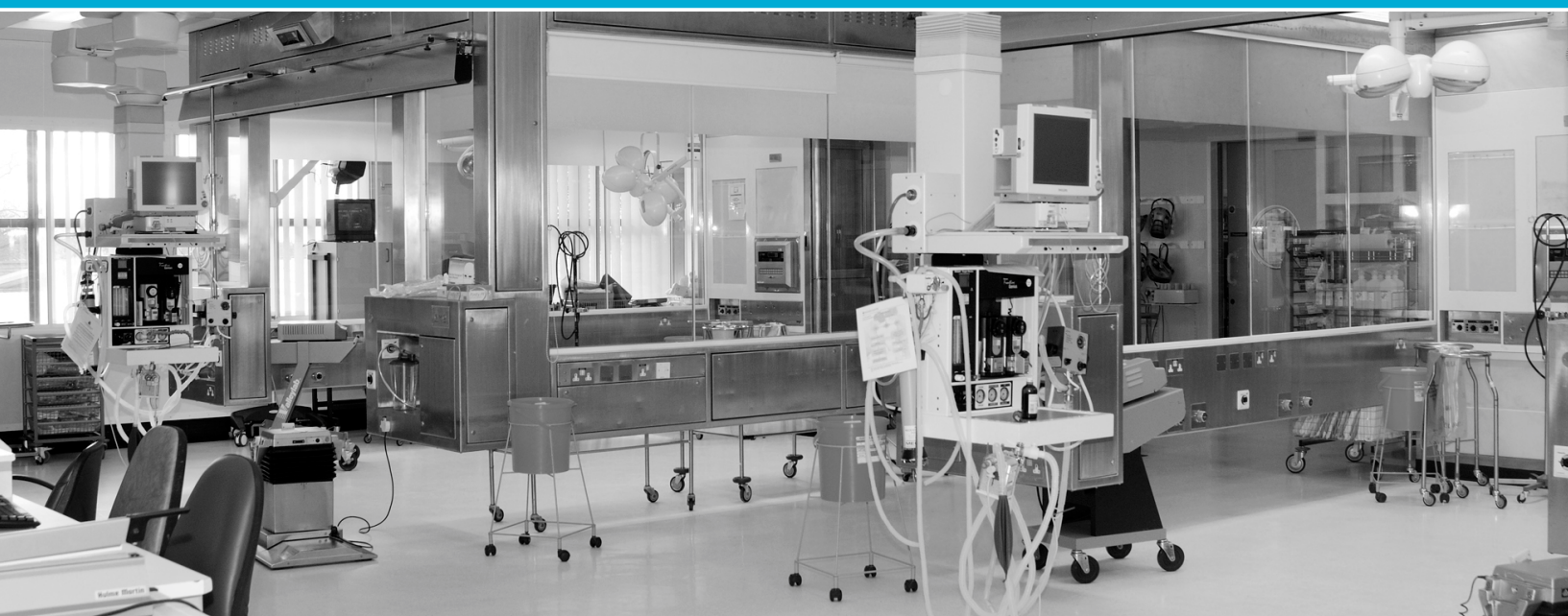


Information for patients

Knee Replacement Surgery



Arthroplasty

Welcome to the Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust in Oswestry

This booklet has been developed by the consultant orthopaedic surgeons, nurses and therapy team working at this hospital. It will provide you with relevant information, enabling you to make informed decisions about:

- Giving written consent before the operation
- How to prepare for your knee replacement surgery
- What to expect on the day of your knee replacement surgery
- The care that you will receive during your stay in hospital
- Your continued recovery at home

Please take some time to read this booklet. We suggest that you bring it with you to your outpatient appointments and when you come in to hospital for your knee replacement surgery. It will help to answer any questions or concerns that you may have regarding your operation and will guide you through your recovery. If you do not understand any part of this booklet or have any questions which you would like to ask, please write them down in the space provided at the back of the booklet to remind you to discuss them with the appropriate person in hospital.

My hospital appointment dates:

Outpatient appointment

Pre-operative assessment

Echocardiogram (if required)

GP appointment (if required)

Dentist appointment (if required)

Joint school

Date and time of admission

Date of surgery

Please note that there is a charge for parking – valid all day

Wheelchairs are available outside the main entrance of the hospital for £1 (refundable)

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Introduction

The Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust provides an Enhanced Recovery Programme^[13, 17] for patients having knee replacement surgery.

Goals of the Enhanced Recovery Programme are to:

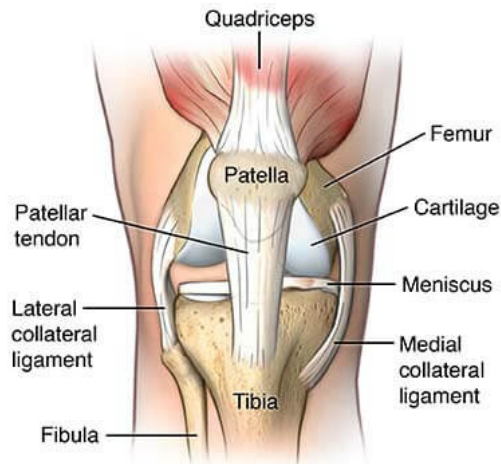
- Help you to get ready for the operation and prepare your home environment for your return after surgery.
- Encourage you to start walking, eating and drinking on the day of your operation, so that you return to feeling your normal self as soon as possible.
- Promote a faster, safer physical recovery; increasing your confidence and reducing the risk of complications.
- Involve your partner, family or carer in your recovery.
- Allow you to go home as soon as it is safe, which could be within 1 day of your surgery.

In order for you to be discharged home safely, you will be involved in your care from before you come into hospital, during your hospital stay and after you have gone home.

Whilst you are in hospital, you will be encouraged to achieve discharge goals (see page 24) with the support of your consultant orthopaedic surgeon, the nurses and therapy team.

The Enhanced Recovery Programme is designed to allow you to be discharged within 1 day of your surgery, if safe to do so.

The knee joint (right side)



Knee replacement surgery is a treatment option for arthritis^[4]

You are considered for knee replacement surgery if you have:

- Significant persistent knee pain during the day
- Your activities of daily living are severely restricted
- Pain from your knee regularly disturbs your sleep
- Your symptoms are not relieved by conservative or alternative treatments

Conservative or alternative treatments^[7] include:

- Using walking aids such as a walking stick or crutches, to enable you to stay as active as possible
- Physiotherapy exercises and non-impact exercise such as swimming or cycling
- Weight reduction if appropriate and other lifestyle modifications
- Using personal care, dressing aids and adaptive equipment
- Taking regular painkillers and/or non-steroidal anti-inflammatory drugs
- Injections

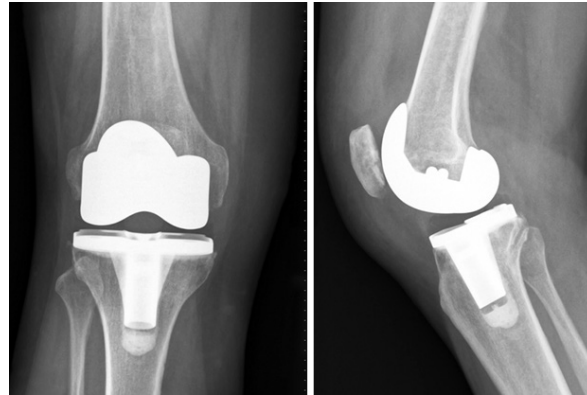
The aims of knee replacement surgery are to:

- Reduce pain
- Correct deformity
- Improve your mobility
- Increase your ability to perform everyday activities
- Improve your quality of life

Knee replacement surgery

This involves removing and replacing all or part of the weight bearing surfaces of the knee joint and can either be a total knee replacement or unicompartmental knee replacement.

Total knee replacement



Front view

Side view

Unicompartmental (partial) knee replacement



Front view

Side view

Similar to your own knee, your knee replacement will have surfaces that move together. They consist of a thigh (femoral) and shin (tibial) component, and sometimes your knee cap (patella) can be resurfaced with a plastic button. Your consultant orthopaedic surgeon will choose the most appropriate surgical approach and knee joint replacement design for you.^[8]

Benefits of knee replacement surgery

What can you expect after the Operation?

Pain relief

- The pain that you experience from your arthritic knee joint will be reduced.
- It is normal for your knee to be very painful for the first few weeks after the operation, but this should gradually improve as your recovery progresses.

Improved mobility

- Assuming that your general health is reasonably good, with time you should be able to walk further than you could before your surgery.
- You should find stairs and everyday functional activities easier.
- You should regain the amount of movement i.e. the ability to bend and straighten the knee that you had before the operation and sometimes a bit more.

Better quality of life

- Your overall quality of life should improve but remember that it takes time to recover from a major operation and to regain your muscle strength and confidence.
- It can take up to 18–24 months for your knee replacement to be at its best and even longer for complex and revision total knee replacements.

Risks and possible complications of surgery

Knee replacement surgery is a common operation and most people do not experience complications. However, it is a major operation and this carries with it associated risks which may include the following:

General risks associated with an operation

During and after the operation, it is possible that you could experience one of the following: a heart attack, chest infection, stroke or death. The chances of this are small and will vary depending on your general health, medical history and lifestyle choices.

Bone fracture^[1]

Although uncommon, there is a risk of a fracture or break occurring in the bone around the knee joint during or after knee replacement surgery, which may prolong your recovery period.

Nerve, blood vessel, tendon or ligament damage^[1]

There is a chance of damage occurring to the nerves, blood vessels, tendons or ligaments surrounding the knee during the operation. Significant care is taken by your surgeon to minimise the chances of permanent damage during the operation, but soft tissues are temporarily stretched as they gain access to the bones, resulting in the pain, inflammation and bruising which will be evident in the weeks after your surgery.

A patch of numb skin on the outer side of your knee is usually reported after the operation. This is due to the position of the scar over the front of your knee and is generally unavoidable. This numbness is normally accepted by patients and is not considered to be a significant problem.

Rarely, some bigger nerves can be damaged during the operation resulting in a foot drop. This could be temporary or permanent.

Although it is a very rare condition, sometimes the blood flow to the muscles surrounding the knee can be reduced after the operation and this is known as compartment syndrome. Further surgery may be necessary following assessment and investigation by your surgeon.

Bleeding^[1]

Most people can cope with losing a moderate amount of blood during surgery and will not require a blood transfusion. Blood loss can be replaced with other fluids and a blood transfusion will only be given if absolutely necessary.

Blood clots^[1, 14]

The risk of getting a blood clot after knee surgery varies for each person. After your knee surgery, you will be less active than normal for a few weeks. This can cause your blood flow to slow down, which increases the risk of a blood clot developing.

- Deep vein thrombosis (DVT) is a blood clot in a major vein above or below the knee joint. A DVT can sometimes go unnoticed, as your body naturally deals with them. However, they can also develop into a pulmonary embolism.
- Pulmonary embolus (PE) is a blood clot which travels from your leg to your lung and blocks the main artery or one of its branches. A PE can be serious and potentially life threatening.

The National Institute for Health and Clinical Excellence (NICE)^[14] has established that there is an increased risk of developing a DVT or PE after knee replacement surgery if preventative measures are not used. At this hospital, we use either injections or tablets along with foot pumps to try to minimise the risk. Walking is encouraged soon after your surgery to further reduce the risk of developing a blood clot. However, there is no guarantee of preventing the development of a DVT or PE.

There has been a significant reduction in the incidence of blood clots since the introduction of:

- Spinal Anaesthesia
- Early mobilisation
- Foot pumps

Your consultant orthopaedic surgeon will discuss with you, which of the preventative measures are most appropriate for you. Remember, it is important to continue with these measures when you go home after your operation, or as directed by your consultant orthopaedic surgeon.

Signs of a blood clot in your leg – DVT^[14]

- Swelling in your thigh or calf
- Pain or tenderness in your thigh or calf
- Redness and warmth in your thigh or calf

Signs of a blood clot in your lung – PE^[14]

- Breathlessness
- Chest pain
- Collapse

If you suspect either a DVT or a PE after your discharge from hospital, please attend your local Accident and Emergency department and then inform your consultant orthopaedic surgeon if a diagnosis of either a DVT or PE has been confirmed. If you become suddenly breathless or have sharp pains in your chest when breathing **dial 999**.

Infection

The Robert Jones and Agnes Hunt Orthopaedic hospital has a very low infection rate after joint replacement surgery, when compared with other hospitals. The risk is minimised by the clean air systems used in the operating theatres, sterile conditions and the use of antibiotics at the time of your surgery. However, infection remains a serious complication and can either be a:

- **Superficial wound infection**^[10] to the skin and tissues around the incision which may happen soon after surgery and can usually be treated with antibiotics.
- **Deep joint infection**^[1] to the deep soft tissues and metal work of your knee replacement which can happen at the time of surgery, or later in life if bacteria get into your bloodstream from another source of infection. This may require further hospitalisation and possible revision total knee replacement surgery.

It is a wise precaution to *inform your doctor, dentist, or hospital that you have had a knee replacement when you visit them for treatment*. In some specific circumstances, you may be required to take a short course of antibiotics to prevent infection.

Stiffness^[1, 2, 3]

Your ability to bend and straighten the knee after your knee replacement operation may not increase significantly compared to the movement you had before surgery.

Following knee replacement surgery, tough scar tissue can form around the knee. Scar tissue is not as flexible as normal healthy tissue and can cause joint stiffness. It is therefore important that you continue to perform the exercises taught by the therapy team, regularly at home.

It is sometimes necessary to perform a manipulation of the knee under general anaesthetic if stiffness persists and proves problematic. Your consultant orthopaedic surgeon will discuss this option with you should it be necessary.

Persistent pain

A knee replacement is a very painful operation and you will undoubtedly experience considerable pain in the first few weeks after the operation. However, with time and the appropriate management of the pain and swelling around the knee, this operative pain should improve.

Some patients will go on to have persistent pain or discomfort from their knee for a variety of reasons. Sometimes, patients experience excessive pain which is often associated with joint stiffness and may be referred to as chronic pain.

Continued pain will be carefully assessed, investigated and treated appropriately by your consultant orthopaedic surgeon and their team.

Wear and loosening^[3]

All artificial knee replacements will eventually wear out or become loose, either with or without the presence of infection. How long this process takes depends on a number of factors, but if or when it does, the operation may need to be re-done and this is called a revision total knee replacement. However, your new knee should give you many years of service before further surgery will be necessary.

Instability and dislocation

Sometimes your knee may not be entirely stable and further surgery may be necessary. If you have a unicompartmental knee replacement with a mobile plastic bearing, there is a small risk of this part dislocating.

Revision total knee replacement

Revision total knee replacement is sometimes necessary if you develop a deep joint infection in the knee replacement or if the bones around the knee replacement break, for example, after a fall.

Revision knee replacement surgery is more complex and a technically more difficult procedure than your original surgery. A part or all of your existing knee replacement will need to be removed before your new knee can be put in place.

Limitations and common traits of a knee replacement

- Your new knee is an artificial knee and will never feel as good as a natural, healthy knee. It may never feel entirely normal, but you will grow accustomed to it.
- Some swelling may remain with you indefinitely, especially following activity.
- It is normal to hear or feel a clunk or click from your knee. This is the sensation of the knee components coming into contact with each other.
- A patch of numb skin over the outside of your knee is normal.
- Sometimes knee replacements can be more sensitive or uncomfortable in cold weather.
- Remember that it can take between 18–24 months for your new knee to be at its best.

Reducing the risks

We aim to minimise the risks associated with knee replacement surgery by taking the following precautions:

- Assessing your health at the pre-operative assessment clinic before you come into hospital to ensure that you are as medically fit as possible for both the anaesthetic and your surgery.
- Appropriate treatment of problems identified at pre-operative assessment before your admission to hospital.
- Careful insertion of the artificial knee joint replacement by the specialist orthopaedic surgical team.
- Giving antibiotics at the time of surgery to minimise the risk of infection.
- Use of foot pumps and blood thinning drugs to reduce the risk of blood clots.
- Getting you up and walking about soon after your operation.
- Encouraging you to eat and drink early after surgery.
- Getting you home safely after your knee replacement.

Preparing for your surgery

Outpatient clinic

You will be seen in an outpatient clinic to discuss your operation with the orthopaedic surgical team. The operation will be explained to you, including the benefits, risks and alternatives to surgery. You may be asked to sign a consent form during this visit or when you attend the pre-operative assessment clinic in the weeks before your surgery.

Pre-operative assessment clinic^[15]

It is essential that you attend your pre-operative assessment appointment. During this appointment you will be seen by all or some of the following people:

- Consultant orthopaedic surgeon or one of their team
- Nurse practitioner
- Health care assistant
- Anaesthetist
- Pharmacist
- Clinical outcomes team
- Research department

The pre-operative assessment ensures that you are fit for the anaesthetic and your knee replacement surgery. You will be asked about your medical history and the medicines that you take. Please bring your medicines, prescribed and unprescribed, in their original boxes or a complete list of prescribed medicines from your GP. Advice will be given if any of your medicines need to be stopped before your operation. For example, HRT and oral contraceptive pills may need to be stopped four weeks prior to surgery.

Your heart, lungs, skin and teeth will be checked. You will have blood tests and may have an X-ray taken of your knee. You will have swabs taken to test for MRSA and you may have a urine test. If your swab result shows that you have MRSA or your urine test shows that you have a urine infection, you will be contacted and the necessary treatment prior to surgery will be explained to you. For more information on MRSA please refer to the hospital website. Health problems found from tests carried out at your pre-operative assessment can usually be treated prior to your admission to hospital with help from your GP.

It is your GP's responsibility to ensure that you are as fit as possible prior to your admission to hospital.

Please make sure that any problems listed below are treated by your GP or dentist before you attend for pre-operative assessment. *Your operation may be cancelled if these problems remain untreated and it is not the responsibility of the hospital to treat any pre-existing conditions.*

- Tooth decay, gum disease or dental abscess
- Uncontrolled blood pressure
- Uncontrolled diabetes
- Anaemia
- Leg ulcers
- Skin problems
- Chest complaints
- Urine infections
- Other infections

Please inform the pre-operative assessment nurses if you foresee any problems with the issues listed below. This information will help to plan for your return home, prevent a delayed discharge from hospital and ensure that you are appropriately supported at home.

- Transport home
- Equipment needs
- Access to and around your home, such as multiple flights of stairs
- Living alone without support

The information gathered at pre-operative assessment will check that you are fit to have your operation.

Please bring the following with you to your pre-operative assessment appointment:

- **Prescribed medicines** in their original boxes or a complete list of all prescribed medicines available from your GP practice.
- **Non-prescription medicines and supplements** or a list of these, as they may interact with anaesthetics causing complications and you may need to stop taking them prior to your surgery.
- **Details of specialists** that you have recently seen at other hospitals or are currently seeing for other health reasons.
- **Details of any diagnoses, treatments, operations or investigations** you are having or have had in the past.
- **Heights form** which you will receive in the post – please complete this document before coming for pre-operative assessment. This will determine the height of your chair and bed at home and help the therapy team with their assessments during your hospital stay.

National Joint Registry

You will be asked whether your details can be entered onto the National Joint Registry for England, Wales and Northern Ireland in order to monitor the results of joint replacement surgery and protect patient safety. For more information see: <http://www.njrcentre.org.uk>

You may receive a phone call from the **pre-surgical contact team** in the week leading up to your operation to check that you are still fit and well, and that your health has remained unchanged since the pre-operative assessment.

If there are any **changes in your medical condition or you develop any new illness or infection** after your pre-operative assessment but before your admission, please contact the hospital on: 01691 404659.

If you wish to **alter the date or cancel your operation**, please contact hospital admissions on: 01691 404324.

Joint school

It is very important that you have realistic expectations of the outcome of your knee replacement surgery. The interactive classroom style Joint school is an important part of your preparation for surgery and every patient is encouraged to attend. It is important to bring your partner, family member or a friend with you to Joint school to help support you throughout your recovery.

At the Robert Jones and Agnes Hunt Orthopaedic Hospital, we believe that Joint school will prepare you to get better quicker and aims to enhance your post-operative experience and recovery.^[13, 16, 20] The session will explain your patient journey including how to prepare for your operation, what to bring with you to hospital, the types of anaesthetic, post-operative pain relief, physiotherapy exercises, your recovery in hospital and at home, and gives you an opportunity to meet some of the team who may be involved in your care following your operation.

The separate Joint school information leaflet is enclosed in this booklet or may be handed to you during a clinic appointment.

How to book into Joint school?

- Online: <https://www.rjah.nhs.uk/joint-school>
- Email: rjah.jointschool@nhs.net
- Telephone: 01691 404651

Lifestyle changes

Smoking

Smoking is not permitted anywhere on the hospital grounds and this includes electronic cigarettes and vaporizers. If you stop smoking two months before your operation, you are more likely to be up and about sooner after your operation.^[9, 12, 18, 19]

If you are a smoker:

- You will need more specialist care before, during and after your operation.^[17]
- Smoking can delay your wound healing and increase your chances of having a wound infection.^[10]
- Your risk of having a blood clot (DVT or PE) after the operation is higher.
- You will also have an increased risk of developing a chest infection after the operation, which could lead to further problems and delay your discharge home.

If you are using patches or other types of nicotine replacement therapy to help you stop smoking, please stop using them the night before your surgery. You should bring them with you into hospital and tell a nurse that you have been using them. You don't have to quit on your own. For further help, speak to your pharmacist or visit www.nhs.uk/smokefree

Bowel management

A healthy diet and regular bowel habit prior to your admission to hospital will enhance your recovery and prevent unnecessary complications, which could delay your discharge home. If you are prone to constipation, please ensure that you eat a high-fibre diet, take any bowel medication regularly and drink plenty of water before you come into hospital.

General healthy living goals^[4]

If you are overweight, it is important to lose weight as this will reduce the risks associated with an anaesthetic. We would also encourage you to be as fit as possible. Moderate exercise prior to your operation can strengthen muscles and help keep your bones strong and joints supple. Vigorous physical exercise is not required, but a regular session of everyday, non-impact activity within your limits of pain is useful, for example walking, cycling, swimming, gardening or housework. These changes should start as early as possible before surgery, as the benefits may take a number of weeks to take effect.

For further information about a healthy lifestyle please see the websites / contacts below:

- <http://www.rjah.nhs.uk>
- <http://www.bda.uk.com/foodfacts/OsteoArthritis.pdf>
- www.healthyshropshire.org
- <https://www.nhs.uk/livewell/healthy-eating/Pages/Healthyeating.aspx>
- <https://www.bda.uk.com/>
- <http://www.bdaweightwise.com/index.html>
- <https://www.nhs.uk/Livewell/alcohol/Pages/Alcoholhome.aspx>
- <https://www.nhs.uk/smokefree>
- <http://www.helpmequit.wales>

Please also refer to the document enclosed in this booklet called “Help us to help you”, where you will find a list of useful phone numbers.

Before you come into hospital

- Remember to give the pre-operative assessment or therapy team your Heights form.
- Arrange a date when you and a family member, partner or friend can attend Joint school together. Book your session and attend.
- When you return home after your surgery, you will be walking with crutches or an alternative walking aid. Could you organise your home differently or rearrange furniture to make more space and a safer home environment?
- Minimise any hazards or obstacles which may cause you to trip or fall. This may involve moving loose rugs, improving lighting, having appropriate footwear or possibly moving a bed downstairs for a short time, if necessary.
- Move regularly used items into an accessible area, such as items stored up high or low down in your wardrobe or kitchen cupboards to a useable, accessible height when standing.
- Could you prepare meals in advance before coming into hospital or buy some meals that are easy to prepare, for the first few weeks? Freeze milk and bread for the first few days when you go home. Could you do your supermarket shopping online?
- Should you arrange to have some help when you go home? If possible ask family, friends or someone else to support you with everyday activities such as cooking, cleaning and shopping.
- Be up to date with the household cleaning and gardening before the operation.
- Consider how you will look after yourself when you go home. How will you cope with washing and dressing yourself? If you are concerned about how you will manage, could someone stay with you for a while whilst you recover, or perhaps you could organise some respite care for you on discharge?
- If you are a Carer for someone else, you may want to contact your GP or local Social Services to arrange a care package for their care whilst you are in hospital and when you go home.
- If you have pets, you may need to make arrangements for their care whilst you are in hospital and when you go home.
- Could any external agencies provide you with any necessary help? Could any additional specialist equipment, aids or appliances be sourced to make your rehabilitation easier? For example, the Red Cross can loan equipment such as wheelchairs that may help whilst you are recovering.
- Plan your transport to and from the hospital.

Getting ready

You will receive a letter which will give you a date for your operation and information about your admission into hospital. Please read it carefully and follow the instructions given.

Fasting

The letter will advise you when to stop eating and drinking fluids before your operation. It is however very important that you have a small meal at your last opportunity to eat, and drink a large glass of water just before the time you are told to stop drinking. This will ensure that you remain well-hydrated before your knee replacement surgery.

Bathing and showering

Please have a bath or shower before you arrive at the hospital to reduce the number of dead skin cells which could infect your knee replacement.^[10] If you are unable to shower yourself, please speak to the nursing team in the pre-operative assessment clinic for help and advice.

- **Do not apply** any creams, powders, deodorants or make-up after your bath or shower.
- Please **remove** any nail varnish, artificial nails, eyelash extensions and jewellery.
- **Do not shave or remove hair** from the leg that is to be operated on or the surrounding area in the 7 days before you come into hospital to reduce the risk of surgical site infections. Hair removal is only necessary to visualise the operation site and if necessary will be done with disposable clippers immediately prior to surgery by a member of the surgical team.

Menstruation

Women of menstruating age will be expected to bring sanitary pads into hospital. Tampons are not advised during hospital stay.

What to bring into hospital?

Please do not bring too many possessions into hospital as storage space is limited.

Here is a checklist of things you should bring into hospital:

- Wash bag with toiletries, toothbrush, toothpaste and towel
- Day clothes, such as trousers or skirts with elasticated waists, shorts, jogging bottoms or 'lounger' wear, loose-fitting socks and underwear
- Night clothes, such as nighties or pyjamas
- Hearing aids, glasses or dentures
- Splints, braces or any device that you would normally wear
- Music device or iPad with headphones
- Mobile phone or Laptop – Wi-Fi is available
- Books or magazines
- Small amount of money

There may be some swelling in your feet, ankles and legs after surgery, so please bring shoes or slippers that are:

- Generously fitted and comfortable
- Supportive with a firm heel
- Non-slip sole

When you arrive in hospital

- You will come into hospital on the day of your operation and will usually be admitted onto Baschurch day unit.
- Patients will be seen by the admitting nurse in the order in which they appear on the operating theatre list, not in the order they arrive on the unit.
- The order of the operating list is subject to change on the day of surgery and everyone is asked to arrive at the same time to allow for alterations.
- There are several operating theatres at the hospital, all running at once.
- The nursing team will perform checks and attach personal identification bracelets to both your wrist and ankle.
- Please express any concerns that you may have about your discharge from hospital, such as transport or support at home. This will help us to have an appropriate plan in place, to prevent your discharge from hospital being delayed.
- Your consultant orthopaedic surgeon or a member of their team will check your consent form and use a pen to clearly mark the leg that is to be operated on.
- Your anaesthetist will ask you about your health and discuss the anaesthetic and pain relief options that are most suitable for you.
- Once the admission process is complete and you have been seen by all relevant staff, there may be a long wait until it is your turn to go to the operating theatre. You can either sit and read your book or magazine, or the Baschurch day unit can lend you a pager to allow you to leave the unit. You will then be paged when they would like you to return.
- You may want to take your music device to theatre with you, so that you can listen to your music to help you relax if you decide to stay awake during the operation.
- Your partner, family member or friend will be able to stay with you until you are transferred to theatre. However, they are unable to remain on the Baschurch day unit whilst you are having your operation due to limited seating. There are a number of areas where they can wait, including Denbigh's restaurant or the League of friends coffee shop.

Transfer to Theatre

You will be asked to change into a theatre gown, disposable underwear and a paper cap prior to being transferred to the theatre area on a bed. You will be given a warm blanket, because research shows that keeping warm before your operation helps with the recovery process.^[11] Your belongings will be placed in a sealed box and transferred securely to your designated ward.

Anaesthetic room

You will be taken into the anaesthetic room within the theatre area where the final pre-surgical checks will take place. The anaesthetic will be given as discussed with your anaesthetist. Most patients will be advised to have a spinal anaesthetic in combination with sedation or a light general anaesthetic.^[20]

The spinal anaesthetic involves a small injection of local anaesthetic between the bones in your lower back around the nerves of the spinal cord. This causes temporary numbness and heaviness from the waist down and allows surgery to proceed without you feeling any pain.

Sedation or a light general anaesthetic can also be used to lower your awareness of theatre activity and the associated noise during the operation.^[20] This should help with any anxiety that you may be feeling. Sedation or a light general anaesthetic wears off very quickly following surgery. This allows most patients to make a rapid recovery with very few hangover side effects or sickness. It also allows you to start moving and gently use your knee, when the spinal anaesthetic has worn off.

A catheter into the bladder to control its emptying is not routinely used with this type of anaesthetic. However, should you have any difficulty in emptying your bladder following surgery a catheter may sometimes be necessary in the short term.

The Operation

You will be transferred from the anaesthetic room into the operating theatre where you will have the operation. If you decide to have sedation with your spinal anaesthetic, you may have some awareness during your operation, depending on the effect of the sedation you have been given. You may have as little or as much as you need to keep yourself relaxed. Some patients decide to stay fully awake. In this case, you will be able to see the theatre team, including your surgeon who will be wearing specialist clothing.

From the start of the anaesthetic to the end of your operation your anaesthetist will stay with you, monitoring your condition very closely. Knee replacement surgery usually takes between one to two hours to perform.

During the operation the surgeon may inject the soft tissues surrounding the knee joint with a local anaesthetic, to continue the pain relief after the operation. This technique usually provides excellent pain relief and allows you to move your knee soon after the operation. However, you will be asked about your comfort levels and will be offered additional pain relief as necessary.



Tissue samples taken during surgery

Pieces of bone and surrounding tissue are removed as a necessary part of your knee replacement operation. Large amounts of tissue will be disposed of by incineration. Smaller pieces of tissue may be sent to the laboratory for examination to analyse the cause of your knee problem.

Sometimes, tissue may be used for teaching, quality control and ethically approved research. By conducting research, we can better understand what treatments work, what the side effects might be, what might cause a particular disease, how patients feel during their treatment or whilst living with a condition, and what might work to ease their problems.

RJAH is a research active hospital and you may be approached during your visit to discuss your potential involvement in a research study. You will be told everything you need to know about the study, so that you can make an informed decision as to whether or not to participate.

It is important to be aware that all research is entirely voluntary. You can change your mind at any time, and whether or not you participate will not affect the quality of care you receive.

Recovery

From the operating theatre you will be transferred to the recovery area where the nurses will:

- Monitor your blood pressure, pulse and oxygen levels.
- Assess your comfort levels.
- Apply foot pumps to your feet to help keep your blood circulating and to reduce the risk of blood clots.^[14]
- You will have an intra-venous fluid drip attached to your arm. This puts essential fluid and salts back into your body and will be removed when you are eating and drinking normally.
- You will be transferred to the ward to continue your recovery when you are well enough to do so.

On the Ward

When you arrive on the ward you will be met by the nursing staff who will continue to monitor your blood pressure, pulse and oxygen levels. You will be encouraged to start eating and drinking as soon as possible after your surgery. You should drink water to satisfy your thirst; to keep you hydrated, reduce your risk of developing a blood clot and ensure that your body systems are working effectively. You will be given regular pain relief and asked about your pain and comfort levels. If you require additional pain relief at any time, please inform the nursing staff.

Once you have started to eat and drink, you will be able to take painkillers in the form of tablets which are less likely to cause side effects and will speed up your recovery. Remember that it is important to manage your pain and take the painkillers before the pain arrives.

It is important to ask for help when you need it. Every hospital bed has a call button which when pressed, will alert the nurses that you would like some help. If at any time you feel unwell or need some assistance, please use your call button.

There are flexible visiting times on the wards, but visiting is restricted during protected meal times. It is important to bear in mind that successful rehabilitation for all the patients following surgery is our priority and that visitors should not impact on this.

Enhanced Recovery Programme and discharge goals

To optimise your recovery following knee replacement surgery, the Enhanced Recovery Programme requires that you take an active role in your rehabilitation to achieve your discharge goals as set out below.

Day of surgery

- Drink to satisfy your needs.
- Eat a meal.
- Get dressed in your own day clothes.
- Perform your physiotherapy exercises.
- Sit out in a chair.
- Undertake an assessment of transfers i.e. getting in/out of bed and on /off chair/toilet.
- Walk with aids provided by the therapy team - normally with walking frame initially before progressing to elbow crutches if appropriate.
- Be assessed on stairs and steps.

The therapy and nursing team will work with you in order to achieve the above goals.

Getting mobile

You may find that the discomfort and stiffness that you experience after the operation will improve by gentle mobilisation. The therapy team will be the first people to help you with this following your surgery. This may involve re-positioning yourself in bed, completing exercises or standing up and walking.

It has been proven that walking soon after your operation can be one of the most important parts of your rehabilitation process. You will be taught and shown how to do this safely by a member of the therapy or nursing staff. You will be dressed in your own clothes and walking on the same day. This is often with a walking frame at first, before progressing onto elbow crutches when safe to do so.



You will be encouraged to get up to:

- Wash
- Dress
- Go to the toilet

Being dressed and out of bed every day promotes a sense of wellbeing and helps in your recovery.

When the therapy team tell you that you are safe to walk about independently with your crutches, it is important that you get up and walk about regularly to increase your confidence. Walking is an essential part of your rehabilitation, as it improves your muscle strength, helps to restore normal movement at your knee and helps relieve pain. However, it is important to remember that you will have an increased risk of falling whilst in hospital which may cause soft tissue and or bony injury. Common reasons for falling whilst in hospital are listed below:

Common reasons for falling whilst in hospital are listed below:

- Spinal anaesthetic used during surgery may cause temporary muscle weakness in your legs
- Nerve blocks used during surgery for pain relief, may cause temporary weakness in your legs
- Strong pain killers or other medications administered during and following surgery may cause dizziness
- Urinary incontinence and urgency to use the toilet
- Low blood pressure following surgery may cause dizziness
- Crutches and other walking aids may initially make mobilising more difficult
- Pre-existing conditions such as Dementia, Parkinson's disease, Diabetic neuropathy
- Previous history of falls at home or in hospital

Falls Prevention

In order to help prevent you falling whilst in hospital, it is important that you ask for help when you need it. If at any time you feel unwell, dizzy or need assistance, please use your call button. Every hospital bed has a call button which when pressed, will alert the nurses that you require help.

- Stay seated
- Press the call bell
- Wait for the nurse



When you are safe to walk independently with your crutches, you will not be as mobile as you normally are and therefore at risk of developing blood clots. In order to reduce the risk of blood clots, you will continue to wear the foot pumps whilst resting on the bed during the day and overnight, and you will start the most appropriate blood thinning medicines for you, as pre-determined by your consultant orthopaedic surgeon.

Basic exercises

After your knee replacement surgery, the therapy team will encourage you to fully straighten your knee, strengthen the muscles around your knee joint, especially your thigh muscles and regain normal movement at your knee. This will optimise your ability to perform everyday functional activities such as walking, return to independence and may help to prevent post-operative problems, such as blood clots.

It is important to complete some basic exercises as soon as you can after your operation. If you have a spinal anaesthetic or a local nerve block you may be unable to perform some of these exercises initially. You do not need to wait until the physiotherapist has seen you.

Taking **regular deep breaths** will reduce the risk of developing a chest infection.

Initial activation of your muscles is also important as these will prepare you for the more advanced exercises when you see the physiotherapist. These include **squeezing your buttocks** and **thigh muscle** 'little and often', with a small hold for approximately 5 seconds.

You should also try to **move your ankle joint forwards and backwards** regularly to promote good circulation in your legs. *If you experience any severe pain or swelling in the calf, please tell the nursing staff immediately.*

In addition to the above, your physiotherapist will give you more specific exercises, aimed at **fully straightening your knee, strengthening your thigh muscle** and achieving a **good range of movement** at your knee. You will be encouraged to perform these exercises regularly each day in between seeing the therapy team. You may find it beneficial to practice these exercises (see page 29) at home before your operation, as strong muscles around your knee will enhance your recovery.

Ice therapy (Cryotherapy)

Ice therapy, also known as Cryotherapy, will be used to help relieve pain and manage your swelling whilst you're in hospital. You should continue with this treatment when you go home:

- Use an ice pack, gel pack or large bag of crushed ice or frozen peas
- Do not apply the ice directly on the skin but use a clean tea towel, pillow case or paper towel to protect the skin and prevent your dressing from getting wet
- Place the ice onto the operated knee
- Leave it on for **no more than 20 minutes**
- This can be repeated **every 2 hours**

Physiotherapy exercises

Remember to do your exercises 'little and often' – several times throughout the day. The first 4 exercises can be performed lying on your back as shown or sitting up with your legs straight on your bed, sofa or floor.



Pull your foot towards you and push your knee down against the bed, to tighten your thigh muscle.

Hold for 5 seconds, then relax.

Repeat 10 times or until fatigued.

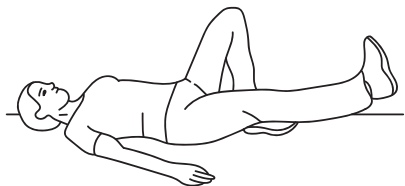


Place a rolled up towel or pillow under your operated knee, so that it is slightly bent.

Pull your foot towards you and straighten the knee. Keep the back of your knee firmly in contact with the roll and lift your heel as high as you can.

Hold for 5 seconds, then slowly lower your leg.

Repeat 10 times or until fatigued.

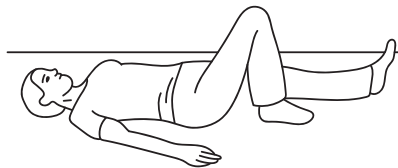


Bend your unoperated leg and keep your operated leg straight.

Pull the foot of your operated leg towards you and tighten the thigh muscle by pushing your knee into the bed.

Lift your foot 20cm off the bed, keeping your knee straight. Hold for 5 seconds, then slowly lower to the bed.

Repeat 10 times or until fatigued.



Bend your operated knee as far up as tolerated, by sliding your heel towards your bottom. Keep your foot in contact with the bed.

Hold it at the full bend for 5 seconds, then slowly slide your leg back to the bed, by straightening your knee.

Repeat 10 times or until fatigued.



Sit on a chair with a towel under your operated foot.

Slide the foot under the chair as far as you can. Hold it at the full bend for 5 seconds and then slide your foot forwards again, keeping your foot firmly in contact with the floor.

Repeat 10 times or until fatigued.



Sit on a chair with the operated leg on a stool, with your foot at the same height as your hip.

Make sure there is no support under the knee to allow it to straighten fully.

Repeat 3 times a day for 5-10 minutes, as tolerated.

Daily activities

For more information regarding the following daily activities, please refer to our hospital website: www.rjah.nhs.uk/Patient-Visitors/Films/Patient-Information-Films-about-Knees.aspx

Getting on and off the bed

To get on and off the bed after your operation, you will be taught the following technique:

- Walk right up to the bed with your crutches, turn yourself around taking small steps and make sure that you can feel the side of the bed on the back of your legs.
- Take both arms out of your crutches and place them next to you.
- Slide your operated leg out in front of you, but allow the knee to bend if comfortable.
- Sit half way down the bed.
- Slide your bottom back as far as you can onto the bed using your arms and let your legs come up in front of you. If you can relax your legs, this will make the transfer easier.
- Once you are on the bed, slide your bottom around towards the pillows. As you slide up the bed, your legs will automatically follow you.
- Your unoperated leg can be used to help with sliding back.
- At first this procedure will be more comfortable than trying to lift your legs onto the bed, but when you feel able, you can progress to lifting your legs onto the bed.
- To get off the bed, reverse the process.

Going up the stairs – one step at a time

- Using the banister, hold the crutches in your free hand.
- Move your hand a little way up the banister.
- Put the **unoperated leg up** on to the stair above.
- Bring the **operated leg up** on to the same stair above.
- Lastly bring the **crutches up** on to the same stair above.

Going down the stairs – one step at a time

- Using the banister, hold the crutches in your free hand.
- Move your hand a little way down the banister.
- Put the **crutches down** on to the stair below.
- Bring the **operated leg down** on to the same stair below.
- Lastly bring the **unoperated leg down** on to the same stair below.

Getting in and out of a car

We recommend that you sit in the front passenger seat of the car. Ask the driver to open the door and slide the passenger seat as far back as possible. We also suggest that while you are getting in and out of the car, that you recline the back of the seat to give you more space.

- Walk up to the car with your crutches.
- Turn around so that your back is to the car.
- Take both arms out of your crutches and give them to the driver.
- Make sure that your legs are touching the sill of the car.
- Place your hands where you feel you have support e.g. the dashboard and side of the car. Avoid holding the door as this is not secure.
- Slide your operated leg out in front of you, but allow the knee to bend if comfortable.
- Sit down on the car seat.
- Once sat on the car seat and using your unoperated leg on the sill, slide yourself as far back as you are able towards the driver's seat.
- Once you are in this position you can start to move your legs into the foot well of the car.
- Incline the back of the seat into a more comfortable position.
- Secure your seat belt and shut the door.
- To get out of the car, reverse the process.

Discharge criteria

Before you can be discharged home safely, the following discharge goals need to be met:

- You should be able to bend your knee sufficiently to manage everyday activities at home
- You will be walking safely and independently with crutches or other walking aid, but this may depend on how mobile you were before your surgery
- You will be able to get in and out of bed, on and off the chair and toilet by yourself with or without an aid
- If necessary, you will be able to get up and down stairs safely
- Your wound will not be oozing
- The correct medication will be available for you to take home including painkillers, and you will understand how and when to take them

Prior to leaving hospital you will be given the following:

- Dressings for your wound and a letter for your GP practice or district nurse
- A letter advising you of when your clips or stitches need to be removed, if necessary
- Medication to take home
- A sick note will be issued, if requested
- Outpatient physiotherapy will be arranged by the therapy team and you will be told prior to discharge from hospital where this will be. If you have not been contacted with an outpatient physiotherapy appointment within 7-10 working days, we suggest that you *contact the physiotherapy department which you are due to attend*. It is important that you continue to perform the exercises that you have been taught by the therapy team whilst you are waiting for your outpatient physiotherapy appointment.
- A follow-up outpatient appointment approximately 6 weeks following your surgery will be arranged, to see your consultant orthopaedic surgeon or a member of their team. You will receive a letter in the post notifying you of the date and time of your appointment.

Discharge from hospital is expected within one day of your surgery. Therefore please ensure that there is someone available to take you home.

After you have gone home

Please contact the ward you stayed on if you have any concerns about your health or if you:

- Notice any redness, either around your knee or lower down your leg
- Have pain or stiffness that becomes excessive
- Have swelling which does not settle with high elevation and rest
- Have any oozing discharge from your wound
- Develop a fever or flu-type symptoms

Ward telephone numbers:

Baschurch ward	01691 404494
Powys ward	01691 404206
Clwyd ward	01691 404204
Ludlow ward	01691 404420
Oswald ward	01691 404284
Kenyon ward	01691 404425
Arthroplasty helpline	01691 404659

Looking after your new knee

Pain, stiffness and swelling in your leg

After your knee replacement surgery, it is normal to have some pain, stiffness, swelling and bruising in your leg whilst your body recovers. Everyone will respond to the operation differently with varying degrees of symptoms.

Following surgery, tough scar tissue can form around the knee replacement. Scar tissue is not as flexible as normal healthy tissue and can cause joint stiffness. Moderate exercise will minimise the risk of the scar tissue limiting your movement and function. It is therefore important that you continue to perform the exercises that you have been taught by the therapy team little and often.

When you are sitting in a chair, it is important to alternate between the following positions:

1. Allow your knee to bend in a comfortable position, with your foot resting on the floor.
2. Elevate your leg on a leg rest with your knee straight and your foot at the same height as your hip. Achieving a fully straight knee is very important for your rehabilitation and also for your confidence, that your new knee will not give way when walking.

If you can reduce the post-operative swelling in your legs, you will regain the bending movement at your knee more easily. This can be achieved with regular periods of rest on the bed in the weeks after your surgery, with your **feet elevated higher than your heart**.

- Pillows under the foot end of your mattress will elevate the legs higher than your heart, which will help to drain excess fluid from your knee, foot and ankle.
- Your knee must be straight not bent, so do not place a cushion or pillow directly beneath the knee as this promotes a permanent bend at the knee.
- Keep your leg in a neutral position with your foot pointing up to the ceiling, not rolled out to the side with your knee bent.

If you notice that you have persistent swelling in your leg which is not improved with high elevation, a DVT (blood clot) may be suspected. You must therefore attend your local Accident and Emergency department and if a diagnosis DVT has been confirmed please inform your consultant orthopaedic surgeon.

Wound care and personal hygiene

- The nursing staff on the ward will advise you before you go home whether your dressing is splash proof or not. Please avoid getting the dressing excessively wet in the shower, as this will increase your risk of getting a wound infection.
- You must not have a bath until your stitches or clips are removed and the wound is completely healed.
- You may have a bath when you can safely get in and out of the bath without the risk of slipping or falling.
- A non-slip bath mat is recommended.
- After leaving hospital, it is advisable to have someone living with you or close to you, who is willing to help with everyday tasks such as showering.
- If you notice any continuous discharge or ooze from your wound, please contact the ward you stayed on or your consultant orthopaedic surgeon.

Your return to normal life

Ongoing exercise

Walking is an essential part of your rehabilitation. When you go home it is important to continue using your crutches or walking aids as directed by your physiotherapist. You can fully weight bear on the operated leg unless advised otherwise. Do not carry anything in your hands when using two crutches, as it may cause you to become unbalanced. A slip or stumble may be enough to cause soft tissue or bony injury and delay your recovery.

Take regular short walks on even ground, slowly increase your walking distance as you get stronger and increase the amount of activity you do each day. You can progress to using one crutch in the house, when you feel comfortable and confident to do so.

Remember to keep yourself as pain free as possible by taking painkillers on a regular basis and using ice therapy, to enable you to complete your exercises and improve your mobility. However, it is important to find a balance between activity and rest by:

1. Getting up to walk about regularly and
2. Resting with your leg elevated

Leisure

We encourage you to do the things that are a part of your normal daily life, as long as you feel comfortable to do so.

- Regular walking will help to reduce stiffness and improve your long term outcome.
- You may exercise in the gym using a static bike, rowing machine and cross trainer, but avoid treadmill running. Walking on the flat or a slight incline is allowed.
- Avoid any high impact activities such as jumping, pulling, twisting or running as these will put excessive strain on your knee.
- You may swim 6 weeks after your knee replacement when the surgical wound is fully healed and the clips or stitches have been removed. Any swimming stroke, including breaststroke is allowed.
- Before you return to a particular sport or leisure activity, please discuss it with your consultant orthopaedic surgeon or a member of their team at your first outpatient appointment after your surgery.

Shopping and housework

You should avoid heavy chores for 3 months following knee replacement surgery, but may carry on doing light tasks such as dusting or washing dishes. You will possibly need help with:

- Shopping
- Vacuuming
- Changing beds

Work

Returning to work will depend on the type of work that you do. Discuss this with your consultant orthopaedic surgeon or a member of their team. You should plan to have at least six weeks off work and feel confident that when you do return, that you can undertake your normal role.

Driving – DO NOT ATTEMPT TO DRIVE UNTIL YOU ARE SAFE TO DO SO

You may return to driving when you have all of the following:

- You are at least 4 weeks following your surgery
- You no longer require the use of elbow crutches to walk
- You can safely control the vehicle and perform an emergency stop without discomfort
- You no longer require the use of strong painkillers, such as tramadol or morphine
- You have clarified your cover with your insurance company

We advise that you start with short journeys and gradually increase the distances travelled

Kneeling

You will not damage your knee replacement by kneeling on it. You can kneel following surgery when the surgical wound is completely healed, but you may find it uncomfortable to put weight on the scar at the front of the knee. At first you should try kneeling on a soft surface such as a pillow or mattress. A soft garden kneeler with arm supports may be helpful. You will not be able to sit back on your heels when kneeling, because a knee replacement is not designed to bend as much as your natural knee.

Flying on an aeroplane

Due to the increased risk of developing a blood clot in your leg (DVT) or lung (PE), your consultant orthopaedic surgeon will advise you not to fly on a long haul flight for approximately 3 months after your knee replacement surgery.^[6] You are at greater risk of developing a blood clot if you have poor mobility, become dehydrated or sit still for more than 4 hours at a time. This includes lying in bed, sitting in a chair, car, bus, train, coach or aeroplane.

You will most probably set the security alarms off in passport control due to the metal content of your knee replacement. However, this depends on the size and sensitivity of the scanning equipment. You may need to explain about your operation to staff at the airport.

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**The Robert Jones and Agnes Hunt
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NHS Foundation Trust

If you require a special edition of this leaflet

This leaflet is available in large print. Arrangements can also be made on request for it to be explained in your preferred language. Please contact the Patient Advice and Liaison Service (PALS) email: rjah.pals.office@nhs.net

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