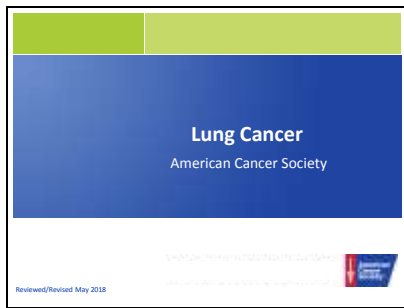
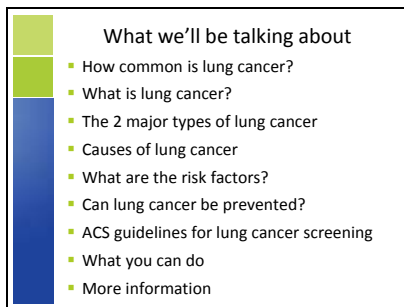


Slide 1

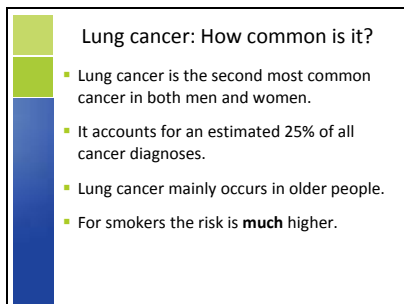


Slide 2



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

Slide 3



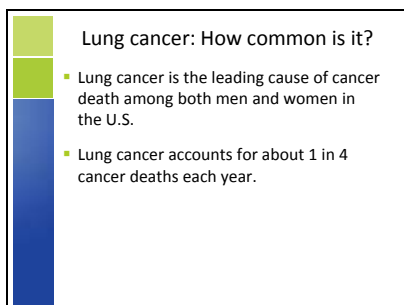
Bullet #1: most common cancer in men = prostate cancer. Most common cancer in women = breast cancer (This is not counting skin cancers, which are not reported the same way.)

Bullet #2: (this % does not count skin cancer)

Bullet #3: Most people diagnosed with lung cancer are 65 and older.

Bullet #4: 80% of lung cancer deaths in the US are caused by smoking. But, it's important to note that people who have never smoked can still get lung cancer. We will talk more about this later.

Slide 4



That is to say, it's a pretty deadly type of cancer.

Slide 5

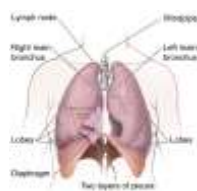
What is lung cancer?

- 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.

Slide 6

The lungs

- The lungs are 2 sponge-like organs found in the chest.
- When you breathe in, air enters through your mouth or nose and goes into 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.

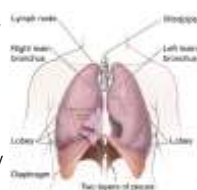
Pleura (**plur**-uh): very thin layers of tissue that coat the lungs and cover the inside of the chest. The 2 layers of pleura slide against each other each time you take a breath.

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.

Slide 7

The lungs

- The trachea divides into 2 tubes called the bronchi which divide into smaller branches called bronchioles.
- At the end of the bronchioles are tiny air sacs known as alveoli.



Bullet #1: Most lung cancers start in the bronchi, but they can also begin in other areas such as the trachea, bronchioles, or alveoli.

Pronunciations, if needed:

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

Bronchi (**brong**-ki)

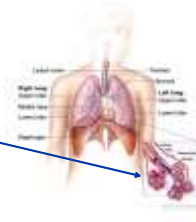
Bronchioles (**brong**-key-olz)

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

Slide 8

The lungs

- Alveoli absorb oxygen from the inhaled air into your blood and move carbon dioxide out of the blood into the air in the sacs. The carbon dioxide is then expelled from the body when you exhale.



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

Slide 9

2 major types of lung cancer

- There are 2 major types of lung cancer:
 - Small Cell Lung Cancer (SCLC)
 - Non-Small Cell Lung Cancer (NSCLC)
- 85 - 90% of all lung cancers are NSCLC.
- If a lung cancer has characteristics of both types it is called a mixed small cell/large cell cancer -- this is not common.

Bullet #1: The 2 types are treated differently and have a different outlook. We will not be discussing them separately here.

If asked: Lung Carcinoid tumor and Malignant Mesothelioma are other rare cancers that start in the chest. More information on each of these is available on our website, but they are not discussed here.

Slide 10

Causes of lung cancer

- Smoking is the leading cause of lung cancer.
 - About 80% of lung cancer deaths are linked to smoking.
 - Many others are caused by exposure to secondhand smoke.
- There are other known causes of lung cancer, but they are much less common.
- A small percentage of lung cancers occur in people with no apparent risk factors.

We will discuss other causes of lung cancer later on in this talk.

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Lung cancer risk factors

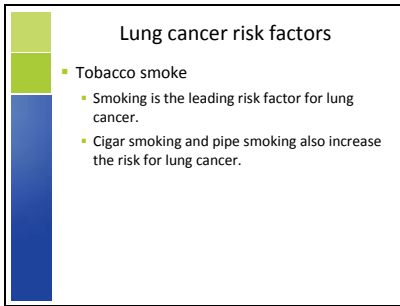
Risk factors are anything that can increase or decrease a person's chance of getting a disease, such as cancer.

There are many known risk factors for lung cancer. Some of these cannot be changed, but many can...

A risk factor is anything that affects your chance of getting a disease such as cancer. Different cancers have different risk factors. For example, sun exposure is a risk factor for skin cancer. But risk factors don't tell us everything.

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's often very hard to know how much that risk factor may have contributed to the cancer.

Slide 12



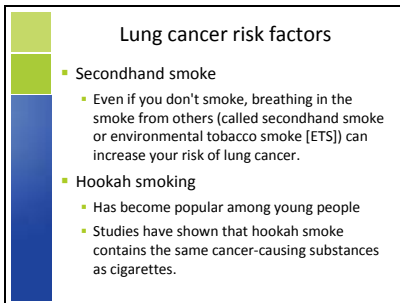
Lung cancer risk factors

- Tobacco smoke
 - Smoking is the leading risk factor for lung cancer.
 - Cigar smoking and pipe smoking also increase the risk for lung cancer.

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

If you stop smoking before a cancer develops, your damaged lung tissue can gradually start repairing itself. No matter what your age or how long you've smoked, quitting may help you live longer.

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Lung cancer risk factors

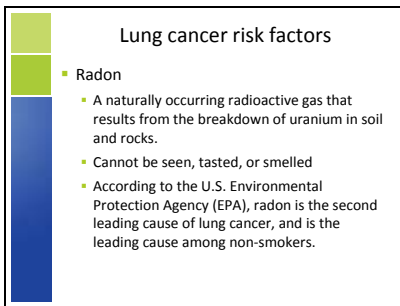
- Secondhand smoke
 - Even if you don't smoke, breathing in the smoke from others (called secondhand smoke or environmental tobacco smoke [ETS]) can increase your risk of lung cancer.
- Hookah smoking
 - Has become popular among young people
 - Studies have shown that hookah smoke contains the same cancer-causing substances as cigarettes.

Bullet #2: Hookah (hoo-kuh) is often marketed as being safer than cigarettes because the percent of tobacco in the product smoked is low and the smoke is filtered through water. But it's not true that hookah smoking is safe. And even though the smoke is run through water, the water can't actually filter it.

Hookah smoke contains nicotine – it's addictive and may lead to cigarette smoking in the future.

If asked: Hookah involves burning tobacco in a water pipe and inhaling the flavored smoke through a long hose.

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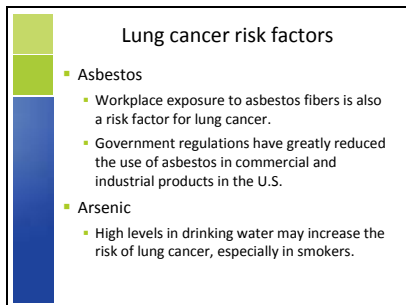
Lung cancer risk factors

- 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's so little radon that it's 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.

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Lung cancer risk factors

- Asbestos
 - Workplace exposure to asbestos fibers is also a 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.

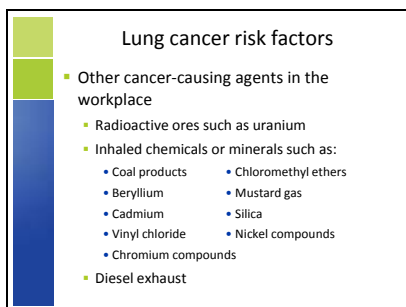
Bullet #1: People who work with asbestos (in some mines, mills, textile plants, places where insulation is used, shipyards, etc.) are several times more likely to die of lung cancer.

- In workers exposed to asbestos who also smoke, the lung cancer risk is much greater than even adding the risks from these exposures separately.
- It's not clear to what extent low-level or short-term exposure to asbestos might raise lung cancer risk.
- Asbestos is still present in many homes and commercial buildings, but is not usually considered harmful as long as it's not released into the air by deterioration, demolition, or renovation. For more information, see our separate document, *Asbestos*.

Bullet #2: Risk even higher in smokers. For more information, see our separate document, *Arsenic*.

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 of arsenic 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.)

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Lung cancer risk factors

- Other cancer-causing agents in the workplace
 - Radioactive ores such as uranium
 - Inhaled chemicals or minerals such as:
 - Coal products
 - Beryllium
 - Cadmium
 - Vinyl chloride
 - Chromium compounds
 - Chloromethyl ethers
 - Mustard gas
 - Silica
 - Nickel compounds
 - 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*.

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Lung cancer risk factors

- Radiation therapy to the chest
- A history of lung cancer yourself or lung cancer in a family member
- Air pollution
 - Especially from heavily traveled roads in cities → slightly increased risk

Bullet #1: People who have ever had radiation treatments to the chest for cancer are at higher risk for lung cancer, particularly if they smoke.

Bullet #2: If you have had lung cancer, you have a higher risk of developing another lung cancer. Brothers, sisters, and children of those who have had lung cancer may have a slightly higher risk of lung cancer themselves, especially if it was diagnosed at a younger age. It is not clear how much of this risk might be due to genetics and how much might be from shared exposures (such as tobacco smoke or radon).

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.

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So what can you do to prevent lung cancer?

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Preventing 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

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Preventing lung cancer

- The best way for most people to reduce their risk of lung cancer is to not smoke and also avoid breathing in other people's smoke.




If you or someone you care about needs help quitting, please call your American Cancer Society.

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Preventing lung cancer

- Reduce or eliminate radon exposure
 - Talk with your local EPA office about home testing
- Avoid exposure to known cancer-causing chemicals
- Follow a healthy diet




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/radon>

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Lung cancer screening

Screening is the use of tests or exams to find a disease in people without symptoms of that disease.



Low-dose CT (LDCT) scan machine used to screen for lung cancer

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American Cancer Society Guidelines for Lung Cancer Screening: 2018

Patients should be asked about their smoking history. Those who have ALL of the criteria below are recommended to get screened for lung cancer:

- 55 to 74 years old
- In fairly good health
- Are current smokers or have quit smoking within the last 15 years
- Have at least a 30 pack-year smoking history
- Have received counseling to quit smoking (if still smoking)
- Have been informed of the possible benefits, limits, and harms of LDCT screening
- Have a facility where they can go that has experience in lung cancer screening and treatment

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. For this reason, patients who need 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 should also not be screened. Also, patients who have implanted metal hardware (such as pacemakers or rods in the spine) that could interfere with the CT imaging are not candidates for screening.

Smith RA, Andrews KS, Brooks D, Fedewa SA, Manassaram-Baptiste D, Saslow D, Brawley OW, Wender RC. Cancer screening in the United States, 2018: A review of current American Cancer Society guidelines and current issues in cancer screening. *CA: Cancer J Clin.* 2018 [Epub ahead of print].

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American Cancer Society Guidelines for Lung Cancer Screening: 2018

Doctors should talk to higher risk patients about their individual risk for lung cancer and how they may fit into the lung cancer screening guideline.

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, treatment, and follow-up of patients with abnormal scans.

Smith RA, Andrews KS, Brooks D, Fedewa SA, Manassaram-Baptiste D, Saslow D, Brawley OW, Wender RC. Cancer screening in the United States, 2018: A review of current American Cancer Society guidelines and current issues in cancer screening. *CA: Cancer J Clin.* 2018 [Epub ahead of print].

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American Cancer Society Guidelines for Lung Cancer Screening: 2018

What patients need to know:

- If you have risk factors that put you at higher risk for lung cancer, you should talk to your healthcare provider about getting screened.
- You should discuss what to expect from screening, including possible benefits and harms, as well as the limits of screening.
- Lung cancer screening is covered by Medicare and many private health insurance plans. Your healthcare team can help you find out more about your coverage.

Smith RA, Andrews KS, Brooks D, Fedewa SA, Manassaram-Baptiste D, Saslow D, Brawley OW, Wender RC. Cancer screening in the United States, 2018: A review of current American Cancer Society guidelines and current issues in cancer screening. *CA: Cancer J Clin.* 2018 [Epub ahead of print].

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American Cancer Society Guidelines for Lung Cancer Screening: 2018

What patients need to know:

- If you are at higher risk for lung cancer, screening with a low-dose CT (LDCT) scan is recommended 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 and provide follow-up care or treatment may not be nearby, so you may need to travel some distance to be screened.
- Screening is not a good alternative to stopping smoking. If you still smoke, you should get help to quit.


Smith RA, Andrews KS, Brooks D, Fedewa SA, Manassaram-Baptiste D, Saslow D, Brawley OW, Wender RC. Cancer screening in the United States, 2018: A review of current American Cancer Society guidelines and current issues in cancer screening. *CA: Cancer J Clin.* 2018 [Epub ahead of print].

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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. And screening will not find 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.

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More information

You can get more information on lung cancer and lung cancer screening on our website cancer.org or call 1-800-227-2343 and talk with one of our Cancer Information Specialists.

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

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Thank you!

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