

COMMON STUDIES AND TESTS

Why do I need so many tests?

There are several routine tests that we need in order to understand why your wound is not healing. This allows us to treat your wound the right way. Some common tests are described here.

X-rays

X-rays of your wound show us a picture of the bones underneath. The X-rays can show us if you have a broken bone and if your bone is infected. They also show us whether you have abnormal joints that change how you walk and create 'pressure points' where wounds can appear.

X-rays show very little detail about the tissues other than bone. However, for patients with infected wounds, the X-ray can check for fluid or gas beneath the skin. These signs are important because they mean the infection is severe.

Bone scan

A bone scan looks for infection in the bone by looking at blood flow to the affected area. A radioactive dye is injected into your blood. Some people may be allergic to the dye and cannot take this test. If you are not allergic to the dye, it will not hurt you and your body will get rid of it on its own. Pictures of the bone are taken at the time of the injection, and again four hours later. If your bone 'lights up' in the different pictures, then we know that you have a bone infection. However, sometimes a broken bone, arthritis or surgery makes the patient's bone 'light up' even when there is no infection. In this case, we need to think about the results of the scan, together with the history and physical exam, in order to decide whether the patient really does have an infection. We may also order further studies in that case.

MRI

The MRI shows a three-dimensional picture of the body. Like a bone scan, it shows infection in the bone. However, it also shows detailed images of the muscles, tendons, fat, and skin around the bone. For example, it shows if these areas are swollen or filled with fluid.

People with pacemakers or other metal parts in their bodies **cannot** get MRIs. To get an MRI, you need to be in a tunnel-like machine. People who are heavy sometimes do not fit in the machine. The machine makes a banging noise, like a subway car passing by. For some studies, the patient is injected with an intravenous dye.

MRA

An MRA is a special kind of MRI. It uses the same machine, but with different settings. It shows a 3-D picture of the arteries in your legs.

CT scan ("CAT scan")

A CT scan, like an MRI, shows a three-dimensional picture. It shows pictures of all the tissues in your body, but it does not show bone infections well. For a CT scan, it does not matter if you have a pacemaker or other metal part in your body. Although the machine is shaped like a big

“O,” the space is bigger than in the MRI machine, and there are no loud noises. For some studies, the patient is injected with an intravenous dye.

NIFS (non-invasive flow studies)

Arteries are the vessels through which blood flows outwards from the heart to different parts of your body. NIFS are a way of checking if the arteries in your legs have good blood flow. If you have good flow, then blood will flow out to your legs and feet without any blockage. Good blood flow in the arteries is important for a wound to heal.

This test is done with you lying down. Blood pressure is checked in your legs and your arms. By comparing the blood pressure in your legs and in your arms, we can see if the arteries in your legs are blocked. The ratio of blood pressures in your legs and arms is called an ABI (“ankle-brachial index”).

If we find that your arteries are blocked, then we will arrange a consultation with a vascular surgeon. The vascular surgeon will make a plan to evaluate your arteries in more detail (to know exactly where the blockages are) and to open the arteries through surgery.

Venous reflux studies

Veins are the vessels through which blood flows from different parts of your body back towards your heart. In the legs, the blood normally flows from superficial veins (near the skin), **inward** to deep veins (in the center of the leg), and then up to the heart. In patients with poor blood flow in the veins, called ‘venous stasis,’ the blood does not flow normally from the superficial to the deep veins. Instead, the blood presses **outwards** from the deep veins to the superficial ones. This causes abnormally high pressure in the superficial veins and can delay wound healing.

Venous reflux studies use ultrasound to check the blood flow in your veins. We recommend venous reflux studies for patients who have leg wounds, since these are commonly due to venous stasis.

Bandages or special stockings that squeeze your legs can improve flow in the veins. This can help your wound to heal. There are also surgeries that remove or close some of the superficial veins. This improves the direction of blood flow. It does not help existing wounds to heal, but it can help to reduce the formation of new wounds. A vascular surgeon can evaluate whether you are a candidate for this surgery.

What do I do if I have questions?

If you are confused or have a question regarding tests or studies, please call us at 212-932-4325, at any time. You can also find information at our website: www.ColumbiaWoundHealing.org.