About Your Medtronic® Implanted Infusion Pump

This information describes your Medtronic implanted infusion pump, including how it works, how it’s placed, and how it’s refilled.

About Your Pump

You will get your medication through a Medtronic pump. Your pump is a small, programmable device made of titanium metal. It’s round and about the size of a hockey puck. The pump has a few main parts (see Figure 1).

- The **fill port** is in the center of your pump. Medication is put into your pump through the fill port.
- The **reservoir** will hold your medication.
- The **catheter** is a small, flexible tube. It connects your pump to your hepatic
artery (the main blood vessel that goes into your liver).

- The **catheter access port (CAP)** is used to send medications directly into your liver.

Your pump will be implanted (surgically placed) in your abdomen (belly) close to your liver. The medication will flow from your pump directly into your liver through the catheter that’s placed in your hepatic artery.

**How Your Pump Is Implanted**

You will have a surgery to implant your pump. Your nurse will give you more information and tell you how to get ready for your surgery.

You will be given general anesthesia (medication to make you sleep) before your surgery starts. Once you’re asleep, your doctor will make a small incision (surgical cut) in your lower abdomen. They will make a space between the skin and muscle and place your pump in this space. Then, they will place your pump’s catheter into your hepatic artery (see Figure 2).

![Figure 2. Where your pump will be placed](image)

While you’re in the operating room, your doctor will program your pump to deliver the medication to your liver at a constant rate. This is how you will receive medication regularly after your pump is placed.
Your surgery will take about 1½ to 2 hours. If you’re having other procedures done as well, it may take longer. After your surgery, you will stay in the hospital for 1 to 3 days, unless your doctor tells you otherwise.

Your doctor or nurse will give you an identification card that says you have an implanted device. You must carry this card at all times while you have your pump, both in the hospital and at home.

After your pump is placed, you may get stomach ulcers (sores in the lining of your stomach) from the catheter. This is because the catheter is close to your stomach and may irritate it. Your doctor will prescribe you medication to take at home to help keep this from happening.

About Your Flow Scan

Before you start using your pump, you will have an imaging procedure called a flow scan to make sure it’s working properly. The flow scan is usually done after your pump is implanted, while you’re staying in the hospital. Sometimes it’s done after you’re discharged from the hospital. Your healthcare provider will tell you when you will have the flow scan procedure.

During the flow scan, you will get injections of radioactive isotopes (radioactive liquids).

The first injection of the radioactive isotope will be given through an IV (intravenous) line in your arm or hand. After this injection, your nurse will use a special camera, called a gamma camera, to take pictures of your liver. This step will show the outline of your liver.

The second injection of the radioactive isotope will be given into your pump through the CAP. You may feel some pain from the prick of the needle while it’s put into the CAP. Getting the needle into the CAP can take up to 30 minutes.

Once the needle is in, your nurse will inject you with the radioactive isotopes and then a special liquid to flush the catheter. This will show how the isotope moves
through the pump catheter into your liver to make sure it’s working properly. Then more pictures of your liver and pump will be taken with the special camera. When your nurse has enough pictures, they will take the needle out of your catheter access port.

After the needle is taken out, you will need to lie still for 30 minutes while your nurse takes more pictures. If you think you will be uncomfortable lying in one position for a long time, talk with your doctor before your appointment.

The flow scan will take about 2 hours.

Before you go home, your nurse will fill your pump with medication. Your nurse will give you information about your medication and its possible side effects.

**Activity Guidelines While You Have Your Pump**

Recovery from the pump placement surgery usually takes about 4 weeks.

After you recover from your surgery, you can go back to doing most of your usual activities. But, there are some activities you should avoid. Follow the guidelines below on which activities to avoid. Talk with your doctor or nurse if you have any questions.

**Activities to avoid**

- Avoid rough physical activities (such as contact sports). They can cause an injury to your pump site.
- Avoid strenuous exercise (such as running or jogging). It can make the catheter move out of place.
- Avoid lifting objects 10 pounds (4.5 kilograms) or heavier. This can make your pump move out of place.
- Check with your doctor before you travel by airplane.
- Avoid deep sea or scuba diving. You can swim or snorkel.
Avoid activities that raise your body temperature. They can make your medication flow faster. Do not:

- Place heating pads, electric blankets, or hot water bottles directly on your pump site.
- Go in a sauna or hot tub.

**Magnetic resonance imaging (MRI)**

It’s okay to have a magnetic resonance imaging (MRI) scan while you have a Medtronic implanted pump if you have a pump check on the same day. The pump check is very important because it will make sure that your pump is still working. You should only get an MRI at places where you can get a pump check, such as at Memorial Sloan Kettering (MSK). Tell your doctor that you have an implanted pump before scheduling an MRI so they can also schedule a pump check for you.

**Pump check**

The pump check procedure will happen after your MRI. The pump check is very short and painless. A nurse will place a device over the area where your pump is. This device is connected to a handheld programmer. The nurse will use the programmer to make sure your pump is working properly after your MRI.

**Refilling Your Pump**

You must have your pump refilled every 14 days (2 weeks). Your pump only holds enough medication for that time. If your pump runs dry and becomes damaged, you may not be able to keep using it for your treatment.

It’s very important to go to all of your refill appointments. Your pump can run dry if it isn’t refilled regularly. If it runs dry, it will become clotted and damaged, and it will stop delivering medication to your liver.

You might hear an alarm if your pump runs dry or stops working properly. You can read the “Understanding Pump Alarms” section of this site to hear what the alarms may sound like: [www.medtronic.com/us-en/patients/treatments-therapies/drug-pump-cancer-pain/living-with/daily-living.html](http://www.medtronic.com/us-en/patients/treatments-therapies/drug-pump-cancer-pain/living-with/daily-living.html).
Call your doctor or nurse if you:

- Can’t go to a refill appointment.
- Will be out of town at any point while you have your pump.
- Hear an alarm coming from your pump. You may need your pump checked.

**How your pump is refilled**

The procedure to refill your pump will take 15 to 20 minutes.

First, your nurse will clean your skin over your pump. They will put a needle that’s attached to a thin tube through your skin, into the fill port. The prick of the needle might be uncomfortable.

Your nurse will use a collection syringe to take it out any medication in your pump from the last infusion and measure it. This won’t be uncomfortable.

Once your pump is empty, your nurse will put a syringe into the fill port to refill your pump with new medication (see Figure 3). You won’t have any discomfort while the medication is being refilled.

Once your pump is refilled with medication, your nurse will use the handheld programmer to reset your pump. Then it will start to deliver medication on a
regular schedule again.

Call Your Doctor or Nurse if You:

- Have a fever of 100.4 °F (38 °C) or higher.
- Have any signs of infection at your pump site, such as tenderness, drainage, or redness.
- Have swelling over your pump site.
- Can’t go to a scheduled refill appointment. Your pump may not work properly if you miss an appointment.
- Hear any alarms coming from your pump.
- Have plans to travel by airplane.
- Can’t go to a scheduled refill appointment.
- Have any questions or concerns.

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

About Your Medtronic® Implanted Infusion Pump - Last updated on June 25, 2019
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