PHC

432 Handouts

4 Smoking

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COLOR GUID: Doctor's Notes Team Notes **Slides** Not important **Important** **431 team work**

Objectives

1. Epidemiology of smoking in Saudi Arabia
2. Risks of smoking (morbidity and mortality)
3. Effect of passive smoking on pregnancy, children, …
4. How are you going to help the smoker to quit and how to overcome withdrawal symptoms
5. Role of PHC physician “smoking cessation clinic”
6. Update in pharmacological management, smoking cessation medication
7. Nicotine preparations, Varniciline, Bupropion

Epidemiology of Smoking in Saudi Arabia

Smoking is the inhalation of the smoke of burning tobacco

Forms: cigarettes, pipes, cigars, shisha

Epidemiology of smoking:

- Smoking leads to disease and disability and harms nearly every organ of the body.
- Smoking is the leading cause of preventable death.
- Tobacco use causes nearly 6 million deaths per year
- 600 million Saudi Riyals are spent annually on tobacco.
- Government's expenditures on tobacco control 18 000 000 SAR (WHO)
- The World Health Organization (WHO) has described tobacco smoking as an epidemic.
- In Saudi Arabia, The prevalence of smoking is much higher in males than in females at different ages ranges from 2.4-52.3%

Risk of smoking (Morbidity & Mortality):

Smoking and Cardiovascular Disease

The nicotine in smoke:

- Reduces how much oxygen your heart gets
- Raises your blood pressure
- Speeds up your heart rate (activates the sympathetic nervous system)
- Damage the vascular wall
- Makes blood clots which can lead to heart attacks or strokes

Lead to:

- Makes blood clots which can lead to heart attacks or strokes
- Atherosclerosis (LDL HDL), Myocardial infarction, Hypertension, Stroke (cerebrovascular disease)

Smoking and Respiratory Disease

Lead to:

- Smoking damage tissue and cells of the lungs. When cigarette smoke is inhaled, chemicals from the smoke are absorbed in the lungs

Result in:

- Chronic obstructive pulmonary disease (COPD): Chronic bronchitis and Emphysema
- Worsening the lung diseases, Asthma

Smoking and Cancer

- Smoking is the most important preventable cause of cancer in the world
- Smoking causes more than 4 in 5 cases of lung cancer. Also, Oral cancer, pancreas cancer, liver cancer...

Smoking and Infection

- Increases the risk for: Tuberculosis, pneumonia, Influenza, common cold
- Patients with HIV: Thrush (oral candidiasis), Hairy leukoplakia, Bacterial pneumonia, Pneumocystis pneumonia, a dangerous lung infection
    - Smokers are 30–40% more likely to develop type 2 diabetes than nonsmokers
    - Stained teeth
    - Gum inflammation
    - Black hairy tongue
    - Delayed healing of the gums

Effect of Passive Smoking on Children and Pregnancy

Definition:

Secondhand smoke (SHS) or environmental tobaccos smoke (ETS) are terms used for the involuntary exposure of nonsmokers to tobacco smoke from the smoking of others.

SHS is a mixture of side stream smoke given off by smoldering tobacco and the mainstream smoke that is exhaled back into the air by active smokers.

Exposure to SHS can be estimated by measuring concentrations of smoke components in the air, or in the form of biomarkers such as cotinine

Exposure to SHS is causally associated with an increased risk of lung cancer and coronary heart disease among nonsmokers:

- 25 to 30 % increase risk of coronary heart disease
- 20 to 30 % increase risk of lung cancer

Risks associated with SHS in children:

Prematurity and perinatal mortality

- The level of tobacco exposure of the fetus of a mother who smokes is the same as the level for an active smoker. Maternal smoking is associated with increased perinatal mortality (stillbirths and neonatal deaths).

Fetal growth and development

- Maternal active smoking during pregnancy reduces birth weight by about 200 g on average associated with increased risk of several non-chromosomal birth defects, including modest effects on cardiovascular/heart defects, musculoskeletal defects, and cryptorchidism, and slightly larger effects on limb reduction defects, clubfoot, craniosynostosis, oro-facial clefts, eye anomalies, and gastrointestinal defects (including gastroschisis and abdominal hernias)
- Exposure of nonsmoking mothers to SHS is associated with reduced birth weight about 28g associated with exposure of a nonsmoking woman to SHS during pregnancy are growth retardation stillbirth, and congenital malformations in the offspring

Sudden infant death syndrome (SIDS)

- Sudden infant death syndrome (SIDS) refers to the unexpected death of a seemingly healthy infant while asleep. Maternal smoking during pregnancy has been causally associated with SIDS. An estimated 25 to 40 percent of SIDS cases are related to smoking during pregnancy

Respiratory symptoms and illness

1. Lower respiratory illnesses
    - Infants with parents who smoke have an increased risk of lower respiratory tract illness, including a significantly increased frequency of bronchitis and pneumonia during the first year of life .The approximate increase in risk for lower respiratory illness is 50 percent if either parent smokes
2. Chronic respiratory symptoms
3. Asthma
    - Pre- or post-natal exposure to SHS was associated with a 20 to 85 percent increased risk for asthma [56]. This association might be a consequence of the increased frequency of lower respiratory infection in early childhood or other pathophysiological mechanisms, including inflammation of the respiratory epithelium
4. Reduced lung function

Atherogenesis

- Environmental exposure to tobacco smoke is associated with subtle changes in endothelial function, which are in turn associated with atherogenesis

Middle ear disease

Pregnancy:

- The effects of secondhand smoke exposure on nonsmoking pregnant women, exposure to cigarette smoke significantly increased the risk of stillbirth and congenital malformations
- Secondhand smoke exposure had no significant effect on risk of miscarriage or perinatal or neonatal death.
- Secondhand smoke exposure in nonsmoking pregnant women reduced mean birth weight by 33 g or more, and increased the risk of birth weight below 2500 g by 22 %

How to overcome withdrawal Symptoms:

Nicotine Cravings:

- Avoiding situations and activities that used to associated with smoking
- Trying chewing on carrots pickles apples sugarless gum. Keeping the mouth busy may stop the psychological need to smoke
- Nicotine replacement

Anger, frustration, irritability and anxiety

- Engaging in physical activity
- Trying relaxation techniques such as getting a massage
- Nicotine replacement

Depression

- Physical activity
- If depression continues for more than 1 month referral

Weight gain

- Diet counselor
- Physical activity
- Nicotine replacement

Role of PHC physician “smoking cessation clinic”

For every patient at every clinic visit, we suggest using a clinician intervention model called the **"5 A’s”.**

This model encourages clinicians to:

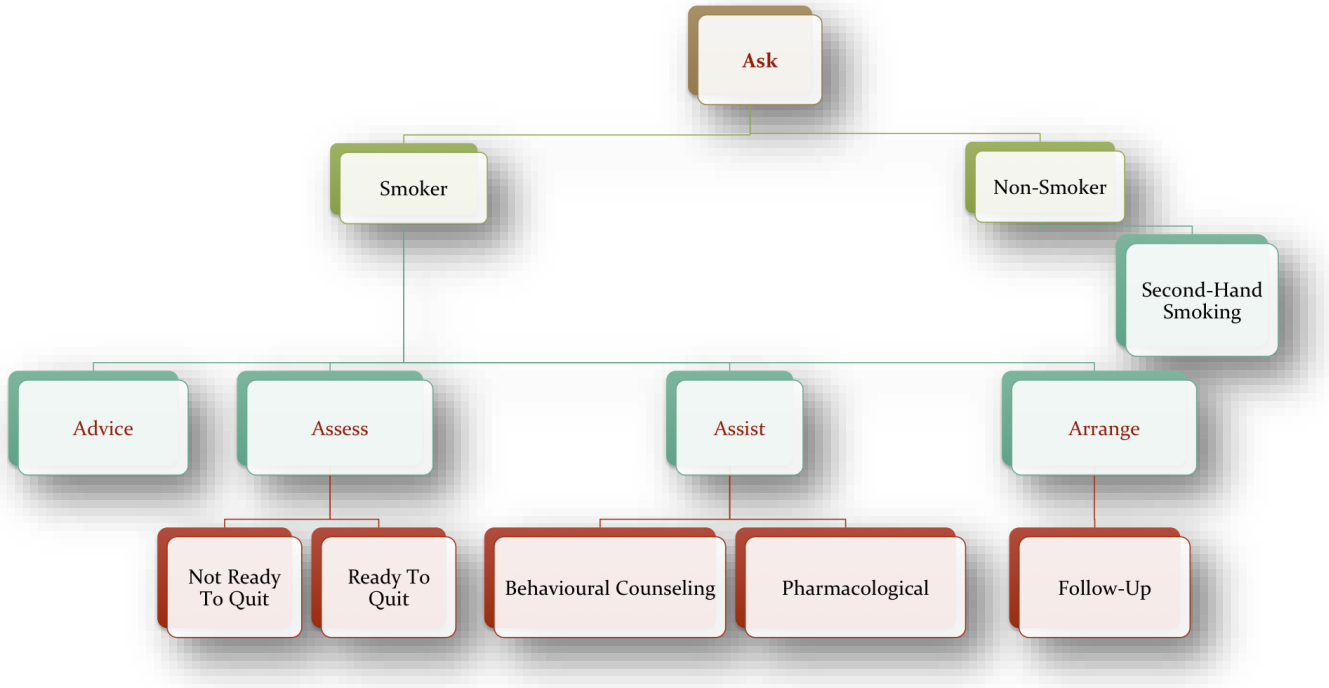
Ask patients about smoking,

Advise all smokers to quit,

Assess their readiness to quit “change model”,

Assist them with their smoking cessation effort, and

Arrange for follow-up visits or contact.



1. Ask:

Ask ALL PATIENTS about tobacco use, If:

- Smoker =>> Advice > Assess > Assist > Arrange
  - Frequency of use
  - Products used
  - Degree of nicotine dependence “Fagerstrom Test”
  - History of previous quit attempts, including methods used and their effectiveness
- Non-Smoker =>> Exposure to second-hand smoking

This practice has been shown to increase the likelihood of smoking-related discussions and increase smoking cessation rates

It is important to ask about intermittent smoking since over 20% of smokers are nondaily smokers and may not identify themselves as smokers when questioned

Also Asses use of alternative tobacco products (e.g., electronic cigarettes, cigars, and pipes), as they’re incorrectly perceived as having little or no health risk to the user.

2. Advice:

- Advice smoking cessation to all smokers
- Although not every patient counseled in smoking cessation will be prepared to consider quitting.
- There is clear evidence that brief physician advice interventions to quit (<5 minutes) at each encounter can increase smoking abstinence rates.
- Assuming a baseline unassisted quit rate of 2% to 3%, a brief advice intervention could increase quitting by a further 1% to 3%.
- The main therapeutic effect of physician advice is likely to promote motivation to quit.
- Reducing the number of cigarettes smoked daily has been advocated as a possible alternative to complete cessation in patients who are unable to quit smoking.
- However, few data are available that support a reduction in smoking as the goal of treatment, compared with complete cessation. Complete smoking cessation is always preferable.

3. Assess Reading to Quit

- Following advice, the clinician should assess the patients' willingness to make a quit attempt
- The Stages of Change Model was developed to describe the process by which behavior change occurs. It identifies five stages through which smokers are hypothesized to progress as they move from smoking to abstinence:
    - **Precontemplation** (not ready to quit)
    - **Contemplation** (considering a quit attempt)
    - **Preparation** (actively planning a quit attempt)
    - **Action** (actively involved in a quit attempt)
    - **Maintenance** (achieved smoking cessation)
- The validity of this model has been debated, with some critics noting that individuals do not move through predictable stages of behavior change.
- Nonetheless, the basic concept of change being gradual has been useful for clinicians when discussing smoking cessation with a smoker.

4. Assist

Smokers Not Ready to Quit

- Relevance: Relevant personal motivational information (patient's disease status or risk, having children in the home, prior quitting experience, personal barriers to cessation)
- Risks: Ask the patient to identify potential negative consequences associated with tobacco use. Stress the risks most applicable to the patient
    - Acute Health Risks: shortness of breath, harm to pregnancy
    - Long-Term Risks: heart attacks and stroke, lung, and other cancers
    - Environmental Risks: Increased risk of lung cancer in partners, respiratory infections in children of smokers
- Rewards: Encourage the patient to identify potential benefits of quitting smoking and highlight those most relevant to the patient, such as improved health in themselves and their family members, saving money
- Roadblocks: Invite the patient to identify barriers to quitting and suggest treatments (problem solving counseling, medication) that could address such barriers
    - Typical barriers might include: withdrawal symptoms, fear of failure, Etc.

- Repetition: The motivational intervention should be repeated every time an unmotivated patient visits the clinic setting. Tobacco users who have failed in previous quit attempts should be told that most people make repeated quit attempts before they are successful.

Smokers Ready to Quit

- For smokers who are willing to quit, it is recommend that smokers be managed with a combination of behavioral support and pharmacologic therapy. Combination therapy is superior to either behavioral intervention or pharmacologic therapy alone.
- We suggest that the maximal behavioral intervention available and acceptable to the patient be used. In most settings, behavioral intervention generally consists of brief clinician counseling in the office.
- A key to successful quitting is to equip the smoker with as much information as possible about what to expect during quit attempts, including expectations about nicotine withdrawal.
- Effective counseling programs generally use cognitive-behavioral techniques to provide practical counseling to avoid triggers and deal with situations that may tempt smoking.
- Other strategies to provide behavioral counseling include web-based interventions, text messaging, phone apps, and self-help websites.

5. Arrange

- A follow-up visit should be scheduled within a week of a patient's quit day.
- Patients should be followed for at least three months.

Implementation in Primary Care Practice:

- Implementing smoking cessation strategies can be difficult in a busy primary care practice.
- A **team-based 5 A's approach** or a **proactive offer of treatment** are strategies a busy clinician can use to offer smoking cessation to patients.
- To improve the delivery of brief interventions, team-based versions of the 5A's algorithm have been proposed. In this model, office staff members take on the responsibility for assessing each patient's smoking status and reminding the clinician to address smoking when identified.
- Proactive offer of treatment is an alternate approach to the 5A's, more in line with the concept of treating tobacco use as a chronic disease, is to proactively offer treatment, rather than assessing readiness to quit.
- A suggested approach is for the physician in a simple sentence or two to communicate three facts:
    - **Stopping** smoking can be **difficult**
    - **Effective treatment** for tobacco dependence is **available**
    - **The physician** is prepared to **help** the smoker use treatment

Nicotine preparations, Varniciline, Bupropion:

Nicotine Replacement Therapy:

- Decrease withdrawal symptoms
- Efficacy: combination is better (most common are patches with gums)
- Dose: depends on numbers of cigarettes for 3 months
- Considered safe
- Available in: patches/gums/inhaler/nasal spray (without prescription except inhaler and spray)

Nicotine Gum	• Mouth soreness • Dyspepsia	• 1-24 cigs/day-2mg gum [up to 24 pcs/day] • 25+cigs/day-4mg gum [Up to24 pcs/day] Up to 12weeks
Nicotine Lozenge	• Nausea • Insomnia	• If patient smokes more than 30 min. after waking -2 mg lozenge • If smokes less than 30 min. after waking • 4 mg lozenge Not more than 20 lozenges per day Up to 12 weeks
Nicotine Inhaler	• Local irritation of mouth and throat	6-16 cartridges/day Each cartridge is 4mg in 80 inhalations Up to 12 weeks
Nicotine Nasal Spray	• Nasal irritation	• -0.5 mg in each nostril 1 to 2 doses per hour 8-40 doses/day for a period of 3 to 6 months
Nicotine Patch	• Local skin reaction • Insomnia	• 21 mg/24 hours for 4 weeks • 14 mg/24 hours for 2 weeks • 7 mg/24 hours for 2 weeks

Varenicline:

- FDA approved in 2006
- Partial agonist alpha4/beta2 subunit
- Efficacy: found to be very effective
- Dose: 0.5 mg daily for 3 days>twice daily for 4 days> 1mg twice daily for 12 weeks.
- Excreted through kidney
- RCT on 101 participants found that using Varenicline for longer time is better with percentage of 47% to 22% placebo
- Increasing dose: not effective
- S.E: mainly on CVD/Neuropsychiatry (so screen for that before starting the treatment course)
- Other: Insomnia /abdominal pain/skin reactions

Bupropion (Antidepressant)

- FDA approved in 1997
- Increase CNS noradrenergic /Dopaminergic release
- Very effective
- Dose: 150mg daily for 3 days>twice daily for 2 days
- More safe in Neuropsychiatry compared to Varenicline
- Decrease seizure threshold (be carful with seizure patient)
- S.E: Insomnia/dry mouth/headache
- Consider safe in acute MI
- Good choice for patient concerns about weight gain

Note: all of the drugs consider unsafe during pregnancy but you have to weigh the risks/benefits, if pregnant lady is not welling to stop smoking you should offer her NRT instead to protect her and her baby from the harmful substances that present in cigarettes.

Update in Smoking Cessation Medications:

Nortriptyline

- Antidepressant, Tricyclic (Secondary Amine)
- Off-label use for smoking cessation
- Initial dose: 25 mg once daily 10 to 28 days prior to selected "quit" date
- Dose increased to 75 to 100 mg/day; continue therapy for ≥12 weeks after "quit" day
- Adverse reactions:
    - Arrhythmias
    - Agitation & Anxiety
    - Suicidal thinking/behavior
- Contraindications:
    - Hypersensitivity to Nortriptyline
    - Acute phase of recovery from MI

Cysteine

- Partial agonist of nicotinic acetylcholine receptors (nAChRs)
- Remains relatively unknown outside Eastern Europe
- Four systematic reviews report cytisine to be superior to placebo for short-term and long-term abstinence
- Dose: 1.5 to 9 mg per day for 25 days
- Associated with no significant increase in adverse events as compared with placebo (20.5% vs. 19.6%), although GI symptoms are common
- Low cost as compared with other cessation medications

Clonidine

- Nicotine withdrawal symptoms (off-label use)
- A2 Adrenergic Agonist
- Significant adverse effects of hypotension and sedation (10%)
- BP monitoring is essential
- Abrupt discontinuation can cause rebound hypertension, agitation, confusion, and tremor.
- Abrupt discontinuation should be avoided; patients are tapered off medication over 2 to 7 days
- Dose: 0.025 to 0.05 mg once daily; gradually increase dose based on response and tolerability up to a usual dosage of 0.1 to 0.6 mg/day

E-Ciggaretes

- A type of electronic nicotine delivery system
- Battery-operated devices that heat a liquid to produce a vapor that the user inhales
- E-cigarettes were invented in 2003 in China and entered the United States and European markets in 2006
- In many areas, e-cigarettes entered the market as consumer products without government regulation
- There is uncertainty about the long-term health effects of e-cigarettes and whether they will help individual tobacco users to stop smoking
- Liquid component:
    - Nicotine
    - Propylene glycol/glycerol
    - Flavorings
- Adverse Effects:
    - Nicotine exposure
    - Vapor exposure
- Efficacy:
    - Studies have suggested that e-cigarettes may decrease cigarette cravings and reduce symptoms of nicotine withdrawal.

Questions

1) Mention 3 risk of smoking?

a. One
b. Two
c. Three

2) Why children are at higher risk to be affected by smoking?

a. Small body
b. Maturity of the lung
c. Faster breath rate
d. Non of the above

3) The involuntary exposure of nonsmokers to tobacco smoke from the smoking of others is the definition of?

a. Secondhand smoke
b. Passive smoking
c. Environmental tobacco smoke
d. All of the above

4) Withdrawal symptoms can be any of the following except?

a. Dizziness
b. Depression
c. Restlessness
d. Decrease appetite

5) Medication choice depends on which of the following?

a. Patient choice
b. Number of cigarettes
c. Presence of co morbidity
d. All of the above

Answers:

1st Question:

2nd Question: B

3rd Question: D

4th Question: D

5th Question: C