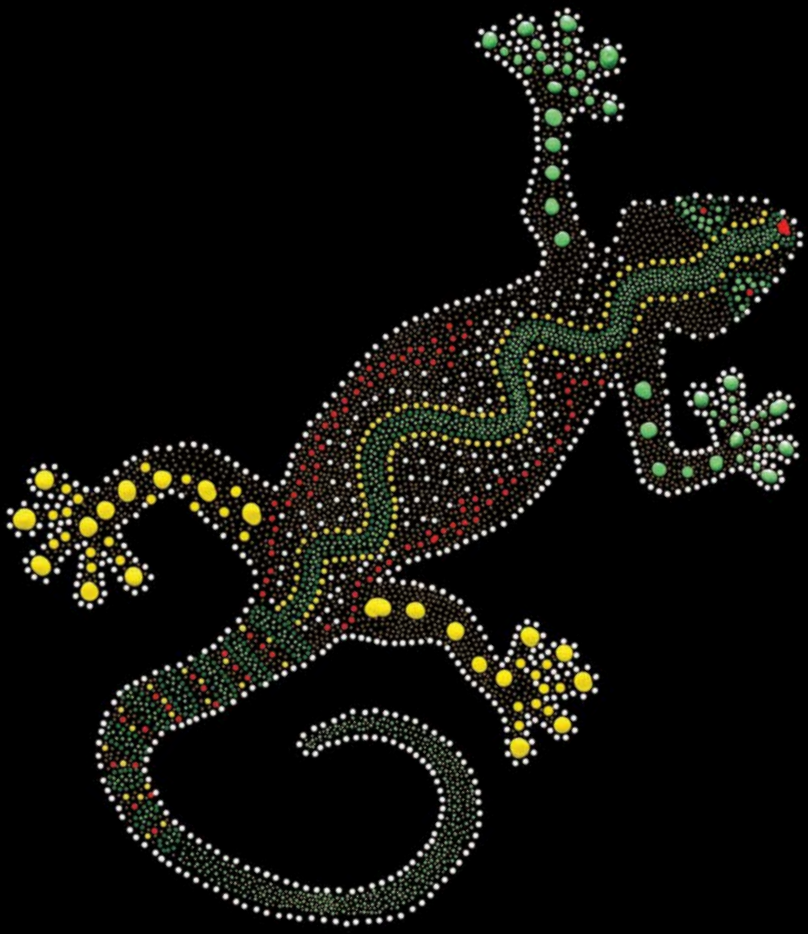
Health
Hunter New England
Local Health District

Intensive Care Treatment Program

Information for Patients and their Carers



Contents

Purpose of booklet:

Intensive Care Units (ICUs) are a specialty area of the hospital where we care for the sickest patients. We understand that visiting the ICU can be overwhelming and confusing.

We have developed this book to help you better understand the care we provide in ICU.

The ICU Team is here to help you, we encourage you to ask questions or raise concerns at any time.

Hunter New England Local Health District (HNE Health) respectfully acknowledges Aboriginal people as the traditional owners and custodians of the land in which our health facilities are located.

We pay respect to the Elders, community members and the community-controlled sector who partner with us to improve health outcomes for Aboriginal and Torres Strait Islander people in our District.

Our Intensive Care Service

The Intensive Care Services (ICUs) provide critical care to patients. The ICU team includes:

- Doctors
- Nurses
- Physiotherapists
- Pharmacists
- Dieticians
- Speech pathologists
- Social workers
- Interpreters
- Support staff
- Chaplains

There are a number of ICUs in Hunter New England Local Health District. They vary in size and in the type of patients they treat. There may be times when it is necessary to transfer patients between ICUs to ensure they get the care they need.

Visiting Times

We usually allow visitors as soon as possible. This will depend on the patient's condition and needs when they arrive.

We recommend that only immediate family visit. We allow two visitors at a time. This helps us continue to provide the best possible care while visitors are present. Please feel free to talk to the staff about visiting arrangements.

A stay in ICU can be stressful for loved ones. It's important to remember to look after yourself. Resting and eating a healthy diet can help.

Communications

Mobile Phones and Technology

During your time in ICU we understand the need to maintain contact with family and friends. We ask that mobile phones only be used in areas outside of the ICU bed space. Talking on mobile phones inside the ICU can be distracting for staff and people naturally speak louder which can be unsettling for patients and those around.

We do encourage the use of journals to document the patient's time in ICU. When they wake they can be disorientated and upset by their "lost time". A journal provided by loved ones can be beneficial after they leave ICU.

The NSW Ministry of Health privacy policy prohibits the recording of videos or taking photos of patients in public hospitals who cannot consent to their photograph being taken. In ICU this is the majority of patients and therefore we ask you do not take photos or recordings at the bed space.

Communication

This information is for family, **“person responsible”** or **“substitute decision makers”**. When a patient is not able to give consent, staff will discuss management, treatment and likely procedures (Intensive Care Treatment Program) with you at the earliest opportunity. They will also provide family with ongoing updates and information to allow treatment decisions to be made.

The family / person responsible / substitute decision maker will have the opportunity to ask questions about treatment options. They will be involved in decision making during the ICU stay.

For further information on **“person responsible”** please refer to page 33.

Consent

This booklet provides information on procedures provided in intensive care. If you have questions or concerns about the treatments please discuss them with the staff in ICU. Should there be a change in condition of the patient, the ICU staff will discuss this with you.

There are some treatments described in the booklet that require you to sign a consent form prior to the procedure. If any of these procedures are required, the ICU staff will discuss them with you and you will have the opportunity to ask questions prior to giving consent for the procedure.

There may be times when ICU staff need to provide emergency care. When this occurs, the staff will discuss this with you as soon as possible.

Procedures and Treatments in ICU

All medical procedures that involve inserting a medical device into the body can cause complications.

Complications may happen at the time of insertion, or after the device has been in place for some time.

Complications can include:

- bleeding
- wrong place (malposition)
- infection
- discomfort
- a hole or damage to adjacent parts of the body (perforation)

We take all possible precautions to minimise these risks.

We only do procedures when the expected benefits outweigh the risks of the procedure.

Experienced staff supervise all procedures and we watch patients closely for any signs of complications – both during insertion and throughout the time that the device is in place.

The following pages list common procedures that may be done during an ICU stay. Potential problems are explained.

Arterial Line

Also known as:

- Art Line
- Intra-Arterial Catheter

What is an Arterial Line?

An arterial line is a thin plastic tube inserted into an artery to continuously measure the blood pressure. Regular blood tests can be taken from it to measure the levels of oxygen, carbon dioxide and acid within the blood.

How is it put in?

Using local anaesthetic, the doctor inserts a needle and then the art line into the artery. The needle is removed. It is secured in place with a stitch. Although usually placed in the wrist, an art line may be positioned at the elbow, groin or foot. They commonly stay in place for several weeks. You may notice the fluid within the art line pulsating slightly.

This is normal and is due to pulsations within the artery.

Are there any risks?

Art lines are generally very safe, although they may occasionally require multiple attempts for insertion. They may damage the artery or cause clots to form in the artery; either of these can temporarily impair blood supply. Very rarely, this lack of blood supply may cause the death of downstream tissue.

Intra-Aortic Balloon Pump

Also known as:

- Balloon Pump
- IABP

What is an Intra-Aortic Balloon Pump?

A balloon pump is a long inflatable tube positioned in the aorta, the main blood vessel which runs from the heart. It beats in time with the heart and assists the pumping of blood to the rest of the body. It also helps supply additional blood and oxygen to the heart itself.

How is it put in?

A doctor inserts the balloon via a blood vessel in the groin. It is attached to a console which sits at the end of the bed. Helium gas is used to inflate the balloon in time with the heart.

Are there any risks?

A balloon pump may damage the aorta or the vessel into which it was inserted or impair blood supply to other parts of the body such as the leg or intestines. There is also a small risk of blood clot formation and gas leakage. A balloon pump is only used when absolutely necessary and is constantly monitored for complications.

NIV (Non-Invasive Ventilation)

Also known as:

- Non-invasive ventilation
- NIV
- BiPAP

Related similar therapy is Continuous Positive Airway Pressure (CPAP)

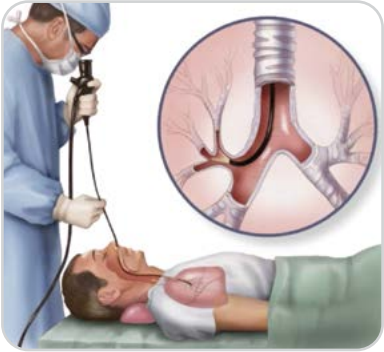
What is NIV and why is it used?

When patients cannot breathe adequately, special machines, using a tight fitting face mask can be used to provide additional oxygen and assistance with breathing. This may reduce the need to insert a breathing tube.

Are there any risks?

The most common problem with NIV or BiPAP is that some patients find it too uncomfortable and cannot tolerate it. The mask can cause pressure areas on the face. There is a risk of chest infection. Despite using NIV some patients deteriorate and need to have a breathing tube and be put on a breathing machine. Patients are closely monitored for complications or any signs of deterioration.

Bronchoscopy



Also known as:

A Bronch

What is a Bronchoscopy?

A bronchoscopy is when a large tube is placed down a patient's throat into the lungs to remove secretions that might block the tube. A bronchoscopy can also be used to help in the placement of other tubes, including a tracheostomy tube, or to take a biopsy of the lung.

How is it put in?

A bronchoscopy is performed by using a flexible tube with a light to look via the breathing tube into special areas of the lungs. Sedation is required to perform this procedure.

Are there any risks?

A bronchoscopy may cause a deterioration in a patient's oxygen level or a small amount of bleeding in the airways. If a biopsy is taken there is a small risk of damage to the lung. A bronchoscopy may cause infection in the lung.

There is a small risk of side effects to the medications used for sedation during the procedure. **You will be asked to sign a consent form.**

CVC (Central Venous Catheter)
PICC (Peripherally Inserted Central line)

Photo: www.aci.health.nsw.gov.au

Also known as:

- Central Line
- PICC

What is a CVC or PICC?

A CVC line is a small catheter that is inserted into large veins in the neck, chest or groin. A PICC is inserted in the arm. Both provide monitoring and permit administration of potent medications to support blood pressure and heart function.

How is it put in?

Under sterile conditions a medical officer inserts it into a large vein in the neck, beneath the collar bone, or into the groin.

Are there any risks?

It can take more than one attempt to insert the catheter. The most common significant complication of CVCs is infection. During insertion, there is a risk of the needle damaging other structures such as arteries or nerves, and CVCs inserted in the neck or under the collar bone may occasionally puncture the lung.

Dialysis

Also known as:

- Haemodialysis
- CRRT
- Filter
- Haemofiltration
- Continuous Veno-Venous Haemofiltration
- Kidney Machine

What is Dialysis?

Dialysis is required when there is kidney failure or abnormal levels of acid and salts within the blood. It is occasionally used to treat drug overdoses.

How is it put in?

A medical officer inserts a catheter called a vascath into a large vein in the neck or groin. Blood circulates through the artificial kidney (dialysis) machine, toxins are removed and the blood is then returned to the body. As patients recover, the kidney function often improves and the dialysis can be stopped.

Are there any risks?

A patient's blood pressure may drop temporarily when dialysis is started. The dialysis machine may also reduce the levels of some blood cells. It may also lead to a reduction in the body temperature. The blood usually needs to be thinned to allow successful dialysis, this too carries risk.

ECMO (Extra Corporeal Membrane Oxygenation)

Also known as:

- Extra Corporeal Membrane Oxygenation
- Extra Corporeal Life Support or ECLS

(Extra corporeal refers to “outside the body”)

What is ECMO?

ECMO is used for the sickest of Intensive Care patients when the heart and / or lungs are failing to respond to other treatments.

Blood is drawn out of the body and into a special machine (ECMO machine) where oxygen is added to it. The blood is then returned either into an artery or a vein. This supports the patient’s heart and / or lungs to recover.

How is it put in?

Under sterile conditions a doctor inserts tubing into blood vessels in the neck, the groin or directly into the blood vessels near the heart.

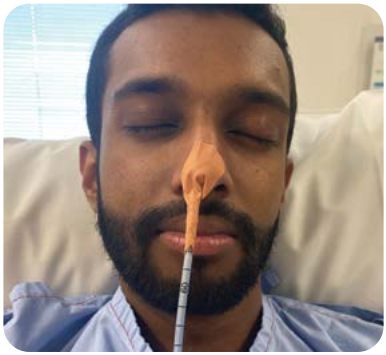
Are there any risks?

Where ECMO tubing is inserted there is a risk of:

- damage to blood vessels,
- Impaired blood and nerve supply to the legs, development of blood clots.
- Bleeding to other sites of body due to thinning of the blood.

You will be asked to sign a consent form.

Enteral Feeding



Also known as:

- Nasogastric or NG Feeding
- Orogastric or OG Feeding
- Tube feeding

What is Enteral Feeding?

A liquid form of nutrition which is passed into the patient's stomach via a plastic tube.

Patients on breathing machines (or being ventilated) are not able to eat food the normal way.

Necessary to reduce stomach contents or give nutrition or medications

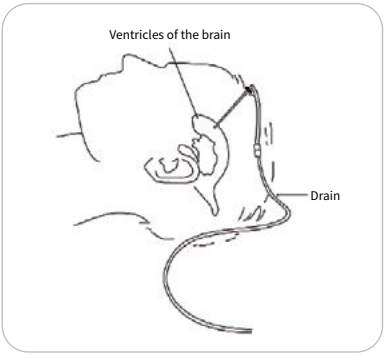
How is it put in?

A flexible plastic tube is inserted into the patient's nose (NG Tube), or mouth (OG Tube) and secured in place by tape.

Are there any risks?

- NG Tubes may lead to sinus infection.
- Possibility of incorrect tube placement.
- May increase risk of vomiting, diarrhoea and pneumonia (whilst on ventilator).
- Inability to absorb enteral feeds.

EVD (External Ventricular Drain)



Also known as:

- External Ventricular Drain
- Intra-Cranial Pressure (ICP) Monitor
- Codman Catheter - Similar and related devices

Image: www.health.qld.gov.au

What is an EVD?

Used in patients with severe head injury, brain haemorrhage or after neurosurgery. The EVD is placed in the patient's head to measure the pressure within the brain and to sample and drain spinal fluid (cerebro-spinal fluid or CSF).

How is it put in?

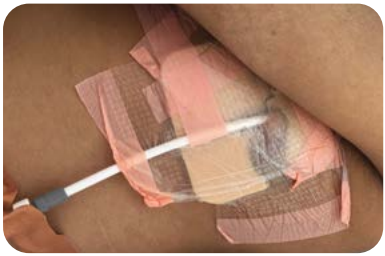
The EVD is inserted under strict sterile conditions by a neurosurgeon in the operating theatre.

Are there any risks?

- Risk of bleeding, or damage to the brain from the EVD / Codman
- Risk of infection developing within the fluid around the brain
- EVD may become blocked or dislodged

You will be asked to sign a consent form.

ICC (Intercostal Catheter)



Also known as:

- Intercostal Catheter
- Chest Drain, Chest Tube
- Pleural Drain
- Mediastinal/Pericardial Drain

What is an ICC?

Patients who have had chest or heart surgery, or trauma may need a chest tube (ICC) inserted through the chest wall to drain fluid or air from around the lung or heart. An ICC may also be required to drain collections of fluid from the chest in other circumstances (such as pneumonia).

How is it put in?

Every ICC is inserted under strict sterile conditions by a doctor. It may be inserted while the patient is in the emergency department, operating theatre or intensive care unit. It is stitched in place underneath the armpit or at the base of the breastbone. The ICC is connected to a drainage bottle or collection system positioned at the side of the bed. You may see fluid in the tubing swinging or bubbling.

Are there any risks?

An ICC may cause damage to the lung or other parts of the body during insertion. Chest X-rays are done after insertion to check that they are in an appropriate position. The ICC can cause pain, and may occasionally become blocked. The ICC and the patient are constantly monitored for complications. They are removed when they are no longer necessary.

Cardiac Medications

Also known as:

- Vasopressors
- Vasoconstrictors
- Vasoactive drugs
- Inotropes

What is a Cardiac Medication?

Cardiac medications are drugs given to increase the blood pressure and support the function of the heart. Different types of medications (e.g. adrenaline, noradrenaline, milrinone) are used in various situations. Cardiac drugs are commonly used in the ICU.

How is it put in?

They are given via a CVC (see CVC) into a large vein.

Are there any risks?

Different cardiac medications have different effects and side effects. In high doses some may impair blood supply to fingers or toes. Other inotropes may cause irregular heart rhythms or increase the level of acid or sugar in the blood. They may cause the blood pressure to rise too high.

Intravenous Cannula

Also known as:

- IVC
- IV cannula
- drip

What is an Intravenous Cannula and why are they used?

An intravenous cannula is a small, soft piece of hollow tubing which is inserted into a vein, usually in the back of the hand or the arms, which is then used to administer medications and fluids in the veins. They are used as an alternative to CVC (see page on CVC).

Are there any risks?

Intravenous cannulas can take several attempts to insert. The main risk is infection, and they are routinely changed every few days to prevent this. They can cause inflammation or blood clots to form in the vein in which they are inserted. There may be bleeding when they are removed.

Intubation

Also known as:

- Insertion of a breathing tube
- Endo tracheal tube
- ET tube
- ETT

Photo: ACI Intensive Care NSW

What is Intubation and how is it done?

If the patient can no longer breathe sufficiently for themselves the placement of a breathing tube into the trachea (windpipe) is necessary. Once the tube is confirmed to be in the windpipe it is held with a special holding device. The tube is then connected to a breathing machine (ventilator) which provides assistance with breathing and additional oxygen.

The patient will be anaesthetised before this is done and kept comfortable after. The tube may stay in place for several days to several weeks, occasionally longer. If a patient requires ventilator support for a long period of time we usually perform a tracheostomy.

Are there any risks?

- The ETT may occasionally damage the trachea, vocal cords, mouth and teeth.
- There may be a reaction to the drugs used for the general anaesthetic.
- It may be malposition into the oesophagus.
- There is a risk of chest infection whilst a patient is intubated.
- The ETT may be accidentally dislodged.
- During intubation there may be reduced oxygen to the body.
- We have clear protocols and guidelines for intubation, the latest equipment and regular training to minimise the risks.

Ventilator

Also known as:

- Respirator
- Breathing machine
- Invasive ventilation
- Life support

What is a Ventilator and why is it used?

When patients cannot breathe adequately, they may need to be attached to a ventilator (via an ETT or tracheostomy). The ventilator provides additional oxygen and assistance with breathing.

Patients on ventilators via an ETT often require sedation. When a patient no longer needs ventilator support it is weaned and the ETT removed. If a patient requires ventilator support for a long period of time we usually perform a tracheostomy.

Are there any risks?

Patients who are on a ventilator are at risk of damage to the lung and infection. The risk of chest infection and pneumonia (although small) increases with the amount of time spent on a ventilator. Patients are constantly monitored for complications.

Lumbar Puncture

Also known as:

- LP
- spinal tap

What is a Lumbar Puncture?

An LP is performed to sample the fluid from around the spinal cord and brain. Under sterile conditions a doctor inserts a small needle through the lower part of the back and draws off a small amount of fluid. An LP may be done to measure the pressure inside the spine and brain or to check for conditions such as meningitis.

How is it put in?

A fine needle is inserted into the space between the spine and a sample of fluid the surrounds the spinal cord is taken for examination.

Are there any risks?

Occasionally an LP may cause a headache after the procedure. There is also a very small risk of damage to the spinal cord and brain from an LP, either directly or because of bleeding or infection at the site of the LP.

Swan Ganz Catheter

Also known as:

- Swan Ganz catheter
- Pulmonary artery catheter
- Swan

What is a Swan Ganz?

A Swan Ganz is used routinely during heart surgery and also when patients need large doses of medications to support the blood pressure and heart function. A Swan measures how well the heart is functioning and monitors pressures within the heart and lungs.

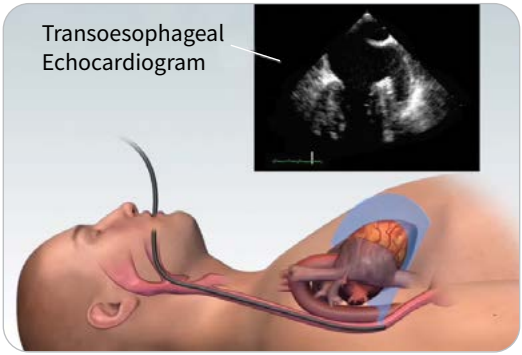
How is it put in?

A Swan Ganz is a thin piece of tubing inserted via a vein in the neck or just beneath the collar bone. Under sterile conditions a doctor inserts the Swan using a needle. The needle is removed when the Swan is in place. The tubing then passes through the heart chambers and into the main blood vessel in the lungs (the pulmonary artery).

Are there any risks?

A Swan can cause all of the complications mentioned under “CVC”. In addition, a Swan can cause irregularity of the heart rhythm, usually during insertion. Rarely, a Swan may damage the pulmonary artery or lung. Chest X-rays are routinely done to check the position of the catheter and to help avoid complications.

TOE (Transoesophageal Echocardiography)



Also known as:

- Transoesophageal Echocardiography

What is a TOE?

A test that uses sound waves to produce images of the heart. The test shows the size, shape and movement of your heart muscle and valves. It also looks at the large blood vessels around the heart

How is it put in?

A flexible tube with a camera on the end is placed in the mouth and passed down the throat into the oesophagus (your food pipe that connects the throat to the stomach). You will be asleep when this test is done.

Are there any risks?

There may be some discomfort during the procedure, passing the tube down can cause gagging. Your stomach should be empty before the test.

You will be asked to sign a consent form.

TPN (Total Parenteral Nutrition)

Also known as:

- Total Parenteral Nutrition
- PN (Parenteral Nutrition)

What is a TPN?

When your digestive tract is not working you still need nutrition. There might be various reasons why you cannot digest food in the normal way – you can discuss this with your medical team.

This is when you need TPN. TPN is a sterile solution containing the nutrients found in food. This is given straight into the blood stream instead of the stomach.

How is it put in?

TPN is given into the blood stream using a central line (CVC) or peripherally inserted central line (PICC)

Are there any risks?

- The CVC or PICC could become infected
- Accidental removal of the CVC or PICC can cause bleeding or air in the blood stream (embolus).

Tracheostomy

photo: www.aci.health.nsw.gov.au

Also known as:

- Trachy
- Tracheotomy
- Trache

What is a Tracheostomy?

A tracheostomy is performed for patients who:

- Are on a breathing machine for a long time (more than 10 days)
- Have problems swallowing correctly so that secretions such as saliva keep getting into their lungs (known as aspiration)

How is it put in?

A tracheostomy tube can be inserted in one of two ways under a general anaesthetic:

- In an operating theatre by a surgeon, or in ICU by an specifically trained ICU doctor.
- Short tube placed in a person's trachea (windpipe) through the neck.

Are there any risks?

- Risk of bleeding during the procedure
- Risk low oxygen levels and difficulty ventilating during the insertion
- Reactions to drugs used for the general anaesthetic
- May damage the trachea

You will be asked to sign a consent form

Blood Transfusion

Also known as:

- Transfusion

What is a Blood Transfusion?

You may need a transfusion if you have lost a large amount of blood or have a low red cell count. Your doctor will order a blood transfusion after careful consideration.

How is it put in?

A soft plastic tube called a cannula is inserted into a vein. The cannula is then connected to a long plastic tube called a “drip” or "IV”. The IV tubing is then connected to a filter and the bag of blood which is given into the vein.

Are there any risks?

Most reactions to blood are minor. There may be fever, itchiness or rashes. Some reactions could be shaking or feeling cold, feeling short of breath or wheezy. If this occurs the transfusion will stop and simple medications can relieve the symptoms.

Urinary Catheter

Also known as:

- In-Dwelling Catheter (IDC)
- Catheter

What is a Urinary Catheter?

It is a soft flexible tube that drains urine from the bladder continuously, removing the need for the patient to empty the bladder.
Essential for patients who are heavily sedated and important to measure function of the kidneys.

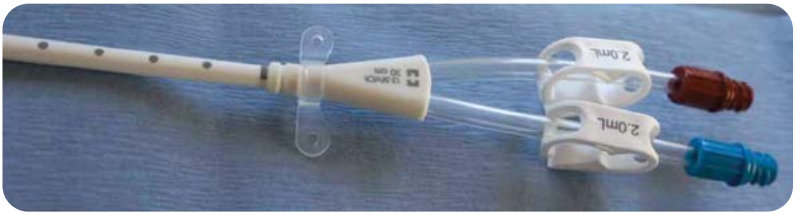
How is it put in?

A soft flexible tube is inserted into the bladder through the urethra. A small balloon at the tip of the catheter holds it in place within the bladder and it is connected to a drainage bag.

Are there any risks?

- Infection within the bladder
- Small risk of damaging the urethra when catheter is inserted which can lead to bleeding

Vascath



Also known as:

- Dialysis Catheter
- Dialysis Line
- Vascular Catheter

What is a Vascath?

A vascath is a plastic flexible tube inserted into a large central vein to treat kidney failure (see dialysis) or for plasmapheresis (the removal of certain proteins from the blood). Blood is removed via the catheter and washed in the kidney machine (dialysis) and then returned to the body.

How is it put in?

The flexible plastic tube is inserted using a needle into a central vein in the neck, beneath the collar bone or in the hip crease. It is similar to a CVC. Once inserted it will enable connection to a dialysis machine. The Vascath is left in place for up to several weeks.

Are there any risks?

During insertion there is risk of bleeding or the needle damaging other structures such as arteries or nerves. A Vascath in the neck or under the collar bone may also occasionally damage the lung. While the catheter is in place there is a risk of infection or accidental removal. The most common significant complications are infection and blockage.

Chest X- rays are done after insertion to check for any complications.

Faecal Management System

Also known as:

- Rectal Tube

What is a Faecal Management System?

The faecal Management system provides containment and diversion of liquid or semi liquid type faeces. It helps to keep the skin clean and dry, avoiding skin breakdown and potential pressure areas.

How is it put in?

The soft tube is inserted into the patient's rectum and a balloon on the end of the tube is inflated to keep the tube in position and prevent the faecal matter to leak around the tube. A sealed bag is attached to the tube to drain away any liquid stools.

Are there any risks?

Yes. The following may occur;

- Leakage of stool around the device
- Rectal bleeding
- Skin breakdown
- Infection
- Bowel obstruction
- Perforation of the bowel

Person Responsible:

The hospital will ask the "person responsible" to speak on the patient's behalf when:

- The patient is not able to understand the general nature and effect of their treatment or
- The patient is not able to indicate whether or not they consent to treatment.

The person responsible can be:

1. An appointed guardian (including enduring guardian)
2. A spouse or de facto spouse (including same sex partners) who have a close and continuing relationship with the person. If there is no one who fits this category:
3. The carer of a person who provides domestic services or care and who is unpaid. If no one fits this category:
4. A close friend or relative provided they are not receiving payment for any services provided.

Health practitioners must consult with the person highest on the list. Family meetings can still involve other family members or loved ones.

Are you **worried**

about a recent **change** in your **condition** or that of your loved one?

If yes... REACH out.

WHAT IS REACH ABOUT?

R You may recognise a worrying change in your condition or in the person you care for.

E 1 Engage (talk) with the nurse or doctor. Tell them your concerns.

A 2 Ask the nurse in charge for a "Clinical Review". This should occur within 30 minutes.

C 3 If you are still worried call REACH. You can use your bedside phone or ask for a ward phone.

H Call **REACH** on Help is on its way.

Speak to your nurse or doctor first. They may be able to help with your concerns.

R.E.A.C.H out to us

Because together we make a great team.

CLINICAL EXCELLENCE COMMISSION

The R.E.A.C.H program was developed by the NSW Clinical Excellence Commission's Partnering With Patients Program


INTENSIVE CARE UNIT
PAEDIATRIC INTENSIVE CARE UNIT

Health
Hunter New England
Local Health District

This booklet was developed by Intensive Care Units in Hunter New England Health.

Feedback from patients and relatives has been included. We welcome feedback. Please talk with the Nurse Unit Manager or Social Worker.

Version 1.0 April 2020