

# Diabetes and Commercial Tobacco

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# Objectives/Outcomes:

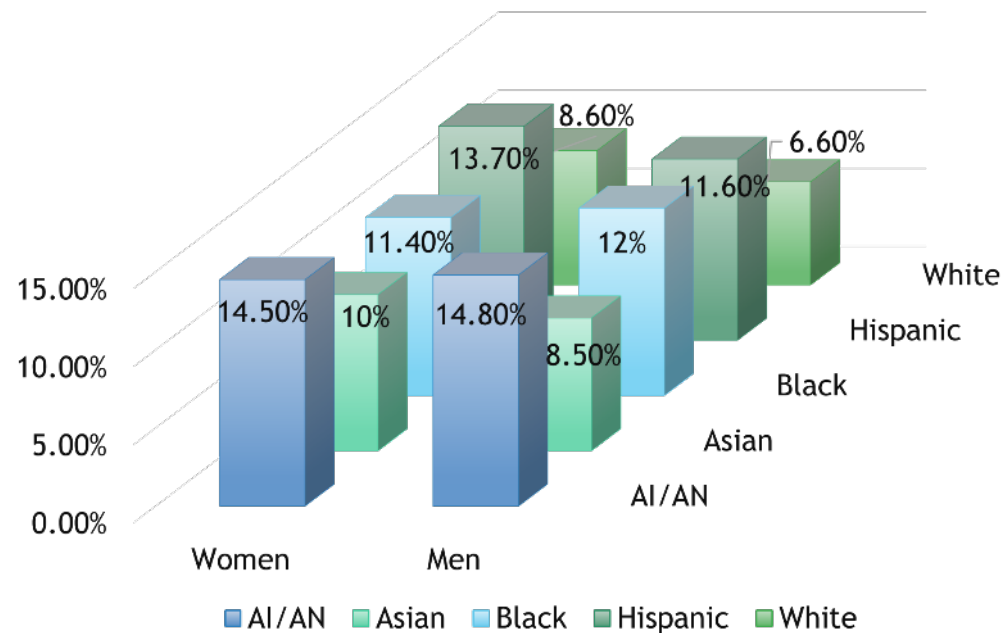
- **Tobacco Overview including Electronic Nicotine Devices (ENDs)**
  - Know the difference between traditional and commercial tobacco products
  - Describe how commercial tobacco causes diabetes and prevents glycemic control
- **Diabetes Management with Tobacco Cessation**
  - Learn how to effectively inquire about commercial tobacco use, advise patients about adverse effects and assist them in taking control of tobacco use and improving diabetes management

# Diabetes

- Complex disease that results in too much sugar in the blood (high blood glucose)
  - Digestion breaks down carbohydrates to sugar (glucose)
  - Glucose enters the bloodstream
  - Insulin is released from the pancreas and moves glucose from the blood into cells for energy
  - Inability to produce any or enough insulin (insulin resistance) results in high blood glucose

# Native American Population has the Highest Prevalence for Diabetes

Diabetes by race/ethnicity and sex among adults in United States, 2017-18



# Types of Diabetes

34.2 million Americans have diabetes:

28.6 million diagnosed

7.3 million undiagnosed

1.5 million new cases every year

- Prediabetes – 88 million adult Americans
- Type I Diabetes
- Type II Diabetes
- Gestational Diabetes

# Prediabetes

- When blood sugar is high, but not high enough to be diabetes
- Can develop diabetes within 10 years without intervention
- Many people do not have any symptoms
- Most common symptoms
  - Excess thirst and hunger
  - Frequent urination
  - Weight loss or gain
  - Fatigue
  - Irritability
  - Darkening of skin
  - Tingling or numbing in hands or feet

# Gestational Diabetes

- Diabetes during pregnancy
- Usually occurs with no symptoms
- Risks for unborn or born child
  - Stillbirth
  - Higher risk for baby to be obese
  - Higher risk for baby to develop Type II diabetes later in life
- Risk for mother
  - Develop Type II diabetes later in life



# Type I Diabetes

- The pancreas does not produce insulin or produces very little
- Mostly an unpreventable genetic or environment predisposition which causes the body's immune system to attack and destroy the insulin-producing beta cells of the pancreas
- Usually present in adolescence
- Is a chronic condition

# Type II Diabetes

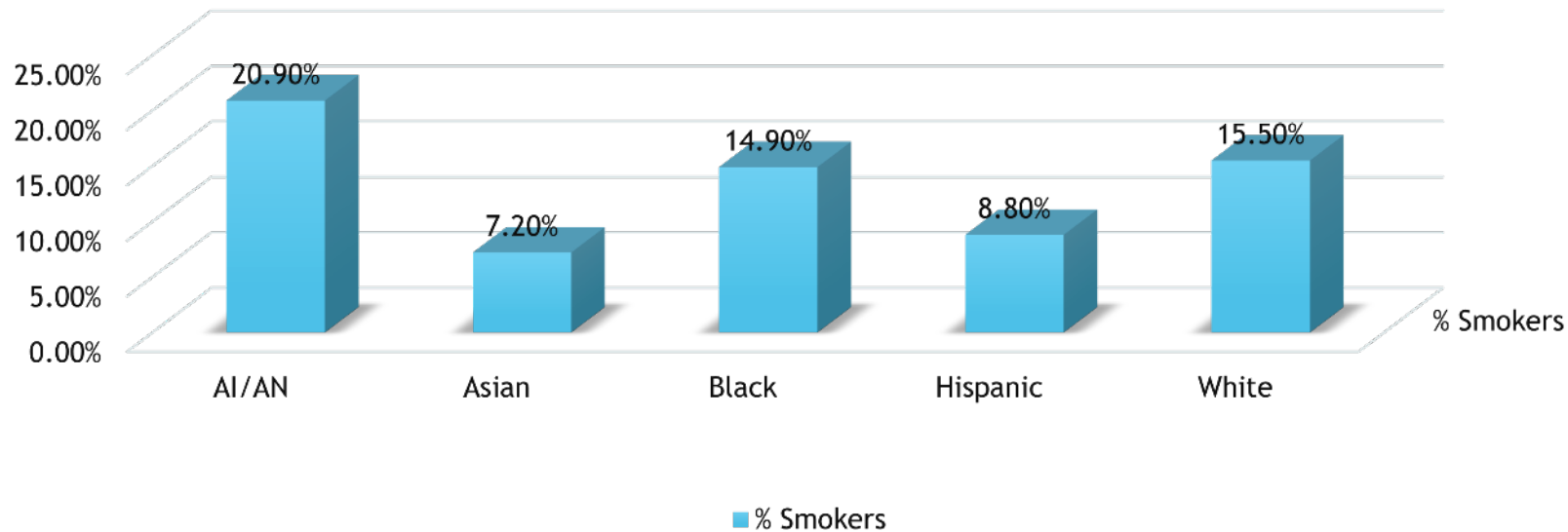
- The most common form of diabetes
  - 90% of cases
  - 1 out of 3 people will develop Type II diabetes in their lifetime
  - 10.5% of Americans have Type II diabetes
- Extra belly fat is linked to insulin resistance
- The pancreas produces insulin, but glucose does not move into the fat, liver and muscles cells to utilize it properly
- Increase of glucose in blood exceeds the amount of insulin that the pancreas can produce resulting in elevated glucose levels

# Nicotine Use/Abuse

- Smoking causes Type II Diabetes. Smokers have a greater risk than non-smokers to develop Type II Diabetes
- Increased number of cigarettes smoked daily increases the risk of Type II diabetes
- Smoking causes damage to tissues causing insulin resistance
- Insulin sensitivity improves with those who quit smoking, improving overall health

# Native American/Alaska Native Population have High Prevalence for Smoking

Smoking by race/ethnicity among adults in the United States, 2019



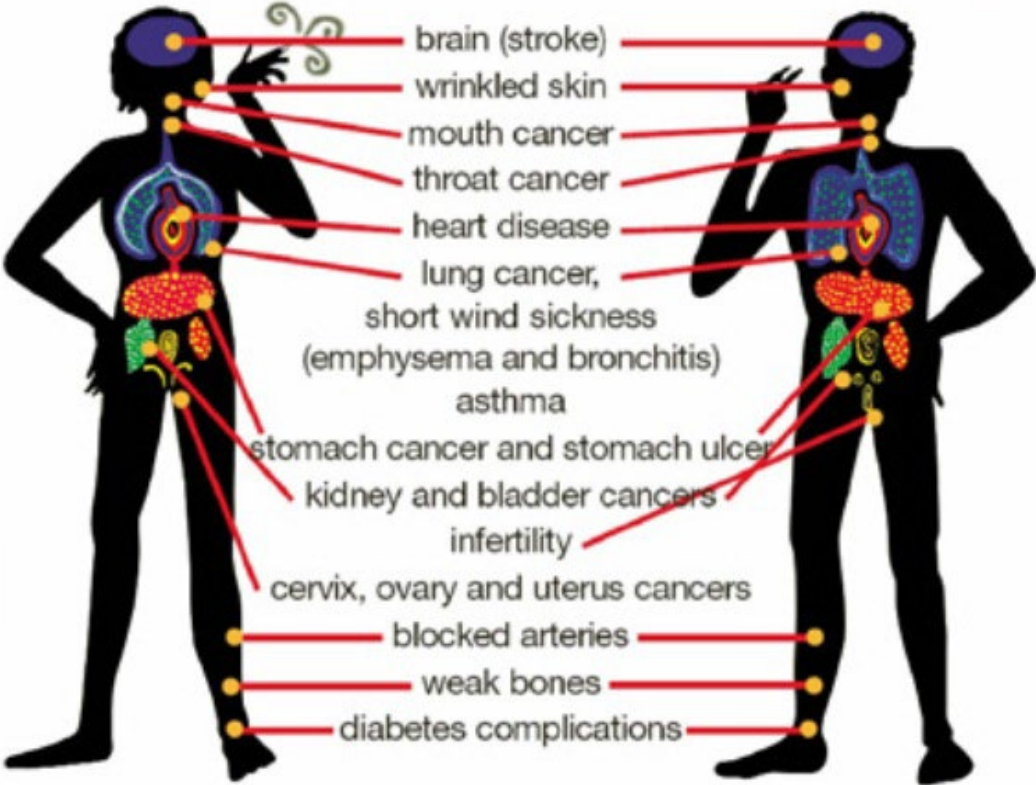
# Smoking Causes Type II Diabetes

- Smoking increases inflammation in the body
- Toxins in commercial cigarettes directly injure cells, causing swelling and cellular dysfunction
- Commercial cigarettes cause oxidative stress, which is the result of the toxins combining with oxygen to cause cellular damage
- Oxidative stress and inflammation is related to increased risk of diabetes and other health condition

# Smoking and Patients with Diabetes

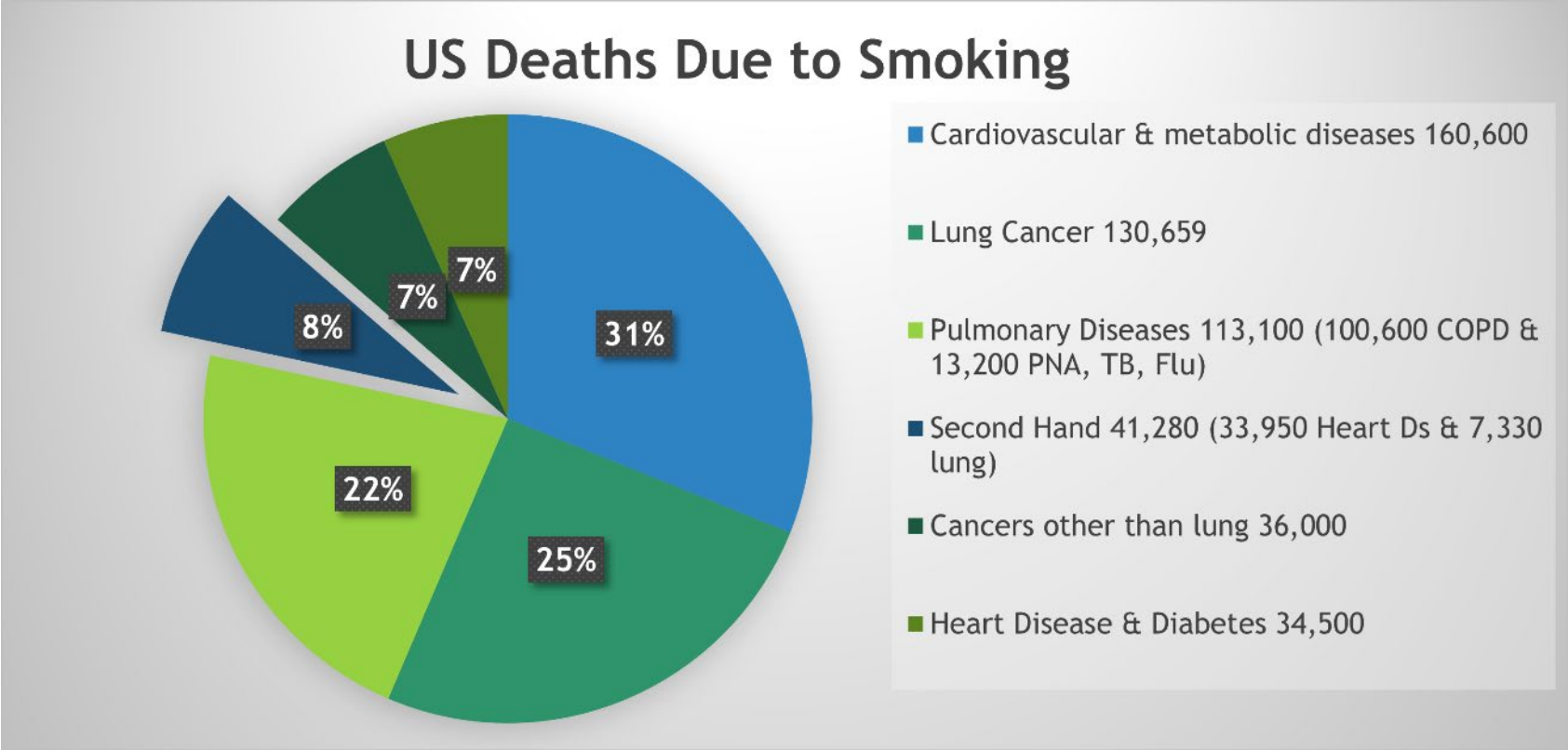
- When glucose is elevated in the blood, oxygen and nutrients cannot effectively energize cells
- Smoking compromises the ability for cells to carry oxygen
- Immune systems do not function properly due to diabetes and smoking
- Inflammation in body's cells with diabetes and smoking
- Poor circulation with diabetes and smoking
- Smoking and diabetes cause serious health problems:
  - Heart and kidney disease
  - Poor circulation to legs and feet (infection, ulcers, poor healing, amputation)
  - Retinopathy (blindness)
  - Neuropathy (decrease sensation, pain, weakness, poor coordination)

# Diabetes and Smoking Cause Cellular Damage



# Deaths Due to Smoking in the United States, 2020

Over 480,000 Americans killed from smoking in 2020





# Traditional Tobacco

- Tobacco is a sacred plant for many tribes
- Traditional tobacco is grown naturally without chemicals
- 70 different species of natural tobacco in North America
- Grown and harvested in prayer
- Used for sacred purposes or special significant offerings only
- Can also be used as topical treatment
- Smoking tobacco on a daily basis is not sacred
- Keep tobacco sacred

Carson Craig Sr, Addictions Specialist/Counselor  
Navajo Technical University, Crownpoint, NM (2016)

# Is Traditional Tobacco Without Risk?

- Although there is no proof that natural tobacco is healthier or safer, it is processed naturally without commercial chemicals
- Nicotine is addictive
- Potentially cancerous chemicals as well
- Toxins can be emitted, including tar and carbon monoxide, from burning tobacco itself

# Commercial Tobacco

- Has over 2,000 harmful chemicals
- 69 of these chemicals are cancerous
- Gases and particles emitted while smoking commercial tobacco:
  - Carbon monoxide
  - Nicotine
  - Hydrogen cyanide
  - Nitrosamine
  - Lead
  - Ammonia
  - Formaldehyde
  - Cadmium
  - Polonium-210
  - Benzene

# All Forms of Commercial Tobacco are Unsafe and Addictive

- Cigarettes
- Cigars
- Clove cigarettes
- Hookah (waterpipe smoking)



- Electronic cigarettes (e-cigs)
- Pipes
- Vaporizers
- Juul Pods



Image courtesy of the Centers for Disease Control and Prevention/Rick Ward

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# To Quit Smoking is Challenging

- For many, smoking is a coping mechanism
- For many, smoking is pleasurable
- Smoking is seen as just a HABIT
- Smoking is a CHEMICAL dependency
- Quitting smoking requires changing daily habits and how your patient thinks

# Smoking is a Habit and a Chemical Dependency

## Behavioral

- Individual routines
- Coping mechanism
- Euphoria



## Counseling Intervention

- Motivational encouragement
- Identify triggers
- Define effective distractions

## Physical

- Chemical dependency
- Dopamine reward system
- Stimulation of nicotine receptors
- Nicotine enters brain within seconds



## Medication Intervention

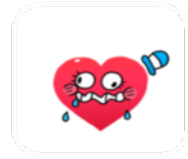
- Nicotine replacement therapy
- Bupropion
- Varenicline

# Deciding to Quit

- It takes an average 11 attempts to quit
- Many patients are not ready
- A normal part of everyday life
- Change is scary
- Undesirable withdrawal symptoms

# Quitting Can Be Scary

Adults who experience severe anxiety are most likely to be current smokers



35 of 100 have severe anxiety



12 of 100 have minimal anxiety

Anxiety measurement based on 7-item General Anxiety Disorder Scale (GAD-7)

- Change can be scary
- Encourage that change is positive
- Smoking makes anxiety worse
- Smoking makes depression worse
- Smoking makes stress worse



# Undesirable Withdrawal Symptoms

- Cravings
- Anxiety
- Mood fluctuation
- Anger
- Irritation
- Increased appetite
- Restless
- Insomnia

Patients are most vulnerable during  
the first 2 weeks of cessation

Most symptoms begin within the first  
1-2 days,

Peak within the first week,  
and

Subside within 2-4 weeks

# Tobacco & Diabetes



# Get to Know Patient and Health Goals

## Behavioral Intervention

### Motivators

- Health improvement
- Health procedure preparation
- Be with children or grandchildren
- Self pride
- Save money

### Struggles

- Unable to recognize triggers
- Stress
- Socializing
- Rituals
- Driving
- Miss the taste

# Get to Know Patient and Health Goals

## Medicinal Intervention

- Minimize or eliminate cravings
- Minimize or eliminate withdrawal symptoms
- Allows patient to focus on their behavioral changes

Medication and counseling together improve chances of quitting by 50%

# Medication Options

- Nicotine Patches (OTC)

- Nicoderm CQ (brand)
- Generic



- Nicotine Gums (OTC)

- Nicorette, ZONNIC
- Generic



- Nicotine Lozenges (OTC)

- Nicorette Lozenges
- Nicorette Mini Lozenges
- Generic



- Nicotine Nasal Spray (Rx)

- Nicotrol NS



- Nicotine Inhaler (Rx)

- Nicotrol



- Bupropion SR Tablets (Rx)

- Zyban
- Generic



- Varenicline Tablets (Rx)

- Chantix



# Celebrate the Benefits

- Smokey smell eliminated
- Improved lung function
- Feel better/healthier
- Freedom
- Improved blood glucose
- Improved blood pressure
- Decreased cancer risk
- Improved wound healing
- Less stress/anxiety/depression
- Less pain
- Saves money

<b>Minutes</b>	<ul style="list-style-type: none"> <li>• Heart rate and blood pressure drop</li> </ul>
<b>24 hours</b>	<ul style="list-style-type: none"> <li>• Nicotine level drops</li> </ul>
<b>Several days</b>	<ul style="list-style-type: none"> <li>• Nicotine level drops</li> </ul>
<b>1-12 months</b>	<ul style="list-style-type: none"> <li>• Shortness of Breath &amp; coughing decrease</li> </ul>
<b>1-2 years</b>	<ul style="list-style-type: none"> <li>• Heart Attack risk drops sharply</li> </ul>
<b>3-6 years</b>	<ul style="list-style-type: none"> <li>• Coronary heart disease risk drops</li> </ul>
<b>5-10 years</b>	<ul style="list-style-type: none"> <li>• Stroke risk decrease</li> <li>• Mouth, throat &amp; larynx cancer risks drop by 1/2</li> </ul>
<b>10 years</b>	<ul style="list-style-type: none"> <li>• Lung cancer risk drop by half</li> <li>• Kidney, bladder &amp; esophagus cancer drop</li> </ul>
<b>15 years</b>	<ul style="list-style-type: none"> <li>• Coronary Heart disease drops close to that of someone who does not smoke</li> </ul>
<b>20 years</b>	<ul style="list-style-type: none"> <li>• Mouth, throat, larynx &amp; pancreatic cancer drops to that of someone who does no smoke</li> <li>• Cervical cancer droops by 1/2</li> </ul>

# HbA1c and Risk of Complications in Former Smokers Can Be Similar to Never Smokers

- Former smokers can achieve similar glycemic control as those who have never smoked
- Former smokers have decreased microvascular complications similar to those who have never smoked
- Negative effects of smoking on HbA1c may not persist after quitting smoking
- Negative effects of smoking on risk of complications may not persist after quitting smoking

# In Summary

- Smoking is the #1 self-eliminating health risk factor
- Many smokers want to quit but do not know how
- There is a difference between traditional and commercial tobacco
- There is no safe level of smoke for smoker and second-hand smokers
- Smoking causes and prevents control of diabetes
- Diabetes is controlled or eliminated with smoking cessation
- Smoking cessation is 50% more successful with counseling and medication
- Intervene at every opportunity
- Quitting smoking is the best thing for the patient and their loved ones



The contents do not represent  
the views of the Indian Health  
Service or the United States  
Government

Questions?

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