



Understanding Lung Screening

The lungs are the system through which blood circulated by the heart through the arteries and returned by the veins is cleaned and oxygenated before returning again through the vascular system, to the muscles and vital organs. The heart is nestled between the two lobes of the lung and serves as the pump to power this circulation. In addition to gas exchange, the lungs and the other parts of the respiratory system serve several important functions. These include:

- Bringing all air to the proper body temperature
- Moisturizing the inhaled air for necessary humidity
- Protecting the body from harmful substances by coughing, sneezing, filtering or swallowing them, or by alerting the body through the sense of smell
- Defending the lungs with:
 1. *cilia* - microscopic hairs along the air passages
 2. *phlegm* (mucus or sputum) - a moving carpet of phlegm collects dirt and germs inhaled into the lungs and moves them out to be coughed up or swallowed
 3. *macrophages* - scavenger cells in the lungs that literally eat up dirt and germs invading the lungs

Due to the high volumes of blood flow and the unique composition of the surfaces of the lungs, they are often the earliest site of primary and metastatic cancerous lesions.

Identifying the problem

Lung cancer is the second most common cancer of any kind and the number one cause of cancer related deaths in men and women. It is accountable for the deaths of more individuals than cancers of the breast, colon, cervix, and prostate combined. It is usually asymptomatic until its advanced stages and has one of the poorest prognoses of all cancers with a 5-year survival rate on the order of 15%. On the other hand, it is highly treatable if discovered early- approximately 50% to 90% of patients survive five years if the disease is diagnosed while still localized. The effectiveness of treatment, therefore, is largely dependent on the “Stage” at which the lung cancer is discovered.

Smoking is responsible for more than 90% of primary lung cancers. Thus, there is little reason to look for lung cancer in non-smokers absent a significant second-hand smoke exposure. An exception would be a significant occupational risk such as asbestos or uranium exposure or some rare industrial exposures. But a family history of lung cancer indicates a higher risk in both smokers and non-smokers. Today, more lung cancers are found in former smokers than current smokers. Stopping smoking reduces the risk of lung cancer, but some increased risk remains for up to 20 years. Recent studies have suggested that significant “second hand smoke” is also a factor in lung cancer development.

Are you at Risk?

Lung cancer accounts for 32% of cancer deaths in men and 25% of cancer deaths in women. Approximately 160,400 Americans will die as a result of the disease over the next year. Cigarette smoking accounts for nearly 90% of all lung cancers. The risk of lung cancer is directly related to the number of cigarettes smoked.

The general public health message has suggested that once people quite smoking, they return to the health profile of a non-smoker; but this is simply not the case. Stopping smoking reduces the risk of lung cancer, but some increase risk remains for up to 20 years. The most important factor is the number of “pack-years” of cigarette use [defined as the number of packs smoked per day times the number of years of smoking]. Variables to consider include patients with a strong primary as well as “second-hand” smoking history (especially if they have respiratory symptoms) and patients that have been occupationally exposed to cancer causing chemicals (such as asbestos, radon, arsenic, chromium, nickel, or mustard gases).

What can be done?

Recent advances in imaging have suggested that low radiation dose computed tomography [CT] has a role in fast, convenient, very safe lung scanning and can diagnose tumors on the order of 5 mm in size. Death from lung cancer is considered preventable in approximately 85% of clinical cases through a combination of avoidance of smoking and early detection.

The EBT e^ˆSpeed™ scanner, available in Ohio exclusively at the PrevaHealth Wellness Diagnostic Center, is the latest state-of-the-art x-ray scanner for chest and heart imaging providing high resolution lung imaging at a fraction of the radiation dose of standard CT. In addition, CAD (computer assisted diagnostic) review of the images automatically highlights nodules of “suspicious” nature. Cancerous nodules can double in volume within 3-6 months, while stable lesions change little in this time period. Sequential imaging can track changes in lesion volume.

At PrevaHealth we use the innovative EBT e^ˆSpeed™ technology for our unique high-resolution, low radiation Lung scan. This information serves as the starting point for working with you and your doctor to design a personalized “HealthPATH” specifically for you.