

# Investigations in the Intensive Care Unit

While in ICU, you may find that there are many investigations performed to help in caring for your loved one. This leaflet aims to provide simple explanations of the more common investigations done.

The staff on the ICU will always explain the purpose of any investigations and any potential complications and be happy to answer any questions you may have.

## Contact information

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### Notes

## Patient Advice & Liaison Service (PALS)

If you have concerns or wish to give feedback about services, your care or treatment, you can contact the PALS office on the Ground Floor of the hospital just behind the main reception.

Alternatively, you can send us your comments or suggestions on one of our comment cards, available at the PALS office, or on a feedback form on our website [www.chelwest.nhs.uk/pals](http://www.chelwest.nhs.uk/pals).

We value your opinion and invite you to provide us with feedback.

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# Investigations in the Intensive Care Unit

Information for patients and relatives



## X-ray

### What is it?

A film, similar to photographic film, is placed behind the part of the body being X-rayed. The X-ray machine fires a short burst of X-rays through part of your body.

The more X-rays that hit the film, the blacker it develops—so solid parts of the body that block many of the X-rays show up white (such as bones). Hollow or air-filled parts of the body show up black (such as parts of the lung).

### Why are they done in ICU?

Chest X-rays are commonly used in ICU to look at people's lungs and to check the position of intravenous lines and drains.

## CT scan

### What is it?

A CT scan, also known as a CAT scan, is a specialised X-ray test. CT stands for computerised tomography and CAT for computed axial tomography.

A CT scan can be done on any section of the head or body. It can give clear pictures of bones and soft tissue, such as muscles, organs, large blood vessels, the brain and nerves, which an ordinary X-ray test cannot show.

### Why are they done in ICU?

The most commonly performed CT scan is of the brain to determine the cause of a decreased conscious level, or to assess serious head injuries. Other uses of a CT scan in ICU include:

- To detect abnormalities in the body, such as tumours, abscesses, abnormal blood vessels, fluid collections etc
- To give a clear picture of an area of the body before or after surgery
- To help doctors find the right place to take biopsies (tissue samples)

## MRI scan

### What is it?

MRI stands for magnetic resonance imaging. An MRI scan uses a strong magnetic field and radio waves to create pictures, on a computer, of tissues, organs and other structures inside the body.

An MRI scan can create clear pictures of most parts of the body so it is useful for all sorts of reasons where other tests (such as X-rays) do not give enough information required.

### Why are they done in ICU?

MRI scans are used to get detailed pictures of the body to detect abnormalities.

The MRI scanner uses an extremely strong magnet, so some people cannot be scanned. This is because the magnet can potentially move medical devices with metal in them or affect their function—staff on the ICU would check this before a scan is performed.

## Bronchoscopy

### What is it?

Bronchoscopy is a procedure which can help to diagnose and treat some conditions of the airways (bronchi) and lungs.

The bronchoscope is a thin, flexible telescope. It is passed through an endotracheal tube or tracheostomy and down into the bronchi and into the lungs. The tip of the endoscope contains a light and a tiny video camera so the doctor can see inside the airway and lungs.

### Why are they done in ICU?

A bronchoscopy may be done to help diagnose respiratory (breathing) problems—this can be done by the doctor just looking, by taking samples of tissue (biopsies) or by taking samples of sputum. They can also be used to help treat pneumonia and chest infections by clearing the lungs of sputum.

## Endoscopy/gastrostomy

### What is it?

A gastroscopy is a test where a doctor looks into the upper part of your gut (the upper gastrointestinal tract). The upper gut consists of the oesophagus (gullet), stomach and duodenum. The doctor uses an endoscope to look inside your gut—the test is sometimes called endoscopy. An endoscope is a thin, flexible, telescope. The endoscope is passed through the mouth, into the gut. The tip of the endoscope contains a light and a tiny video camera so the operator can see inside your gut.

### Why are they done in ICU?

A gastroscopy may be advised if the ICU team are worried that there may be bleeding from the gut. The doctors can then detect or rule out problems such as ulcers, gastritis (inflammation of the stomach), duodenitis (inflammation of the duodenum) or other conditions.

## Lumber puncture

### What is it?

A lumbar puncture (sometimes called a spinal tap) is a procedure where a sample of cerebrospinal fluid (CSF) is taken for testing. CSF is the fluid that surrounds the brain (cerebrum) and spinal cord.

This is done by inserting a needle through the skin and tissues between two vertebrae into the space around the spinal cord which is filled with CSF. Some fluid leaks back through the needle and is collected in a sterile pot. Sometimes we will also measure the pressure of the fluid. This is done by attaching a special tube to the needle which can measure the pressure of the fluid coming out

### Why are they done in ICU?

This test is mainly used to diagnose meningitis (an infection of the meninges—the lining that surrounds the brain and spinal cord). It is also used to help diagnose some other conditions of the brain and spinal cord.