



Common Procedures in the ICU

Most people, thankfully, never have to set foot inside an intensive care unit (ICU) as a patient, although many of us end up visiting one to see a friend or family member when they are especially sick. There are guaranteed to be noises, machines, sights, and smells that assault the senses, sometimes to the point of being incredibly disorienting to even the most curious people. Like any good guide, be it through a nature hike, a brewery tour, or a factory production line, our goal is to give you useful information to make your health care journey less confusing and more focused on you and your understanding.

Modern medicine has evolved to provide countless ways of helping the human body heal from illness and injury. Many of these are procedures that happen inside a hospital or in the ICU, and to better understand what tools or interventions might be used to help you (or a loved one if you're just there for a visit), here are some of the most common:

Dialysis (die-a-luh-suhs)

People get care in the Intensive Care Unit (ICU) for many reasons, including problems with the kidneys. Without working kidneys, the body shuts down resulting in death within two weeks. One treatment for people whose kidneys don't work, either temporarily or permanently, is dialysis, and some people who are treated with dialysis end up needing dialysis after they leave the hospital.

(Dialysis is a general term referring to several processes of balancing the body's normal chemistry and removing toxins from the blood. Usually the kidneys do this job, but when they stop working, either temporarily or permanently, there are devices that can clean the blood and balance the body's chemistry. Hemodialysis is the process of removing blood from the body and running it through a machine that works like a kidney (cleans/balances) and then returns the blood back into the body through IV tubes. Peritoneal dialysis is a process where the abdomen is filled with fluid through a surgically implanted tube. The fluid works slowly to absorb toxins and balance the body's chemistry, and after a period of time (6 to 8 hours) is drained back out of the abdomen. Any of these processes must be repeated every one to two days until either a person's kidneys start working again or a new kidney is surgically implanted. Without working kidneys or dialysis toxins build up, usually resulting in death within two weeks.)

Blood transfusions

Many people experience injuries or conditions that lower the amount of red blood cells (which are responsible for bringing oxygen to cells in your body) they have in their bodies. This is often called having "low blood counts" or "anemia". Low blood counts can lead to injury of all of your

organs, including the brain, heart, kidneys, liver, and gut, and in extreme cases can even cause death. One treatment is blood transfusion where blood is put back in the body through an intravenous line, or an “IV”.

Transplantation

Certain diseases can lead to one or more of your organs failing. In the case of the heart, lungs, liver, kidneys, and pancreas, some people are treated with organ transplantation. **Organ transplantation** is a surgical procedure in which an organ/s, tissue or group of cells are removed from one person (the donor) and transplanted into another person (the recipient), or moved from one site to another in the same person. Many different types of organs, tissue, and cells can be transplanted.

Extracorporeal life support (ECLS)

In the event the heart and/or lungs stop working gradually or suddenly, there are machines that can temporarily keep your body alive until these organs recover, by circulating your blood for you outside your body. These machines cannot keep you alive indefinitely and work either to support you until you recover or until you receive an organ transplant.

LVAD (commonly pronounced El-Vad)

A left ventricular assist device (LVAD) is a battery-operated machine that surgeons can put into your body to help support your heart’s pumping function in order to increase the chance that someone can survive without ECLS. Sometimes this machine is used to give people time until a heart transplant becomes available, sometimes it is used as the final therapy.

Intubation (in-too-bay-shun)

In the ICU, it can be common for people to need help with their breathing. In some cases, this means support with a ventilator, which requires a breathing tube to be placed.

(**Ventilators** are machines that push air and oxygen into a person’s lungs through a breathing tube or a mask; typically used when a person is unable to breathe on their own because of an illness or an injury. A **breathing tube** is the plastic tube used for intubation; can also refer to a tracheostomy; the piece of tubing that connects a person’s respiratory system to a mechanical ventilator.)

Intravenous Line “IV” line

An IV is a small plastic tube that is inserted into a vein using a needle, and then the needle is removed leaving only the plastic tube behind. These are used to give medicines and fluids that cannot be taken by mouth.

Blood draws for testing

Identifying the cause of illness and monitoring your body’s response to treatments almost always requires sending blood to the lab for testing. Blood samples usually are not obtained through an IV and require the use of even smaller needles to collect the blood from a different vein.

Tracheostomy (tray-key-os-tuh-mee)

Some causes of respiratory (or breathing) failure can take a long time to improve, sometimes weeks or months. Long term use of a breathing tube has dangers. In order to lower these risks and to help speed recovery from respiratory failure, a smaller breathing tube can be surgically inserted through the front of the neck, which is called a tracheostomy. In many cases this can then be removed after a period of weeks or months, but it is occasionally permanent.

Different illnesses can cause fluid to build up in places that don't function well with too much fluid. There are procedures utilized to remove this fluid to improve function, or to evaluate fluid in various organs to help with finding the cause or planning the proper treatment. All of these procedures require someone with advanced training to numb your skin and use a needle to draw the fluid out:

- Thoracentesis (thor-uh-sen-tee-sis)– in removing fluid from lungs
- Paracentesis (pair-uh-sen-tee-sis)– in removing fluid from the abdomen
- Pericardiocentesis (pair-ee-card-ee-oh-sen-tee-sis) – removing fluid from around the heart.
- Lumbar Puncture – removing fluid from the spinal cord/fluid

Central Line Access and Arterial Lines

To allow frequent drawing of blood samples, often a larger IV called a central line is inserted, either in the neck, shoulder, or groin. These IVs are also necessary to give certain types of medications. Central Lines have the risk of infection or blood clots, but are utilized in order to decrease how often you have painful blood draws, and can be used to provide more consistent medications or blood products compared to smaller IVs. Arterial lines are like IVs (small plastic tubes), except they are put into an artery instead of a vein. You cannot give medication in these, but they are helpful to treat some conditions (like sepsis) by allowing blood samples to be drawn easily, and to have better monitoring of your blood pressure.

Urinary Catheter

Urinary catheters are latex or plastic tubes inserted through the end of the urethra utilized to drain your bladder and measure the exact amount of urine that the body produces (this is an important measure of how much fluid you have in your body and how well your kidneys are working). It also allows you not to worry about going to the bathroom or having an accident. They do come with the risk of infection and some mild discomfort. Usually, they are removed in a day or two, but sometimes are required for much longer.

Rectal Tube

Some people suffer with very bad diarrhea and are unable to get to the toilet when they are at their sickest. This device is a small soft rubber tube that is inserted through the anus into the rectum, that helps protect the skin on your back and buttocks and measures the amount of fluid loss from the body. They are only used when absolutely necessary and are taken out as soon as stool becomes more solid. (Your rectum is at the end of your colon, where your poop collects just before it's ready to come out. Your rectum usually absorbs the excess water and holds it until it's full, when nerves trigger the urge to go to the bathroom.)

Percutaneous nephrostomy tubes (perk-yoo-tay-nee-us nef-ros-tuh-me)

A percutaneous nephrostomy tube is a small, soft plastic tube that drains urine from the kidney. The tube starts at your kidney and comes out the side of your lower back. You may need this tube placed if you have a blockage that prevents urine from draining out of the kidney, like a kidney stone or a tumor. The tube relieves pressure from urine that has backed up into the kidney, which can cause pain or damage to the kidney if it is not relieved. In most cases these tubes are temporary but can occasionally be needed for a long time.

Colostomy (kuh-loss-tuh-me)

Sometimes people can have injuries to their intestines or problems with the gut that require a surgeon to make a small opening from the abdomen/stomach where one's solid waste is removed into a bag.

(A colostomy is a surgical operation in which a piece of the colon (large intestine) is diverted to an artificial opening in the abdominal wall so as to bypass a damaged or missing part of the colon and allow solid waste to leave the body.)

Please note this is not an exhaustive list, and we encourage you to ask questions when you're in the hospital about anything that seems unfamiliar. Here at UzObi we know what it feels like – we've been sick, we've been injured, we have families and friends who have gone through all of these things. Any time you or a loved one needs care it can be scary or challenging, but we are right here with you, and we hope that this information will aid you and your loved ones on your health care journey.