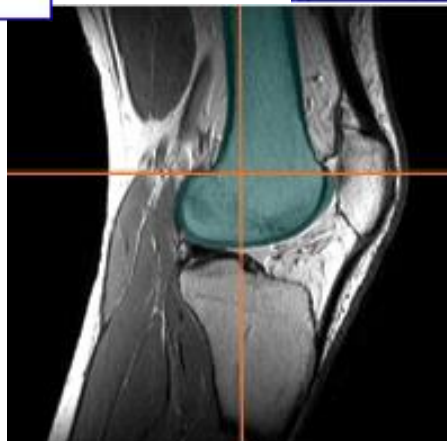




*Bruce White  
Orthopaedic Surgeon  
Specialising in  
Hip and Knee Surgery*

*Minimally Invasive  
Total knee Replacement  
Using Custom Navigation Guides &  
Accelerated Rehabilitation*



## *Knee Replacement Folder*

This brochure is part of a knee replacement folder designed to provide information about knee arthritis and its treatment under the care of Dr Bruce White using Custom Made Instruments. This brochure and the folder will have all the necessary information, documents, referrals and requests required to have your knee replaced at the Mayo Private Hospital or Forster Private Hospital.

### *Contents:*

#### **1. Dr White Profile**

An outline of Dr White's training, credentials and history

#### **2. Knee Arthritis**

Describes what the arthritis feels like and treatment options

#### **3. The Knee Replacement Process**

- a. Before you are admitted to hospital
- b. What happens on admission to hospital
- c. How the knee is replaced
- d. What is Custom Made Instruments
- e. What happens in recovery
- f. What happens on the ward
- g. How do we manage the pain after surgery
- h. What happens after I go home

#### **4. What are the risks and how we reduce them?**

#### **5. Frequently asked Questions**

#### **6. Your questions**

#### **7. Pre-operative appointments**

#### **8. What you do if something goes wrong at home?**

## DR BRUCE WHITE - PROFILE:

I grew up on a farm near Inverell in northern NSW. I studied medicine at the University of Newcastle after initially studying Engineering. I completed my residency program at St. Vincent's Hospital Sydney. I worked in England for a year before undergoing training in Orthopaedic surgery in Western Australia. I attended and observed surgeons at a number of Orthopaedic Surgical units in the United States of America before settling in the Mid North Coast of New South Wales in 1997.



### **Qualifications:**

- Bachelor of Medicine (Newcastle 1988)
- Fellowship of the Royal Australian College of Surgeons (1997)
- Fellow of the Australian Orthopaedic Association (2000)

### **Registration & Professional Membership:**

- NSW Medical Board – general registration.
- Australian Medical Association
- American Academy of Orthopaedic Surgeons (associate member)
- Arthroplasty (Joint Replacement) Society of Australia
- Medical Advisory Committee Forster Private Hospital
- Chairman of the Medical Advisory Committee Mayo Private Hospital
- Australian Orthopaedic Association
- Royal Australasian College of Surgeons
- Asia Pacific Orthopaedic Association (Life Member)
- International Society of Arthroscopy, Knee Surgery and Sports Medicine
- Sports Medicine Australia

### **Sub-Specialty:**

I am an Orthopaedic Surgeon specialising in sporting knee injuries and surgery of the hip and knee. I am involved in Educational Programs where other surgeons observe me doing the Direct Anterior Approach (DAA) of the hip and Patient Specific Instrumentation of the knee at both Mayo and Forster Hospitals so they can better understand and learn these techniques.



### **Procedures performed:**

- Hip Replacement using a Direct Anterior Approach (DAA)
- Revision Hip Replacement
- Treatment of Impingement (Pincer/ Cam deformity) of the hip
- Knee arthroscopy
- Anterior Cruciate Ligament (ACL) Reconstruction
- Knee Replacement using *Custom Navigation Guides*
- Unicompartement Replacement
- Revision Knee Replacement



### **I have consulting rooms at:**

- 10-12 South Street Forster      Ph: 65500705      Fax: 65500706
- 2 Potoroo Drive Taree.      Ph: 65500705      Fax: 65500706



### **Hospital Visiting Rights:**

- Forster Private Hospital
- Mayo Private Hospital.

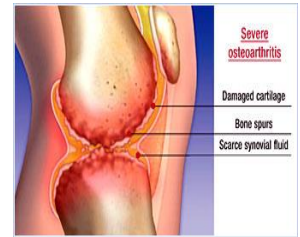
### **Other Interests:**

- Surf Lifesaving - Blackhead Surf Lifesaving Club
- Spending time with family on our small farm



## Knee Arthritis

Osteoarthritis is the most common type of knee arthritis. Knee arthritis does tend to run in families. It may also develop after trauma or childhood knee problems. The pain is often in the thigh and side of the knee and radiates to the shin bone. Other symptoms are stiffness and limping. The affected leg may feel crooked. The symptoms of knee arthritis may come and go and will often change with the weather.



## Non-Operative Treatment

Treatment of knee arthritis should start with simple measures such as, the use of a walking stick, knee strengthening exercises and weight loss. Your family doctor may feel joint supplements such as Glucosamine and Chondroitin may be suitable for you, as well as prescription arthritis tablets called non-steroidal anti-inflammatory medication (NSAID's).



## Total Knee Replacement

Total knee replacement is performed when the above non-operating measures fail to relieve the pain. By the time you decide to have the surgery performed the pain is usually occurring frequently, interfering with your day to day activities and reducing your quality of life. Occasionally, total knee replacements are performed to correct other problems such as stiffness, deformity or instability of the knee.



A successful total knee replacement (which occurs in 95% of patients) provides pain relief and restores mobility, allowing the knee to move freely. Your new knee will be stable and allow activities such as swimming, cycling and walking and sports such as fishing, bowls, golf and tennis to be played. I believe the bearing surface that we presently use with ceramic and polyethylene will last for the rest of your life.



## Before you are admitted to hospital

### General Health:

The majority of infections that complicate knee replacement surgery involve bacteria which come from the patient's own skin. To reduce this bacteria we ask you to shower with a phisoHex soap for 2 days prior to your surgery.

Smoking increases your risk of infection and slows wound healing, you should make every effort to stop smoking.



### Home Environment:

Consider the following issues to make your return home safer:

- Remove hazards such as cords/rugs which may cause you to trip
- Wear rubber soled shoes to prevent slipping
- Arranging to live on one level if you live in a two-storey house
- Stock up on essential items prior to surgery
- Get help with meals and daily activities around the home
- Ensure you have someone staying with you for the first week.





## *What happens on admission to hospital?*

- It's important you bring your knee x-rays to the hospital.
- Your tests and other assessments are done prior to your admission so your admission is quite simple.
- Most patients are admitted on the day of surgery. Please phone the hospital the day prior to your surgery (3-4pm) to obtain your fasting instructions (when to stop eating and drinking) and your admission time. Any concerns call the Mayo Private Hospital 65393600 and Forster Private Hospital 65551333.
- To reduce the chance of a post-operative infection, you will be asked to shower again with a special liquid soap on admission.
- Your regular medications can be taken with a sip of water on the morning of surgery.
- You will be asked to mark the leg being operated on with a felt pen and the nurse will prepare your knee with an aseptic iodine solution and clip the hair if necessary.
- When admitted to theatre the anaesthetist will discuss with you the benefit of a spinal anaesthetic which we use for all patients. It is not necessary for you to stay awake during the procedure if you do not wish to.



## *How is the knee replaced?*

The surgery involves replacing the worn surfaces of the knee joint with artificial ones. To do this a 15 cm incision is made at the front of the knee to allow access to the joint. The soft tissue on the inside of the knee is cut and the kneecap (patella) is pushed to one side. The arthritic bottom end of the thigh bone (femur) and the top end of the shin bone (tibia) are cut away and the surfaces reshaped to accept the artificial components. The patella is not usually replaced.



The new femur is made from highly polished Chrome Cobalt and the new tibial component made from a titanium alloy.

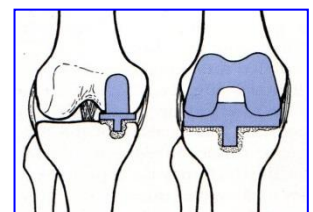
The components are fixed to the bone using bone cement which contains antibiotics.

Between these components a plastic (polyethylene) spacer of varying height is inserted. The knee is checked for alignment and stability. The incision is closed with dissolvable sutures. A small tube is inserted to inject local anaesthetic. The procedure takes about ninety minutes to complete.



## *What is a half knee replacement?*

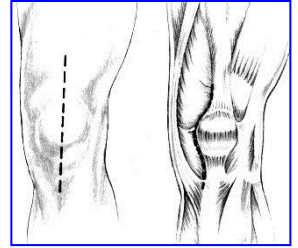
A half knee replacement (unicompartment arthroplasty or hemiarthroplasty) is where only half the knee, usually the inside half, is replaced. In a total knee replacement both sides of the knee are replaced. A half knee replacement should only be performed if your arthritis is limited to half your knee and all the knee ligaments are intact.



## *What is the advantage of a smaller incision?*

We are now able to replace the knee using a much smaller incision. This:

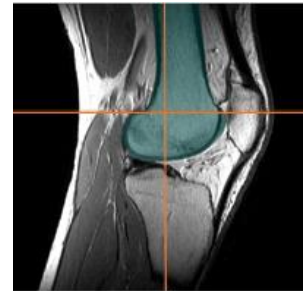
- Results in less soft tissue damage
- Reduces post-operative pain
- Allows you to maintain your muscle strength
- Makes it easier to transfer in and out of a chair or bed
- Allows you to mobilise with minimal restriction
- Allows a more rapid return to your normal lifestyle



## *What is Custom Made Instrumentation?*

We now have the technology through the use of long-leg x-rays and with MRI of the knee to create instruments which are designed specifically for each individual patient's knee. The benefits are:

- It allows a smaller incision
- It makes the cuts to the bone more precise
- Reduces number of surgical steps required
- Allows less soft tissue damage
- Reduces operative time
- Prevents the need for a large drill to be inserted through the femur



## *What happens in Recovery?*

- After surgery you will be taken to the recovery room on your ward bed
- You will be given oxygen to breath
- Leads will be placed on your chest to check your heart
- An intravenous line (drip) in your arm will give you fluid
- There will be a dressing over the incision
- A small tube is placed near the incision for local anaesthetic
- When awake and stable you will be moved to your room



## *What happens on the ward?*

Once your spinal anaesthetic has worn off you will be helped to get out of bed, walk for a few steps and sit out of bed for a while. In the days following your surgery the nursing and physiotherapy staff will help you perform your normal day to day activities. The physiotherapist will show you how to use a frame and walking sticks. With the nurses/physiotherapists help you will be able to meet the following goals:

- Able to lift your leg in and out of bed (using a small device)
- Independent in walking with a walking frame
- Independent in using crutches or sticks on a level surface
- Independent in walking up and down stairs
- Able to get in and out of a chair
- Independent in your home exercise program
- Independent in going to the bathroom.



## *What happens on the ward (continued)?*

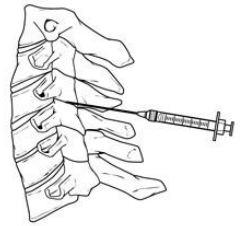
The day after your operation an x-ray of your knee will be taken to check the prosthesis. Blood tests will be performed to assess if a blood transfusion is required (only 5% of patients) and that your blood biochemistry is normal. The physiotherapist and the nurses will gently increase your activity level each day. You will spend more time out of bed, walking and resting in a reclining chair. You will be able to start hydrotherapy soon after surgery.



An ultrasound of your legs will be performed prior to discharge to make sure you do not have a blood clot in the veins of your legs.

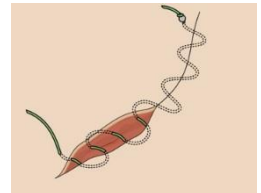
## *Pain Management*

Dr Lawrie Kohan and his anaesthetist Dr Dennis Kerr have revolutionised pain management after joint replacement surgery and we follow their protocols closely. This involves 5 techniques.

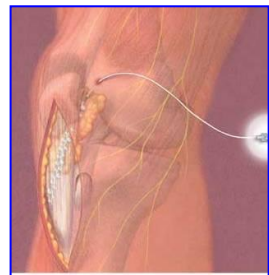


1. You will be strongly encouraged to have your surgery using a spinal anaesthetic (you can still go to sleep) so that when you wake up from the surgery your knee will be numb

2. At the end of the surgery and prior to closing the skin we inject local anaesthetic and anti-inflammatory medication all around your knee. This is re-done through a small tube at 6 hours and the following morning as the tube is withdrawn from your knee; meaning that the knee is numbed for the first 24-36 hours



3. We give you paracetamol through the veins for the first 24-36 hours then orally. Anti-inflammatory medication is also provided



4. We use Norspan drug patches that slowly give you pain relief over the following weeks. You will also be given the same medication in tablet form if required



5. Morphine injections are written up if you have severe pain.

By using these first 4 measures morphine is rarely required. We try to avoid morphine either as an injection or in a PCA pump as it makes most people sick.

Other medications we provide to patients after knee replacement surgery are:

- Aspirin as a blood thinner to help prevent a clot in your leg
- Antibiotics to help prevent an infection
- A tablet under the tongue if you are feeling nauseous
- Sleeping tablets (if necessary)
- Your regular medication; please let us know if we leave any out.

## *When can I go home?*

Once you can do all the things you need to do at home and your pain is under control you can be discharged. There is no set time but most people go home from 4 to 5 days. Elderly patients and those living alone may need a longer admission and are transferred to the rehabilitation ward of the hospital.



## *What happens after I go home?*

Your dressing over the incision will be changed prior to discharge and you can get this dressing wet in the shower and the pool. It is important to make sure it is clean and dry after it gets wet. If the incision oozes at all, contact the hospital to have the dressing changed. The sutures will dissolve and do not require removal.



It is likely you will still require pain medication for several weeks after your surgery. The pain is often worse at night and you may also require a sleeping tablet for a short period. Ask for these scripts before you leave hospital. Continue to take the vitamin supplement for two-weeks after you leave hospital.



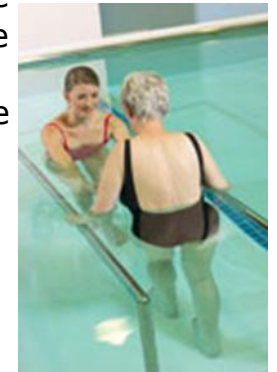
It is important to remember that you have undergone major surgery and that you should take things easy for several weeks. This includes help at home for at least part of each day.

It is also important to continue with your exercise program after you leave hospital. The physiotherapist will discuss with you the **Rehabilitation Day Program** and organise this prior to your discharge. The physiotherapist will maximise the movement and strength of your knee. Remember that it hasn't been working properly for many months but should continue to improve for 12 months if you follow the appropriate exercise regime. Your knee may feel warm and uncomfortable for several weeks. This is normal. Ice packs can be used after exercise to reduce the swelling and pain. The use of heat packs is **not** advisable in the recovery period.



It is best to avoid the following until your first post-operative appointment:

- Any activity involving stop-start, twisting or impact stresses
- Sitting on low surfaces such as chairs, toilets or baths
- Excessive bending such as climbing steep stairs
- Lifting or pushing heavy objects
- Kneeling; or
- Driving a car for 6 weeks (recommended by the RTA).



## *What should I be concerned about at home*

### **If:**

- You run out of pain medication
- There is undue pain
- You experience pain in the calf or back of the thigh
- You become breathless
- You develop a fever
- You are unable to cope at home
- If you are concerned in any way



### **Then:**

**Don't hesitate to contact me by calling my secretaries on 65500705. If out of office hours phone the hospital where your surgery was performed and they will contact me.**

**Mayo Private Hospital: 65393600**  
**Forster Private Hospital: 65551333**



## *What risks are there and how do you reduce these?*

The majority, (95%) of total knee replacements, are performed without complication, resulting in a pain free knee which is stable and I believe will last for the rest of your life. Most patients find that it restores their normal level of knee function. Using the Custom Made Instruments our results continue to improve.



Whilst these measures improve your recovery, the surgery remains major surgery and complications can still occur. If the complication is serious enough your knee may feel worse after the surgery or further surgery may be required. Complications can occur regardless of who performs the surgery or where it is performed. The following is a list of possible complications and our efforts to reduce the risk of these occurring.

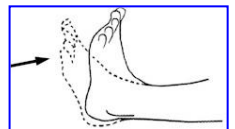
### *Blood Clots:*

Clots (deep venous thrombosis or DVT) can occur in the veins of the legs after surgery. Occasionally these clots travel to the lungs causing a clot in the lung (pulmonary embolus or PE). A pulmonary embolus has the potential to cause death. If you develop pain or swelling in your calf or find you suddenly become short of breath, please contact Dr White, the hospital or your local doctor immediately. Failing all three call an ambulance and go to Accident and Emergency. Better safe than sorry.



### *To reduce the risks of clots forming we:*

- Give aspirin to thin the blood
- Use special compression sleeves during and after the operation
- Educate you on calf muscle exercises to be performed after the surgery
- Help you to mobilise as quickly as possible after surgery



I arrange an ultrasound of your legs prior to discharge to exclude the presence of a clot.

**To avoid a clot it is best to become mobile as quickly as possible**

### *Loosening of the Prosthesis:*

We have expected 10-15 years of use from an artificial knee in the past but now we expect these to last even longer due to improved bearing surfaces. Occasionally, early loosening of the prosthesis can occur requiring another knee replacement before that time period.

### *We reduce the risk of this occurring by:*

- Reducing the chance of infection (see below)
- Using a femoral component which gives a very low wear rate
- Using cement to bond the prosthesis to the bone
- Use accelerated rehabilitation to mobilise you as quickly as possible

### *Infection:*

This is a very serious complication which occurs in approximately 1% of cases.

*We take measures to reduce this risk by:*

- Ensuring there is no infection present in your body at the time of the surgery
- Testing your skin to ensure resistant organisms are not present
- Showering you in antibacterial soap
- Preparing the limb with Betadine on the ward prior to surgery
- Giving antibiotics at the time of surgery
- The surgical staff using special self enclosed theatre gowns
- Promptly treating any infection that develops after the surgery;
- Ensuring you treat any infection anywhere else in your body immediately; you need to be mindful of this long term.



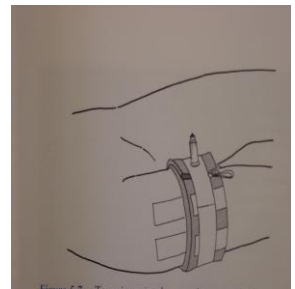
If an infection does occur then it is important to seek treatment immediately. It is often possible to save the prosthesis if treated early enough. If this is not possible, then it may be necessary to remove the prosthesis and give antibiotics through a drip for a six-week period. A new prosthesis can usually then be re-implanted.

### *Post-operative stiffness:*

In a small group of patients (1-2%) the knee remains quite stiff after the operation and further surgery may be required to resolve the stiffness.

We reduce the chance of stiffness by:

- Using a smaller incision and thereby less soft tissue destruction
- Mobilising the knee quickly
- Not using a tourniquet



### *Malposition:*

Despite the best intentions and effort it is possible for the prosthesis to be inserted at a slight angle or rotated. On very rare occasions surgery is needed to correct the problem.

### *General Health:*

Patients can develop problems such as a heart attack or stroke during or after an anaesthetic. This is often related to health problems present before the surgery. This is why we arrange a Specialist Physician review prior to the surgery to discover any potential problems and reduce the risk of these complications occurring.



### *Mental deterioration:*

This is very common after surgery and is mostly always temporary. It is more common in patients over the age of 75-years. This can be reduced by a full pre-operative assessment by a Specialist Physician which we arrange for you.



### *Metal Allergies:*

Allergy to metal, particularly nickel, can occur. The prostheses I use do not contain nickel. The materials we use are titanium, Chrome Cobalt and polyethylene and these will not cause an allergy.



## Frequently asked questions:

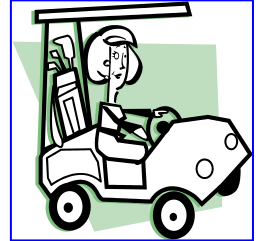
### When can I drive?

The Roads and Traffic Authority state you must not drive for 6-weeks after your surgery.



### When can I play golf?

As soon as you can comfortably hit the ball and manage the course. It is best to practice putting and chipping first and work your way up to driving. A cart is a good idea for the first few rounds.



### Why do you use this particular prosthesis?

- It has a low wear rate;
- It uses cement to bond the bone to the prosthesis;
- It uses a medial pivot design like the normal knee;
- It can be easily inserted using a small incision technique.



### Why don't you use compression stockings?

There is now good evidence to show they are not as effective as first thought; particularly when you are up and walking around. They may actually increase the chance of developing a clot if they roll down and act like a tourniquet.



### When do I leave hospital?

When you are independent and can care for yourself. We frequently use home nursing and home help to make it easier when you go home. Ask our Occupational therapist about this at your pre-operative appointment.

### When are the stitches removed?

These dissolve and do not require removal.

### Will the surgery correct my limp?

Yes, if you're limp is due to pain and stiffness of the knee.



### Am I suitable for custom made Instrumentation?

Almost all patients are suitable if it is the first replacement of that knee. Discuss this with me.

### How much will I be out of pocket for the operation?

Dr White, the Anaesthetist and the Assistant Surgeon are all covered by Veteran Affairs and most of the 'No-gap' Health Fund schemes. The prosthesis used by Dr White is fully covered by Veteran Affairs and all health fund schemes. Please check with your health fund to ensure you have appropriate cover.

**The item number for the procedure is 49518 or 49519 (both knees).**





## *Frequently Asked Questions (continued)*

### **How long do I need to stay in hospital?**

I take into consideration a patient's age, general health, whether you have help at home, if your home has a lot of steps etc. Generally though between 4-5 days. If necessary I can arrange admission to the rehabilitation ward.



### **How often does Dr White visit me in hospital?**

I operate at Mayo Theatre each Tuesday and in Forster Theatre each Wednesday so I generally see my patients at least every second day but I keep in close contact with each hospital daily.



### **Do I need Hydrotherapy?**

I recommend hydrotherapy as there is good evidence it aids in a quicker recovery. If you are not comfortable with hydrotherapy we will get you to do all the exercises on land.



### **Do I need Physiotherapy?**

Yes. Physiotherapy is an important part of your rehabilitation. The Physiotherapist will provide you with your exercise protocol and show you how to perform the exercises appropriately. Most patients use the **Rehabilitation Day Program** - discuss this with your therapist.



### **If I need Home Nursing or Home Care who arranges this?**

The need for this will be discussed when you see the Occupational Therapist pre-operatively.



### **If I run out of pain medication who will provide my scripts?**

We will ensure you have enough pain medication when you leave hospital until you return to see me for your first post-operative appointment (usually three weeks). Should you require further pain medication past this point it is advisable to obtain this from your General Practitioner so as not to interfere with any other medications you may be taking.



### **How often do I need to see Dr White after I go home from hospital?**

I usually see my patients after a joint replacement at 1-month, 3-months & 18-months. As a member of the Arthroplasty Society of Australia I follow its guidelines to review patients every three years. I will send you a recall letter at these stages.



### **When can I return to my normal sex life and are there certain positions I should avoid?**

Everyone is different but I suggest when you feel comfortable and confident. It is sensible to take a more passive role in the first few months.

### **How long does my referral last for Dr White?**

It is mandatory that you have a referral to see a Specialist. Most referrals will last for 12-months. Therefore you will need to obtain a new referral when you return to see me for your 12-month review.

### **Should I have a knee replacement?**

It is important to understand a total knee replacement is an elective operation. Whilst we can advise and recommend options, the final decision must be yours. You and your family must weigh the expected benefits of the operation against the possible risks. At no time should you feel pressured into undergoing surgery. **The final decision is yours.**



### *Questions:*

Please use the space below to write down any questions you have that are not covered in this booklet. Bring this booklet with you to your next appointment. I am happy for a family member or friend to attend so we can discuss your questions together. It is important you are sure that surgery is the right decision for you.



## Pre-operative Appointments:

The process of having your knee replaced is very much a team effort. My secretaries will arrange times for the different appointments and tests required (see below). They are also available for you to phone or visit should you have any concerns before and after surgery and are in direct communication with me each day.



**Date of Surgery:** \_\_\_\_\_

**Hospital:** \_\_\_\_\_

## Baseline Blood Test:

A baseline blood test is performed to ensure there is no underlying abnormality which may compromise your result from the surgery.



DOUGLASS  
HANLY MOIR  
PATHOLOGY



## Pre-Admission Sister

Donna: (65500705)  
Surgery @ Mayo Private Hospital  
Mayo Private Hospital

Marion: (65551333)  
Surgery @ Forster Private Hospital  
Forster Private Hospital

The hospitals hold clinics prior to your surgery to simplify the admission process. The theatre papers we give you can be taken to the hospital when you see the pre-admission sister; please fill these out and take to Reception 15-minutes prior to this appointment.

The pre-admission sisters are senior nurses who will:

- Orientate you to the hospital ward
- Explain what you will need to bring during your hospital stay
- Explain which medication to avoid leading up to your surgery
- Discuss the different forms of pain relief available
- Make arrangements for your return home after surgery
- Discuss any special requirements you may have.

## Physiotherapy /Occupational Therapy:

Peter Cisio: (65510055)  
Surgery @ Mayo Private Hospital  
Beside Dr White's Rooms

Forster Private Hospital is done as  
part of Pre-admission as a Group  
Session

Details of Physiotherapy 'Day Program' will be outlined as well as the use of the Hydrotherapy Pool. This is an important part of your rehabilitation program and I strongly recommend your participation to return you to normal activities as soon as possible. The Occupational Therapist will discuss your discharge and whether you will require any aids such as rails or toilet chairs etc.

## *Specialist Physician:*

Dr Peter Braude: 65523162  
19 York Street TAREE  
Surgery @ Mayo Private Hospital

Dr Peter Braude: 65523162  
10-12 South Street FORSTER  
Surgery at Forster Private Hospital



The baseline blood test and chest x-rays (only required if you are over 70-years or have a respiratory problem) are sent to the Specialist Physician to ensure there are no underlying health problems which could increase the risk of post-operative complications. He will examine you thoroughly and assess all the investigations then send the results of his assessment to me, your GP and hospital. If there are any concerns he will advise me immediately.]

## *Dr White - Pre-Operative Review:*

I like to see my patients just prior to admission to further explain the surgery. At this appointment you are able to discuss any questions you may have prior to your surgery (Questions Box previous pages).



## *Group & Hold Bloods:*

Surgery @ Mayo Private Hospital  
(Back of Dr White's Rooms)

Surgery @ Forster Private Hospital  
(In Dr White's Rooms – Forster)



Group and hold of your blood is performed should you require a blood transfusion.

## *Post-Operative Baseline Blood Test:*



This is to ensure your blood levels return to normal after your surgery.

## *Dr White - Post-Operative Review:*

I will see you regularly whilst in hospital. I will also see you 4 weeks after your surgery in my consulting rooms to ensure you are recovering appropriately. At this appointment the need for further review will be assessed and the appointments made accordingly.