

Investigation

2.4: Medical Examination

Now that you have information about the patient's medical history and know why they came to see you today, you are now ready to touch the patient. I know what some of you are thinking: Really, do I have to touch them?

There are even more systems in the human body to examine as there are medical specialties. Most of the time you don't have to check them all. There are the really important ones, like the heart, the lungs, and the abdomen that you examine on every patient every time. When a patient comes in with a specific problem, you need to examine that area and **contiguous** areas thoroughly. If a patient is visiting you for a physical exam, then you need to check the entire body to assure it is healthy or detect potentially hidden diseases. The human body has eleven body systems to evaluate. You will do an activity to learn about them later. Fortunately, doctors have tools to assist in the investigation.

The first tool you use to examine your patient is your eyes. You look at your patient's skin carefully for signs of infection or skin abnormalities such as a rash, bumps, swelling, redness, or an obvious wound or deformity. You look at their eyes to see if they are clear and looking back at you. You look to see if all the parts are present, such as two ears, two eyes, two arms, and two legs. Absence of one of these indicates a major medical event occurred in their past. You also look for scars that indicate a past injury or surgery. Finally, watching them walk can provide evidence of injury, illness, or deformity.

We also conduct the exam with our hands, such as **auscultation** of the abdomen and back. Did you know that doctors can learn to tell the condition of your liver and lungs by thumping with this technique? You can also use your hands to brush lightly or pinch lightly the skin to detect **paresthesia**.

You also use the basic tools of medicine in your examination. The most well-known tool of the physician is the **stethoscope**. The stethoscope is very valuable because it can be used to examine so many areas in the body. For example, you know you can hear your heartbeat with a stethoscope; you can also hear heart problems. You can hear the pulsing of arteries in your neck, arms, and legs and even the sounds movement in your intestines as food moves. The stethoscope can also be used with a **sphygmomanometer** to measure your blood pressure. Can you say sphygmomanometer three times really fast? I can't. But it's a really important tool.

Another important tool is the **neurological hammer**. It's a hammer because you hit people with it. But you have to hit them in the right places and not too hard. This hammer is used to detect the presence or absence of your reflexes. Reflexes are reactions that do not require your brain to respond. You have reflexes that can be detected using the hammer in your arms and legs. You also have what is called a **plantar reflex** on the bottom of your foot. It is interesting to test this reflex; you rub

the skinny end of the hammer along the outer plantar foot surface. If the big toe points upward, the patient may have a brain abnormality on the opposite side; that would be called a **positive Babinski sign**.

Some parts of the body cannot be examined by looking with your eyes, or touching with your hands, or even using a simple instrument. For example, examining the condition of the blood requires taking a little blood from the patient and having it analyzed. It is amazing how much we can learn about a patient by having their blood analyzed. For years patients have endured having vial after vial of blood taken from them, enough to feed a vampire. Recently, technology has been developed that allows blood to be completely analyzed using only a single drop of blood. This is great news for patients! And remember, doctors are sometimes patients, too.

Sometimes we need to look inside the patient as part of our investigation. But we don't usually need to cut them open to look inside. If we want to see the condition of bones, we can order an **x-ray**. If we need to better examine **tissue** such as **muscle**, **tendons** and **ligaments** we can order an **MRI** (magnetic resonance imaging). To further evaluate the heart, arteries and veins, or even the growth of a fetus we can utilize **ultrasound**.

Doctors have a variety of tools to select from depending to assist in their investigation. Some you can keep in the office. Others are too big and too expensive, for example an MRI machine. So you refer patients to a special center or a hospital when those tools are needed.

Activity 1: Testing the Plantar Response. Find a partner. Take off your shoes and socks. Have your partner sit on a table or desk with their feet hanging in a relaxed manner. Using a neurological hammer if you have one, or the eraser end of a pencil, rub the eraser along the outside surface of the bottom of your partner's feet, one foot, then the other foot. You should observe the big toe move downward without any effort from your partner.

When you get home you can check your brothers and sisters plantar reflexes by using the eraser end of a pencil. If you check your baby brother or sister you need to know that it is normal for very young children to have a positive test, or upward movement of the big toe. In older children and adults the big toe should move downward.