

# **The Health, Social, Economic and Environmental impacts of tobacco and emerging tobacco products.**

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**Tobacco Control & Other NCD Risk Factors  
WHO AFRO**



**World Health  
Organization**

# Presentation Outline

- Tobacco and Tobacco Products
- Tobacco and disease
- Socio-economic impact
- Environmental impact
- Epidemic of tobacco in Africa
- Why government should intervene



# Tobacco

## Leaves of *Tobacco*



# Curing tobacco leaf



# Tobacco Products

## Smoked Tobacco Products

## Smokeless Tobacco



Cigarettes



Cigars



Chewing tobacco



Pipe



Water pipe/Shisha



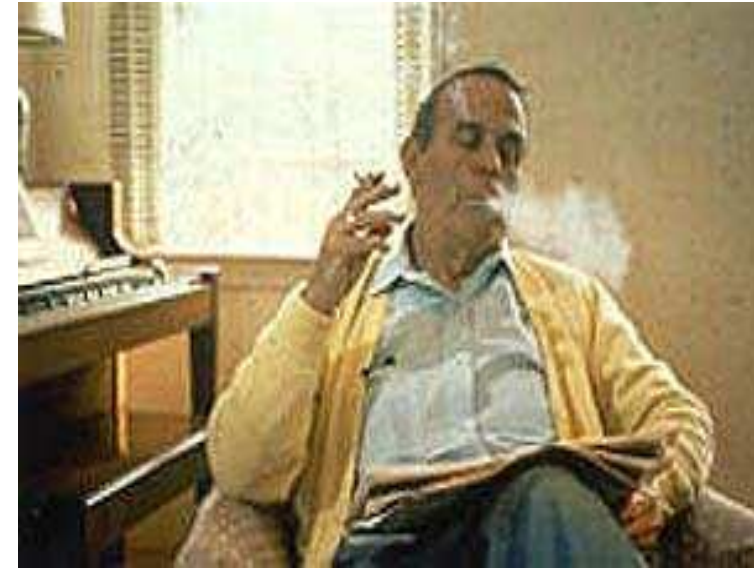
Snuff



Roll-your-own cigarette

# Tobacco Smoke Terminology

- Mainstream smoke (MS): the smoke drawn through the mouthpiece of the cigarette when puffs are taken
- Sidestream smoke (SS): the smoke emitted from the smoldering cigarette between puffs
- **Secondhand Smoke (SHS)**  
combination of SS and exhaled MS
- **Third Hand smoke:**



# Tobacco is Poisonous!

- Tobacco smoke contains a deadly mix of more than 7,000 chemicals.
- 70 of these chemicals are known to cause cancer (carcinogens)
- **Nicotine** is the drug in tobacco that causes addiction
- **Nicotine** is very addictive – more than heroine and cocaine

**Table 9-1** Concentrations of Selected Compounds in Nonfilter Cigarette Mainstream Smoke and Ratio of Relative Distribution in Sidestream Smoke

<i>Compound</i>	<i>Mainstream Smoke</i>	<i>Sidestream Smoke: Mainstream Smoke</i>
<i>Vapor phase</i>		
Carbon monoxide	10-23 mg	2.5-4.7
Carbon dioxide	20-60 mg	8-11
Carbonyl sulphide	18-42 µg	0.03-0.13
Benzene	12-48 µg	10
Toluene	160 µg	6-8
Formaldehyde	70-100 µg	0.1 - 50
Acrolein	60-100 µg	8-15
Acetone	100-250 µg	2-5
Pyridine	16-40 µg	7-20
3-Vinylpyridine	15-30 µg	20-40
Hydrogen cyanide	400-500 µg	0.1-0.25
Hydrazine	32 ng	3.0
Ammonia	50-150 µg	40-170
Methylamine	17.5-28.7 µg	4.2-6.4
Dimethylamine	7.8-10 µg	3.7-5.1
Nitrogen oxides	100-600 µg	4-10
N-Nitrosodimethylamine	10-40 ng	20-100
N-Nitrosopyrrolidine	6-30 ng	6-30
Formic acid	210-478 µg	1.4-1.6
Acetic acid	330-810 µg	1.9-3.9
<i>Particulate phase</i>		
Particulate matter	15-40 mg	1.3-1.9
Nicotine	1.7-3.3 mg	1.8-3.3
Anatabine	2.4-20.1 µg	0.1-0.5
Phenol	60-140 µg	1.6-3.0
Catechol	100-360 µg	0.6-0.9
Hydroquinone	110-300 µg	0.7-0.9
Aniline	360 ng	30
ortho-Toluidine	160 ng	19
2-Naphthylamine	1.7 ng	30
4-Aminobiphenyl	4.6 ng	31
Benz[ <i>a</i> ]anthracene	20-70 ng	2.2-4
Benzo[ <i>a</i> ]pyrene	20-40 ng	2.5-3.5
Cholesterol	14.2 µg	0.9

*continues*



# Effects on blood and blood vessels

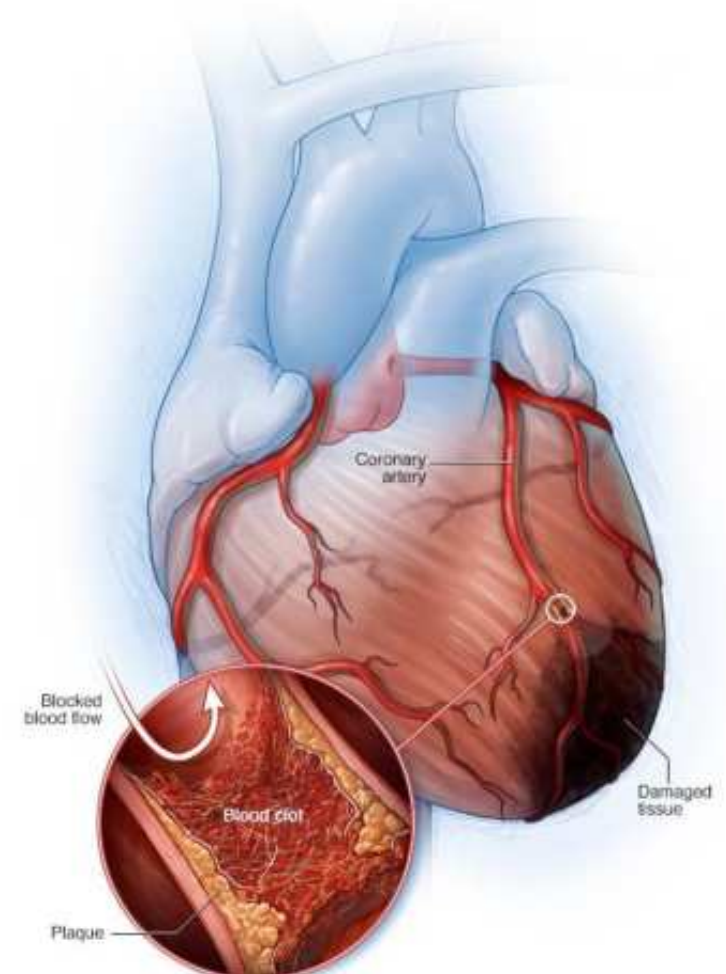
- Smoking damages blood vessels. It makes them thicken and grow narrowed
- Narrow blood vessels causes slow blood flow which promotes clots
- Clots block vessels reducing blood flow to the legs and skin





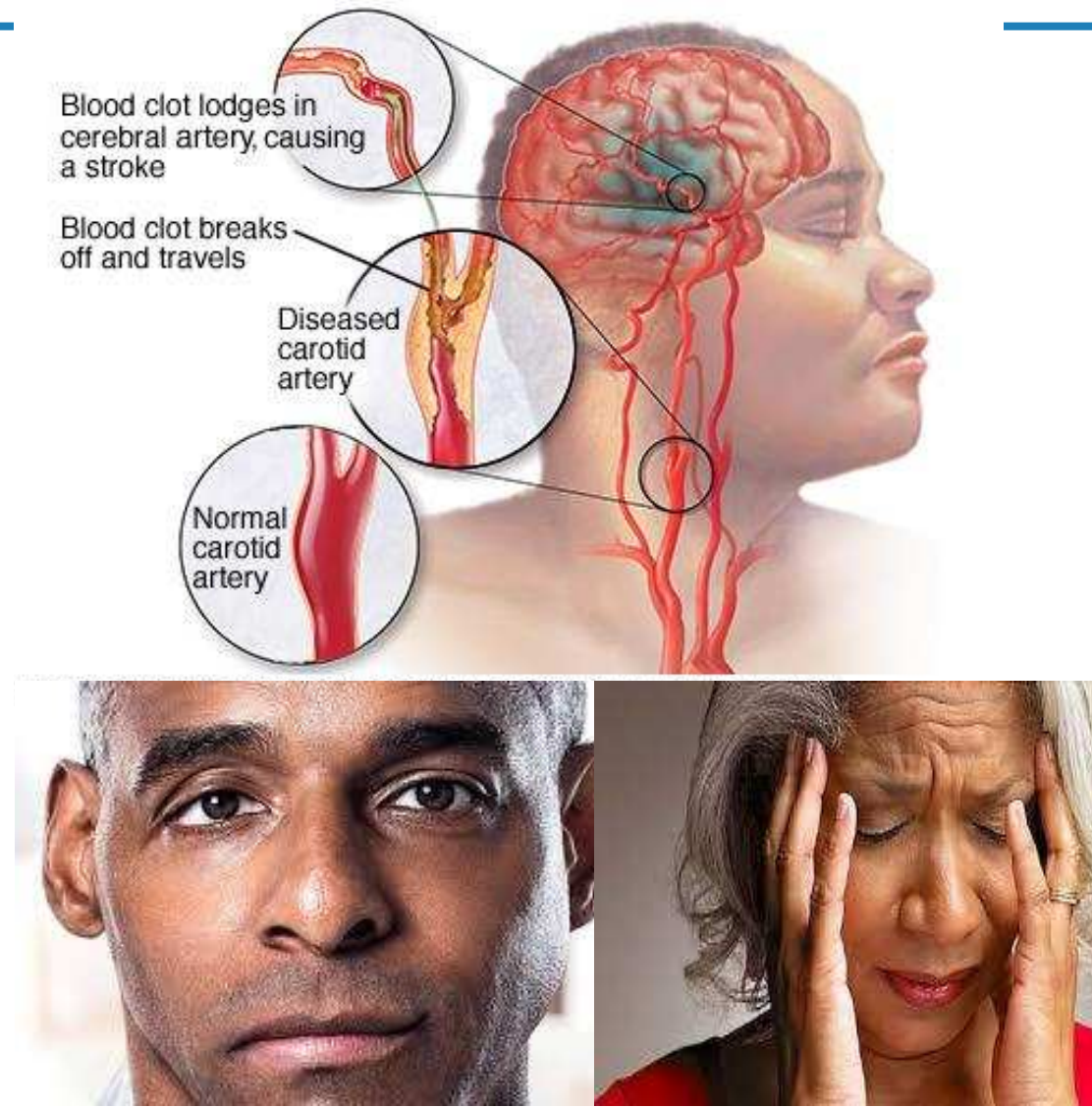
# Tobacco use and heart diseaes

- Tobacco toxins cause clotting in blood vessels supplying heart muscles causing heart attack
- Tobacco toxins cause damage to blood vessels leading to narrowing and reduced flow of blood to vital parts of the heart
- Smoking increases heart rate and blood pressure



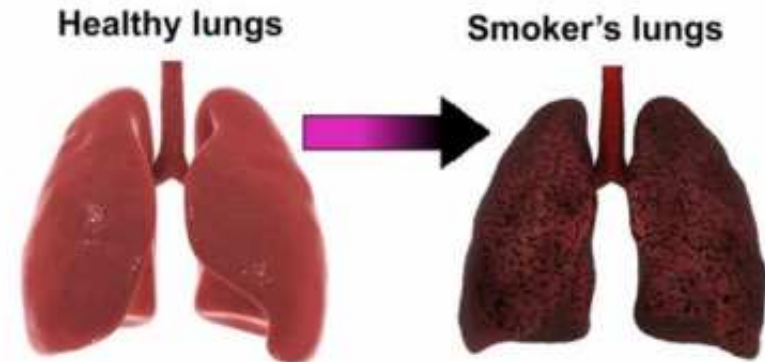
# Tobacco use causes stroke

- A stroke occurs when:
  - A clot blocks the blood flow to part of your brain;
  - A blood vessel in or around your brain bursts.

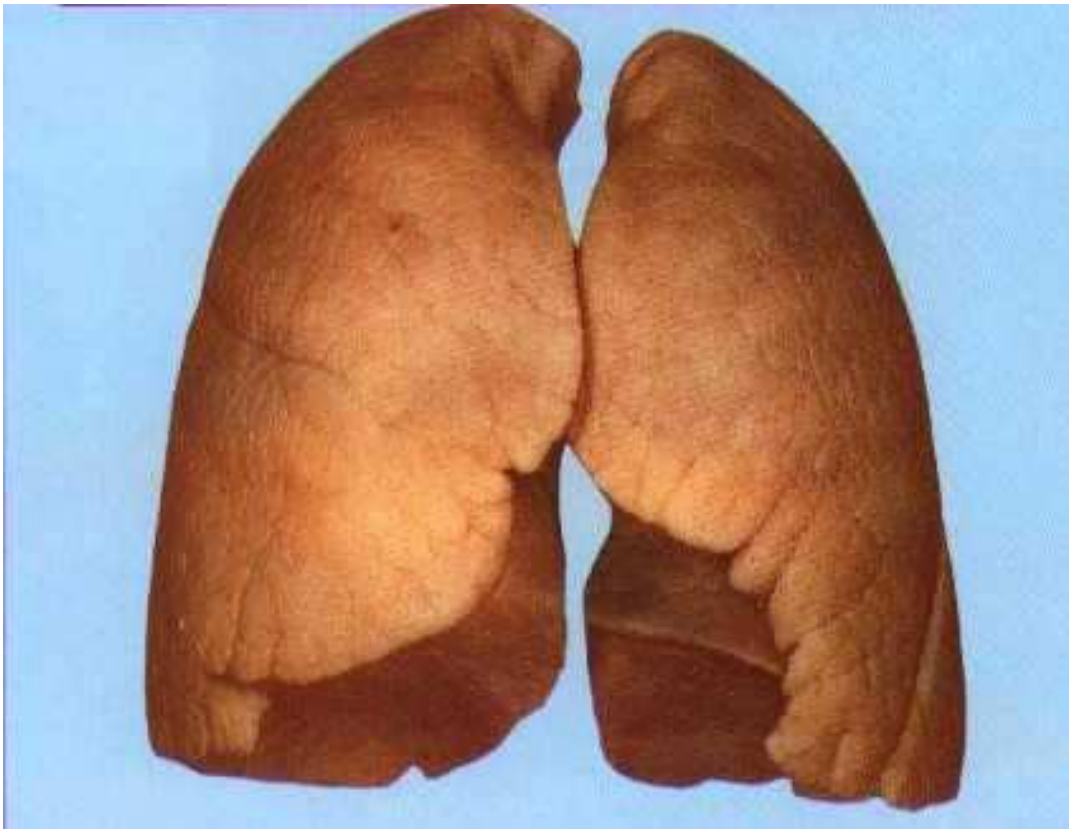


# Tobacco and Lung Diseases

- Chronic Obstructive Pulmonary Disease (COPD)
  - Chronic bronchitis (infection of inner wall, inflammation)
  - Chronic airway obstruction
  - Emphysema & related disorders (air sacs – shortness of breath)
- Smokers are at increased risk for respiratory infections compared to non-smokers e.g TB
- Worsened outcomes for COVID-19 patients



# Lung Cancer



71% of lung cancers are due to smoking

# Tobacco use and Oral Diseases

- Tooth and gum problems
- Tooth loss, decay
- Gum disease
- **Oral cancer**



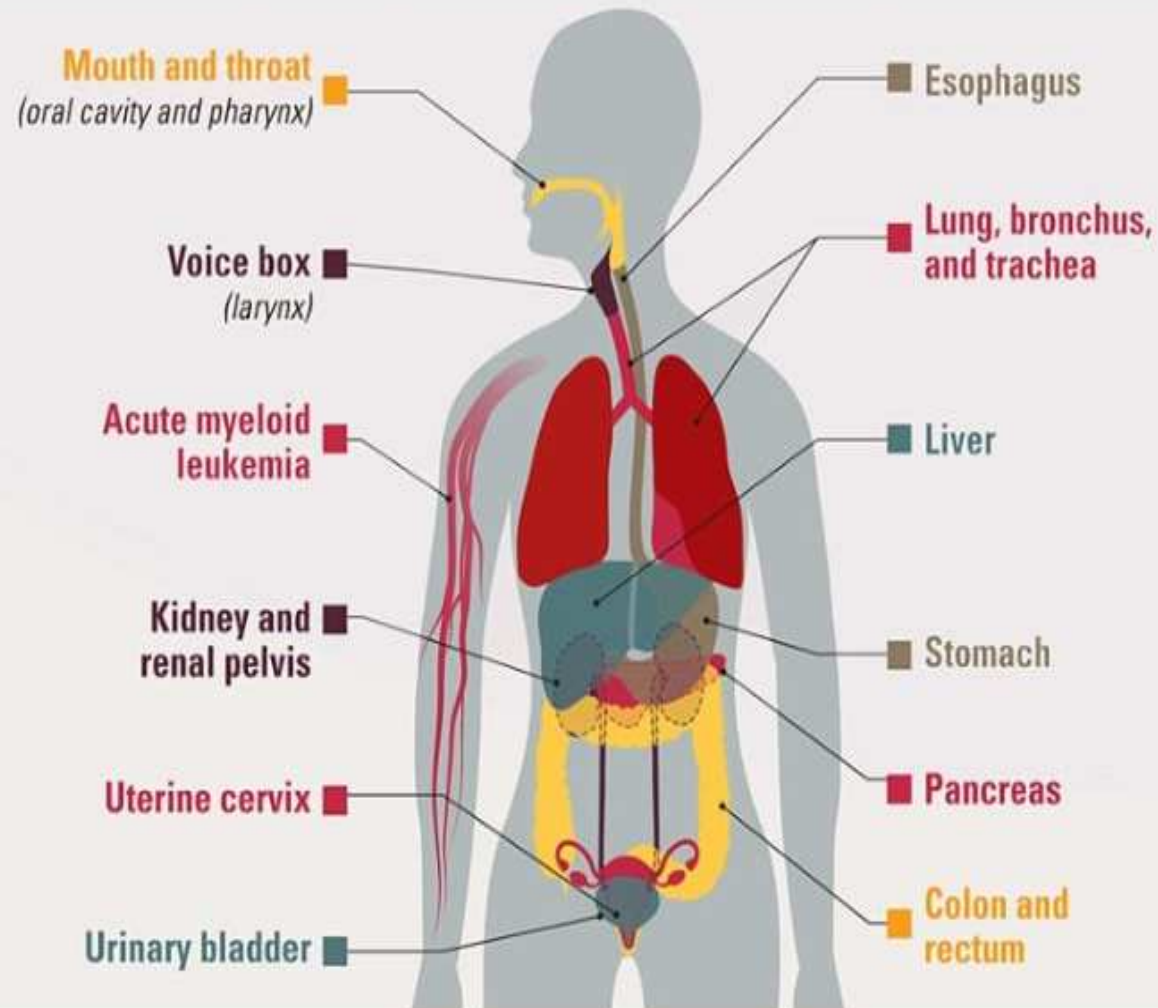
Mouth Cancer



# Other Cancers

- Head and neck cancers (oral, laryngeal and pharyngeal cancers)
- Esophageal cancer
- Stomach cancer
- Pancreatic Cancer
- Bladder cancer
- Cervical cancer
- Liver cancer

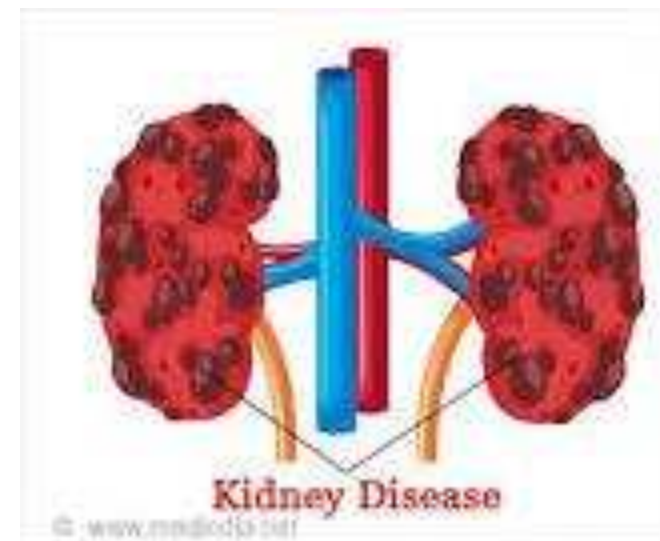
Tobacco use\* causes cancer throughout the body.



\* Tobacco use includes smoked (cigarettes and cigars) and smokeless (snuff and chewing tobacco) tobacco products that, to date, have been shown to cause cancer.

# Other Diseases

- 50 % increased likelihood of getting Type 2 diabetes
- Gastrointestinal problems
  - Ulcers
  - Chronic Bowel Disease
  - inflammation of the digestive tract
- Kidney damage
- Cataracts



# Smoking and Pregnancy

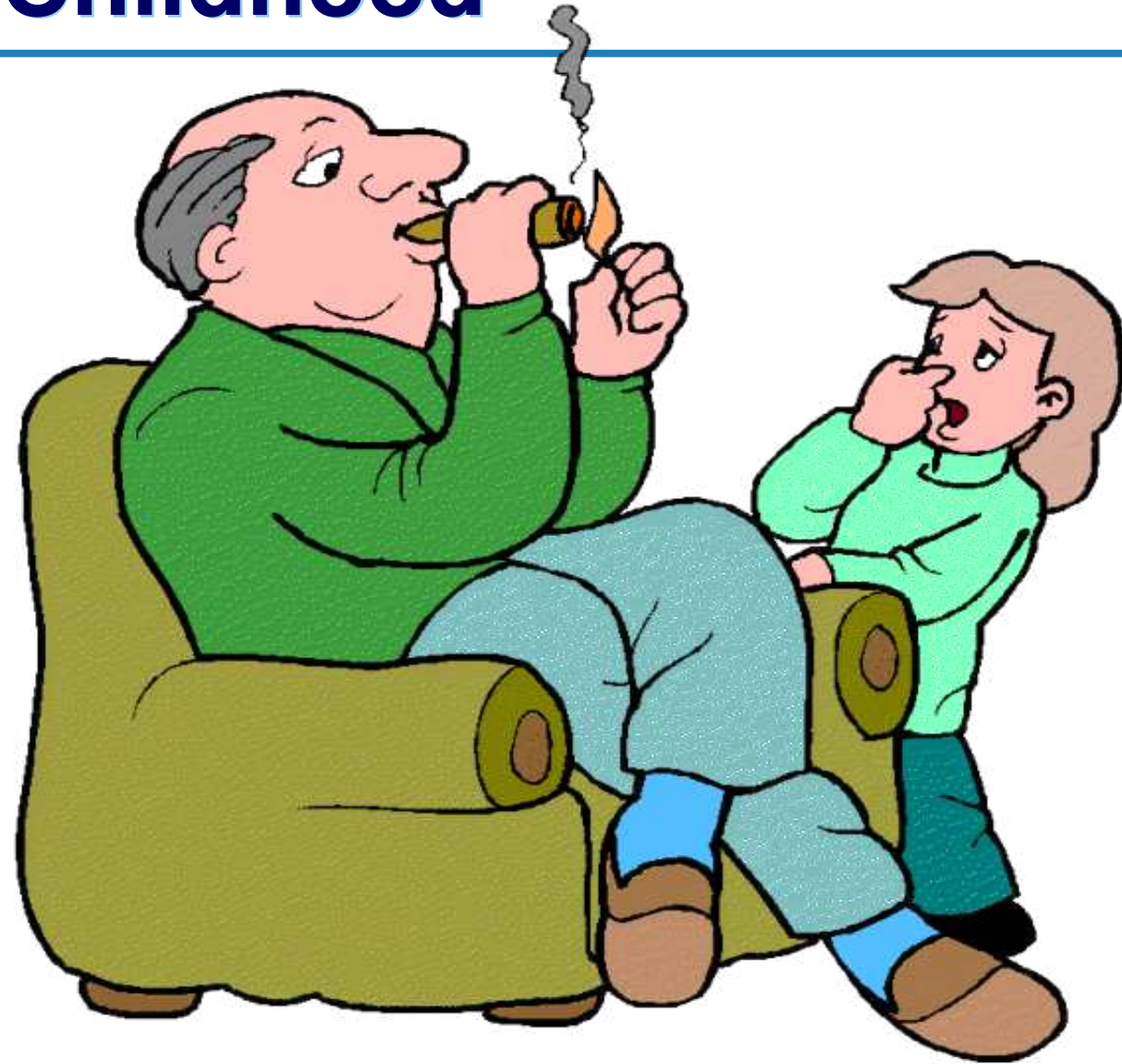
- Bleeding during pregnancy
- Ectopic pregnancy
- Miscarriage
- Premature delivery
- Stillbirth
- Abnormalities of the placenta
- Babies born with low birth weight
- Sudden Infant Death





# Effects of Smoking on Early Childhood

- Increased risk of allergies
- Higher blood pressure in childhood
- Increased likelihood of obesity
- Stunted growth
- Poorer lung function
- Increased likelihood of asthma



# Effects of Smoking on Patient Recovery

- Slow healing of surgical wounds
- Slow and poor healing of fractures
- Recurrence of disease such as heart attack, ulcers etc



# Smoking and Reproductive Health

- For men:
  - Erectile dysfunction
  - Fertility may be impaired
- For women:
  - Early menopause
  - Fertility may be impaired
  - Increased menstrual disorders
  - Risk for cervical cancer
  - Smoking and the use of oral contraceptives greatly increases the risk of stroke, heart attack and other vascular complications



# Situation of tobacco use today

- Tobacco kills **8 million people** every year, **1.2 million** of which are due to second-hand smoke exposure



**1 MILLION DEATHS**  
due to second-hand smoke exposure

**8 MILLION DEATHS**  
caused by tobacco every year

# Social and Economic Impact of Tobacco Use

Tobacco use and exposure to tobacco smoke impacts:

1. Individuals
2. Families
3. Society
4. Governments
5. Employers
6. Environment



# Costs to Individuals and Families

- Diversion of family resources/loss of income
- Tobacco causes and worsens poverty among users and their families
- Health care costs – poor fall ill often, cannot afford health care (quality)
- Premature death - bread winners → poverty
- 84% of the world's 1.4 billion smokers live in developing and transitional economy countries.
- Opportunity cost of money spent on tobacco – money not spent on food, shelter, education and healthcare



# Costs to Individuals and Families

- **Food insecurity**
- Smallholder farmer prioritisation of ‘tobacco’ as a cash crop over food crops leading to malnutrition and food insecurity
- Depletion of soil nutrients by tobacco resulting in poor yields for food crops
- **Child labour**
- Tobacco is labour intensive, children who work on their family’s farms lose educational opportunities



# Costs to Governments

- High Health Care Costs ( preventable tobacco related chronic NCDs and CDs )
- Retarded development due to low productivity and premature death
- Loss of revenue – illicit trade & loss of foreign exchange
- Environmental degradation





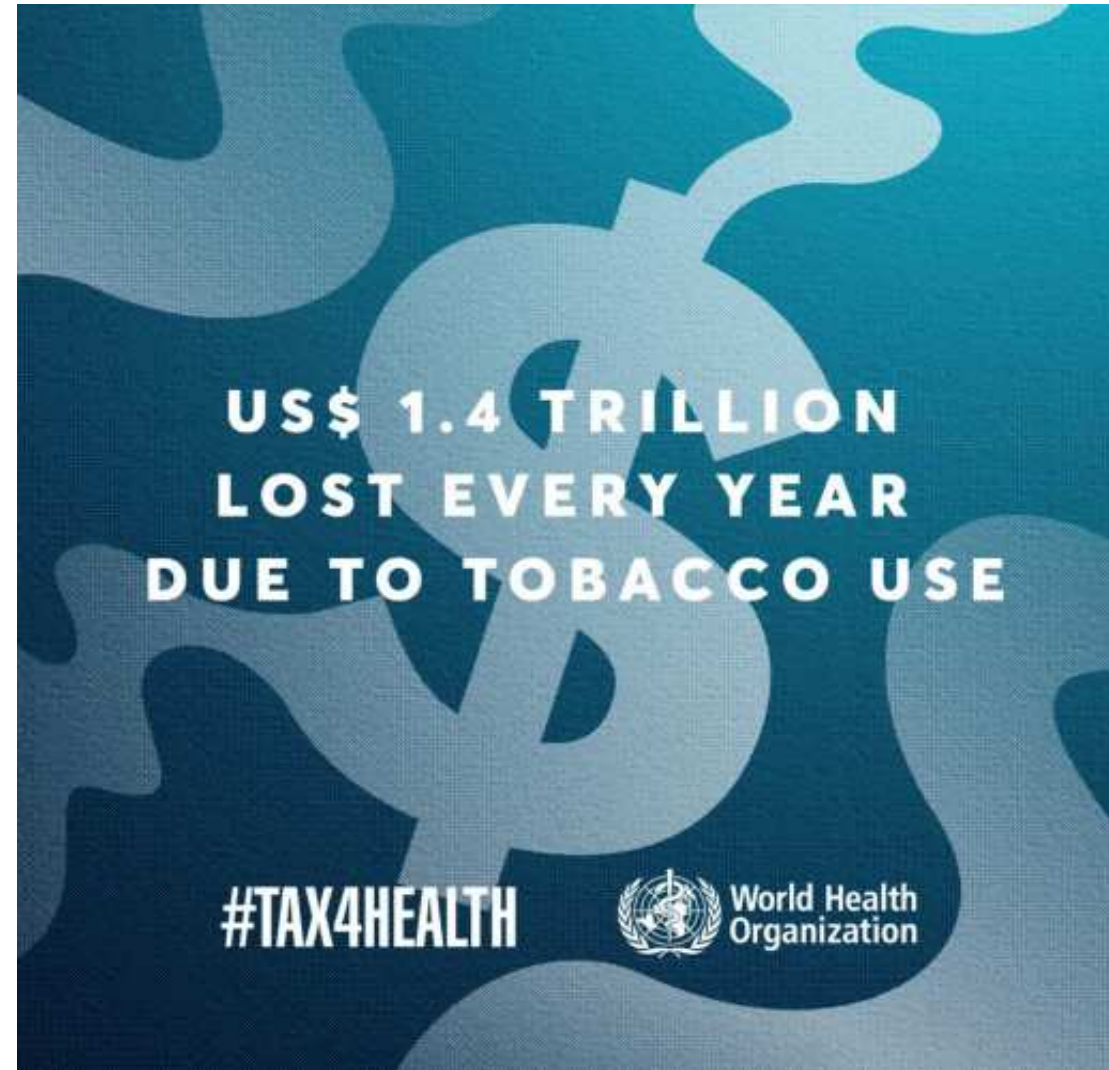
# The Costs on Economy

- ↑ healthcare costs
- Loss of foreign exchange on imported products
- Food insecurity despite arable land
- damage to buildings caused by fire, smoke resulting in ↑ insurance premiums
- Employee absenteeism
- ↓ worker productivity
- Widespread environmental costs - deforestation, pollution, littering, fires



## 1.8% of the world's annual gross domestic product (GDP) is lost every year due to tobacco use

- The economic costs of tobacco use are substantial and include significant **health care costs for treating the diseases** caused by tobacco use as well as the **lost human capital** that results from tobacco-attributable morbidity and mortality.



# How much does tobacco cost to Africa?

## Costs of tobacco use

Costs of purchasing tobacco  
10.7 b USD

Direct costs of illness: public and private health expenditures  
4.7 b USD

Indirect costs: Loss of productivity due to morbidity and mortality  
16.7 b USD

Tobacco farmers' income + Wage of the employed in tobacco sector + Government tax revenue + Producers' profit = Benefits 10.7 b USD

LESS

Health costs of tobacco use 21.4 b USD

=

Net cost 10.7 b USD  
(0.73% of GDP)

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# Tobacco and Environment



# Tobacco threatens many of the Earth's resources – from cultivation to consumer waste

Cigarette butts are among the most commonly discarded piece of waste globally.

Hazardous substances – including arsenic, lead, nicotine and formaldehyde are leached from discarded butts into aquatic environments and soil.

Tobacco smoke can measurably contribute to air pollution levels in a city.



# Environmental impacts of tobacco growing

- Environmental degradation from cultivation to consumption
- Deforestation – (land for cultivation, fuel for curing)
- Depletion of soil fertility by the tobacco plant
- Soil and water pollution from agrochemicals
- Air pollution due to 2<sup>nd</sup> hand smoke
- Fires caused by cigarettes



# Why should governments intervene?

- People do not know the risks of tobacco use
- Most smokers start young – Most smokers start as teenagers
- Nicotine is VERY addictive
- Tobacco users impose costs on others
  - secondhand smoke harms non-smokers
  - children and infants need protection
  - health care costs (families and government)
  - opportunity cost for families



# Thank You



[www.who.int](http://www.who.int)



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