Tobacco Use and Cessation

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Session Overview

- Tobacco use Disorder
- Epidemiology of smoking in Saudi Arabia.
- Risks of smoking (Morbidity and Mortality).
- How are you going to help the smoker to quit and how to overcome withdrawal symptoms.
- Cognitive and behavioral treatment strategies
- Update in pharmacological management, smoking cessation medication.

Types of Tobacco Products

Smoking Tobacco

Tobacco smoking is the act of **burning** dried leaves of the tobacco plant and inhaling the smoke

Smokeless Tobacco

Smokeless tobacco is usually consumed orally or nasally, **without burning**

Moist snuff

Dry snuff

Snus

Smoking Tobacco

MANUFACTURED CIGARETTES

Manufactured cigarettes are the most commonly consumed tobacco products worldwide. They consist of shredded or reconstituted tobacco, processed with hundreds of chemicals and rolled into a paper-wrapped cylinder. Usually tipped with a cellulose acetate filter, they are lit at one end and inhaled through the other.

Most Prevalent: *Worldwide*

ROLL-YOUR-OWN

Roll-your-own (RYO) cigarettes are cigarettes hand-filled by the smoker from fine-cut, loose tobacco rolled in a cigarette paper. RYO cigarette smokers are exposed to high concentrations of tobacco particulates, tar, nicotine, and tobacco-specific nitrosamines (TSNAs), and are at increased risk for developing cancers of the mouth, pharynx, larynx, lung, and esophagus.

Most Prevalent: *Europe and New Zealand*

CIGARS

Cigars are made of air-cured and fermented tobaccos with a tobacco-leaf wrapper. The long aging and fermentation process produces high concentrations of carcinogenic compounds that are released on combustion. The concentrations of toxins and irritants in cigars are higher than in cigarettes. Cigars come in many shapes and sizes, from cigarette-sized cigarillos to double coronas, cheroots, stumpen, chuttas, and dhumtis. In reverse chutta and dhumti smoking, the ignited end of the cigar is placed inside the mouth.

Most Prevalent: *Worldwide*

Smoking Tobacco

BIDIS

Bidis consist of a small amount of sun-dried, flaked tobacco hand-wrapped in dried temburni or tendu leaf *(Diospyros sp.)* and tied with string. Despite their small size, bidis deliver more tar and carbon monoxide than manufactured cigarettes because users are forced to puff harder to keep bidis lit. Bidis are found throughout South Asia and are the most heavily consumed smoked tobacco products in India.

Most Prevalent: *South Asia*

PIPES

Pipes are made of briar, slate, clay, or other substances. Tobacco is placed in the bowl, and the smoke is inhaled through the stem. In Southeast Asia, clay pipes known as sulpa, chillum, and hookli are widely used.

Most Prevalent: *Worldwide*

KRETEKS

Kreteks are clove-flavored cigarettes widely smoked in Indonesia. They may contain a wide range of exotic flavorings and eugenol, which has an anesthetic effect, allowing for deeper and more harmful smoke inhalation.

Most Prevalent: *Indonesia*

WATER PIPES

Water pipes, also known as shisha, hookah, narghile, or hubble-bubble, operate by water filtration and indirect heat. Flavored tobacco is burned in a smoking bowl covered with foil and coal. The smoke is cooled by filtration through a basin of water and consumed through a hose and mouthpiece.

Most Prevalent: *North Africa, the Mediterranean region, and parts of Asia.*

Smokeless Tobacco

MOIST SNUFF

Moist snuff is a small amount of ground tobacco held in the mouth between the cheek and gum. Manufacturers are increasingly prepackaging moist snuff into small paper or cloth packets to make the product more convenient. Other moist snuff products are known as khaini, snus, shammaah, nass, or naswa.

Most Prevalent: *Worldwide*

DRY SNUFF

Dry snuff is powdered tobacco that is inhaled through the nose and absorbed through the nasal mucosa or taken orally. Once widespread, particularly in Europe, the use of dry snuff is in decline.

Most Prevalent: *Europe*

CHEWING TOBACCO

Oral smokeless tobacco products are placed in the mouth, cheek, or inner lip and sucked (dipped) or chewed. Tobacco pastes or powders are similarly used, placed on the gums or teeth. Sometimes referred to as "spit tobacco" because users spit out the built-up tobacco juices and saliva, this mode of tobacco consumption became associated with American baseball players during the twentieth century. The tobacco industry exploited these sports heroes to market their tobacco products to youth. Smokeless tobacco causes cancer in humans and leads to nicotine addiction similar to that produced by cigarette smoking.

There are many varieties of smokeless tobacco, including plug, loose-leaf, chimo, toombak, gutkha, and twist. Pan masala or betel quid consists of tobacco, areca nuts *(Areca catechu)*, slaked lime (calcium hydroxide), sweeteners, and flavoring agents wrapped in a betel leaf *(Piper betel)*. There are endless varieties of pan masala, including kaddipudi, hogesoppu, gundi, kadapam, zarda, pattiwala, kiwam, and mishri.

Most Prevalent: *India*

Electronic Cigarette

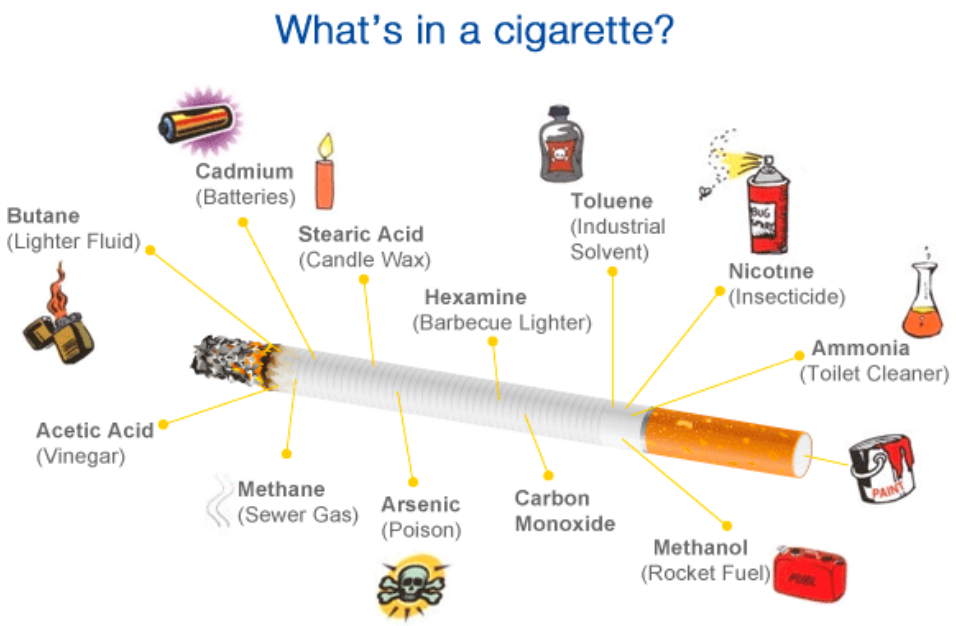
- An **electronic cigarette** or **electronic Nicotine delivery system** (**ENDS**) is a battery-powered vaporizer which has a similar feel to tobacco smoking.

- Electronic cigarettes do not contain tobacco, although they do use nicotine from tobacco plants. They do not produce cigarette smoke but rather an aerosol, which is frequently but inaccurately referred to as vapor.

Water-Pipe: Sheesha

- Not safer than regular tobacco smoke.
- Causes the same diseases but more Polycythemia (RBCs and Hemoglobin).
- Raises the risk of lip cancer, spreading infections like Tuberculosis.
- Users ingest about 100 times more lead from hookah smoke than from a cigarette.

Content of Cigarette



Tobacco smoke is made up of thousands of chemicals, including at least 70 known to cause cancer. These cancer-causing chemicals are referred to as **carcinogens**. Some of the chemicals found in tobacco smoke include:

- Nicotine (the addictive drug that produces the effects in the brain that people are looking for)
- Hydrogen cyanide
- Formaldehyde
- Lead
- Arsenic
- Ammonia
- Radioactive elements, such as polonium-210
- Benzene
- Carbon monoxide
- Tobacco-specific nitrosamines (TSNAs)
- Polycyclic aromatic hydrocarbons (PAHs)

Tobacco Use Disorder

The Diagnostic and Statistical Manual defines Tobacco Use Disorder (DSM 5)

Definition

- A problematic pattern of tobacco use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period
- An overview of the 11 criteria

Tobacco Use Disorder

1. Taken in larger amounts or over a longer period than was intended.
2. Persistent desire or unsuccessful efforts to cut down or quit.
3. Great deal of time spent to obtain or use.
4. Craving, or a strong desire or urge to use tobacco.
5. Recurrent use resulting in a failure to fulfill major role obligations at work, school, or home.
6. Continued tobacco use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of tobacco (e.g., arguments with others about tobacco use).
7. Giving up or reducing important social, occupational, or recreational activities
8. Recurrent tobacco use in situations in which it is physically hazardous (e.g., smoking in bed).

Tobacco Use Disorder

9. Use is continued despite knowledge of having a persistent or recurrent physical or psychological problem

10. Tolerance, *as defined by either of the following:*

    a. A need for markedly increased amounts of tobacco to achieve the desired effect.

    b. A markedly diminished effect with continued use of the same amount of tobacco.

11. Withdrawal, *as manifested by either of the following:*

    a. The characteristic withdrawal syndrome for tobacco (irritability, frustration, anger / anxiety/ difficulty concentrating/ increased appetite, weight gain / restlessness, impatience / depressed mood / insomnia).

    b. Tobacco (or a closely related substance, such as nicotine) is taken to relieve or avoid withdrawal symptoms.

Tobacco Use Disorder

The Diagnostic and Statistical Manual defines Tobacco Use Disorder (DSM 5)

Severity

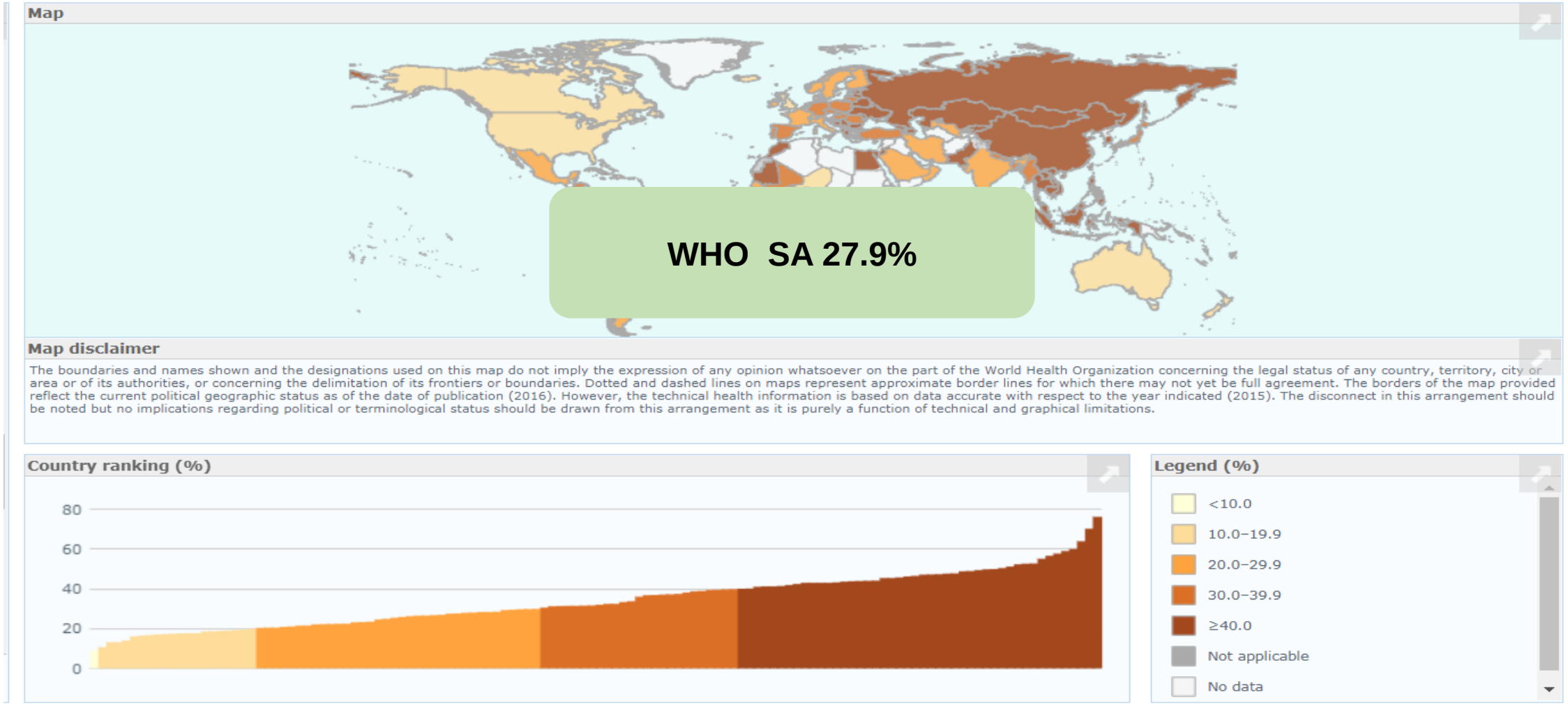
- Mild → 2-3 symptoms
- Moderate → 4-5 symptoms
- Sever → 6 or more symptoms

HOWEVER; all tobacco use can be considered problematic since there is no safe level of use

Tobacco Use Disorder Epidemiology

- The World Health Organization describes smoking as an Epidemic that causes nearly 6 million deaths per year and will lead to 8 million deaths annually by 2030 if current trends continue

Prevalence of Tobacco smoking among persons aged 15 years and above % (Male) – 2015



Smoking in the Kingdom of Saudi Arabia:
Findings from the Saudi Health Interview Survey

Findings are representative of the Saudi population aged 15 years and older.

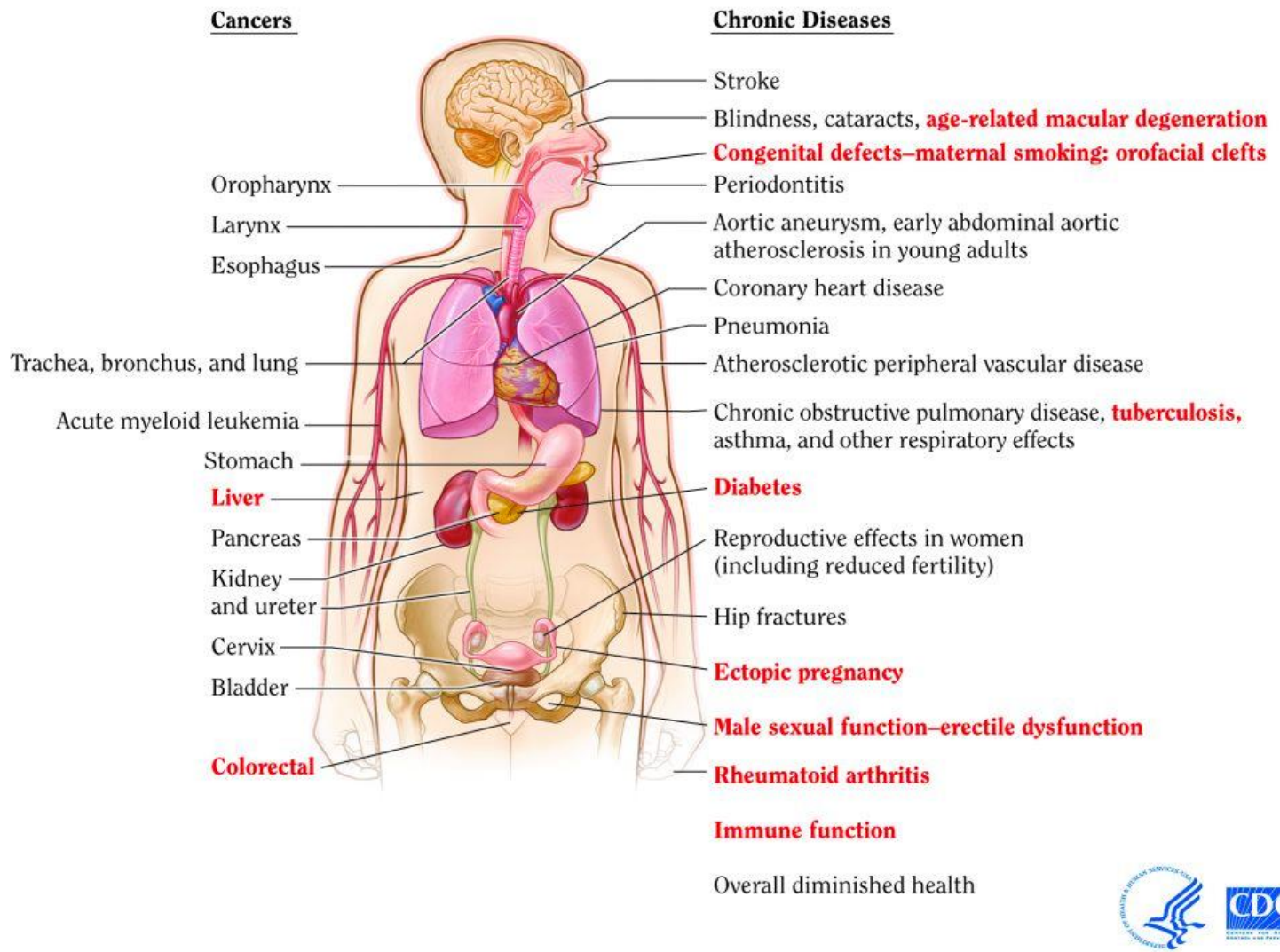
- Overall, **12.1%** of Saudis reported that they currently smoke tobacco.
- This prevalence was **23.7%** among males and **1.5%** among females.
- The prevalence of tobacco smoking varied by age;
  - Saudis aged 55 to 64 years had the highest prevalence of current smoking (15.6%) with 24.7% among males and 4.2% among females.

Risks of Smoking (Morbidity and Mortality)

- Cigarette smoking causes more than 480,000 deaths each year in the United States.
- This is about one in five deaths.
- Smoking causes more deaths each year than all of these combined:
  - Human immunodeficiency virus (HIV)
  - Illegal drug use
  - Alcohol use
  - Motor vehicle injuries
  - Firearm-related incidents

Risks from Smoking

Smoking can damage nearly every part of your body



How are you going to help the smoker to **Quit**?

Why Quit Smoking NOW?

- No matter how old or how long a person's smoked, quitting can help live longer and be healthier.
- People who stop smoking before **age 50** cut their risk of dying in the **next 15 years** in **half** compared with those who keep smoking.
- **Ex-smokers** enjoy a higher quality of life – they have fewer illnesses.

Why Quit Smoking NOW?

(Source: Scollo & Winstanley, 2012)

After **20 mins**, heart rate and blood pressure drops

After **12 hours**, almost all of the nicotine is out of your bloodstream

After **24 hours**, the carbon monoxide has reduced considerably

Within a **few days**, sense of smell and taste improves

Within **2 months**, lung function improves and respiratory symptoms reduce

Within **6 months**, the immune system improves greatly

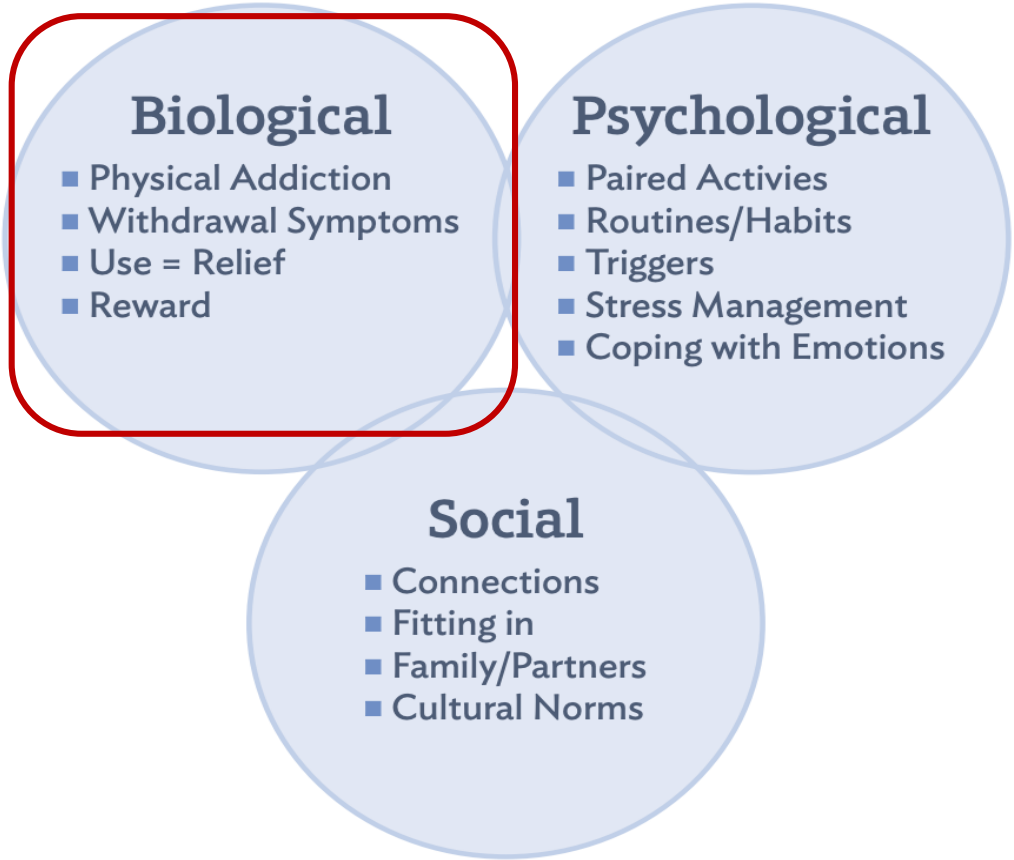
In **12 months**, the risk of a heart attack has halved

After **10 years**, the risk of lung cancer is reduced

Health & Wellbeing
Training Consultants

Approaching Smokers Who Want to Quit

- The “Biopsychosocial” Model of Tobacco Dependence



Why is it so hard to quit smoking?

Nicotine

- Found naturally in tobacco, which is as **addictive** as heroin or cocaine.
- Over time, a person becomes **physically dependent** on and **emotionally addicted** to nicotine.
  - The **physical dependence** causes unpleasant withdrawal symptoms when you try to quit.
  - The **mental dependence** (addiction) make it hard to stay away from nicotine after quit.

Nicotine

- Nicotine in tobacco smoke inhaled into the lung is **rapidly absorbed** because of the large surface area of the alveoli and small airways
- Nicotine from **oral tobacco products** that have an alkaline pH is readily absorbed through the oral mucosa, but more gradually than via the lungs

Nicotine

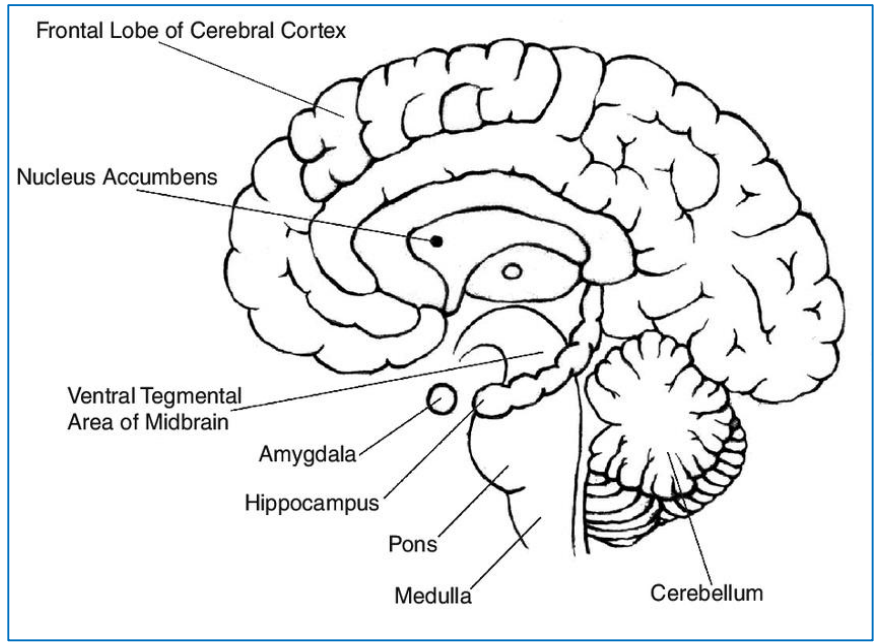
- Nicotine distributes extensively to body tissues, including the liver, kidney, spleen, lung, and brain and also accumulates in gastric juice and saliva, breast milk, skeletal muscle, and fetal serum and amniotic fluid
- The time between a puff on a cigarette until nicotine reaches the brain is **10 – 20 seconds**
- **Dependence** on nicotine is characterized by both the persistence of a drug-taking behavior and the emergence of withdrawal symptoms upon the abrupt cessation of nicotine administration

Nicotine Addiction

- **Dopamine is a key neurotransmitter**
- Nearly all drugs of abuse directly or indirectly increase dopamine in the pleasure and motivation pathways and in so doing, alter the normal communication between brain cells.

Nicotine Addiction

- Addictive drugs increase dopamine levels and activate the reward pathway
- The reward pathway of the brain is connected to areas of the brain that control behavior and memory.
- It begins in the ventral tegmental area (VTA), where neurons release dopamine to make you feel pleasure.
- The brain begins to make connections between the activity and the pleasure, ensuring that we will repeat the behavior



Nicotine Addiction

Nicotine and the Brain

- Neuroadaptation leads to tolerance
  - Occurs with repeated exposure to nicotine
  - Receptor cells are desensitized or unresponsive
  - Brain compensates by increasing receptors and binding sites - brain chemistry is altered!
- Period of abstinence result in withdrawal symptoms
  - After longer abstinence (e.g. sleeping) receptors become responsive again
- End of abstinence (e.g. smoking a cigarette)
  - Nicotine binds to the receptors
  - Alleviates cravings and withdrawal symptoms

Withdrawal symptoms can include any of the following:

Peak: first to second week where the relapse rate is high

- Dizziness (which may last 1 to 2 days after quitting)
- Feelings of frustration, impatience, and anger
- Depression, Anxiety, Tiredness and Irritability
- Sleep disturbances
- Trouble concentrating
- Restlessness
- Headaches
- Increased appetite and Weight gain
- Constipation and gas
- Cough, dry mouth, sore throat, and nasal drip
- Chest tightness

Tips to Overcome Withdrawal Symptoms

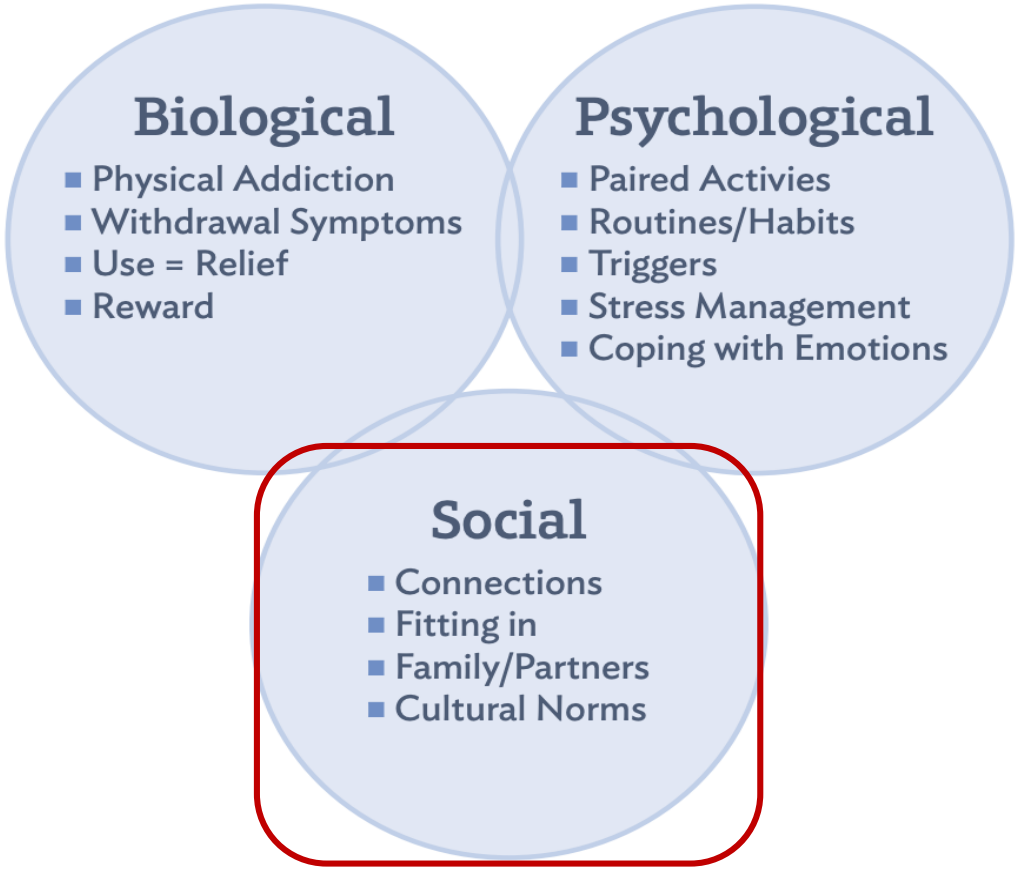
- **Avoid temptation.** Stay away from people and places that tempt you to smoke.
- **Change your habits.** Switch to juices instead of coffee. Take a brisk walk instead.
- **Choose other things for your mouth:** such as sugarless gum or hard candy, raw vegetables such as carrot.
- **Get active with your hands:** Do something to reduce your stress like Exercise or keeps your hands busy.

Tips to Overcome Withdrawal Symptoms

- **Breathe deeply:** as you inhaled the smoke.
- **Delay:** If you feel that you’re about to light up, hold off. Tell yourself you must wait at least 10 minutes.
- **Reward yourself.** Put the money you would have spent on tobacco in a jar every day and then buy yourself a gift.

Approaching Smokers Who Want to Quit

- The “Biopsychosocial” Model of Tobacco Dependence



Social and Cultural Factors

- Social determinants of health include community, social, environmental and political factors that either exist prior to an individual's choice or that influence that choice
- Socio-demographic factors are among the strongest predictors of smoking
- Education and Household Income level are among the most important.

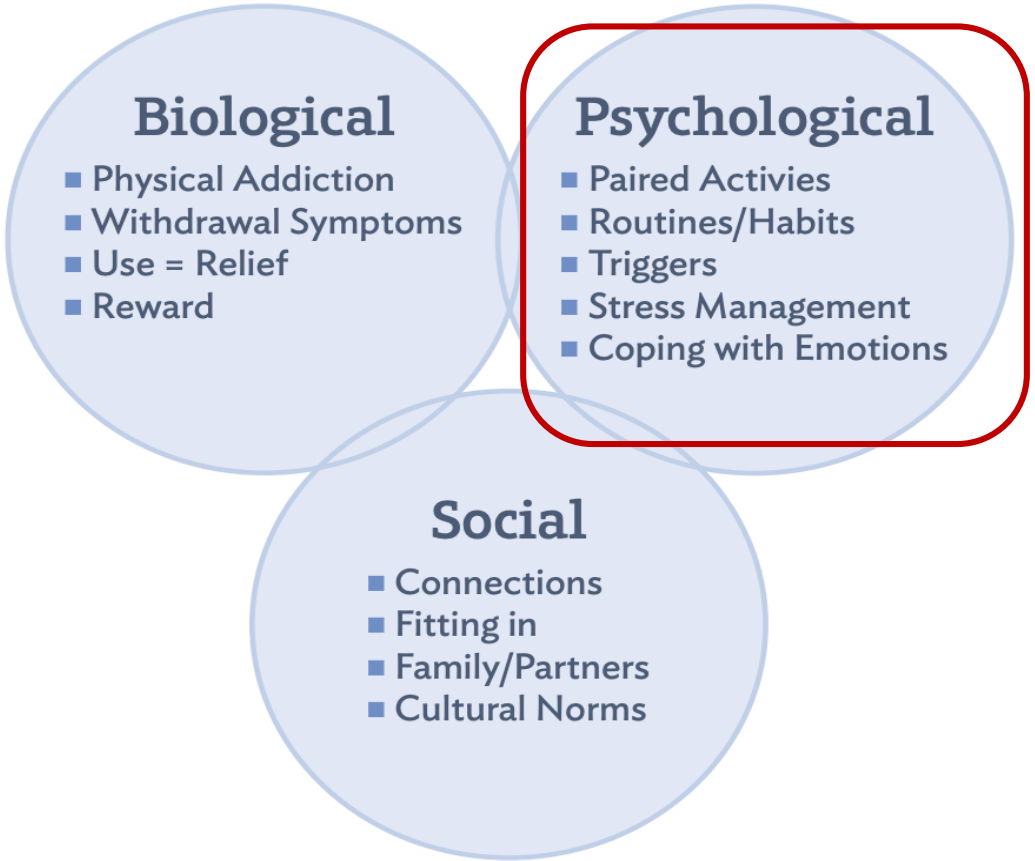
Social and Cultural Factors

Environmental Factors

- The likelihood of smoking increases when those around the smoker also smoke (e.g. coworkers, friends, family members).
- Access to cigarettes and smoking environments at home, work, and social situations also increases the likelihood of smoking.
- The social acceptability of smoking influences prevalence rates.

Approaching Smokers Who Want to Quit

- The “Biopsychosocial” Model of Tobacco Dependence



Determinants of Tobacco Use Disorder
Psychological Factors

Psychological Effects

- Stimulation/arousal
- Relaxation/reduce stress
- Mood regulation
- Appetite suppression
- Weight management
- Pain management
- Reduces anxiety/social facilitation

Cognitive Effects:

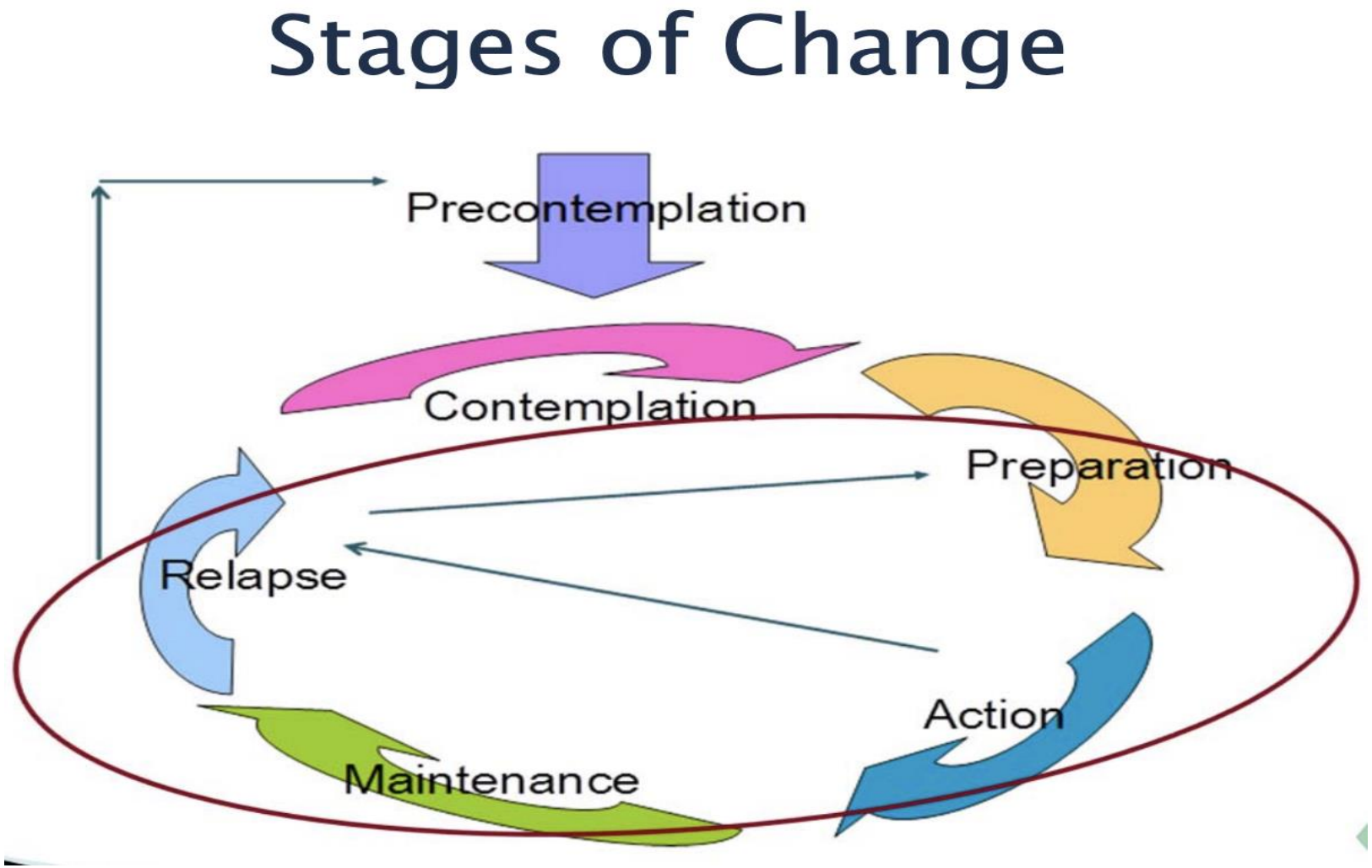
- Enhanced memory
- Enhanced attention
- Increased speed of processing

Assessment and Treatment Plan

Transtheoretical Model Stages of Change (used only as a guide)

- Precontemplation – No intention to quit within 6 months
- Contemplation – Intention to quit within 6 months
- Preparation – Ready to quit within 30 days
- Action – Has quit
- Maintenance – Abstinent for 6 months or more
- Relapse – Return to regular use after a period of abstinence

Assessment and Treatment Plan



Assessment and Treatment Plan

Tobacco Assessment Components

- Demographics
- Tobacco Use History
- Quitting History
- Social/Cultural/Environmental Factors
- Medical/Psychiatric History
- Beliefs/Stage of Change/Self-Efficacy

Assessment and Treatment Plan

Demographics

- Age
- Gender
- Race/Ethnicity
- Relationship status
- Residence
- Educational level
- Employment

Assessment and Treatment Plan

Tobacco Use History

- Age started
- How did you start
- Cigarettes per day
  - Lifetime
  - Current
- Brand (Menthol?)
- Other tobacco or e-cigarette/vaping use
- What do they like about it

Assessment and Treatment Plan

Prior Quit Attempts

- Number of attempts
- Time and timing: Why then?
- Specifics on longest and most recent
- Pharmacotherapy
- Other methods like groups, acupuncture
- Withdrawal symptoms
- Reason for relapse

Assessment and Treatment Plan

Social and Environmental Factors

- Who smokes at home
- Can you smoke in the home/car
- What about friends/co-workers
- Smoking policy at work?
- How does smoking fit into your social life
- What supports/stressors exist right now

Pharmacotherapy

Pharmacotherapy for the Treatment of Smoking

- Smokers who quit cold turkey (no pharmacotherapy) have a 5-15% (avg 7%) chance of long term success
- In general, pharmacotherapy more than doubles the chances of success
- Pharmacotherapy + counseling increases success

Pharmacotherapy for the Treatment of Smoking

FDA-Approved Pharmacotherapy Options

Nicotine Replacement (NRT)	Non-Nicotine Medications
Patch	Bupropion SR
Gum	Varenicline
Nasal Spray	
Inhaler	
Lozenge	

Pharmacotherapy for the Treatment of Tobacco Use Disorder

Monotherapy

- Seven first-line medications

Combination therapy

- Patch + Other NRT
- Bupropion + NRT (patch, gum, lozenge, etc.)
- Varenicline + (NRT or Bupropion)

Pharmacotherapy for the Treatment of Smoking

Nicotine Replacement Therapy

Patch

Inhaler

Gum

Spray

Lozenge

Nicotine Replacement Therapy

Mechanism of Action

- Provides ‘medicinal’ or ‘clean’ nicotine
  - Cigarettes use the best drug delivery system in our body (i.e., our lungs).
  - Reaches the brain/reward pathway within 8 seconds.
- Reduces withdrawal symptoms and craving
- May provide some positive effects of nicotine:
  - Desirable mood
  - Improved attention
- Replaces oral/handling aspects of habit

Nicotine Replacement Therapy

Nicotine Patch

- The NicoDerm CQ patch is available in 21, 14, and 7 mg doses.
- It is designed to be worn for 16 or 24 hours and then replaced with a new patch every day

Patch – Dosing Guideline

PATCH	
21 mg, 14 mg or 7 mg	
Dose:	1 patch every 24 hrs
Start:	21 mg patch if $\geq$ 10 cig/day 14 mg patch if $<$ 10 cig/day
Duration:	~8 weeks to up to 6 months

Nicotine Replacement Therapy

Nicotine Patch

Instructions

- Apply patch daily in AM
  - Hold 20 seconds to improve adherence to skin
- Apply to clean, dry, hairless area
  - Apply to upper body
  - Rotate site daily
- No restrictions on activities
- If sleep disturbances develop, may remove at bedtime and apply fresh patch in AM
- If localized redness or irritation occurs, may use OTC steroid cream
- Remove for MRI

Nicotine Replacement Therapy

Nicotine Gum

- Nicotine gum is commonly used in combination with the nicotine patch.

Gum – Dosing Guideline

GUM	
2 mg or 4 mg	
Dose:	1 piece every 1–2 hrs
Start:	2mg if > 30 min to first cig 4 mg if ≤ 30 min to first cig
Max:	24 pieces/day
Duration:	Up to 6 months

Nicotine Replacement Therapy

Nicotine Gum

“Chew and park” Method

PROPER CHEWING TECHNIQUE IS CRITICAL!

- Chew slowly until “peppery” taste emerges
- Then “park” gum between cheek and gums
- Slowly and intermittently “chew and park” for 30 minutes
- Avoid acidic foods and beverages while chewing the gum

Nicotine Replacement Therapy

Nicotine lozenge

Lozenge – Dosing Guideline

LOZENGE or MINI-LOZENGE	
2 mg or 4 mg	
Dose:	1 lozenge every 1–2 hrs
Start:	2mg if > 30 min to first cig 4 mg if ≤ 30 min to first cig
Max:	20 pieces/day
Duration:	Up to 6 months

Nicotine Replacement Therapy

Nicotine lozenge

Instructions

- Allow to dissolve slowly
- Do not bite or chew
- “Park” between cheek and gum, and move around with tongu periodically
- Avoid acidic foods and beverages while using the lozenge

Nicotine Replacement Therapy

Nicotine Inhaler

- **by prescription only**.

Inhaler – Dosing Guideline

INHALER (Nicotrol® Inhaler)	
Dose:	6 –16 cartridges/day as needed
Max:	16 cartridges/day
Duration:	3 – 6 months

Nicotine Replacement Therapy

Nicotine Nasal Spray

- Of all NRT products on the market, the nicotine nasal spray delivers nicotine to the blood stream the most rapidly.
- Because of this, the dependency potential is greater with the spray than with other forms of NRT.
- It is available by prescription only.

Nicotine Replacement Therapy

Nicotine Nasal Spray

- Most rapid delivery of nicotine
- Dose = 1 spray in each nostril
- Nasal irritation may occur, but may resolve with continued use

Nasal Spray – Dosing Guideline

NASAL SPRAY (Nicotrol® NS)	
(1 dose= 1 mg= 2 sprays)	
Dose:	1 – 2 dosages per hr
Max:	5 doses/hr or 40 doses/day
Duration:	3 – 6 months

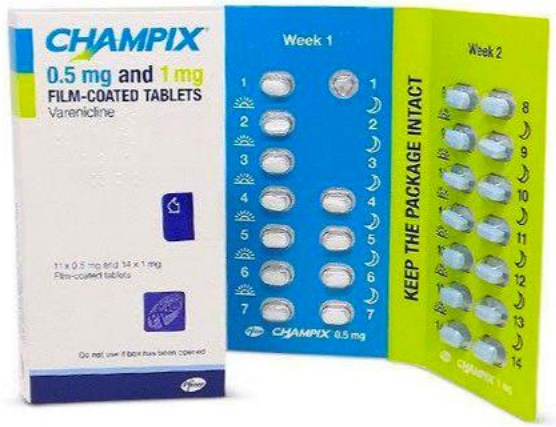
Nicotine Replacement Therapy

Precautions NRT

- Please note the word precautions. This does not read contraindication.
- Immediate post-heart attack period
- Uncontrolled cardiac arrhythmias
- Severe or worsening angina
- Pregnancy
- Children and adolescents

Pharmacotherapy
Varenicline

Varenicline (Champix)



- Varenicline is a prescription medicine approved by FDA in 2006 to help adults in the treatment of tobacco dependenc

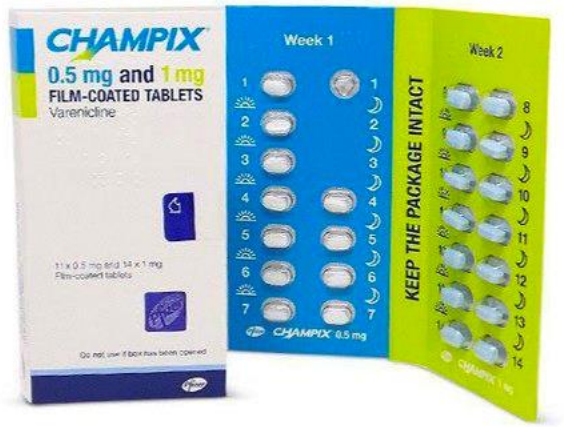
Mechanism of Action

- Varenicline acts as a partial agonist/antagonist on the nicotinic acetylcholine receptors :
  - Providing some nicotine effects to ease the withdrawal symptoms and
  - Blocking the effects of nicotine from cigarettes if they resume smoking

Pharmacotherapy
Varenicline

Varenicline (Champix)

- Start taking varenicline at least 1 week before the quit date – it can be used for up to 35 days before complete abstinence.
- Take 1 white tablet daily (0.5mg) for 3 days
- Then one white tablet (0.5 mg) twice daily for 4 days
- Then one blue tablet (1mg) twice daily for up to 12 weeks



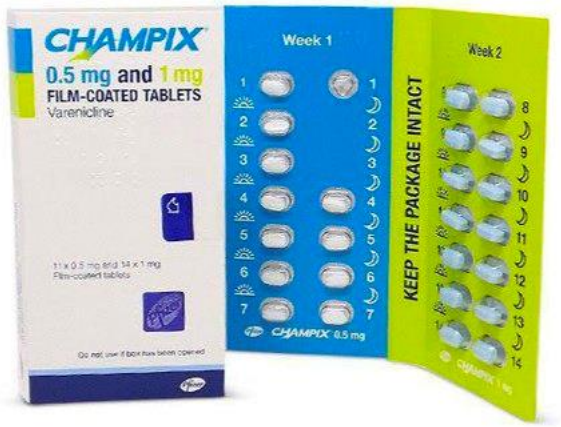
Varenicline: Dosing Guideline

VARENICLINE (Chantix®)	
0.5 mg, 1 mg tablets	
Dose: (begin 8 – 35 days before quit date)	Starting Month Pak = 0.5 mg once per day (days 1–3) 0.5 mg twice per day (days 4–7) 1 mg twice per day (days 8+) Continuing Month Pak = 1 mg twice per day
Max:	2mg/day
Duration:	12 weeks*

Pharmacotherapy
Varenicline

Varenicline (Champix)

Side Effects



- Most common side effect: nausea
  - Nausea can often be managed by taking the medication in the middle of a full meal and with at least 8 oz of water
- Other side effects include: headaches, abnormal dreams, constipation, insomnia, vomiting and flatulence
- Some of the side effects like nausea and insomnia may improve with dose reduction
- Anyone experiencing worsening depression or suicidal thoughts should contact their doctor immediately


THANK
YOU