your nurse straight away. They may stop the infusion of oxaliplatin while they give you medicine to help.

You may also get this side effect in the first few hours after having oxaliplatin – but this is normally only if you are out in the cold, or having a cold drink. It should stop a few days after treatment.

Read about oxaliplatin and how it is given at pancreaticcancer.org.uk/oxaliplatin

Anaemia (feeling tired or dizzy)

FOLFIRINOX can lower the number of red blood cells in your blood. This is called anaemia, and can make you feel tired, dizzy or short of breath. If your red blood cells level is very low, you may need to be given blood through a drip. This is called a blood transfusion.
**Bruising and bleeding**

FOLFIRINOX can lower the number of platelets in your blood – this is called thrombocytopenia. This can cause you to bruise more easily than normal, and you may be more likely to have nosebleeds or bleeding gums.

Speak to your chemotherapy team straight away if you get any of these side effects. If you have a nosebleed that doesn’t stop after five minutes, call your chemotherapy team who will be able to help.

**Hair loss**

FOLFIRINOX may cause your hair to thin, or you may lose some hair – but it should grow back once your treatment stops.

Read about hair loss in our fact sheet *Chemotherapy for pancreatic cancer*, or on our website at [pancreaticcancer.org.uk/chemotherapy](http://pancreaticcancer.org.uk/chemotherapy)

**Taste changes**

FOLFIRINOX may cause a funny taste in your mouth. Some people say this tastes like metal or cardboard. You may find that food loses its flavour, or you stop enjoying some foods or drinks. This normally gets better once you finish chemotherapy.

**Loss of appetite**

During your treatment you may not feel like eating, and you may start to lose weight. Try eating small meals often. If your appetite doesn’t get better after a few days, tell your doctor or dietitian.

Read our tips for coping with taste changes and a loss of appetite at [pancreaticcancer.org.uk/diettips](http://pancreaticcancer.org.uk/diettips)
Sore mouth and mouth ulcers
FOLFIRINOX can make your mouth sore, or cause mouth ulcers which can be uncomfortable. Tell your chemotherapy team about any problems you have with your mouth. They can make sure you don’t have a mouth infection, and give you a mouthwash which should help. You should also tell them if you have white spots in your mouth. This is a sign of oral thrush, which is normally easy to treat.

Sore hands and feet
FOLFIRINOX can make the palms of your hands and the soles of your feet red and sore, and your skin may start to peel or blister. Your skin might also look shiny, feel tight and crack around the fingertips. Your doctor or nurse may give you a vitamin or creams to help with this. The soreness normally gets better when chemotherapy finishes.

Joint and bone pain
Oxaliplatin can cause problems with your joints, such as swelling or pain. Let your doctor or nurse know if you have this side effect. They can give you painkillers to help.

Skin changes
FOLFIRINOX can make your skin darken or become more sensitive to the sun. Use a high factor sun cream if you are going outside. These changes normally get better when treatment finishes.

Eye problems
FOLFIRINOX can cause sore, itchy or watery eyes. Tell your doctor or nurse if this happens, as they may need to give you some eye drops. Some people get blurred vision, but this is less common.
Less common side effects

- **Heart problems.** 5-FU can cause chest pain. It can also make you feel short of breath, dizzy, or cause an irregular heartbeat. It is important to call your chemotherapy team straight away if you have any of these symptoms. Or go to A&E and tell them that you are having chemotherapy.

- **Risk of a blood clot in a vein.** Chemotherapy can increase the risk of a blood clot in a vein. If you have any pain or swelling in one of your arms or legs, or you feel very short of breath, call your chemotherapy team straight away, or phone an ambulance. **A blood clot is serious if it isn’t treated.**

Speak to your chemotherapy team if you experience anything unusual, or if you would like more information.

Read more about blood clots in a vein, and the symptoms, on our website at [pancreaticcancer.org.uk/bloodclots](http://pancreaticcancer.org.uk/bloodclots)

If you have any questions about FOLFIRINOX or side effects, you can speak to our specialist nurses on our free Support Line.
Further information and support

Pancreatic Cancer UK services

We are here for everyone affected by pancreatic cancer.

We’re here to support and listen

Our free and confidential Support Line is a lifeline for thousands of people affected by pancreatic cancer. Our specialist nurses understand the issues you might be facing and their expert help will support you in coping with pancreatic cancer.

Call free on 0808 801 0707 weekdays 10am-4pm, or email nurse@pancreaticcancer.org.uk

We’re here with the information you need

We have the most up-to-date information on everything you need to know about pancreatic cancer. We can help you every step of the way through diagnosis and treatment options to managing your symptoms and the care you receive.

Go to pancreaticcancer.org.uk/informationandsupport

Download or order our free publications at pancreaticcancer.org.uk/publications or call 0808 801 0707

Find an A-Z of medical words at pancreaticcancer.org.uk/medicalwords

We’re here so you can share

Our Forum is a supportive place where everyone affected by pancreatic cancer can be there for each other online, any time of day or night:
forum.pancreaticcancer.org.uk

Our Living with Pancreatic Cancer Support Days provide local face-to-face support in an informal setting for people with pancreatic cancer:
pancreaticcancer.org.uk/supportdays

Local support groups mean you can meet other people to share your experiences:
pancreaticcancer.org.uk/supportgroups
Useful organisations

Cancer Research UK
www.cancerresearchuk.org
Helpline: 0808 800 4040 (Mon-Fri 9am-5pm)
Information for anyone affected by cancer.

Healthtalk
www.healthtalk.org
Personal experiences presented in written, audio and video formats, including people talking about pancreatic cancer.

Macmillan Cancer Support
www.macmillan.org.uk
Support Line: 0808 808 00 00 (Everyday 8am-8pm)
Provides practical, medical and financial support for anyone affected by cancer.

Maggie’s Centres
www.maggiescentres.org
Tel: 0300 123 1801
Centres around the UK and online offer free, comprehensive support for anyone affected by cancer.
This fact sheet has been produced by the Support and Information Team at Pancreatic Cancer UK.

We make every effort to make sure that our services provide up-to-date, accurate information about pancreatic cancer. We hope that this information will add to the medical advice you have had, and help you make decisions about your treatment and care. This information should not replace advice from your medical team – please speak to your doctor, nurse or other members of your medical team about any questions.

We would like to thank the following people who reviewed this information.

- Roopinder Gilmore, Consultant Medical Oncologist, Royal Free London NHS Foundation Trust
- Rose Polcaro, Clinical Nurse Specialist Pancreas and Biliary Tract Cancers, Royal Free London NHS Foundation Trust
- Ganesh Radhakrishna, Consultant Clinical Oncologist, The Christie Hospital, Manchester
- Pancreatic Cancer UK Lay Information Reviewers
- Pancreatic Cancer UK Specialist Nurses

Email us at publications@pancreaticcancer.org.uk for references to the sources of information used to write this fact sheet.

Give us your feedback

We hope you have found this information helpful. We are always keen to improve our information so let us know if you have any comments or suggestions. Email us at publications@pancreaticcancer.org.uk or write to our Information Manager at the address below.

Pancreatic Cancer UK

6th Floor Westminster Tower
3 Albert Embankment, London SE1 7SP

020 3535 7090
enquiries@pancreaticcancer.org.uk
pancreaticcancer.org.uk

© Pancreatic Cancer UK August 2019
Review date August 2021

Registered charity number 1112708 (England and Wales), and SC046392 (Scotland)