Introduction to Public Health
Module # 5

Tobacco consumption/ smoking and its prevention

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OBJECTIVES OF THE LECTURE

By the end of this lecture you will be able to:

- *Conceptualize*
  - *The harmful effects of tobacco consumption.*
  - *Smoking behaviors.*
  - *planning & policies to control smoking tobacco*
- *Understand the feasibilities of reducing manufacturing and consumption of tobacco in Bangladesh.*

Smoking and it’s impacts on health

SMOKING AND IT’S IMPACTS ON HEALTH & SOCIETY

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Tobacco History

- Jean Nicot de Villemain introduces tobacco to France, promotes importation and cultivation (1556)
- Chewed recreationally, used for ailments (e.g. headaches, colds) in Europe (1500s)
- Tobacco becomes major cash crop of American colonies, spurring demand for slave labor (1600s)

Why do people smoke?

- As a result of curiosity
- To relax
- To socialize with peers – **“peer pressure”**
- To deal with stress & distress
- Seek psychological satisfaction
- Socioeconomic status
- Cultural characteristics
- Price of tobacco products
- Advertising (for and against)

Facts

- Most addictive drug
- Smoking causes lung cancer- 1950
- Smoking behaviour is responsible for epidemic of lung cancer
- Causes more long term health problems than any other drug
- Also causes
  - Cardiovascular disease
  - Chronic lung disease
  - Low birth weight (LBW)
  - Depression
  - Skin becomes thinner and wrinkled

Role of public health

- PH fought tobacco industries many fronts
  - 1960: balanced ads in TV and radio
  - Warning labels in packets
  - Sophisticated marketing
- PH interventions
  - Prevented the onset of smoking
  - Reduced its prevalence
  - Enforcement of law to sale to minors
  - Restricted indoor smoking
  - Imposed taxes to hike price

Policies and the ordinance in Bangladesh

- 1890: Article of the railways act
  - 20 taka fine ☺
  - Removed from the carriage
- 1919: Juvenile Smoking Act
  - Prohibited selling or giving to apparently 16< yrs
  - Fine 10 taka/ 20 taka/ 50 taka
- 2005: Smoking and using tobacco products (control) act
  - Defined public place
  - Prohibited advertising in favour
  - Health warning messages on packets
- 2006: Smoking and using tobacco products (control) rules
  - Specified smoking zones

Policies and the ordinance in Bangladesh (contd.)

- 2013: Smoking and using tobacco usage (control) amendment
- 2015: Smoking and using tobacco usage (control)
  - Rules to control displaying of usage of tobacco products in movies
  - Responsibility of the owner and related persons of the public place or public transport
  - Display of caution notice regarding smoke-free area
  - Pictorial display on packets
- 2016: Public notice
  - print pictorial health warnings at least on the 50% area of the lower part of any packet, carton or can containing tobacco products

Some terminologies

- Epidemic
  - –The occurrence in a community or geographic area of disease at a rate that clearly exceeds the normally expected rate
- Low birth weight
  - –Weight at birth of less than 2500g. Very LBW means weight at birth of less than 1500g
- Cardiovascular disease
  - –Disease of the heart and blood vessels
- Carcinogenic
  - –A substance or agent that is known to cause cancer

Trends / current status

- In 2003, the smoking prevalence among adults was 54.8% in males and 16.6% in females.
- ***The prevalence was 1.6% in the age group 10-14, 2.8% among males and 0.1% among females.***

Trends / current status

- ***29% school going adolescent males practice smoking and 55% males start smoking during adolescence who do not go to school.***
- **Average number of cigarettes smoked:** The annual cigarette consumption per person: 245

Trends / current status

- **Adolescent smoking is alarming, because tobacco is considered to be a "gateway drug", the use of which may lead to alcohol, marijuana and other drug abuse and high-risk behaviors in the long term.**

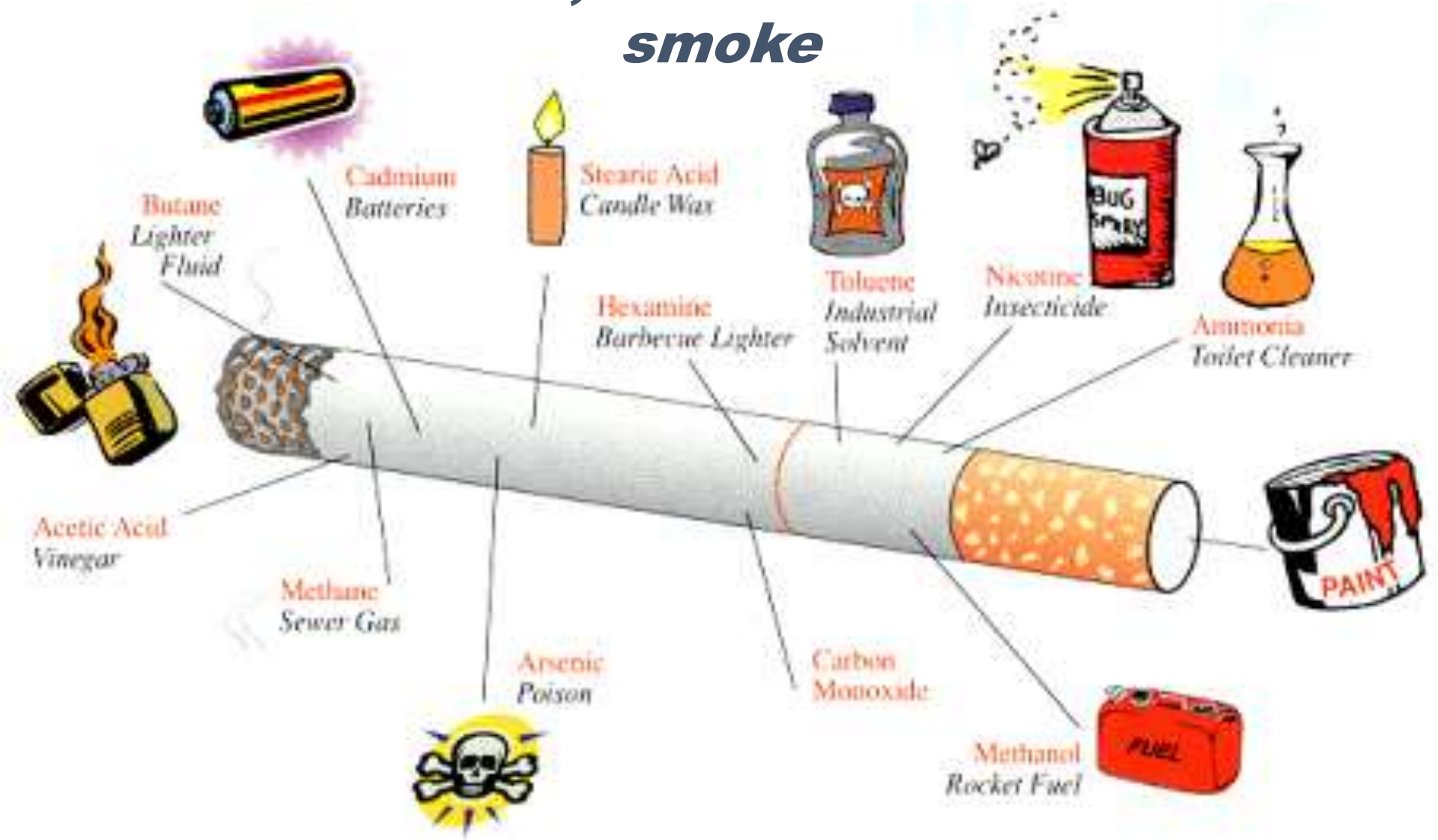
Main Forms of Tobacco Used in Bangladesh

- Cigarettes
- Bidi/Biri
- Pipe
- Cigar
- Hubble-bubble
- Gul
- Zarda
- Chew tobacco etc.

Commercial Tobacco Contents

- 4000 Chemicals
- 40 Cancer causing agents
- 500 Poisons

There are over 4,000 chemicals in tobacco smoke



Each puff on a cigarette delivers nicotine to your brain within a few seconds.
However, the Nicotine levels in your blood drop quickly after your cigarette is done.
After 20 or 30 minutes you may feel the urge to smoke again.

There are over 4,000 chemicals in tobacco smoke

- **Each puff on a cigarette delivers nicotine to your brain within a few seconds.**
- **However, the Nicotine levels in your blood drop quickly after your cigarette is done.**
- **After 20 or 30 minutes you may feel the urge to smoke again.**

Nicotine

- Poisonous
- More addictive than cocaine and heroine
- So powerful that farmers can use it to kill insects
- Legal addiction
- Use results in addiction
  - Mood leveler
  - Users rely on it to control emotional responses to everyday life

Carbon Monoxide

- The compound is present in car exhaust that can cause death.
- Causes shortness of breath.
- Reduces the amount of oxygen carrying capacity of blood.

Tar

- Sticky Residue that stains the fingers and teeth.
- Contains benzopyrene, one of the deadliest cancer causing agent.

Chemicals

- Acetone: fingernail polish remover
- Ammonia: floor/toilet cleaner
- Cadmium: content of batteries
- Arsenic: rat poison
- Methane: content of cow manure fumes
- Formaldehyde: preserver of dead bodies

Metals

- Silver
- Lead
- Copper
- Mercury
- Heavy metals

Metals

- Aluminum
- Magnesium
- Zinc
- Silicon
- Titanium

Nicotine dependence

Central nervous system Pleasure and arousal,

Improved short term memory,

Improved concentration and

Decreased anxiety

Cardiovascular system Increased heart rate and blood pressure and peripheral vasoconstriction

Nicotine dependence

Endocrine system Increased circulating catecholamines (eg. adrenaline and noradrenalin) and increased cortisol levels

Metabolic system Increased basal metabolic rate

Gastrointestinal system Decreased appetite, nausea

Skeletal muscle Decreased tone

Nicotine dependence

Central nervous system	**Pleasure and arousal,** **Improved short term memory,** **Improved concentration and** **Decreased anxiety**
Cardiovascular system	**Increased heart rate and blood pressure and peripheral vasoconstriction**
Endocrine system	**Increased circulating catecholamines (eg. adrenaline and noradrenalin) and increased cortisol levels**
Metabolic system	**Increased basal metabolic rate**
Gastrointestinal system	**Decreased appetite, nausea**
Skeletal muscle	**Decreased tone**

Normal Lung

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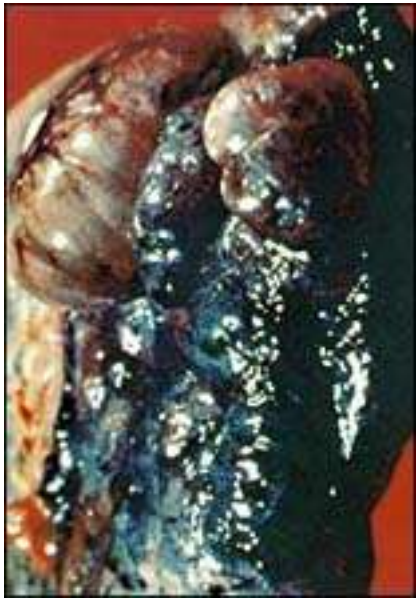
Lung Cancer



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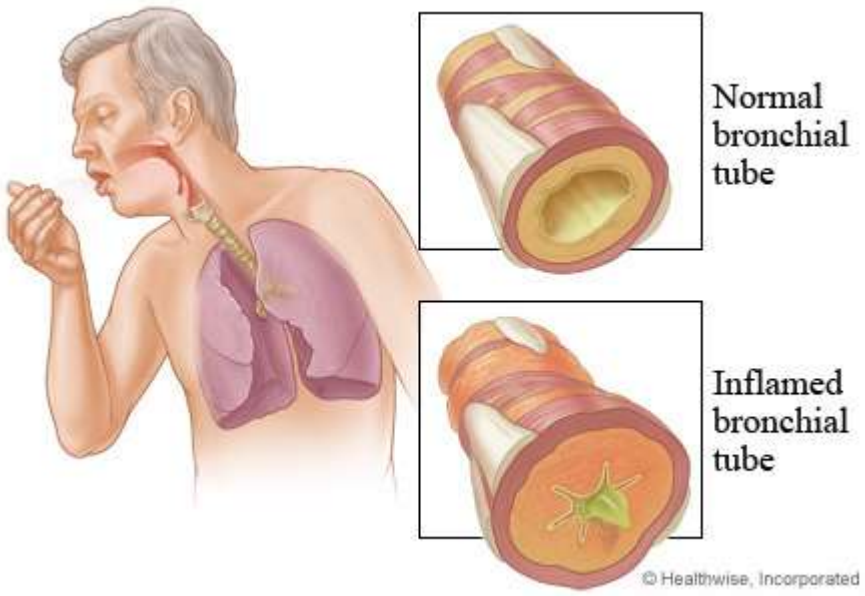
Impact of Smoking tobacco

- **Smoking causes:**
  - **Pneumonia**
  - **Asthma**
  - **Bronchitis**
  - **Lung cancer**

Impact of Smoking tobacco



Bronchitis

- **Bronchitis: is an inflammation of the lung airways resulting in persistent cough. It may become due to smoking.**

Bronchitis

- **Chronic bronchitis is a chronic inflammatory condition in the lungs that causes the respiratory passages to be swollen and irritated, increases the mucus production and may damage the lungs.**

Bronchitis

- **The symptoms are coughing and breathlessness, which will get worse over the years.**
  Chronic bronchitis is defined as chronic cough or mucus production for at least three months in two successive years when other causes have been excluded.

Lung Cancer

- **Lung cancer kills more people than any other type of cancer and at least 80% of these deaths are caused by smoking.**
- **It is the tar in the `cigarettes which contains the carcinogenic "cancer causing" substances**

Cancer

- **Cigarette tar contains some of the most carcinogenic chemicals. During smoking the tar not only come in contact with lung, but tar also come in contact with lips, tongue, larynx, oesophagus and throughout the digestive tract. Smokers have increased incidents of cancer in all of these exposed sites.**

Effects of Smoking

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Effects of Smoking

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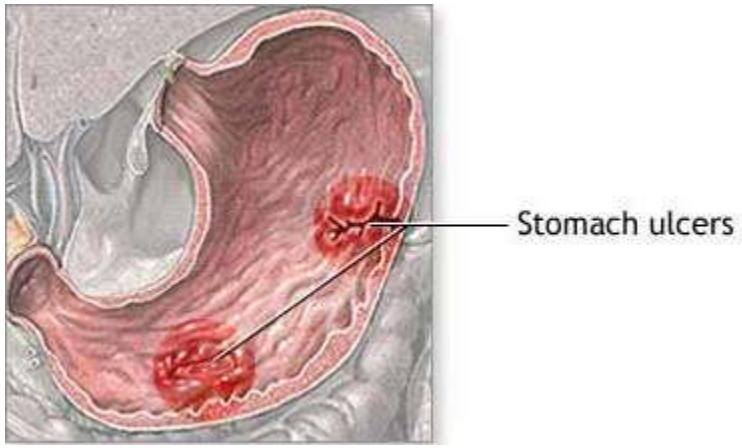
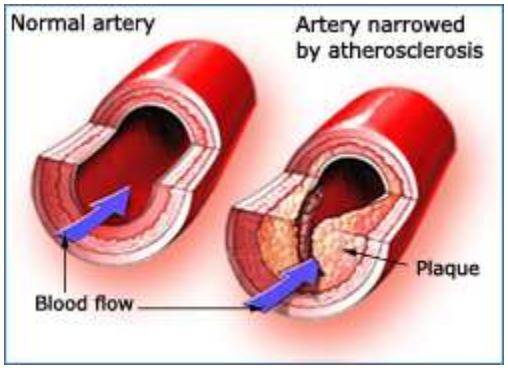


Effects of Smoking



Effects of Smoking

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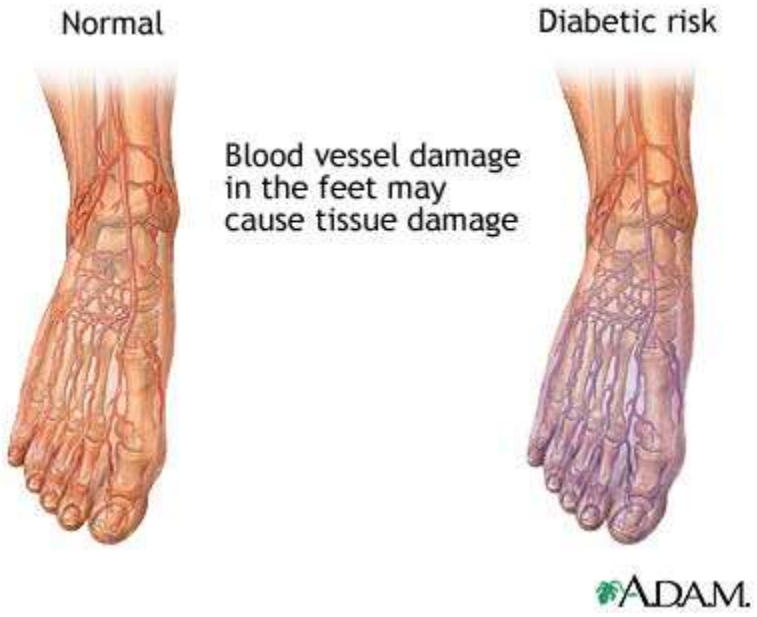


Effects of Smoking

- Smoking and Diabetes both reduce the amount of oxygen reaching body tissues, which results in poor circulation.
- Smoking raises blood sugar level making it harder to control diabetes.
- Of people with diabetes who need amputations, 95% are smokers.

Effects of Smoking

- Smoking increases blood cholesterol level and hardens arteries. Thus nicotine acts as a vessel constrictor and reduces blood flow to different parts the body.
- Diabetes increases cholesterol level and the levels of some other fats in our blood.
- The combined cardiovascular risks of smoking and diabetes is as high as 14 times those of either smoking or diabetes alone.

Steps to quitting

1. Get ready
2. Get support
3. Learn new skills and behaviors
4. Get medication – if recommended by your doctor – and use it correctly
5. Be prepared for cravings and withdrawal symptoms

Steps to quitting

Step 1: Get Ready

- Set a quit date
- Get rid of all cigarettes and ashtrays at home, work and in your car
- Keep a diary of when and why you smoke
- Tell friends and family that you are going to stop

Steps to quitting

Step 2: Get Support

- Your chances of success increase if you have a support network
- Ask friends, family and for their support in helping you to quit
- Ask others not to smoke around you

Step 3: Learn New Skills & Behaviors

- Distract yourself from urges to smoke
  - Talk to someone
  - Go for a walk
  - Get busy with a task
  - Go somewhere you're not allowed to smoke

Step 3: Learn New Skills ☐
& Behaviors

- Change your routine
  - Take a different route to work
  - Drink tea instead of coffee
  - Eat breakfast in a different place

Steps to quitting

Step 3: Learn New Skills & Behaviors

- Reduce stress – take a hot bath, exercise, or read a book
- Plan something enjoyable to do every day
- Drink a lot of water and other fluids

Steps to quitting

Step 4: Get Medication

- Take medication as per suggestion of your family physician

Steps to quitting

Step 5: Avoid Relapse

- Most relapses occur within the first three months
- Avoid drinking alcohol – drinking lowers your chances of success
- Avoid being around other smokers – can make you want to smoke

Steps to quitting

Step 5: Avoid Relapse

- Eat a healthy diet
- Stay active
- Look for ways to improve your mood other than smoking

Withdrawal Symptoms

Anxiety 87% *	**Irritability 80% ***
Difficulty Concentrating 73% *	**Restlessness 71%**
Tobacco Cravings 62%	**Gastrointestinal Problems 33%**
Headaches 24%	**Drowsiness 22%**

Steps to quitting

- Most intense during the first three to seven days
- May continue for several weeks but will get less severe
- Triggers or cues associated with smoking can cause cravings

Steps to quitting

Do

- Exercise
- Reduce or avoid caffeine or other stimulants
- Relax before going to bed
- Make your bedroom quiet
- Keep a bedtime routine

Do

- Drink plenty of water
- Use cough drops to relieve throat irritation

When You Quit…

- Adjust your schedule to a lighter workload
- Lower your expectations on the amount of work you can do
- Understand the amount of energy and time it takes to stop smoking

When You Quit…

If your appetite has increased

- Eat healthy snacks
- Don’t delay regular meals
- Drink more water
- Exercise regularly

When You Quit…

If you crave a cigarette

- Wait out the craving (usually less than five minutes)
- Try deep breathing
- Use distractions
- Call someone in your support network
- Chew gum
- Brush your teeth

When You Quit…

- **Within 20 Minutes:**
  - **Blood pressure drops to normal**
  - **Pulse rate returns to normal**
  - **Body temperature of hands and feet increases to normal**
- **Within 8 Hours:**
  - **Carbon Monoxide level in blood drops to normal**
  - **Oxygen level in blood increases to normal**
  - **Smoker's breath disappears**
- **Within 24 Hours:**
  - **Your chance of a heart attack decreases.**
- **Within 48 Hours:**
  - **Nerve endings start to re-grow**
  - **Your ability to smell and taste is enhanced**

When You Quit…

- **Within 72 Hours:**
  - **Bronchial tubes relax making it easier to breathe.**
  - **Lung capacity increases making it easier to do physical activities**
  - **Within 2 weeks - 3 months:**
  - **Circulation improves**
  - **Walking becomes easier**
  - **Lung function increases up to 30 %**
- **Within 1 - 9 months:**
  - **Coughing, sinus congestion, fatigue, shortness of breath decrease**
  - **Energy level increases**
  - **Cilia re-grow in lungs, increasing the ability to handle mucus, clean lungs, reduce infection**

When You Quit…

- Within One Year:
  - Risk of coronary heart disease is half that of a smoker
- Within Two Years:
  - Heart attack risk drops to near normal
- Within 5 Years:
  - Lung cancer death rate for average pack-a-day smoker decreases by almost half
  - Stroke risk is reduced
  - Risk of mouth, throat and esophageal cancer is half than that of a smoker

When You Quit…

- Within 10 Years:
  - The pre-cancerous cells are replaced.
- Within 15 Years:
  - Risk of coronary heart disease is same as a person who has never smoked.


DeathSticks
Lung Cancer
DeathSticks
Lung Cancer
DeathSticks
Smoking Kills
DeathSticks
Lung Cancer
DeathSticks
Smoking while pregnant harms your baby


NO SMOKING

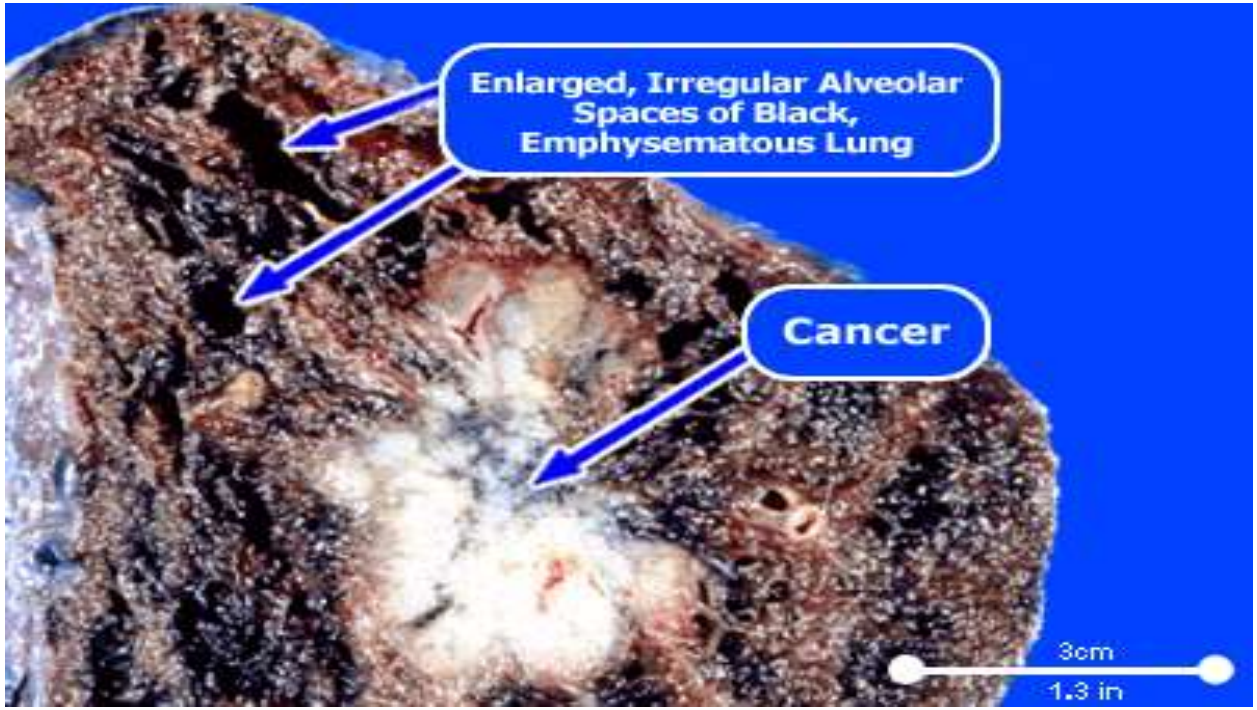
Why cigarette smoking is bad for us?

- **Everyone knows that smoking can cause cancer when you get older, but did you know that it also has bad effects on your body right now? A cigarette contains about 4000 chemicals, many of which are poisonous. Some of the worst ones are:**
- **Nicotine: a deadly poison**
- **Arsenic: used in rat poison**
- **Methane: a component of rocket fuel**
- **Ammonia: found in floor cleaner**
- **Cadmium: used in batteries**
- **Carbon Monoxide: part of car exhaust**
- **Formaldehyde: used to preserve body tissue**
- **Butane: lighter fluid**
- **Hydrogen Cyanide: the poison used in gas chambers**
- **Every time you inhale cigarette smoke, small amounts of these chemicals get into your blood through your lungs. They travel to all the parts of your body and cause harm.**

Following figure showing a normal & diseases lung:

What is Cancer of Lung?

- ✓**Cancer of the lung, like all cancers, results from an abnormality in the body's basic unit of life, the cell. Normally, the body maintains a system of checks and balances on cell growth so that cells divide to produce new cells only when needed. Disruption of this system of checks and balances on cell growth results in an uncontrolled division and proliferation of cells that eventually forms a mass known as a tumor.**



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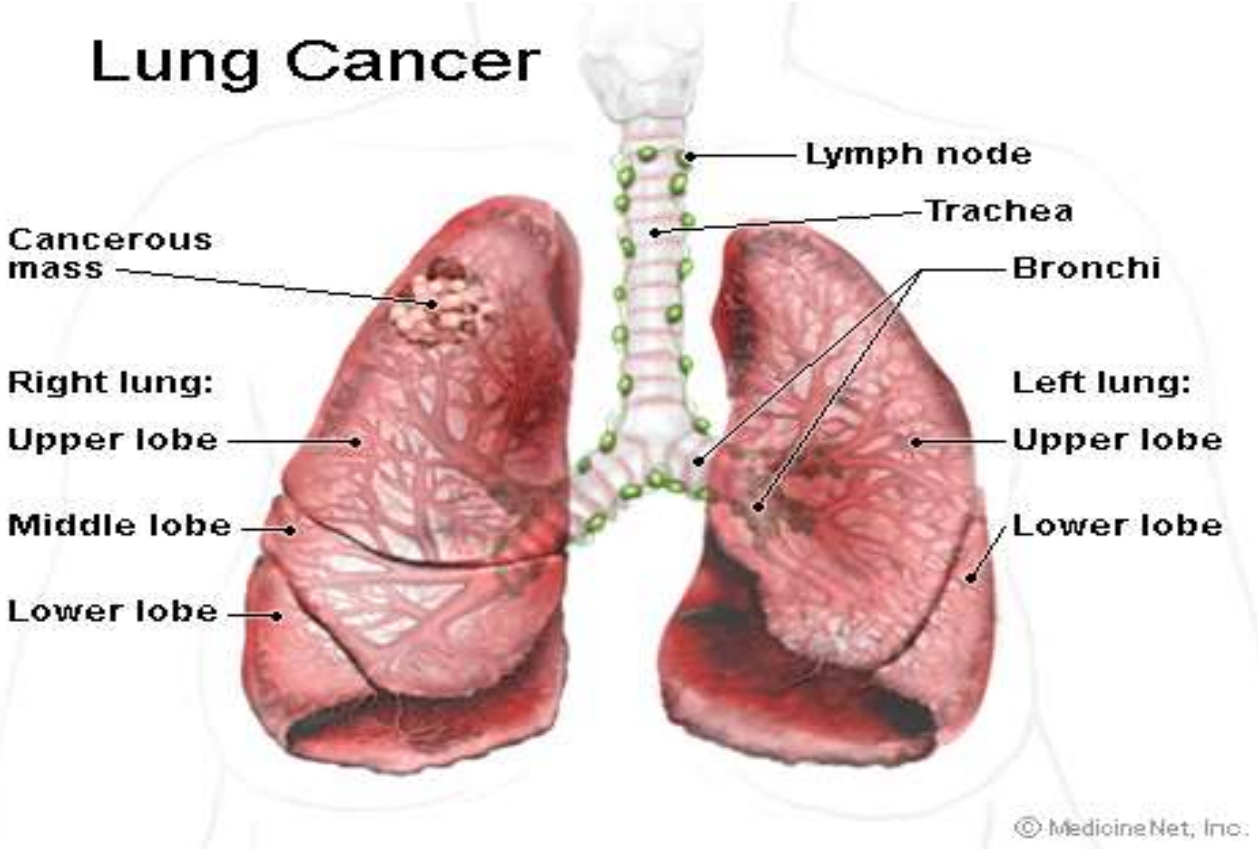
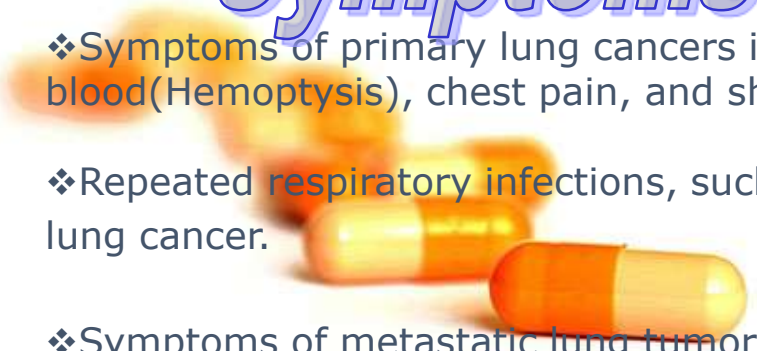
Continued.....

Lung cancers can arise in any part of the lung, but 90%-95% of cancers of the lung are thought to arise from the epithelial, or lining cells of the larger and smaller airways (bronchi and bronchioles); for this reason, lung cancers are sometimes called bronchogenic carcinomas or bronchogenic cancers. Cancers can also arise from the pleura (the thin layer of tissue that surrounds the lungs), called mesotheliomas, or rarely from supporting tissues within the lungs, for example, blood vessels.



Symptoms of Lung Cancer



❖Symptoms of primary lung cancers include cough, coughing up blood(Hemoptysis), chest pain, and shortness of breath.

❖Repeated respiratory infections, such as bronchitis or pneumonia, can be a sign of lung cancer.

❖Symptoms of metastatic lung tumors depend on the location and size. About 30%-40% of people with lung cancer have some symptoms or signs of metastatic disease.

❖Lung cancer most often spreads to the liver, the adrenal glands, the bones, and the brain.

❖Metastatic lung cancer in the liver usually does not cause symptoms, at least by the time of diagnosis.

❖Metastatic lung cancer in the adrenal glands also typically causes no symptoms by the time of diagnosis.

❖Metastasis to the bones is most common with small cell cancers but also occurs with other lung cancer types. Lung cancer that has metastasized to the bone causes bone pain, usually in the backbone (vertebrae), the thighbones, and the ribs.

❖Lung cancer that spreads to the brain can cause difficulties with vision, weakness on one side of the body, and/or seizures.

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Risk Factors for Lung Cancer

- Tobacco Smoking: The Deadliest Habit
- Asbestos exposure
- Family history
- Recurring Inflammation of the lung
- Carcinogens in the workplace
- Marijuana use
- Radon exposure
- Indoor & Outdoor air pollution

Diagnostic procedures and tests to diagnose lung cancer

- History and physical examination
- Chest X-ray
- CT (computerized axial tomography scan, or CAT scan) scans
- Low-dose helical CT scan or spiral CT scan)
- Magnetic resonance imaging (MRI)
- Positron emission tomography (PET)
- Bone scans
- Sputum cytology
- Bronchoscopy
- Needle biopsy(FNAC)

What to do for Prevention of Lung Cancer?

Please don't smoke

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Preventive Approach:

- Cigarette Smoking is highly addictive & quitting often proves to be difficult.
- Health care provider play an important role in identifying smokers & helping them quit.
- Many products such as nicotine gum, nicotine sprays, nicotine inhalers & others type of
- medications have been successfully used to help people trying to quit smoking.
- Minimization exposure to passive smoking is also an effective preventive measures.
- Smokers who use a combination of supplemental nicotine, group therapy & behavioral training shows a significant drop in smoking rates.

5 Ways To Prevent Lung Cancer

- 1. Quit smoking - NOW
- 2.Fruits and vegetables are rich with antioxidants and flavonoids. Antioxidants and flavonoids help protect your cell's DNA and repair damaged cells.
- 3. Have your home tested for radon
- 4. Know what you are being exposed to in the workplace.
- 5. Keep away from secondhand smoke.

Thank You