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## **LAPAROSCOPIC SPLENECTOMY** **(KEYHOLE REMOVAL OF THE SPLEEN)**

*THIS INFORMATION REFLECTS THE PERSONAL PRACTICE OF A/PROF KELLEE SLATER ONLY  
AND DOES NOT SUBSTITUTE FOR DISCUSSION WITH YOUR SURGEON.*

### **YOUR ADMISSION DETAILS:**

**Your admission date is:** \_\_\_\_\_

On your arrival to hospital, present to Admissions at the designated time. From the main entrance of the hospital, there is a pharmacy on the left. At the end of the pharmacy, there is a lift. Take this to Level 1. This is Admissions.

**You will need to stop eating food from:** \_\_\_\_\_

**Drink the 2 DEX between:** \_\_\_\_\_

**You can drink CLEAR fluids until:** \_\_\_\_\_ **then it is NIL BY MOUTH.**

**Your operation date is:** \_\_\_\_\_

The Rooms will call you a day prior to when you are due to enter the hospital to confirm your admission time and when to start fasting.

**Register your admission** to confirm your personal details and health history.

**This must be done at least 48 hours prior to your admission. It can be done in two ways:**

You can complete the admission form online at:

<http://www.greenslopesprivate.com.au> then click on the ONLINE ADMISSION button

OR

Call Greenslopes Private Hospital Admissions on phone 1800 777 101.

Monday to Friday 8am – 7:30pm or Saturday 8:15am – 12:45pm.

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## WHY DO I NEED THIS OPERATION?

The most common reasons to carry out this surgery are for disorders of the blood stream, like ITP (idiopathic thrombocytopaenic purpura), infections of the spleen and trauma.

The spleen may also be removed because of cysts and tumours.

Removal of the spleen in blood disorders is not always guaranteed to solve the problem. The disease can also recur because tiny spleen cells can regrow and may need to be removed at a later date. You need to speak with your haematologist about the reasons removing your spleen may or may not work.

## WHERE IS MY SPLEE AND WHAT DOES IT DO?

The spleen is high up on the left hand side of the abdomen under the ribs. A normal sized spleen is about the size of your fist and cannot be felt. The stomach sits just in front and left kidney, just beneath. If the spleen enlarges, it may be felt below the ribs. The spleen acts as a filter for bacteria in the blood stream and helps to kill them. It also stores white blood cells, platelets and removes old red blood cells.



## WHAT DOES THE OPERATION FOR REMOVING THE SPLEEN INVOLVE?

Laparoscopic splenectomy is carried out under general anaesthetic and involves making four or more small (5 – 10mm) incisions on your abdomen. Carbon dioxide gas is then pumped into the abdominal cavity to provide a space in which to operate. A fibre-optic telescope and long instruments are then inserted into the abdomen and the spleen is separated from the stomach, kidney and large bowel. The blood supply of the spleen is stapled across with a special device that secures the blood vessels.

A bag is then placed in the abdomen and the spleen is placed inside it. One of the small incisions is enlarged to retrieve the spleen by pulling it out in the bag.

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## CONVERSION TO AN OPEN OPERATION

Conversion to an open operation via a larger incision is not considered a failure during keyhole surgery. Sometimes it is necessary to make a bigger cut on your abdomen to finish the operation. This is often done if there is bleeding that is difficult to control or if the spleen is too large to remove with keyhole surgery. An open operation is always performed when the surgeon feels that they cannot complete the operation safely with keyhole surgery and is done in your best interest.

Keyhole surgery can also be more difficult if there has been previous surgery. This is another common reason to convert to an open operation. This is considered sound judgment and is never a failure. An open operation does not particularly alter the recovery time.

## WHAT ARE THE COMPLICATIONS OF SURGERY TO REMOVE THE SPLEEN?

Even though the incisions are small, spleen removal is still considered a major operation. Whilst laparoscopic surgery is considered a relatively safe operation, all surgeries carry a number of serious complications. Please understand these risks are rare and treated on a case by case basis. These complications are:

### General Risks:

- Death: approximately 1/50,000 risk for all patients having this type of operation.
- Allergic reaction or airway problems related to the anaesthetic.
- Damage to your teeth from insertion of the breathing tube.
- Bleeding: usually occurs either during the operation or in the first 24 hours and may require further surgery. You may require a blood transfusion.
- Blood vessel problems: heart attack, stroke. This is very rare.
- Infections: wound, pneumonia, urine, intra-abdominal, blood (including HIV and hepatitis), IV line related.
- Clots in the legs (DVT) that may travel to the lungs. This may be fatal.
- Wound pain, abnormal (keloid) scarring or hernia of the wound.
- Bowel obstruction due to hernia or adhesions. This risk is life long.
- Permanent or temporary damage to nerves in the arms, legs and neck due to prolonged immobilisation on the operating table. This may result in loss of feeling or movement.

### Risks Specific to Laparoscopic Splenectomy:

- Injury to the tail of the pancreas: resulting in a collection of fluid in the abdomen that may require a further operation or drainage procedures.
- Bleeding from the blood vessels that flow to the spleen requiring a return to the operating theatre.
- Significant distention of the stomach that may lead to a large vomit. Occasionally some of this vomit may be inhaled into the lungs and cause life threatening pneumonia.

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- Splenunculi: many people have tiny “extra” spleens. After the spleen is removed they may grow and patients with blood diseases may have a recurrence of their disease. This may require further surgery.
  - Because the spleen is very close to the lung, partial collapse of the left lung is quite common after splenectomy. A physiotherapist will work with you to prevent this. It is very common to have a slight fever on the first 1 – 2 days after the operation because of this lung collapse.
  - Injury to any organ in the abdomen: bowel, aorta, liver, stomach and kidney. This is rare.
  - Gas embolism: a bubble of carbon dioxide gets into a blood vessel and causes life threatening heart problems. This is very, very rare.
  - Re-operation: if we have to re-operate for any reason, this may be done with keyhole surgery or an open operation.
  - Life threatening infections related to having no spleen (see below).

## WHAT ARE THE CONSEQUENCES OF LIFE WITHOUT A SPLEEN?

The spleen is part of the immune system – it is there to filter bacteria and release cells to fight these bacteria. The spleen also cleans up old red cells and stores a component of the blood called platelets.

Generally, day to day life without a spleen goes on as normal. The risk of infection is not great, but is, however, lifelong. The risk of infection is higher in the first twelve months after the surgery. The risk only applies to certain bacteria (e.g. Pneumococcus, HIB and Meningococcus) and for this reason you will receive vaccinations and preventative antibiotics. You will be given the antibiotic Amoxicillin 250mg a day, (an alternative will be prescribed if you are allergic to Penicillin). The vaccinations will cover you lifelong and the antibiotics need only be taken for twelve months i.e. the high risk period. You will get your vaccinations either before the operation or as you leave the hospital.

It is also recommended that you have a yearly Influenza vaccination. Yes, influenza is a virus, but getting the flu can lower your resistance to harmful bacteria.

Even though the risk of life threatening infection after splenectomy is very low, patients and their families must always be aware they are susceptible to these infections and seek help early if they feel unwell or have an unexplained fever or confusion. You should have a pack of antibiotics with you if you travel overseas in case you become unwell. If you are visiting malaria prone country's you need to take suitable precautions.

I will also check your platelet count in the week after discharge (a blood test) and let you know if you have to begin taking Aspirin. A temporary elevation of the platelet count can occur. Platelets help the blood to clot. They are stored in the spleen and after its removal the levels rise. This increases the risk of clots in the legs and lungs. Your platelet count will be monitored and if it is high, it will be treated with an aspirin, 100mg a day. This deactivates the platelets. You will continue to take this until the platelet count is normal. This usually takes 1 – 2 months.

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## WHAT TO EXPECT IMMEDIATELY AFTER SURGERY

### Pain Relief

On the first day after surgery, there may be a moderate amount of discomfort at the site of the operation and in your left shoulder. This is because the spleen sits under the diaphragm. The diaphragm is supplied by nerves that also supply the skin of the shoulder. After surgery near the diaphragm, your body thinks you have pain in the shoulder. This will settle within 24 hours.

You will have some form of pain relief. Most commonly this will be Patient Controlled Analgesia (PCA). This will be a button that you will press to give yourself a strong dose of pain killers (Morphine or Fentanyl). It is very important that you control this yourself. This is a safety mechanism. You cannot overdose because there is a lock out mechanism and in addition, once your pain is under control, you will be comfortable and won't press your button. It is very important that your family does not press your button, because overdose is then a real risk.

As soon as you are eating, you will be transitioned to oral pain relief. This medication is still very strong, but in tablet form, it provides a longer, smoother pain relief.

Every effort will be made to minimise your discomfort and make it bearable. Your nurses will be monitoring your level of pain control frequently.

It is very important your pain is well controlled. You must be able to breathe deeply and cough to prevent pneumonia.

### Drain tubes

You may have some plastic tubes in your body following surgery. They will vary a little depending on your requirements. They will be removed at variable times following your surgery under my direction. All tubes except for an IV in your hand will be put in place under anaesthesia.

1. IV line: in your arm and in your neck (placed under anaesthesia) to give you fluids and pain relief after surgery.
2. Urinary catheter: tube placed in your bladder so you don't have to get up to pass urine for a day or two.
3. Abdominal drain tubes: one or two soft plastic drains coming out of your abdomen that are placed in the space where the spleen was. This drains away fluid and blood so it does not collect in your abdomen.
4. Nasogastric tube: a tube that goes from the nose into the stomach.

### Eating

The spleen is just behind the stomach and because I have operated here, your stomach may take a few days to begin to work again. You will not feel like solid food for the first day or two after the surgery. You will be able to drink small amounts of liquids. Fluid via your IV will keep you well hydrated. In some cases, you will have a nasogastric tube (NG) in your

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nose that will remove the stomach contents until your stomach recovers. I will let you know when you can eat solids again. Usually this happens on the second or third day.

It is normal to have a sore throat for a few days after the surgery. People who drink more than two cups of coffee a day may notice caffeine withdrawal headaches and irritability a few days after surgery.

### **Urinating/Bowel Movements**

During the first few days after the surgery, the tube placed in your bladder will drain your urine. It is likely your bowels will not work for 4-5 days after surgery. You will start passing wind first. It is likely I will give you some laxatives to help this along. Strong pain killers frequently cause constipation.

### **Activity**

You can expect your nurse and physiotherapist to help you get out of your bed on the first day after the surgery. You will be able to walk short distances even with the tubes and intravenous lines. As each day passes your tolerance for walking and sitting in a chair will increase.

It is extremely important to be mobile to prevent pneumonia, clots in the legs and loss of general condition. You can expect to have to wear stockings on your legs whilst in hospital to prevent clots and have an injection under the skin, of the blood thinning medication Heparin twice a day for the same reason.

### **Your Incisions**

There will be several small incisions across your abdomen. There may be one larger one depending on how big your spleen is. You can expect to have a waterproof dressing over your incisions for the first 5 days. You will be able to shower with this dressing. It is quite common to have a small amount of leakage from the wound that will pool under the dressing.

You can peel the dressing off 5 days after the surgery. The wounds should be healed by this time. You may get the wounds wet after 5 days. It is common for a bruise to form around the incisions. There will not be any stitches to remove, they will dissolve.

### **Other Important Information**

You can expect to see me every week day. On weekends or in times when I am operating elsewhere as an emergency, you will see one of the practice partners. We will make every effort to keep you informed of your progress. We are always honest and open with you and your family. Feel free to ask questions.

### **Length of Stay in Hospital**

On average most patients will expect a 4 – 6 day hospital stay. This time, however, differs greatly for individual patients. Some stay shorter, some much, much longer. You will not be discharged before you can walk unaided and care for yourself.

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## Loss of weight

It is common for patients to lose up to 5% of their body weight after major surgery. The weight loss usually stabilises very rapidly and is typically regained when you are healed.

## How you may feel

You may feel weak and washed out when you go home. You might want to nap often. Even simple tasks may exhaust you. You may lose your taste for food.

You might have trouble concentrating or difficulty sleeping. You may feel depressed.

**These feelings are usually transient and can be expected to resolve in 2 – 4 weeks.**

## Your medications

We will discuss which medications you should take at home. This will usually include some sort of painkiller. If needed, you will go home with a prescription for pain medicine to be taken orally. You may need a daily antibiotic tablet for up to a year and an Aspirin tablet daily for several weeks.

## **AFTER DISCHARGE**

### Your incision at home

You can expect to have a waterproof dressing over your incision for the first 5 days. You may be discharged with this dressing on. You will be able to shower with this dressing. It is quite common to have a small amount of leakage from the wounds that may collect under the dressing. Occasionally this build up of fluid will leak from under the dressing. Wash the area if this occurs.

You can peel the dressing off 5 days after the surgery. The wounds should be healed by this time. You may get the wounds wet after five days. It is common for the wounds to be bruised.

There will not be any stitches to remove. They will dissolve. It is very common for an end of a stitch to poke out of the wound. If it bothers you, you may snip it off with a pair of scissors. Otherwise, it will fall off about 6 weeks after the operation.

Your incision may be slightly red along the cut. This is normal.

You may gently wash dried material away from your incision and let water run over it. You can pat your wound dry with a towel. Do not rub soap or moisturizer into your incision for at least 3 weeks or until it is fully healed. After this you may rub Vitamin E cream along the wound.

It is normal to feel a ridge along the incision. This will go away. It is normal to have a patch of numbness under the wound.

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Over the next few months your incision will fade and become less prominent.

### **Activity**

Listen to your body, if it is hurting, don't continue with the activity.

You may climb stairs and raise your arms above your head. You can start light exercise like walking as soon as you feel comfortable.

You may swim after 3 weeks

Really heavy exercise may be started after 6 weeks. Use common sense and go slowly at first. You will need to regain your fitness and do not do it if your body is hurting.

Do not drive until you have stopped taking narcotic pain medication and feel you can respond in an emergency.

You may resume sexual activity when you feel ready.

## **WHAT PREPARATIONS DO I NEED TO MAKE BEFORE MY SURGERY?**

### **Hospital**

The hospital will call you or contact you via email in the week before your operation to confirm your personal details and medical history.

They will also let you know about any hospital excess you may have to pay.

### **Fasting**

You must have nothing to eat or drink for six hours prior to surgery. (You may have a drink of clear liquid (see through) or the carb drinks we have given you up to 2 hours before the operation. You may take your medications with a sip of water. You must not chew gum or smoke on the day of the operation.

### **Shaving and showering**

You do not need to shave any body hair from your abdomen before the surgery. If needed, I will do this with sterile clippers after you are asleep, just before the surgery commences. This gives the lowest chance of infection.

There is no evidence to suggest that having a shower with antiseptic prior to surgery decreases infection rates, so just shower normally on the morning of surgery. Do not use any perfume.

### **Belly buttons**

Because the surgery will be performed through the belly button, you need to remove any belly button piercings. You can put the ring back in 4 weeks after the operation. If you don't

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wear your piercing anymore but have a hole you don't like, talk to me and I can remove the hole as part of my incision at the time of the operation.

For people with very deep belly buttons, it is normal to have a build up of lint and old skin hiding in there. This can be very smelly. Try and clean your belly button with a cotton bud and water a few days before the surgery to decrease the risk of a wound infection.

### **Make up, nail polish and jewellery**

I understand that some women feel quite anxious about going without their makeup. Most of your body will be covered during the operation, so it is important that the anaesthetist can see your face clearly. Your colour can be a good monitor of how much oxygen you are getting. For this reason, it is best to come to theatre with a clean, make up free face.

Nail polish is OK with me as long as you keep it clear on your fingernails. Coloured nail polish can interfere with the device we use to measure the oxygen in your blood. For many women, having a pedicure the day before the surgery can be a good way to relieve anxiety.

Any jewelry you are comfortable with removing, you should leave at home. If you would like to leave your wedding ring on, you may, but this will be covered with tape for the duration of the surgery.

### **Glasses and contact lenses**

You should remove your contact lenses prior to coming to the hospital. You don't need to bring your glasses to the operating theatre. Just put them with your belongings and they will be given back to you in the ward.

### **False teeth, caps, crowns**

Do not take your teeth out before you come to the operating theatre. They will usually be removed by the anaesthetist after you go to sleep. Keeping your teeth in will help the anaesthetic doctor get a good seal on your mouth with the oxygen mask. Your teeth will be well taken care of during your operation and returned to you in recovery before anyone can see you.

### **Preparations at home**

Ensure that you have someone available to care for small children for a little while to take the pressure off your recovery. If you are handy in the kitchen, try to cook and freeze some easy meals to have on hand for when you do not feel like cooking. Another option is to consider ordering precooked meals from companies like Lite'n Easy. Consider hiring some help around the house for a few weeks after the surgery or enlist willing (or unwilling) relatives to help out. Make sure all your bills are paid ahead or on automated payments to reduce the things you have to think about in the recovery period.

### **Medications**

- If you are taking Prednisone continue on your normal dose or as advised by your haematologist.

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- If you are on blood thinners such as Aspirin, Warfarin, Plavix, Iscover, Clopidogrel, Pradaxa, Dabigatran, Rivaroxaban, Xarelto or anti-inflammatory drugs (Brufen, Mobic, Voltaren, etc), they can cause bleeding during surgery. We will advise you about what to do with these drugs prior to surgery. You must let us know about these drugs as the decision to stop them is based on each individual patient's needs.
  - Diabetic medications: we will give you advice on whether to take your diabetic medications on the morning of surgery or not. Some diabetics will be admitted the night before the operation.
  - Cholesterol lowering medication should not be taken when you are fasting.
  - If you are taking any alternative medications e.g. St John's Wort, fish oil or garlic, you should stop these tablets one week before surgery as they may result in excess bleeding.
  - You may continue to take a multivitamin.
  - Continue to take all other medications, even on the morning of surgery with a small sip of water.

### **Other things to know**

- You must bring all relevant x-rays/scans to the hospital with you.
- If you smoke, it is in your best interests to stop completely as soon as you can. See your GP for alternatives or call Quitline (13 18 48) if you wish to seek advice.
- You should also abstain from drinking alcohol 24 hours prior to any surgery.
- Bring all your current medications with you to the hospital.
- Bring comfortable pyjamas, personal toiletries, small change for newspapers etc.
- Bring something to do - DVDs, books, laptops. Alternately you can use hospitalisation as an opportunity to rest completely without distractions of the outside world.
- Do not bring large amounts of cash or valuables.

## **WHAT WILL THIS SURGERY COST?**

I largely work as a "no-gap" doctor. This means that the surgeon fee for your operation will be sent to your health fund and there will be no "gap" or extra amount of money to pay. There are always exceptions and decisions regarding this are made on a case by case basis.

If you do not have private health insurance or if you have overseas insurance, you will be given a quotation for surgery, anaesthetic and hospital fees **which must be paid in full prior to the operation.**

If your Body Mass Index is >35, the surgery is far more difficult, and the risks of complications are much higher. If it is medically suitable, we may recommend a period of weight loss with a program called INTENSIV before contemplation of this operation, so it can be done more safely. This will incur an extra out of pocket expense.

Outpatient consultations are not covered by the health funds and there will be a charge for these meetings. You will get a proportion of this money back from Medicare. There is no fee to be paid for normal care after the operation.

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There may be other out-of-pocket fees from your anaesthetist and any other specialists who are asked to look after you. You should ask them ahead of time about any out-of-pocket costs. Ask us who will be performing your anaesthetic and you can make enquiries with them about any out-of-pocket expenses.

**There may be extra costs for x-ray, pharmacy and pathology. You have a right to gain “informed financial consent”. Fees from other practitioners are beyond our control and you should ask for the costs from each person who is asked to look after you. Patients have a choice when it comes to paying for their health care and you are fully within your rights to shop around.**

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# YOUR JOURNEY THROUGH THE OPERATING THEATRE

## HOW YOU MAY FEEL BEFORE SURGERY

Having a general anaesthetic (being fully put to sleep) can be very scary for some people. It brings up issues about loss of control. People worry about what may happen when they are asleep.

Having an anaesthetic involves a lot of trust and in the end you will have to take a leap of faith and believe that you have chosen a team that will look after every part of your body. You should read this article if you would like to know exactly what goes on just before, during and after an anaesthetic for major surgery. For some people, understanding precisely what happens in the operating room brings a sense of calmness.

## CHECKING INTO THE OPERATING THEATRES

You will be greeted at the front desk by one of our friendly executive staff who will do the administrative paperwork. They will also collect any hospital excess you may have to pay. Please bring your health fund and Medicare cards. They will also want to know about your next of kin. With your permission I will call a nominated family member at the end of the surgery and the recovery nurse will also let them know when you are ready to go to the ward.

For major surgery, it is best that you remove **all** your normal clothes including your underpants and bra. This is so we don't lose them or mess them up with blood or antiseptic fluid during your surgery. You will meet one of the pre-op nurses who will help you change into your glamorous theatre gown and paper underpants. For abdominal operations, it is very common that you will wake up completely naked i.e. without your paper underpants. We often remove them in the operating theatre to keep them away from the area we are operating on. Your modesty will be protected as much as possible. Contrary to what you see in the movies, your bottom will not be on view out the back of your gown. Hospital robes wrap around your rear.

You will be measured and fitted with white, knee high stockings to prevent clots in the legs. For some operations, you may have a pair of pneumatic leg warmers placed on your calves to gently massage your legs while you are asleep. This prevents clots in the legs. The look is complete with a puffy paper hat. Any jewelry you would like to keep wearing, like a wedding band will be covered with tape.

You will be weighed and your temperature, blood pressure and pulse will be checked. You will be asked about your allergies and will be given an ID band that will stay on for your entire stay. The nurse will ask you if there are any implants or metal in your body. We ask this because we need to place an earthing plate on your body during the surgery and need to place it away from any internal metal.

You will then go through many repetitive identification processes to make sure we have the right patient and that everyone agrees on the operation you are having done. You will be put on a bed and you will wait and wait and wait until it is your turn to be called into

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theatre. This waiting can be quite stressful, and you will feel hungry. You may want to bring something to do during this time. There is also a TV to watch and magazines to read. Rest assured we are moving as fast as we can and because unexpected events happen all the time, delays in hospitals are inevitable. It is possible to develop a headache due to caffeine withdrawal. This is not harmful, and you may have two Panadol with a sip of water to help.

Your clothes, glasses, valuables will be put into a bag and your belongings will be put into a locker whilst you are in theatre. You will be reunited with them when you return to your room in a ward or intensive care. If you have come to theatre from the ward, your belongings will stay in your room and await your return. If you are going to intensive care after the surgery, your belonging will travel with you.

### **Why do I have to starve before surgery?**

For an arranged operation, you must have absolutely nothing to eat or drink for six hours before you go to sleep. When you have an anaesthetic, all the muscles in your body relax. If you have food in your stomach, it can reflux back up into your mouth and even worse, your lungs. This can produce a life-threatening pneumonia. You must also not chew gum prior to surgery as this increases the fluid in your stomach. You may drink clear liquid up until 2 hours prior to your operation. I may give you a sugary drink two hours prior to surgery to help you feel less thirsty and speed up your recovery. It is OK to take your normal medications with a sip of water any time before surgery. It is also fine to brush your teeth.

### **Special circumstances**

There are a few instances where certain precautions take place.

#### **Latex allergy:**

Please let the admission nurses know if you have a latex allergy. We need to remove all the latex products from the operating theatre to protect you.

#### **If you take certain medications:**

If you have recently had chemotherapy or take immune suppressing drugs like azathioprine or methotrexate, special measures will be taken to protect staff members against coming into contact with these drugs.

#### **If you have certain bacteria on your skin:**

Many people have bacteria living on their skin that have been given special names by hospitals. It is likely you will know this from a previous hospital admission. This does not mean you have an infection. We all have bacteria living in and on our bodies, some just have special names and some have a higher chance of being resistant to some antibiotics. It is best if these bacteria are not passed onto other patients as it promotes antibiotic resistance. If you are MRSA "golden staph", VRE, CRE or MRAB positive, then isolation precautions will be taken throughout your stay in the hospital.

#### **If you have false teeth or plates:**

Please leave these in. It makes it easier for the anaesthetist to help you breathe as you go off to sleep. If needed, the anaesthetist will remove them after you are asleep and they will be returned to you in recovery.

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## TAKING YOU INTO THE OPERATING THEATRE

You will be wheeled around to the operating room by one of the theatre orderlies or a nurse. This is where you will say goodbye to your relatives. They will be next able to see you when you return to the ward. Because there are other patients in the recovery unit, relatives are not permitted.

The next stop is the anaesthetic room. This is a small cubicle adjoining the main operating theatre. The orderly will hand you over to the nurse assisting the anaesthetist. You will then have another identification check (you will be very good at reciting your name by this point).

Then the anaesthetist will arrive. They are the person with the good drugs that will make you relaxed, so be nice to them! If they have not met you earlier, they will go through your medical history again and what to expect. They may also explain some risks of anaesthesia, but because you have read this book, you will be aware of them already. This is not meant to scare you. It is our job to tell you about the good and bad aspects of surgery.

The only thing that will go into your body while you are awake is a small plastic tube in your hand called a cannula, drip or IV. This is a small needle and will hurt for a second or two. When it is in the vein, the needle is taken out and a soft plastic tube is all that is left. Once in, you should not be able to feel it. It is secured with tape and you may move your arm. The drip is used to give the medication that will put you off to sleep. If you are having an epidural for post-operative pain relief then this will be done prior to going off to sleep.

Occasionally, some patients have a severe needle phobia. This one small needle can create terrible anxiety. If this is the case, we can sometimes give the anaesthetic without a needle at the beginning. This is done by asking you to breathe on gas for a few minutes. You will drift off to sleep. The IV is placed once you are fully out and you will know nothing about it. This is a slower way to go off to sleep, but for some people avoiding a needle while awake makes a big difference.

Once the IV is in, you will be taken into the main operating theatre. This can be a confronting place too. There are usually 5 - 10 people in the room, all wearing masks and talking. We are all there to look after you. Most operating theatres are set up in a predictable way. There will be an anaesthetic machine with all the monitors to ensure you are safe. There will be several tables filled with surgical instruments ready to perform your surgery. There will also be nurses preparing this equipment and counting each and every instrument to ensure that nothing is missing at the end of your operation. There may also be junior medical staff and orderlies. The operating table is in the middle of the room under big lights. They will not be turned on until you are asleep. The table is narrow and cold. It is narrow because we need to stand close to you to operate and it won't be cold for long because during the surgery you will be covered with a heating blanket.

The trolley you are on will be placed beside the operating table and if you are mobile, you will be asked to move yourself across onto it. The nurses will make sure you are not lying on your gown as it will usually need to be moved aside to expose the area we need to operate on. If you are in pain or not mobile, we will slide you across to the operating table on a special board or float you over on a noisy hover mattress. A lot of activity will then

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happen around you. We will place padded boards on the side of the bed for you to rest your arms on. Your leg massagers will be hooked up and switched on and you will feel a gentle compression on your calves.

You will have three stickers placed on your forehead. This helps the anaesthetist monitor how deeply asleep you are. Sticky dots to monitor your heart beat will be placed on your chest. Fluid will be hooked up to your IV line and a clip that reads your pulse placed on your finger. A blood pressure cuff will be wrapped around your arm and the first time it takes your blood pressure, it will inflate very tightly. It will only do that once.

You may already be feeling happy, drowsy or talkative as the anaesthetist may have given you a relaxing medication via the IV. You will not go to sleep yet, but it is unlikely you will remember anything after this until you wake up in recovery even though you will continue to talk to us.

## WHAT HAPPENS DURING AN ANAESTHETIC

Sometimes knowing what happens during an anaesthetic really helps you relax and realize that you are well taken care of while you are asleep. Many people's greatest fear is the anaesthetic. They worry about vomiting afterward, being aware during surgery and not waking up. Whilst these things very, very rarely occur, having an anaesthetic is actually far safer than anything you have already done that day, like driving into the hospital.

### General anaesthetic consists of three phases

#### 1. Going to sleep – similar to taking off in a plane

Just before you go to sleep, the anaesthetic nurse will ask you to breathe into a mask and fill your lungs with oxygen. This makes sure that you have the maximal amount of oxygen in your blood. This does not put you to sleep. A white medication called Propofol is then given through your IV. The anaesthetist will ask you to keep your eyes open. As this medication goes into your veins, it can cause a stinging sensation in your arm. This is normal and does not damage you. After this injection you will be asleep in about ten seconds. Your breathing will temporarily stop and the anaesthetist will take over your breathing for you by blowing oxygen into your lungs. As soon as you are asleep and if you are having abdominal surgery, the anaesthetist will give a medication that stops your muscles moving. This has many functions. It allows your throat to relax so the anaesthetist can safely place the breathing tube into the windpipe. It also relaxes your abdominal muscles and makes surgery on the abdomen easier. If you have false teeth, they will be removed at this point and returned to you in recovery.

As soon as the muscle relaxer has worked, the anaesthetist will use a special tool called a laryngoscope. This is a smooth spatula with a light that is inserted over your tongue and deep into your throat. The anaesthetist will be able to see your vocal cords and beyond this is your trachea or windpipe. A specially designed hollow tube is placed down the spatula and into the wind pipe. A balloon on the end of the tube is inflated by the nurse to fully occlude your airway and stop any vomit or secretions from entering your wind pipe.

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This is often the trickiest part of the anaesthetic and your life can depend on it. There are many signs the anaesthetist will look for before you go to sleep to predict whether getting this tube down will be difficult or not. If you have a small jaw, previous difficulties with intubation, neck problems, difficulty opening your mouth, the anaesthetist will be ready with a different strategy to get the tube down your throat safely. Because your breathing is our number one priority, occasionally putting the breathing tube down can result in damage to your teeth or cuts to your lips. All care is taken and this is uncommon. Having a tube in your throat can leave it sore and dry for a day or too. This is transient. You may also have a swollen uvula (the dangly bit at the back of your throat) for a few days.

Before the surgery starts, if appropriate, you will be given a dose of antibiotics via your drip to help lessen the risk of wound infection. Soft tape will be placed over your eyes to keep them closed and protected. There are other devices we use to monitor your wellbeing during surgery. Tubes like urinary catheters and IV lines will now be placed. Your arms and legs will be padded to protect your pressure areas and you will be positioned for surgery.

## **2. Staying asleep during the surgery – cruise control**

You will be kept asleep by anaesthetic gas piped in via the tube in your windpipe or by a continuous infusion of Propofol in your drip. The anaesthetic machine will steadily and precisely breathe for you. Your anaesthetist will never leave your side and constantly monitors your vital signs. They will give you small doses of medications and fluids to keep everything steady.

## **3. Waking up – landing the plane**

As the surgery comes to an end, the anaesthetist will give you strong dose of pain killer, so you will wake up in comfort. They will turn the gas off and give a medication to reverse the paralysis. While you are still asleep, you will be transferred onto your bed. When you are breathing by yourself, the anaesthetist will remove the breathing tube and suction your throat. Patients rarely remember this. An oxygen mask will be placed on your face and you will be wheeled out to recovery.

## **APART FROM THE SURGERY, WHAT ELSE HAPPENS WHEN I AM ASLEEP**

If you have body hair on the area having surgery, it will be clipped off. Often a larger area that is needed will be shaved. An earthing plate will be placed somewhere on your body, so the electrocautery device can be used to stop bleeding as required. This will be removed before you wake up.

Just before surgery, everyone in the theatre will stop what they are doing and check once again your identity and the operation we are performing.

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## **WHAT SOME PEOPLE WORRY ABOUT BUT WERE TOO AFRAID TO ASK**

### **What if I have my period on the day of surgery?**

This makes no difference to you or us. Having a period is a normal part of life. I would suggest that you use a pad and not a tampon as it may be some time before you can change it. If you have any questions about this, ask the nurse who checks you in.

### **My bladder feels full – will I wet myself?**

Just before you go into the operating theatre, many people feel like they need to pass urine. This is usually anxiety. If you have gone to the toilet in the waiting area, it is very unlikely that you will need to go again.

For big operations, we will put a tube in your bladder that will catch all your urine. If you are having a smaller operation and still need to go once you reach the theatre, the nurse will take you to the bathroom.

It is a fact of life that some people occasionally wet themselves during the operation. It does not bother us and you will be cleaned up before you go to the recovery room.

### **What if I think I am pregnant?**

You must let us know at check in, even if you are only suspicious. If you are pregnant it is likely we will delay the surgery. If you are not sure, there are quick pregnancy tests available to check. It is essential that we know because the surgery and anaesthetic drugs can harm your unborn child and even lead to miscarriage.

### **I always vomit after an anaesthetic**

Nausea and even vomiting can happen after an anaesthetic. It is such an unpleasant feeling that it may be an enduring memory of previous surgery. Post anaesthetic nausea is more common if you suffer with motion sickness. Your anaesthetist will discuss this with you and there are many strategies to avoid this troubling side effect.

### **What if I am breastfeeding?**

Breast feeding should not stop you from having a surgery you need. Very small amounts of anaesthetic and pain relieving drugs will pass into your breast milk. Theoretically, this is low risk for your baby. Anaesthetic guidelines suggest you pump and discard breast milk for 24 hours after an anaesthetic. Your baby will need to be fed with previously pumped milk or formula. It is almost certainly perfectly safe however to feed your baby less than 24 hours later. Whether you are up to it of course is another matter. Occasionally, surgery may cause a decrease or even cessation of your milk supply.

### **Who will be in the operating theatre with me?**

It is necessary for your safety for a number of staff, both male and female to be in the operating theatre both before and during your surgery. In addition to your surgeon and anaesthetist, there may be junior doctors, a number of nursing staff, theatre orderlies and x-ray technicians. As this is a teaching facility there may be medical students present.

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All of these staff are highly professional. There are definitely moments where you will be exposed whilst preparing you for surgery, but extreme efforts are made to preserve your modesty.

### **Do you play music while I am asleep?**

No. We are concentrating on your care. Music tends to be a distraction. There are many sounds of machines and monitors in the operating theatre and we are listening to those. We also need quiet to enable communication between staff.

### **What if my bowels work while I am asleep?**

This is quite uncommon. If it does occur however, you will be cleaned up prior to moving to recovery.

### **I am worried about waking up during the operation**

Awareness during anesthesia is exceptionally rare. Making sure you are fully asleep is the anaesthetists' main objective. There are a number of monitors and alarms that you will be hooked up to absolutely ensure that this doesn't occur.

### **I am on the oral contraceptive pill**

There is a medication given as the end of some anaesthetics that can interfere with the effectiveness of the pill. Please tell your anaesthetist if you are on the pill. If the medication is used, then you will need to use an alternate contraception for two weeks to avoid pregnancy.

### **I am worried about my memory after the anaesthetic**

There is no doubt that a condition called post anaesthetic cognitive disorder is a real thing. It is more common on patients over 60 and it can result in memory loss that may be permanent. It is not fully understood. If you have concerns, your anaesthetist would be happy to discuss it with you.

## **RECOVERY – THE WAKE-UP ROOM**

When you wake up, is likely that you will be wearing a gown but be completely naked underneath. You will be covered with a blanket.

The recovery room is the first thing most patients will remember after going to sleep. It will almost be like no time has passed.

You will have a nurse by your side monitoring your vital signs. You will stay in recovery until you are fully awake and your observations are within normal limits. The nurse will monitor your pain and keep you comfortable.

If you have a catheter in your bladder, you may feel a need to pass urine. This feeling will go away.

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As you wake up you may have a tube in your throat that the nurse will remove. It is unlikely you will remember this.

If you snore you may have a small tube in your nose or mouth to help you breathe until you are fully awake.

If you have false teeth, they will be returned to you in recovery.

Your family is not allowed in recovery so we can respect the privacy of other patients.

## **RETURN TO THE WARD**

When you return to the ward you may be drowsy, nauseated or in pain. Your nurse will be monitoring these things closely.

They will be checking you pulse, blood pressure, temperature and dressings regularly for abnormalities.

There is a very strict criteria of observations that the nurses must follow. If you fall outside these criteria for any reason the nurses must notify the medical team. Very often this is just a false alarm. It may sometimes seem dramatic, but it is done for your safety.

If you are on strong pain killers like morphine or Fentanyl you will be required to wear an oxygen mask.

## **HOW DO I HANDLE MY ANXIETY?**

Every person suffers from some level of anxiety. You are not human if you do not. Having an operation is up there in the top ten of major life events. A little bit of anxiety can be good thing. It can make you hesitate before taking a misstep. When anxiety gets out of control however, it becomes a medical problem and stops you doing things that you should or want to do. Some people suffer anxiety about many things and for some it can be an issue only in certain situations.

Common symptoms of anxiety are

- Overwhelming negative thoughts
- Sleepless with worry
- A constant stream of bad thoughts “the chatter”
- Physical symptoms such as chest pain, nausea, headache

There are many techniques to address your anxiety. There are mindfulness, meditation and distraction techniques. Sometimes anxiety is so bad that medication is needed.

It is normal to be anxious before surgery but if the feeling of anxiety is overwhelming please talk to me or your GP about it. Help and suggestions are also available at Beyond Blue: [www.beyondblue.com.au](http://www.beyondblue.com.au)

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## ABOUT YOUR SURGEON

### A/Prof Kellee Slater MBBS (Hons) FRACS FACS

2018	Associate Professor University of Queensland
2015	Fellow of the American College of Surgeons
2017-2019	National Chair of the Australian Board in General Surgery
2006 – Present	Staff Surgeon  Hepatopancreatic-Biliary-Liver Transplant Princess Alexandra Hospital and Greenslopes Private Hospital Brisbane, Queensland
2004 – 2006	Hepatobiliary and Liver Transplant Fellowship Princess Alexandra Hospital Brisbane, Queensland
2002 – 2004	Liver and Kidney Transplant Fellowship University of Colorado Hospital Denver, Colorado, United States of America
2002	Fellow of the Royal Australian College of Surgeons (FRACS) General Surgery
1989 – 1994	MBBS (Honours) University of Queensland