Lesson Plan: Pig Lung Demonstration
Learning Objective:

Participants will be able to describe the effect of smoking on the lungs.

What is the Pigs Lung Demonstration Model?

A demonstration model that shows the real-life damage that happens to the lungs because of smoking. Both sets of lungs are assembled onto the frames with the pump attached. Air is pumped into the lungs to show the lungs in action. This compares the differences between the “smoker” and “non-smoker” set of lungs.

Target Group for this Model:

This model can be used with any age group. Use it in group sessions (classrooms, at community health groups, or health fairs) to show the impact of smoking on the lungs.

Materials:

- Pig Lungs with demonstration tray and pump
- Lung Cancer Fact Sheet (Nunavut, 1999-2010)
- Rubber gloves for you and group
- Garbage can

Preparing for Using the Pig Lung Demonstration Model:

- Before the presentation, familiarize yourself with the model.
- Place the tray and assembled frame on a level surface.
- Connect the lungs securely to the part of the tube that is open and faces down.
- Connect the pump to the other open part of the tube
- Press the pump gently in order to inflate the lungs.
- The healthy lung deflates easily, while the diseased lung has trouble deflating due to the impact of disease.
How to Use the Pig Lung Demonstration Model:

- Begin by asking the group to name the organ of the body that is most affected by smoking - lungs.
- Explain that because our lungs are inside of us that it is difficult to see what they look like and what is happening to them when people smoke.
- Describe to the group that you are going to show them two lungs today: one is the healthy non-smoker’s lung and the other is the unhealthy smoker’s lung.
- Make clear to the group that pig’s lungs are used because they are similar in shape and size to human lungs (140 pound person). Also, the meat of the pig was not wasted. The lungs of the pig were made to look like those of a 20 year smoker by injecting dye after the pig was dead.
- Show the non-smoker’s lung and have the group take note of its colour.
- Slowly begin pumping the non-smoker’s lung with your hand. Allow 3-4 seconds to pass between compressions. Show how the lung completely fills with air and quickly returns to normal size when you stop pumping.
- Show the smoker’s lung and have the group take note of its colour. Explain that the colour is from the build up of tar from cigarettes.
- Slowly begin pumping the smoker’s lung with your hand. Allow 3-4 seconds to pass between compressions.
- Point out how the unhealthy emphysema lung inflates slowly, and then fails to return to normal size between “breaths”. This is similar to what a person who has emphysema might experience while breathing.
- With your gloved hand, point out the cancerous lesion in the bottom of the lobe of the lung and how it is blocking off the air.
- Ask the group how they think the person with these lungs would breathe.
- Finally, show the group the emphysema and the holes in the lungs.
- You can let individuals come up and touch the lung. Have each person take one glove to use. Let them feel the tumor and the emphysema.
- Finish with talking with the group about how important our lungs are for living.
- Talk about activities like hockey, square-dancing, volleyball, soccer, basketball, biking and walking and how much we need our lungs to be able to do all these things.
Tips to Make Your Presentation Work:

- The pig lungs can be very distracting so consider using them at the end of a lesson.

Key Facts:

- Exposure to cigarette smoke greatly increases the risk of lung diseases, such as emphysema and/or lung cancer.
- Emphysema occurs when the walls of tiny air sacs inside the lungs break down and form larger, limp air sacs. As a result, the lungs lose their elasticity and overinflate when a person breathes in. These overinflated lungs make it difficult to expel air and leads to shortness of breath.
- Lung cancer occurs when a tumor develops in the lung. Lung cancer is the most common cancer in Nunavummiut. Nunavummiut have the highest lung cancer rates in Canada. Lung cancer is a very serious disease. There is a 62% mortality (death) rate within 1 year of diagnosis.

Key Messages:

- Exposure to cigarette smoke (smokers or second-hand smoke) greatly increases the risk of getting lung diseases, such as lung cancer or emphysema.
- In healthy non-smoker lungs, the lungs inflate and deflate easily, which allows for oxygen to be transported around the body.
- In diseased lungs, the lungs do not inflate and deflate as easily, causing shortness of breath and less oxygen in the body.
- It is best to never start smoking, in order to keep your lungs healthy like the pink lungs in the model.
- If you are already a smoker, you can help your lungs become healthier by quitting or reducing your tobacco use.