


Module 2: Tobacco Use Disorder and Physical Health

1.1 Tobacco Use Disorder and

Module Two

Tobacco Use Disorder and Physical Health



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1.2 Objectives of the Module

Module Two

Objectives

- ▶ Describe the anatomy, ingredients, and by-products of a cigarette and smokeless tobacco
- ▶ Discuss the effect of tobacco use on body systems
- ▶ Discuss tobacco use effects specific to women, children, and infants
- ▶ Discuss the effects of 2nd hand smoke (Environmental tobacco smoke, or ETS)
- ▶ List the health benefits of quitting smoking and tobacco use



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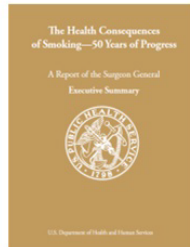
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1.3 Tobacco-Related Morbidity & Mortality –

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Tobacco-Related Morbidity & Mortality – the More We Know, the Worse It Gets

- ▶ The 50th Anniversary Surgeon General's Report on Smoking and Health, released in 2014, continued to add to the long list of diseases caused by tobacco use.
- ▶ Smoking continues to be the leading preventable cause of premature disease and death in the U.S.



[SGR Report](#)

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1.4 SGR

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[SGR Generation Tobacco Free](#)

- ▶ This 2015 consumer guide summarizes the major health effects.
- ▶ A concern for our future: If smoking continues at the current rate among U.S. youth, 5.6 million of today's Americans younger than 18 years of age are expected to die prematurely from a smoking-related illness.

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1.5 Deaths per year in US

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Tobacco Use is Responsible for over 480,000 Deaths per Year in the U.S. Alone

Disease	Total # of deaths due to smoking	% of deaths due to smoking
Coronary Heart Disease	99,300	24.07%
Lung Cancer	130,659	82.42%
Other Cancers	36,000	20.17 %
Pulmonary Diseases	113,100	61.70%
Vascular Disease	26,800	16.25%
Diabetes	9,000	12.71%

Danaei G,
Ding EL,
Mozaffarian
D, et al.,
2009;
USDHHS,
2014

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1.6 Tobacco Use Increases the Risk of or is Associated with

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Tobacco Use Increases the Risk of or is Associated with Many of the Leading Causes of Death (in red)*

► In the U.S.:

1. Heart disease
2. Cancer
3. COVID-19 (early data)
4. Unintentional injury
5. Stroke
6. Chronic lower resp diseases (COPD)
7. Alzheimer disease
8. Diabetes

* Listed in order by frequency

► Worldwide:

1. Ischemic heart disease
2. Stroke
3. Chronic obstructive pulmonary disease (COPD)
4. Lower respiratory infections (such as pneumonia)
5. Neonatal conditions
6. Trachea, bronchus, lung cancers
7. Alzheimer disease and other dementias

National Center for Health Statistics,
2020; WHO, 2019

1.7 Why Do Tobacco Products Cause Disease?

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Why Do Tobacco Products Cause Disease?



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1.8 Compounds in Tobacco Smoke

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Compounds in Tobacco Smoke

According to the US Food and Drug Administration, There are more than 7,000 chemicals in cigarette smoke. More than 70 of those chemicals are linked to cancer.

Gases

- Carbon monoxide
- Hydrogen cyanide
- Ammonia
- Benzene
- Formaldehyde



Particles

- Nicotine
- Nitrosamines
- Lead
- Cadmium
- Polonium-210

Nicotine does NOT cause the ill health effects of tobacco.

US FDA, 2020

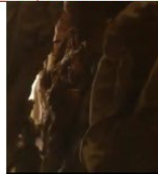
1.9 Chemicals in Cigarettes

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“Chemicals in Cigarettes: From Plant to Product to Puff”

This page has three videos from the US Food and Drug Administration explaining the role of chemicals in cigarettes:

<https://www.fda.gov/tobacco-products/products-ingredients-components/chemicals-cigarettes-plant-product-puff>



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1.10 Is Smokeless Tobacco a Safer Alternative to Smoking?

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Is Smokeless Tobacco a Safer Alternative to Smoking?

- ▶ Smokeless tobacco is NOT a safe alternative to smoking cigarettes.
- ▶ Smokeless tobacco contains many cancer-causing agents.
- ▶ The amount of nicotine absorbed from smokeless tobacco can be 3 to 4 times that delivered by a cigarette.



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1.11 What about E-Cigarettes and Vaping?

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What about E-Cigarettes and Vaping?

Is that Better for Your Health than Smoking Cigarettes?

- ▶ Most contain nicotine, a highly addictive substance
- ▶ May benefit nonpregnant adults if used as a complete substitute for all smoked tobacco products, as they generally contain fewer numbers and lower levels of toxic substances than combustible cigarettes



VS



“The available evidence indicates that switching completely from smoking combustible cigarettes to vaping nicotine e-cigarettes substantially reduces a person’s exposure to tobacco toxins, reduces respiratory symptoms, and reverses smoking-related physiological changes.” (Rigotti, 2024)

WHO 2020, CDC 2021; Lindson N et al, 2024

1.12 Health Effects Linked to Smokeless Tobacco Use

Module Two

Health Effects Linked to Smokeless Tobacco Use

- ▶ Long term smokeless tobacco (ST) use may be associated with greater risk of MI (heart attack) and fatal stroke
- ▶ There is a risk for cancer of the oral cavity, esophagus, and pancreas with ST use
- ▶ ST use also increases inflammation of tissues of the oral cavity, periodontal disease, dental caries and decay

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1.13 What about E-Cigarettes and Vaping?

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Vaping

- ▶ Users often combine them with 1 or more tobacco products
- ▶ Unsafe for youth, or adults who do not use tobacco products
- ▶ Long term health effects unknown
 - Associated with increased risk of cardiovascular disease, lung disorders, and adverse impacts on fetal development
 - Large variety in products available and chemical contents
 - Not FDA-approved for smoking cessation



VS

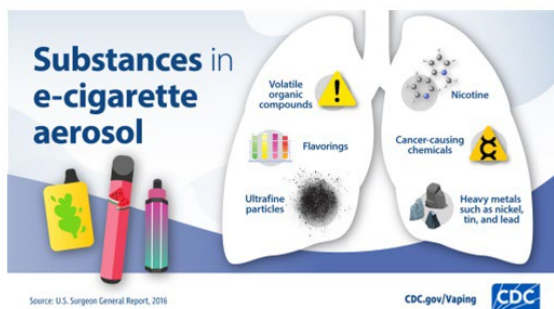


WHO 2020, CDC 2021; Graphic from Centers for Disease Control and Prevention:

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1.14 E-Cigarettes Produce an Aerosol That Contains Chemicals – Not Water Vapor

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E-Cigarettes Produce an Aerosol That Contains Chemicals – Not Water Vapor

<https://www.cdc.gov/tobacco/e-cigarettes/about.html>

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1.15 E-Cigarettes and Vaping: Risks Specific to Adolescents

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E-Cigarettes and Vaping: Risks Specific to Adolescents



CDC 2022 Pediatrics
(2019) 143 (1)

- ▶ Youth who vape are becoming nicotine-dependent
- ▶ Nicotine use in adolescence can harm parts of the brain that control attention, learning, mood, and impulse control
 - Jan 2020: FDA prohibits sale of prefilled cartridge e-cigarettes in flavors other than tobacco or menthol
- ▶ Risk factor for initiating marijuana use

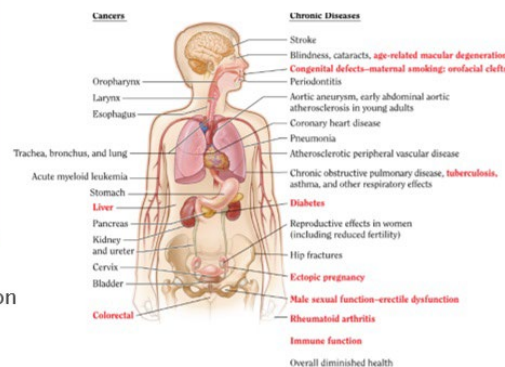
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1.16 Let's Look at Specific Tobacco Use Related Health Consequences

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Let's Look at Specific Tobacco Use Related Health Consequences

Graphic from USDHSS, 2014. Note: The condition in **red** is a new disease that has been causally linked to smoking as of the 2014 report

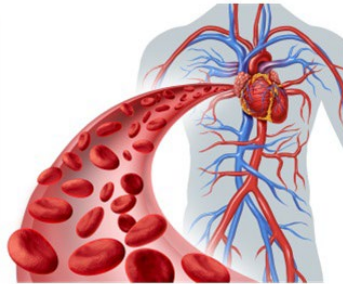


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1.17 Effects on the Cardiovascular System

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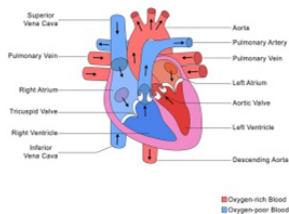
Effects on the Cardiovascular System



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The Cardiovascular System Includes the Heart and Blood Vessels



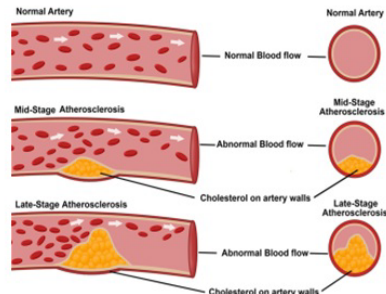
- ▶ The heart is a muscle. Electrical impulses cause contractions to pump blood throughout the body.
- ▶ Blood Vessels (arteries & veins) – network of hollow tubes that transport the blood to and from the heart throughout the body
- ▶ Blood transports oxygen and nutrients to cells of the body and carries away carbon dioxide & toxins (to be filtered and removed by other organs e.g. kidney, liver, lungs)

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What Causes Cardiovascular Disease (CVD)?

Atherosclerosis (the build up of deposits in the lining of the artery walls) is a major cause of CVD. This build up constricts blood flow (see diagram on right) and makes the vessels less flexible. It can lead to heart attack, stroke, leg pain, and kidney failure.



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Cardiovascular Disease (CVD) is a Broad Term for Diseases Affecting the Cardiovascular System

- ▶ Coronary artery disease (CAD): atherosclerosis develops inside the coronary arteries. These arteries supply the heart muscle with oxygen-rich blood.
- ▶ Strokes can be caused by the plaque build up in the carotid arteries
- ▶ Peripheral Artery Disease (PAD) is a condition in which the arteries of the legs are blocked and cannot provide enough oxygen
- ▶ When plaque develops in the arteries leading to the kidneys this can lead to kidney disease

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Smoking is a Cause of CVD

- ▶ Carbon monoxide “robs” the blood of oxygen
- ▶ Increases heart rate and blood pressure
- ▶ Leads to chronic inflammation that is believed to be a key factor in the development of plaque that gradually occludes the arteries reducing the amount of blood and oxygen available to be used by the heart muscle
- ▶ Causes vasoconstriction or spasms of the coronary arteries
- ▶ Associated with negative effects on cholesterol levels (raises the “bad” LDL and lowers the “good” HDL cholesterol), directly affecting the development of plaque in the arteries

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Module Two

What about Other Forms of Tobacco/Nicotine Use?

- ▶ Hookah smoke effects on the cardiovascular system are comparable to those of conventional cigarette
 - Affects heart rate, blood pressure regulation, tissue oxygenation, and vascular function over the short term and is associated with increased risk of coronary artery disease over the long term
- ▶ E-cigarettes: In animal studies, even low levels lead to effects associated with impaired cardiac function and development of CVD
- ▶ Human studies on e-cigarette use report effects including increased blood pressure and heart rate, changes in sympathetic nerve activity, and endothelial dysfunction
- ▶ More studies need to be done!

Quasim, 2019; Buchanan et al., 2020; Skotsimara, 2019; Kennedy, 2019; European Heart Journal 2021, 42 (SUPPL 1), 2596–; Circulation. 2022 Jan 18; 145 (3): 219–232

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Module Two

In Short, Smoking Can Cause:

- ▶ Coronary artery disease (heart disease and heart attacks) – the leading cause of death in the U.S.
- ▶ Stroke
- ▶ Peripheral Artery Disease
- ▶ Renal Disease

Even low amounts of exposure to smoking (a few cigarettes per day, or exposure to environmental tobacco smoke) can lead to CVD!

1.24 Effects on the Respiratory System

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Effects on the Respiratory System

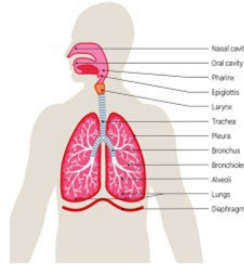


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Functions of The Respiratory System

- ▶ Brings air, and the oxygen it contains, into the body
- ▶ Filters, warms, and humidifies the air
- ▶ Consists of millions of air sacs that facilitate the constant exchange of oxygen into the blood stream and the removal of carbon monoxide
- ▶ Hair-like “cilia” move trapped particles to be coughed out or swallowed



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Effects of Smoking on The Respiratory System

- ▶ Cigarette smoking appears to have both permanent and reversible effects on the respiratory system:
 - Irritation of trachea (windpipe) and larynx (voicebox)
 - Reduced lung function due to swelling and narrowing of airways and excess mucus in lung passages
 - Impairment of cilia
 - Increased risk of lung infection
 - Eventual permanent damage to air sacs of the lungs

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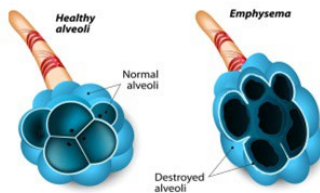
This Damage Can Lead to Chronic Obstructive Pulmonary Disease (COPD): Includes These 3 Conditions

- ▶ **Emphysema:** the alveoli (air sacs) become damaged and cannot exchange oxygen and carbon dioxide effectively. This damage is permanent, but quitting smoking can stop damage from occurring.
 - About 90% of cases of emphysema are due to smoking.
- ▶ **Chronic Bronchitis:** unrelenting inflammation of the airways
- ▶ **Exacerbations of asthma:** the airways are hyper-reactive and the flow of air is restricted. Smoking does not cause this disease, but smoking is a known trigger for asthma attacks.

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Pathology of Lung – Advanced Emphysema



- ▶ Destroyed alveoli means less area for exchange of oxygen and carbon dioxide
- ▶ What does this feel like? Try breathing through a coffee stirrer.

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Module Two

Chronic Obstructive Pulmonary Disease (COPD) is a Leading Cause of Death

- ▶ COPD is the 6th leading cause of death in the U.S.
- ▶ Two or three of these conditions are frequently present together
- ▶ Increased risk of pulmonary infections (such as pneumonia) is seen with all three conditions
- ▶ COPD is progressive, but its progress can be dramatically slowed down – but not reversed – with smoking cessation
- ▶ Death rates due to COPD are higher among women

National Center for Health Statistics, 2020; CDC, 2010

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What about Other Forms of Tobacco/Nicotine Use?

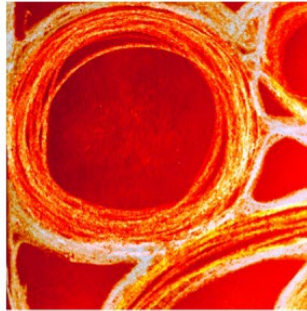
- ▶ E-cigarette or vaping product use–associated lung injury (EVALI)
 - Unclear exactly why this develops; associated with vapes from informal sources containing THC and vitamin E acetate
- ▶ E-cigarette use may negatively impact asthma symptoms, and current use is associated with self-reported COPD
- ▶ Hookah use is a significant source of exposure to nicotine, carcinogens, and respiratory toxicants; may be linked to COPD

Entwistle MR, 2020; Travers, et al., 2020; Pritati, 2019; CDC 2020

1.31 Cancers Related to Tobacco Use

Module Two

Cancers Related to Tobacco Use



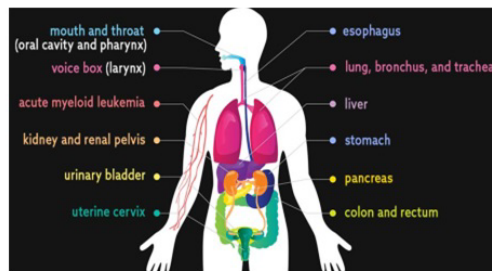
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Cancers Related to Tobacco Use Include:

- ▶ Blood (acute myeloid leukemia)
- ▶ Bladder
- ▶ Cervix
- ▶ Colon and rectum
- ▶ Esophagus
- ▶ Kidney and renal
- ▶ Larynx
- ▶ Liver
- ▶ Lung, trachea, and bronchus
- ▶ Mouth and throat
- ▶ Pancreas
- ▶ Stomach



<https://www.cdc.gov/tobacco/campaign/tips/diseases/cancer.html>; <https://www.cdc.gov/tobacco/about/index.html>

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How is Smoking Related to Cancer?

- ▶ Smoking can cause cancer and then block your body from fighting it
- ▶ Poisons in cigarette smoke can weaken the body's immune system, making it harder to kill cancer cells. When this happens, cancer cells keep growing without being stopped.
- ▶ Poisons in tobacco smoke can damage or change a cell's DNA. DNA is the cell's "instruction manual" that controls a cell's normal growth and function. When DNA is damaged, a cell can begin growing out of control and create a cancer tumor.

<https://www.cdc.gov/tobacco/campaign/tips/diseases/cancer.html>; USDHHS, 2010

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1.34 Lung Cancer

Module Two

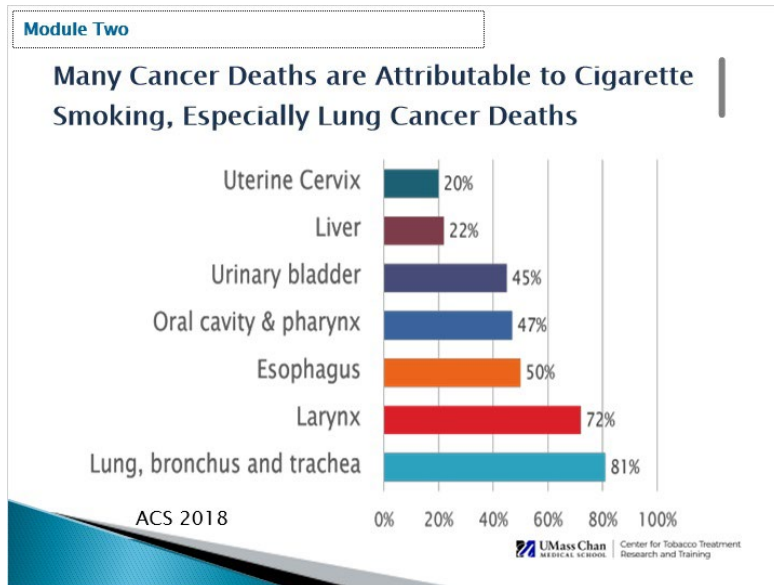
Lung Cancer

- ▶ Leading cause of all cancer deaths for both men and women in the U.S.
- ▶ Estimated 133,885 lung cancer deaths in 2021
- ▶ Estimated 237,058 new cases in 2021
- ▶ ~13% of all cancers diagnosed
- ▶ Almost 1/4 of all cancer deaths are due to lung cancer
- ▶ About 80% of lung cancer deaths are due to smoking

Cancer Facts and Figures 2019

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1.35 Many Cancer Deaths are Attributable to Cigarette Smoking, Especially Lung Cancer Deaths



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Module Two

Cancer Survivorship

- A recent review of adherence to Clinical Practice Guideline by Oncology Care Clinicians (OCC) found that OCC's are not adequately addressing smoking cessation with their patients
 - While >75% assess tobacco use during an intake visit and >60% typically advise patients to quit, a substantially lower percentage recommend or arrange smoking cessation treatment or follow-up after a quit attempt
 - Less than 30% of OCCs report adequate training in cessation interventions.
- System-level changes are needed to support evidence-based treatment

Price et al, 2019

1.37 Diabetes

Module Two

Diabetes



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Module Two

Diabetes Mellitus (DM)

- ▶ Every cell in the human body needs energy in order to function. The body's primary energy source is glucose. Insulin is the hormone or chemical made in the pancreas. Insulin is the "key" that opens the door to a cell and allows the glucose to enter.
 - DM Type 1: Pancreas is unable to produce insulin
 - DM Type 2: There is less insulin produced and/or the insulin produced does not function effectively
- ▶ Diabetes has a major impact on all systems in the body and smoking compounds the damage that can occur.

1.39 Untitled Slide

Module Two

Smoking Can Cause Type II Diabetes

- ▶ The Surgeon General's report in 2014 determined that smoking is a **direct cause** of diabetes
 - Why? Numerous issues related to inflammation and oxidative stress (both may be related to DM), abdominal obesity, and the impact of nicotine making insulin less effective
- ▶ The risk of developing Type II diabetes is 30–40% higher in smokers vs. non-smokers
- ▶ There is a dose response in amount of smoking and risk of developing diabetes

USDHHS, 2014

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Module Two

Diabetes Mellitus and Cardiovascular Disease

- ▶ Diabetes increases 2–3x the risk of developing CVD
- ▶ CVD (heart attack and stroke) is the most frequent cause of death in both men and women with diabetes
- ▶ Another major component of CVD is poor circulation to the legs. Diabetes increases the risk of foot ulcers and possible amputations

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Module Two

Diabetes Mellitus – Other Effects of Smoking

- ▶ Smoking is an independent predictor of elevated hemoglobin A1c
- ▶ Makes managing diabetes more difficult
- ▶ Increases the risk of developing diabetic complications such as retinopathy, kidney disease, and foot ulcers

Dinardo et al, 2019; USDHHS, 2014

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1.42 Complications During Pregnancy & Post-partum

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Complications During Pregnancy & Post-partum



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Effects of Smoking During Pregnancy

- ▶ Carbon Monoxide in tobacco smoke forms carboxyhemoglobin, which inhibits the release of oxygen into fetal tissues
- ▶ Spontaneous abortion (miscarriage)
- ▶ Premature rupture of membrane
- ▶ Other serious complications to pregnancy including:
 - ↑ premature delivery
 - ↑ risk stillbirths
 - ↑ risk low birth weight
- ▶ Impact on neurological development and other health issues

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Module Two

Effects of Mother's Smoking on Infants and Children

- | | |
|---|---|
| ❖ SIDS | ❖ Ear infections |
| ❖ Asthma | ❖ Upper respiratory infections |
| ❖ Congenital urinary tract anomalies | ❖ Negative toddler behavior |
| ❖ Decreased head circumference | ❖ Attention Deficit Hyperactivity Disorder (ADHD) |
| ❖ Lower IQ | ❖ Early smoking experimentation |
| ❖ Increased risk of asthma in daughter's children | |

Source: NIDA Notes, vol.21 (6);
www.cancer.org, Tobacco & Cancer

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Module Two

Effects of Smoking on Lactation

- ▶ Nicotine concentrates in breast milk with a 2.9 to 1 ratio
- ▶ Minimal systemic absorption. The issue is second-hand smoke exposure
 - Negative impact on infant lungs
 - Probably higher infant nicotine levels than with maternal NRT
- Success with breast feeding less likely; less milk output
- Despite the impact of smoking, women are encouraged to breastfeed due to numerous benefits.

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Module Two

Oral Cavity Risks

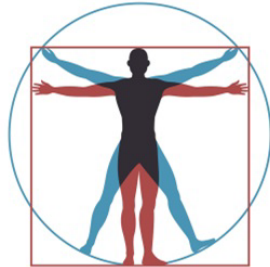
- ▶ Major risk factor for oral and pharyngeal cancer
- ▶ Responsible for about 75% of all oral cavity cancers – mouth, tongue, lips, throat, nose, larynx
- ▶ Smokers have 6 times the risk for mouth cancer as nonsmokers
- ▶ Cigar smoking can cause cancers of the mouth and throat, even if the user does not inhale

National Vital Statistics Report, Vol. 56, No. 10, 2008

1.47 Other Health Consequences

Module Two

Other Health Consequences



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Module Two

Smoking Causes Periodontal Disease

Most significant risk factor in the development and progression of periodontal disease. Smoking causes loss of fibers that attach teeth to jaw bone as well as higher levels of several types of bacteria in the mouth that are known to cause gum disease and other oral infections including chronic bacterial infections.



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Module Two

Smoking Adversely Impacts People with HIV/AIDS

- ▶ Prevalence of cigarette smoking among HIV patients is significantly higher than in the general population
- ▶ Smoking interferes with the health of the immune system
- ▶ HIV+ smokers have a higher incidence of bacterial pneumonia and candidiasis (thrush) than non-smokers
- ▶ HIV+ women who smoke are more likely than non-smokers to pass HIV to their babies
- ▶ HIV-infected smokers lose more life-years to smoking than to HIV

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Module Two

More Ways that Smoking Adversely Impacts People with HIV/AIDS

- ▶ HAART (highly active anti-retroviral therapy) has led to prolonged life expectancy in HIV patients – however smokers have:
 - increased likelihood of developing CAD, stroke, cancer, COPD
 - higher likelihood of reduced cognitive function
 - increased respiratory infections, including pneumonia (the most frequent complications in HIV patients)
 - high proportion of deaths among HIV patients that are not from AIDS
- ▶ Motivation to quit among HIV smokers is high

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Module Two

Smoking and Hepatitis

- ▶ Tobacco use may increase susceptibility to infection with hepatitis C virus
- ▶ Smoking, independent of alcohol use, is correlated with increasing the severity and progression of liver disease in those with hepatitis C virus.
- ▶ Patients with hepatitis C who smoke are twice as likely to develop liver cancer and four times as likely to develop non-Hodgkin's lymphoma than those who do not smoke



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Smoking Causes Postoperative Complications

- ▶ Smokers who undergo surgery:
 - Have a higher risk of lung and heart complications
 - Have higher risk of post-op infection
 - Have impaired wound healing
 - Are more likely to be admitted to the ICU
 - Have increased risk of dying in the hospital
 - Remain in the hospital longer



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Module Two

And Even More Conditions Worsened by Smoking

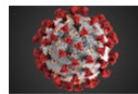
- ▶ Systemic inflammation and immune system functioning: smoking increases risk of developing Rheumatoid Arthritis
- ▶ Cystic Fibrosis
 - Children with CF living in homes with smokers showed poorer pulmonary function, increased frequency of pulmonary infections, growth suppression, and increased intravenous days
- ▶ Peptic Ulcer Disease, caused by *H. pylori*
 - Smokers are at higher risk of acquiring *H. pylori*
 - Treatment for *H. pylori* is twice as likely to fail in smokers

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Coronavirus Disease and Smoking



- ▶ Because it attacks the lungs, the coronavirus that causes COVID-19 could be especially dangerous to those who smoke tobacco or marijuana or vape
- ▶ History of smoking or vaping can result in compromised lung function or lung disease and weaken the immune system, all of which make it harder to fight off infection
- ▶ Smoking is associated with increased severity of disease and death in hospitalized COVID-19 patients
- ▶ Heavy smokers are more likely to be hospitalized from COVID-19

Patanavanich R, and Glantz SA. (2020), WHO (2020); NIH (National Heart, Lung and Blood Institute) Feb 2021

1.55 Disparities in Prevalence of and Outcomes for Tobacco-Related Diseases

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Disparities in Prevalence of and Outcomes for Tobacco- Related Diseases



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Module Two

Disparities in Prevalence of Tobacco- Related Diseases

- ▶ Among smokers of different races and ethnic groups there are difference in:
 - Rates of developing illnesses impacted or caused by smoking
 - Rates of dying from illnesses impacted or caused by smoking
- ▶ Possible reasons include:
 - Systemic racism
 - Health system factors impacting diagnosis, treatment and or follow-up
 - Financial barriers
 - Differences in smoking history
 - Co-morbidities

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Disparities: Stroke

- ▶ Black people have almost twice the risk of first-ever strokes compared to white people
- ▶ Black people have higher risk for death from strokes compared to white people
- ▶ Hispanic people – average age of stroke is lower than in non-Hispanic white people (age 67 vs. age 80)
- ▶ Factors impacting risk of stroke besides smoking include hypertension, diabetes, obesity, alcohol use, and access to health care including insurance, lack of transportation, and language barriers.

Power to end stroke fact sheet; Stroke risk among Hispanics fact sheet; Sacco et al., 2001; Gutierrez and Williams, 2014.

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Disparities: Lung Cancer

- ▶ Death rate due to lung cancer varies depending on race and ethnicity
 - Higher rate for Black people and Hispanic people compared to non-Hispanic white people
- ▶ Number of people diagnosed with lung cancer also varied depending on race and ethnicity
 - Black men have highest rate
- ▶ Health system factors may include: discrepancies in treatment, access to care impacting stage of diagnosis, time to follow-up or surveillance, suboptimal relationships with health care providers, financial barriers

Aizer, et al., 2014

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Disparities: Diabetes

- ▶ The risk of diabetes is 77% higher among Black people than among non-Hispanic white people; they are:
 - 2.3 times more likely to die from the disease
 - 1.5 times more likely to be hospitalized
 - 50% more likely to develop diabetic retinopathy
- ▶ The risk of diabetes is 66% higher among Hispanic/Latino people in the US than among non-Hispanic white people, although this varies by subpopulations. Hispanic people are:
 - 1.5 times more likely to die from the disease
 - 1.7 times more likely to be treated for end-stage renal disease

Aizer, et al., 2014

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Module Two

Women Face Unique Risks

- ▶ Adverse health effects during pregnancy
- ▶ Increased risk of cervical cancer
- ▶ Reduced fertility
- ▶ Increased risk of CHD if a woman uses oral contraceptives and smokes
- ▶ Earlier natural menopause
- ▶ Lower bone density post-menopause
- ▶ Women who smoke are more likely to die from COPD than men who smoke
- ▶ **Since 1987, lung cancer has killed more women than breast cancer**

Women & Smoking, A Report of the Surgeon General, 2001, [MMWR, 2018 67\(44\):1225-1232](#); [Cancer Facts & Figures 2019](#)

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Module Two

Environmental Tobacco Smoke (ETS), or Second Hand Smoke

ETS is the combination of side stream smoke
from the end of the burning cigarette and
mainstream smoke exhaled by the smoker

It is a Class A carcinogen, like *asbestos*, *radon*,
and *benzene*

<http://www.cdc.gov>; Environmental
Protection Agency <https://bit.ly/2ZFTzyo>

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Module Two

ETS Exposure and Health Effects

- ▶ Exposure can be in the home or the workplace
- ▶ ~ 7,300 lung cancer deaths per year in people
who do not smoke are attributable to secondhand
smoke exposure.
- ▶ People who do not smoke but are exposed to ETS
have increased risk for coronary heart disease.
- ▶ ~ 34,000 deaths per year from heart disease are
attributable to secondhand smoke exposure.

[Secondhand Smoke \(SHS\) Facts \(CDC\)](#)
2014 Surgeon General's Report (CDC)

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Module Two

ETS Exposure and Impact on Children

- ▶ Children exposed to ETS have an increased risk for asthma, lower respiratory illnesses, and middle ear infections
- ▶ Causes adverse effects on lung growth / function across childhood
- ▶ 150,000 – 300,000 cases each year of lower respiratory illnesses among infants and young children
- ▶ Causes ~ 203,300 episodes of asthma in children/year
- ▶ Is a major factor in infant death from SIDS

[https://www.cdc.gov/tobacco/secondhand-smoke/Surgeon General's Report; 2006, 2014](https://www.cdc.gov/tobacco/secondhand-smoke/Surgeon%20General's%20Report%202006%202014)
Surgeon General's Report (CDC)

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Implications . . .

**Half of all people in the
United States who continue to
smoke will die from
smoking-related diseases!**



Cancer Facts & Figures 2008

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Unintended Consequences of Quitting – Some Conditions Could Flare or Worsen

- ▶ Inflammatory bowel disease
- ▶ Recurrent herpes labialis (cold sores)
- ▶ Tourette's syndrome
- ▶ Pyoderma gangrenosum
- ▶ Inflammatory acne
- ▶ Aphthous oral ulcers (canker sores)
- ▶ Parkinson's disease
 - Encourage client to reach out to provider for treatment

1.66 Benefits of Quitting

Module Two

Benefits of Quitting




www.smokefree.gov


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Module Two

Short Term
Benefits of
Quitting



- ▶ Lowered Blood Pressure
- ▶ Lowered Heart Rate (20 min)
- ▶ Peripheral circulation increases
- ▶ Carbon Monoxide levels drop (12 hours)
- ▶ Smell & taste are enhanced (1 week)
- ▶ Cilia in lungs regrow (1–9 months)
- ▶ Lung function increases up to 30% (2–3 months)
- ▶ Fatigue diminishes (1–9 months)


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- ▶ After 10 years:
- ▶ Risk of CVD is that of a non-smoker
- ▶ Pre-cancerous cells are replaced, Risk of cancer of the mouth, throat, esophagus, bladder, kidney and pancreas decrease
- ▶ Risk of lung cancer decreases by 30–50%

Long Term
Benefits of
Quitting



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Module Two

Summary

- ▶ Tobacco use negatively affects quality of life in our communities
- ▶ Tobacco use is the single most preventable cause of early death in U.S.
- ▶ The benefits of quitting smoking begin immediately
- ▶ For a video overview of these topics, go to this video from the Centers for Disease Control and Prevention
<https://www.youtube.com/watch?v=z3C4xWplcag>

1.70 Untitled Slide

Module Two

**It is never too late to quit
smoking and improve quality of
life**

**The benefits of quitting tobacco
use begin immediately**

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Module Two

Module 2 Required Quiz

To take the quiz, click on the 'course homepage' link below, it will take you to the course main homepage where you can click on the module quiz 'button' to start the quiz.

Course homepage

