This is a summary of what we’ll be talking about today.

**Lung cancer: How common is it?**

- Lung cancer is the second most common cancer in both men and women and the leading cause of cancer death among both men and women in the U.S.
- It accounts for about 14% of all new cancers in both men and women.
- For smokers the risk of lung cancer is much higher than in non-smokers.

**Bullet #1:** Most common cancer in men = prostate cancer. Most common cancer in women = breast cancer. (This is not counting skin cancers, which are not reported the same way.)

**Bullet #2:** So about 1 in 7 new cancers (not counting skin cancer) are lung cancers.

**What is lung cancer?**

- Lung cancer is a cancer that starts in the lungs.
- Lung cancers are thought to develop over many years.
- To understand lung cancer, it helps to know about the normal structure of the lungs and how they work.
The lungs

- The lungs get oxygen into the blood so your body will have the oxygen it needs, and they get rid of carbon dioxide.
- When you breathe in, air enters through your lungs through the trachea (windpipe).

Definitions and pronunciations, if needed:

**Trachea** (tray-key-uh)

**Bronchus** (brong-kus): a tube that takes air from windpipe to lung. Plural is bronchi (brong-ki)

**Lobes**: sections of lung. There are 3 sections on the right side of the body and 2 on the left (the heart takes up some of the space a middle lobe might use on that side.)

**Diaphragm** (die-uh-fram): the large muscle that divides the chest from the abdomen – it goes all the way across the body. It moves down, pulling air into the lungs each time you inhale, and it rises to let air leave the lungs when you exhale.

**Pleura** (plur-uh): very thin layers of tissue that enclose the lungs and cover the inside of the chest. The 2 layers of pleura slide against each other each time you take a breath.

**Lymph nodes** (limf): there are many of these in the chest and all over the body. Sometimes they are the first site a cancer spreads to.

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The lungs

- The trachea divides into 2 tubes (called bronchi) which divide into smaller tubes (called bronchioles).
- Most lung cancers start in the larger tubes (bronch), but cancer can start in any part of the lungs.

Pronunciations, if needed:

**Trachea** (tray-key-uh)

**Bronchi** (brong-ki)

**Bronchioles** (brong-key-olz)

**Alveoli** (al-vee-uh-lie)

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The lungs

- At the end of the smaller tubes (bronchioles) are tiny air sacs (called alveoli).
- This is where oxygen and carbon dioxide exchange between the blood and lungs takes place.

**Alveoli** (al-vee-uh-lie)
Bullet #1: The 2 types are treated differently and have a different outlook. We will not be discussing them separately here.

Having a risk factor, or even several risk factors, does not mean that you will get the disease. And some people who get the disease may not have any known risk factors. Even if a person with lung cancer has a risk factor, it is often very hard to know how much that risk factor may have contributed to the cancer.

- The longer you smoke and the more packs per day you smoke, the greater your risk.
- Low tar or "light" cigarettes increases lung cancer risk as much as regular cigarettes.
- Menthol cigarettes may increase the risk even more since the menthol allows smokers to inhale more deeply.
Lung cancer risk factors

- Radon
  - A naturally occurring radioactive gas that results from the breakdown of uranium in soil and rocks.
  - Cannot be seen, tasted, or smelled
  - According to the U.S. Environmental Protection Agency (EPA), radon is the second leading cause of lung cancer, and is the leading cause among non-smokers.

- Outdoors the radon spreads out and dissipates; there is so little radon that it is not dangerous. But indoors, radon can become more concentrated, creating a possible risk for cancer.
- If you are concerned about radon exposure, state and local offices of the EPA can give you the names of reliable companies that perform home radon testing and renovation to reduce your risk. For more information, see our separate document, *Radon*.

If asked: The radon gas emitted by soil or rock enters the buildings through cracks in floors or walls; or gaps in foundations around pipes, wires, or pumps. Without ventilation or another way of dissipating, radon can build up and reach rather high levels. Within buildings, radon levels are usually highest in the basement. This level is closest to the soil from which the radon-containing gas diffuses. That means that people who spend much of their time in basement rooms at home or at work would have a greater risk for exposure.

- Asbestos
  - Workplace exposure to asbestos fibers is an important risk factor for lung cancer.
  - Government regulations have greatly reduced the use of asbestos in commercial and industrial products in the U.S.

- Arsenic
  - High levels in drinking water may increase the risk of lung cancer, especially in smokers.

- If asked: Most exposures to arsenic are in drinking water (but the public water supplies of most US cities are not affected – well water is the main source in drinking water at this time), at work (if you work with arsenic), and can happen in those who work with pressure treated lumber, much of which contains arsenic. (In general it stays in the wood, but some arsenic can be released through sawing or cleaning the wood with acid solutions.)

- Other cancer-causing agents in the workplace
  - Radioactive ores such as uranium
  - Inhaled chemicals or minerals such as:
    - Coal products
    - Benzenes
    - Muscovite
    - Nickel compounds
    - Silica
    - Chromium compounds
    - Vinyl chloride
    - Diesel exhaust

- The government and industry have taken steps in recent years to protect workers. But the dangers are still present, and if you work around these agents, you should be careful to limit your exposure whenever possible.
- You can learn about the specific materials you are exposed to by asking for Material Safety Data Sheets (MSDS) at your workplace. The full name of the compound, known dangers, how it gets into the body, and how to limit exposures are typically in the MSDS information. At the very least, you can find out more about what to ask and contact NIOSH or the EPA for more information.

The ACS has a separate document, *Diesel Exhaust*. 
Lung cancer risk factors

- Radiation therapy to the chest
- Lung cancer in you (or a family member) in the past
- Air pollution
  - Especially from heavily trafficked roads in cities → slightly increased risk

**Bullet #3:** This risk is far less than the risk caused by smoking, but some researchers estimate that worldwide about 5% of all deaths from lung cancer may be due to outdoor air pollution.

So what can you do to prevent lung cancer?

There is no sure way to prevent lung cancer. But there are things everyone can do to reduce their risk of both small cell and non-small cell lung cancers.

The best way for most people to reduce their risk of lung cancer is not to smoke and to avoid breathing in other people’s smoke. You can find out more about radon from the EPA, including information about having your home tested and air quality where you live, at: http://www.epa.gov/iaq/radon/
Lung cancer screening is the use of tests or exams to find a disease in people without symptoms of that disease.

American Cancer Society Guidelines for Lung Cancer Screening

Patients should be asked about their smoking history; those who meet ALL of these criteria may be candidates for lung cancer screening:
- 55 to 74 years old
- In fairly good health
- Have at least a 30 pack-year smoking history
- Are either still smoking or have quit smoking within the last 15 years

Defining “fairly good health:” In order to have the most potential benefit from screening, patients need to be in good health. For example, they need to be able to have surgery and other treatments to cure any cancers that are found. That is why patients who require home oxygen therapy are not candidates for screening.

Patients with other serious medical problems that would shorten their lives or keep them from having surgery may also not be able to benefit enough from screening for it to be worth the risks, and so should also not be screened. Also, patients who have metal hardware (such as pacemakers or rods in the spine) implanted that could interfere with the CT imaging are not candidates for screening.

American Cancer Society Guidelines for Lung Cancer Screening

Doctors should talk to patients who meet the criteria about the benefits, limitations, and potential harms of lung cancer screening. Screening should only be done at facilities that have:
- The right type of CT scan
- Experience in using low-dose CT scans for lung cancer screening
- A team of specialists that can provide the appropriate care and follow-up of patients with abnormal scans.

What patients need to know:
- If you fit all of the criteria for lung cancer screening, you and your doctor (or other health care provider) should talk about whether you want to be screened or not. You should talk about what you can expect from screening, including possible benefits and harms, as well as the limitations of screening.
- It’s important to find out if your health insurance will cover the cost of annual low-dose CTs for lung cancer screening.
American Cancer Society Guidelines for Lung Cancer Screening

What patients need to know:

- If you decide, along with your doctor, that you want to be screened, you should get a low-dose CT every year until you reach the age of 74 as long as you remain in good health.
- A facility that can do lung cancer screening may not be nearby, so you might have to travel some distance to be screened.
- Screening is not a good alternative to stopping smoking. If you smoke, you should get help to quit.

Some people who get lung cancer have no apparent risk factors. Although we know how to prevent most lung cancers, at this time we don’t know how to prevent all of them.

One thing we know for sure—the best step a person can take to prevent lung cancer is to avoid any form of tobacco and tobacco smoke.

More information

You can get more information on lung cancer and lung cancer screening on our website, cancer.org, or call 1-800-227-2345 and talk with one of our Cancer Information Specialists.

We also have a lot of information on how to quit using tobacco.

Thank you!