

## Transcript for Asbestos Information for the Community

Welcome to the lecture on asbestos and its health effects for the community. My name is Dr. Vik Kapil and I come to you from the Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry in Atlanta, Georgia. I am a physician specializing in Occupational and Environmental Medicine and serve as Chief of the Surveillance and Registries branch at ATSDR.

I have been asked to speak to you today about asbestos and its effects on human health. First, I'll explain what asbestos is and why it's important to understand the dangers of asbestos exposure. Then, I'll talk about its past and present uses and why it continues to be a health concern today. I'll also tell you about different types of asbestos-related diseases. Lastly, I'll discuss what you can do if you think that you or someone you know might have been exposed to asbestos.

As you can see in this magnified image, asbestos is a mineral made of long, thin fibers. Asbestos fibers are heat resistant, strong, flexible, and very stable chemically. This made them very useful in industry. Asbestos was used in many industries throughout the United States from the early 1900s until the 1970s.

By the end of the seventies, we understood that asbestos could cause health problems. At that time, industry began phasing it out of many uses. Today, asbestos isn't used much in industry, but it still remains in many older homes, buildings, and cars.

People who work with asbestos or who are around loose or crumbling asbestos materials may breathe in asbestos fibers that have been released into the air. These tiny fibers are so small that we breathe them in without knowing it. When asbestos fibers are breathed in, some of them become lodged in the lungs. This can sometimes cause irritation and may eventually lead to lung disease. Symptoms of asbestos-related diseases may appear many years after exposure.

If you have inhaled some asbestos fibers, you won't necessarily develop health problems. Every person is different. Your risk for health effects depends on:

- how many fibers you breathed in,
- how long you were exposed, and
- how many times you were exposed.

Now, I'll tell you a little more about the history of asbestos use and how these past uses affect us today.

Before the 1970s, workers were exposed to asbestos mostly through the mining and milling of raw asbestos. It was used to make all kinds of products that insulate or protect us from heat, such as

- pipe and insulation coverings,
- boiler and industrial furnace insulation, and
- brake pads.

Miners and people who worked with making asbestos-containing products were at the greatest risk of exposure during this time. They sometimes carried asbestos dust home on their skin and clothes, which also put their family members and others living in the household at risk.

Although asbestos use was largely phased out in United States in the 1970s, asbestos is still in some materials today and was a contaminant in other natural materials, such as vermiculite. For example, from nineteen twenty three to nineteen ninety, a mine in Libby, Montana, was a major source for a mineral called vermiculite. This vermiculite, which was contaminated with tremolite asbestos, was sold for use as attic insulation. Vermiculite was also used in potting soil.

At the Libby vermiculite plant, mining operations released asbestos fibers into the local air and deposited the fibers in soil. The operations also uncovered asbestos in blasted rocks. Because of this, miners, their families, and nearby residents in Libby were exposed to asbestos. People who handled the contaminated vermiculite from Libby in manufacturing plants throughout the country were also exposed. You can find a map of these sites in the United States at the ATSDR website. I'll give you the address later in the web cast.

The asbestos- contaminated vermiculite insulation and potting soil were sold throughout the United States until the mine closed in nineteen ninety. These products were used in homes throughout the country, and remain in some homes today.

Today's vermiculite comes from sources believed to be free of harmful asbestos contamination. Today, asbestos is still used in cement products and other construction materials. Its use is now more strictly regulated for safety and health reasons.

Most workplace exposures today happen during repair, renovation, removal, or maintenance of asbestos products that were installed years ago.

People with the greatest risk of asbestos exposure are those who disturb old asbestos materials at homes or on the job. They may include

- carpenters,
- construction workers,
- utility workers,
- electricians,
- pipe fitters and plumbers,
- steel mill workers,
- sheet metal workers,
- boiler makers, and
- mechanics working with brakes and transmission products.

These people are mainly at risk if they disturb asbestos in old, phased-out products, such as insulation or pipe coverings. Intact materials with asbestos embedded in them, such as old, undisturbed linoleum, will not release asbestos unless crumbled. Only disturbed,

## Transcript for Asbestos Information for the Community

broken asbestos-containing materials release fibers. This is why proper handling of asbestos materials is very important. Sometimes, it's best to seal or cover these materials, and sometimes it's best to remove them altogether. Either way, the person who works with asbestos-containing materials must be properly trained to avoid disturbing fibers and releasing them into the air.

At home, most exposures to asbestos occur

- in attics that have loose asbestos-containing insulation,
- around pipes, boilers, and the like where asbestos coverings are crumbling, and
- during owner done home repairs and renovations.

In situations where you suspect asbestos-containing materials in the home, you should call a trained, certified professional to handle the asbestos properly by covering or removing it carefully.

Asbestos is found in some United States rock formations, mostly underground. There is very little risk from this untouched asbestos because it's buried deep. In some parts of California, Maryland, and some other areas in the United States, rocks with naturally occurring asbestos are close to the surface. Exposures to naturally occurring asbestos from these rocks happens when they are broken and crushed during construction and other activities, causing asbestos fibers to be released into the air and dust.

Now I'm going to talk in more detail about how asbestos exposure can affect a person's health. As I mentioned earlier, a person's risk of illness depends on:

- how many fibers you breathed in,
- how long you were exposed, and
- how many times you were exposed.

Once you breathe in asbestos fibers, they can't be washed out or removed from the lungs. When people do get sick, their symptoms usually begin about fifteen to forty years after their first exposure to asbestos. Not everyone who is exposed will get sick. Someone who has worked with asbestos is more likely to get an asbestos-related disease than a member of the general public who has low exposures.

There are four lung diseases associated with asbestos exposure:

- parenchymal asbestosis,
- asbestos-related pleural abnormalities,
- lung cancer, and
- mesothelioma.

A person can develop any one or more of these diseases from exposure to asbestos.

Parenchymal asbestosis is a chronic lung disease caused by scarring or thickening of lung tissue because of inhaled asbestos. This disease usually develops with workplace or heavy asbestos exposure. The lung scarring from asbestos exposures can disrupt the flow

of oxygen into the lungs and make it hard to breathe. Symptoms of asbestosis typically include:

- breathlessness that gets increasingly worse,
- cough, and
- chest tightness or pain.

Another disease, asbestos-related pleural abnormalities, can occur with low levels of asbestos exposure and happens when asbestos fibers reach the lining of the lungs, called the pleura. The presence of asbestos fibers can cause various reactions in the lung linings, many of which are pretty mild. Most of these reactions don't cause any symptoms and they usually don't make people ill. Sometimes, a severe case of pleural abnormalities causes breathing difficulty or pain.

Lung cancer associated with asbestos exposure is the same kind as lung cancer caused by smoking or other factors. A person can develop lung cancer without having other asbestos-associated diseases, or they might develop lung cancer in addition to another disease, such as asbestosis. In either case, most people have no symptoms of lung cancer until the cancer is advanced. Then, symptoms can include:

- coughing,
- wheezing, and
- difficulty breathing.

Please know that smoking greatly increases the risk of lung cancer in people exposed to asbestos.

Another type of cancer, mesothelioma, rarely occurs with low levels of exposure. It's more likely to occur with workplace exposures to asbestos. Mesothelioma is an uncommon tumor that is only caused by asbestos exposure.

Diffuse malignant mesothelioma is a type of cancer that affects the lining of the lungs or the lining of the intestinal cavity. It usually takes a very long time, possibly thirty to forty years, for a tumor to appear. Often, there are no symptoms, although some people develop

- cough,
- shortness of breath, and
- chest pain.

Mesothelioma is usually fatal. If it's discovered and treated early, however, doctors can help the person live longer than if they did not get treatment.

Asbestos can also affect parts of the body other than your lungs. For example, if your lungs don't function well due to asbestos exposure and the development of severe asbestosis, the scarred lungs can stress your heart and lead to heart problems. Some scientists believe that swallowing asbestos may cause gastrointestinal cancer, such as colon cancer, although this is still under scientific study.

## Transcript for Asbestos Information for the Community

If you believe that you are currently being exposed to asbestos, you need to stop the exposure and contact your doctor. If you believe you were exposed to asbestos in the past, you should also contact your doctor, even if you don't have any symptoms of disease. Your doctor can help determine your potential risk and monitor you for signs of asbestos-related disease.

Early detection and treatment of asbestos-related disease can help keep you healthy as long as possible after diagnosis.

After asbestos exposure, your doctor may recommend any of the following:

- A chest x-ray to check your lungs and identify any abnormalities or scarring.
- Pulmonary function tests, which are simple breathing tests to see how well your lungs are working.
- Annual flu shots and a pneumococcal shot to help avoid respiratory infections. Respiratory infections are more serious if you have an asbestos-associated disease.
- stopping smoking. You can reduce your chances of developing lung cancer in cases of asbestos exposure if you quit smoking.

If you start having symptoms of possible asbestos-related disease, your doctor may recommend that you see a lung doctor, a pulmonologist, or other type of specialist.

Remember, it's very important for people who have been exposed to asbestos to stop smoking and avoid second-hand smoke. Cigarette smoke can greatly increase your risk of developing lung cancer and can make other asbestos-related disease worse.

Now, I'll review some of today's presentation.

Asbestos is a naturally occurring mineral that was widely used in U.S. industry until the nineteen seventies. When people handle raw asbestos or disturb asbestos-containing materials, fibers can be released into the air. When that happens, you can breathe the fibers into your lungs, where they can cause irritation and disease.

Because it takes so many years for asbestos-related disease to develop, some people who were exposed to asbestos in the nineteen sixties and nineteen seventies are just now beginning to show symptoms. Today, asbestos has mostly been phased out of industrial use, and we know a lot more about how to handle it safely.

Now, exposure usually happens when people repair, renovate, remove, or maintain asbestos-containing products that were installed years ago. Covering or removing asbestos should be done by a trained professional.

People who have been exposed to asbestos are at risk for:

- parenchymal asbestosis,
- asbestos-related pleural abnormalities,
- lung cancer, and

## Transcript for Asbestos Information for the Community

- mesothelioma.

If you are currently being exposed to asbestos, you should stop the exposure immediately to avoid breathing in more fibers and further increasing your risk of disease. Remember, never try to handle or remove asbestos yourself.

For workers, the Occupational Safety and Health Administration, OSHA, requires employers to help protect people from being exposed to asbestos at work. This may include having workers wear personal protective equipment, such as respirators, and providing certain types of medical testing. In case of exposures over the action limits, your physician may need to contact your employer for information to help in evaluating your potential sources of asbestos exposure.

If you've ever been exposed to asbestos, it's very important to stop smoking (if you smoke) and to avoid second-hand smoke.

If you were exposed to asbestos in the past, or if you think that you could have been exposed to asbestos, you should contact your doctor, even if you don't have symptoms. Early diagnosis is important. Your doctor will be able to determine the appropriate therapies and help prevent future complications.

Today, I've given you an overview of asbestos and diseases associated with asbestos exposure.

For more information on asbestos and asbestos-associated diseases, you may contact ATSDR directly using the information on the slide. For more information about asbestos and its health effects, please go to the websites on the slide.

This concludes the presentation. Thank you.