

Intensive care

Introduction

Intensive care units (ICUs) are specialist hospital wards. They provide intensive care (treatment and monitoring) for people in a critically ill or unstable condition.

ICUs are also sometimes known as critical care units or intensive therapy departments.

A person in an ICU needs constant medical attention and support to keep their body functioning. They may be unable to breathe on their own and have multiple organ failure. Medical equipment will take the place of these functions while the person recovers.

When intensive care is needed

There are several circumstances where a person may be admitted to an ICU. These include after surgery, or following an accident or severe illness.

ICU beds are a very expensive and limited resource because they provide:

- specialised monitoring equipment

- a high degree of medical expertise

- constant access to highly trained nurses (usually one nurse for each bed)

Some ICUs are attached to areas that treat specific conditions. Others specialise in the care of certain groups of people. For example, an ICU can specialise in:

- nervous disorders

- heart conditions

- babies (neonatal intensive care, NIC) – for example, for babies born with serious conditions, such as heart defects, or if there is a complication during birth

- children (paediatric intensive care, PIC) – for children under 16 years of age

What to expect

An ICU can be a daunting environment for both the patient and their family and friends. ICU staff understand this and are there to help the person being cared for and offer support to their family.

Patients in ICUs are often prescribed painkillers and medication that can make them drowsy (sedatives). This is because some of the equipment used can be very uncomfortable.

A series of tubes, wires and cables connect the patient to this equipment, which may look alarming at first.

Recovery

Once a person is able to breathe unaided, they no longer need to be in intensive care and can be transferred to a different ward to continue their recovery.

Depending on their condition, the person will either be transferred to a high dependency unit (HDU), which is one level down from intensive care, or to a general ward.

The time it takes to recover varies greatly from person to person. It also depends on things such as age, level of health and fitness, as well as how severe the condition is.

When intensive care is necessary

Intensive care is often needed when one or more of your organ systems has failed.

For example, this might be your:

lungs

kidneys

heart

digestive system

There are many different conditions and situations that can cause your organ systems to fail. Some of the most common include:

a serious accident – such as a road accident or a severe head injury

a serious acute (short-term) health condition – such as a heart attack (where the supply of blood to the heart is suddenly blocked), or a stroke (where the blood supply to the brain is interrupted)

a serious infection – such as a severe case of pneumonia (inflammation of the lungs) or sepsis (blood poisoning)

major surgery – this can either be a planned admission to an ICU as part of your recovery after surgery or an emergency measure if there are complications during surgery

How intensive care works

An intensive care unit (ICU) can often be an overwhelming place, both for the patient in hospital and their loved ones. It can therefore help to know a little about what to expect.

Medication

When visiting an ICU, many people in the ward may appear to be asleep because they are on painkilling medication (analgesics) and medication that can make them drowsy (sedatives).

This type of medication is necessary if the person is unable to breathe on their own because artificial ventilation (where a machine is used to help you breathe) is very uncomfortable without it.

Medical staff who work in intensive care will use the least amount of sedatives possible to maintain comfort. This means people being treated in ICUs may be partially awake some of the time.

Unfamiliar sights

Patients in ICUs will usually be connected to intensive care equipment by a number of tubes, wires and cables to monitor their condition.

Read more about the equipment that is used to treat and monitor people in ICUs.

Patients in ICUs may sometimes appear slightly swollen. The swelling is caused by the treatment the person is receiving and their inability to move. They may also have visible injuries, such as bruises or wounds. This can be upsetting to

see, but the doctors and nurses in charge of the person's care will always ensure that they are as comfortable as possible.

Unfamiliar sounds

There will usually be unfamiliar sounds in an ICU, such as alarms and beeps from the equipment. These help the ICU staff monitor the patients.

Most noises are nothing to worry about, but ask if you are unsure. ICU staff are highly skilled and will usually be very understanding.

Decisions about treatment

If you are admitted to an ICU, and are awake and able to communicate, you have the right to be fully informed and to make decisions about your treatment in partnership with the staff treating you. They should support your choice of treatment wherever possible.

However, if you are heavily sedated, you may not be able to give your consent (permission) to a particular treatment or procedure. In this case, the ICU staff treating you will decide what is best. They will always explain what they are doing to a person in an ICU, even if it appears that the person cannot hear them.

If possible, planned treatments and procedures will also be discussed with the person's family. However, this may not always be possible in an emergency situation, where immediate treatment is needed.

Read more about consent to treatment.

Advance decisions

If you know you are going into intensive care, and there are certain treatments you do not want to have, it is possible to pre-arrange a legally binding advance decision (previously known as an advance directive).

This means that ICU staff will not be able to carry out certain treatments or procedures, even if you are unconscious. However, these documents must be very specific regarding what you do not want done in order for them to apply.

To make an advance decision, you should clearly state your wishes in writing and have it signed by a witness. You need to include specific details about any treatments you do not want to have and the specific circumstances in which they may apply.

Read more about advance decisions.

What happens in intensive care

Intensive care units (ICUs) contain a variety of specialised equipment, which may vary from one unit to another.

The type of equipment an ICU has will depend on the type of patients it specialises in treating. For example, a neonatal ICU will have incubators for critically ill babies.

The machines in ICUs make a variety of sounds, such as beeps and alarms. Some sounds make staff aware of slight changes to a patient's condition, or alert them when something needs attention. A few alarms require the nurse's immediate attention but most just indicate standard monitoring.

Some of the main ICU machines and what they do are described below.

Ventilator

If your lungs have failed and you are unable to breathe on your own, you will need to be attached to a ventilator. A ventilator is a machine that moves oxygen-enriched air in and out of your lungs.

You will usually need to be sedated before being put on a ventilator because it would be very uncomfortable otherwise. A sedative is medication that makes you sleepy.

Ventilators can offer different levels of breathing assistance. For example, if you are having problems inhaling (breathing in), a ventilator can be used solely for this purpose.

If you only need help breathing for a couple of days, you may have a tube from the ventilator placed in your mouth (an endotracheal tube or ETT), and sometimes also in your nose. The tube will usually be held in place behind your neck.

However, if you need assistance with breathing for more than a few days, you may have a short operation called a tracheostomy. The tube in your mouth will be replaced by a shorter tube that is placed directly into your trachea (windpipe).

As well as being more comfortable, a tracheostomy will make keeping your lungs clean easier and will usually require less sedation.

In some cases, your breathing may be assisted with the use of a non-invasive ventilator. This eliminates the need for invasive breathing tubes and sedation, and reduces the risk of the ventilator causing an infection.

During non-invasive ventilation, a mask will be securely fitted over your mouth or both your nose and mouth. Air will be passed into the mask to help you breathe.

Monitoring equipment

To measure important bodily functions, wires may be attached to various parts of your body by sensor pads linked to computer-style screens. Functions that can be closely monitored include:

heart and pulse rate (measured by an electrocardiogram or ECG)

air flow to your lungs

blood pressure and blood flow

pressure in your veins (known as central venous pressure or CVP)

the amount of oxygen in your blood

your body temperature

The monitoring equipment will track every tiny change in your bodily functions and will alert the ICU staff if there are any changes that could be dangerous.

If you have a head injury or have had brain surgery, the pressure inside your head may be monitored. This is known as an intracranial pressure (ICP) reading.

In some cases, you may also have the pressure in your abdomen (stomach area) monitored. Rising pressure levels can prevent enough blood from reaching your organs and may require further treatment.

IV lines and pumps

Tubes that are inserted intravenously (into a vein in your arm, chest, neck or leg) provide your body with a steady supply of essential fluids, vitamins, nutrients and medication. A tube inserted into the main veins in your neck is known as a central line.

These tubes are called IV lines, IVs or drips. They are often connected to one or more bags of fluid that hang from a pole (drip stands) and are attached to pumps (syringe drivers) that constantly regulate the supply. You may also be given blood intravenously using an IV line.

Medications that are given slowly and continuously by IVs in intensive care can include:

sedatives – to reduce anxiety and encourage you to sleep

antibiotics – medication that is usually given in high doses and used to treat infections caused by bacteria

analgesics – also known as painkillers

In some cases, a small device called a cannula is fitted to the IV line. This allows the flow to be switched on and off like a tap without having to attach or re-attach the line into your vein.

Kidney support

Your kidneys filter waste products from your blood and manage the levels of fluid in your body. If your kidneys are not working properly, a dialysis machine can replace this function.

During dialysis, your blood will be fed through the machine, which removes any waste products. Your blood will then be returned to your body.

Feeding tube

If you need help breathing through a ventilator, you will not be able to swallow normally.

A feeding tube can be placed in your nose, through your throat and down into your stomach. This is called a nasogastric tube, or NG tube, and can be used to provide liquid food.

The liquid food contains all the nutrients that you need in the right amounts, including:

protein

carbohydrates

vitamins and minerals

fats

If your digestive system is not working, nutritional support can be fed directly into your veins.

Drains

After surgery, tubes called drains may be used to remove any build up of blood or fluid at the site of the wound. These will usually be removed after a few days.

Catheters

Catheters are thin, flexible tubes that can be inserted into your bladder. They allow urine to be passed out of your body without you having to visit the toilet.

There may be a clear bag hanging from the side of your bed. This is called a Foley catheter and is connected to the tube that goes into your bladder. It is used to measure the amount of urine you produce. This indicates how well your kidneys are working.

Suction pumps

Another tube can be passed down the inside of your endotracheal tube (breathing tube) and attached to a suction pump. Suction pumps are used to remove excess secretions (fluid) and help keep your airways clear.

Neonatal intensive care equipment

Neonatal intensive care (NIC) units have specialised equipment to care for babies who are unwell, and those born prematurely (before week 37 of pregnancy).

Babies in intensive care are placed in incubators, which are clear, enclosed cots that control the baby's body temperature and protect them from infection. The incubators have hand-sized holes to allow the intensive care doctors and nurses to gain access to your baby.

Babies in intensive care are monitored and treated in much the same way as adults. Your baby's body temperature may be monitored using a small sensor on their skin. The level of oxygen in their blood can also be measured using a clip attached to their hand or foot.

If your baby is unable to breathe on their own, they will require artificial ventilation through a ventilator. They may also need to be fed intravenously (through a tube directly into a vein).

After intensive care

Once you are able to breathe unaided, and you no longer need intensive care and you will be transferred to a different ward to continue your recovery.

Depending on your condition, this will usually either be a high dependency unit (HDU), which is one level down from intensive care, or a general ward.

The time it takes to recover completely varies greatly from person to person. It will also depend on factors such as:

your age

your overall level of health and fitness

the severity of your condition

After you are finally discharged from hospital, it will probably still be some time before you feel you are back to normal.

Follow-up clinics

Some hospitals offer follow-up clinics, or outreach services, for people who have been in intensive care. These clinics provide an opportunity for you to discuss your time in intensive care with the intensive care staff. This will enable you to:

understand the treatments and procedures you were given

fill in any gaps in your memory that may have been caused by sedation (medication that makes you drowsy)

discuss your recovery and any problems you are having, which may help speed your recovery

If your hospital does not offer this service, you can visit your DOCTOR to discuss any problems you are experiencing following treatment in intensive care.

Common recovery problems

Being in intensive care can put an enormous strain on you, both physically and emotionally. Even after you have been discharged from hospital, your recovery may be slow. Some of the most common problems you may encounter while recovering are described below.

Severe weakness and tiredness

Severe weakness and tiredness is the most common problem of recovery. It is difficult to predict how long this will last, but it will improve over time. Many people who have been in intensive care start to feel better after two to three months.

However, it may take as long as six months before your energy levels are fully back to normal. If you have had a severe trauma, such as a head injury, it may take even longer.

Loss of weight and muscle strength

If you have been in intensive care for a long time, it is likely you will have lost weight and muscle strength. This is caused by the length of time you were immobile. Your joints may also be very stiff.

It is important you regain strength and balance by walking but, at first, you should not attempt to walk without assistance.

A physiotherapist may draw up an exercise programme which you must stick to. However, you should never exceed the amount of exercise you have been given.

Read more about physiotherapy.

Talk to your DOCTOR or physiotherapist before starting more vigorous forms of exercise, such as swimming, running or cycling.

Weak voice

If you were on a ventilator to help you breathe during your stay in intensive care, your voice may be husky or croaky. However, this should improve quite quickly.

Inability to grip small items

After being in intensive care for some time, you may also find it difficult to grip small items. For example, at first, you may not be able to hold a pen to write.

Feeling depressed

If you have been in intensive care for some time, you may feel very low afterwards. Some people experience anxiety (feelings of unease) while in an ICU and, in some cases, this can get worse after being discharged. Some people may also:

feel angry

feel tearful

feel panicky

have flashbacks

have nightmares

In severe cases, some people who have been in intensive care develop post-traumatic stress disorder (PTSD). This can cause sleep problems and panic attacks, as well as distressing images or sensations.

If you have PTSD, it should pass within a month of leaving hospital. However, if it does not, or if you are finding it difficult to cope for any other reason, you should visit your DOCTOR or return to your follow-up clinic or outreach service.

Read more about PTSD and depression.

Cognitive function

After being in intensive care, some people experience problems with their cognitive function (mental ability). For example, you may find it difficult to concentrate or have trouble remembering things.

Rehabilitation

If possible, you will be assessed while still in hospital to determine whether you are at risk of developing any physical or emotional difficulties after your stay in an ICU. For example, you may be asked about any:

physical problems you are having

communication problems you are having

psychological symptoms that you have, such as depression or anxiety

If you are at risk of experiencing problems during your recovery, you may be set some rehabilitation goals to aim for.

This information will be passed to the team of healthcare professionals who are responsible for your care after you leave the ICU. If necessary, they will use it to develop a rehabilitation programme for you.

As part of your rehabilitation, you may be:

provided with any necessary information – for example, about your diet, when you can drive again and when you can return to work

referred to further healthcare professionals – for example, an occupational therapist will be able to help identify problem areas in your everyday life, such as dressing yourself, as well as helping to work out practical solutions.