

Smoking & Inhaled Substance

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Objectives

- Epidemiology of smoking in Saudi Arabia
- Risks of smoking (Morbidity and Mortality)
- Effect of passive smoking on pregnancy, children,
- Helping the smoker to quit with smoking cessation aids and overcoming nicotine withdrawal symptoms
- Role of PHC physician “smoking cessation clinic’
- Update of the smoking cessation medication in pharmacological management
- Nicotine preparations, Varenicline, Bupropion,
- Factors that lead to substance abuse
- Highlighting types of substance abuse
- Method to approach subjects with substance abuse

MCQ's

1. In the U.S which of the following causes is responsible for more deaths in a year

- A. Human Immunosuppressive Disease HIV
- B. Illegal drug use
- C. Motor vehicle accidents
- D. smoking

2. Which drug do scientists and addiction experts rank as the most addictive drug of all when considering two factors - (1) how easy it is to get hooked and (2) how hard it is to break free?

- A. Alcohol
- B. Nicotine
- C. Heroin
- D. Cocaine

3. Heroin is a natural substance extracted from:

- A. Coca leaves
- B. Opium poppy plant
- C. Blue agave
- D. Willow bark

4. Which of the following is an antidepressant medication and helps in smoking cessation?

- A. Nicotine gum
- B. Bupropion
- C. Varenicline
- D. Nicotine nasal spray

5. Which of the following is a treatment of choice for hazardous substance use?

- A. Brief counselling and motivational interviewing .
- B. Harm reduction.
- C. Referral.
- D. Pharmacotherapy .

Epidemiology and Risks of smoking



Epidemiology

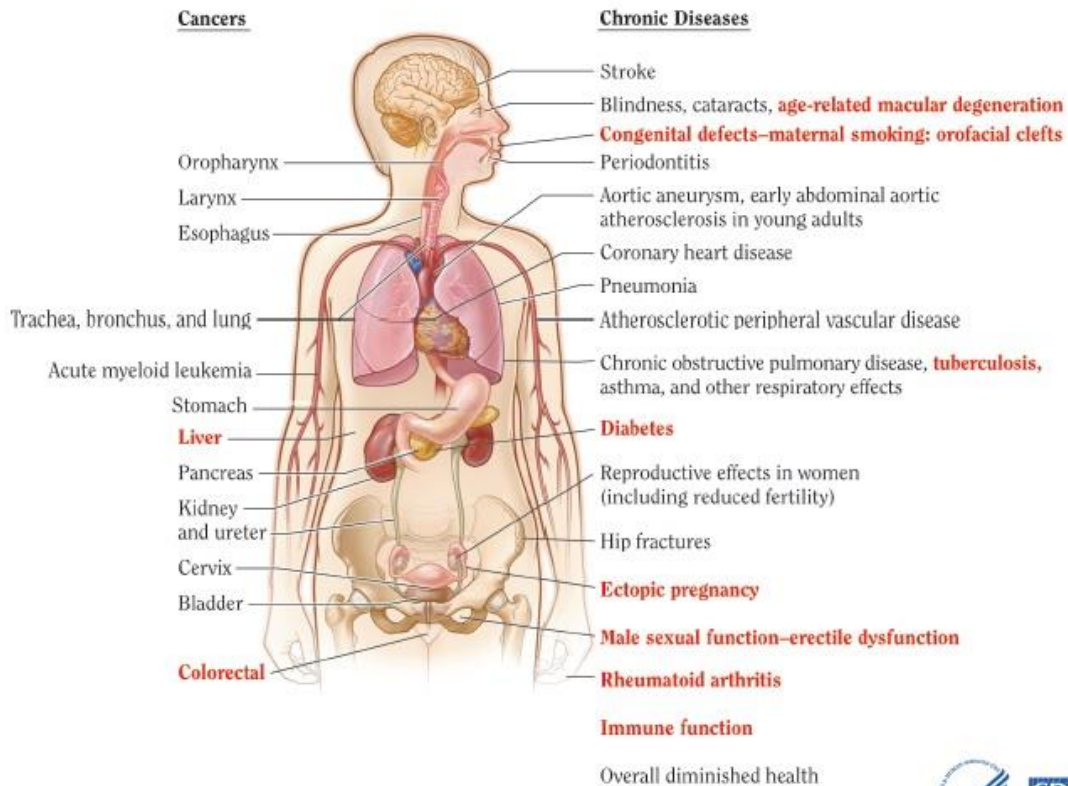
- More than 20000 children (10-14 years old) and 3352000 adults (15+ years old) continue to use tobacco each day.
- In Saudi Arabia Adults (+15 Y.O) daily smoking %:
 - 24.9% males
 - 1.7% females
- In Saudi Arabia children (10-14 Y.O) daily smoking %:
 - 1.3% boys
 - 0.18% girls
- In Saudi Arabia Deaths caused by smoking % :
 - 9.57% males
 - 4.94% females

- Smoking tobacco causes exposure to a lethal mixture of more than 7000 toxic chemicals, including at least 70 known carcinogens that can damage nearly every organ system in the human body.

Risks of smoking

Risks from Smoking

Smoking can damage nearly every part of your body



Morbidity

- Globally, smoking causes about 71% of lung cancer, 42% of chronic respiratory disease and nearly 10% of cardiovascular disease.
- Smokers are more likely than nonsmokers to develop heart disease, stroke, and lung cancer.
- Estimates show smoking increases the risk:
 - For coronary heart disease by 2 to 4 times
 - For stroke by 2 to 4 times
 - Of men developing lung cancer by 25 times
 - Of women developing lung cancer by 25.7 times

Cardiovascular

- Smokers are at greater risk for diseases that affect the heart and blood vessels (cardiovascular disease).
- Even people who smoke fewer than five cigarettes a day can have early signs of cardiovascular disease.
- Smoking damages blood vessels and can make them thicken and grow narrower. This makes your heart beat faster and your blood pressure go up. Clots can also form.

Respiratory

- Smoking can cause lung disease by damaging your airways and the small air sacs (alveoli) found in your lungs.
- Lung diseases caused by smoking include COPD, which includes emphysema and chronic bronchitis.
- Cigarette smoking causes most cases of lung cancer.
- If you have asthma, tobacco smoke can trigger an attack or make an attack worse.
- Smokers are 12 to 13 times more likely to die from COPD than nonsmokers.

Cancer

- Smoking can cause cancer almost anywhere in your body:
 - Bladder
 - Blood (acute myeloid leukemia)
 - Cervix
 - Colon and rectum (colorectal)
 - Esophagus
 - Kidney and ureter
 - Larynx
 - Oropharynx (includes parts of the throat, tongue, soft palate, and the tonsils)
 - Pancreas
 - Stomach
 - Trachea, bronchus, and lung
 - Liver

Mortality

- Every year, more than 7000 people in ksa are killed by tobacco-caused disease.
- In Saudi arabia 9.57% of deaths in males are caused by tobacco, tobacco kills 101 men every week.
- In Saudi arabia 4.94% of deaths in females are caused by tobacco, tobacco kills 34 women every week.

Mortality

- Cigarette smoking is the leading preventable cause of death in the United States. ³
- In the U.S Smoking causes more deaths each year than the following causes combined: ³
 - Human immunodeficiency virus (HIV)
 - Illegal drug use
 - Alcohol use
 - Motor vehicle injuries
 - Firearm-related incidents
- In the U.S Smoking causes about 90% (or 9 out of 10) of all lung cancer deaths ³
- In the U.S Smoking causes about 80% (or 8 out of 10) of all deaths from chronic obstructive pulmonary disease (COPD) ³

Secondhand Smoke



PASSIVE SMOKING

What Is Secondhand Smoke (SHS)?

smoke that has been exhaled, or breathed out, by other person.

Is it Harmful?

Yes, regular exposure to secondhand smoke can cause cancer, heart disease, stroke, and lung problems in adults. The risk increases with the degree of exposure.

How to protect the passive smoker?

1. Recognise that everyone has the right to breathe air not contaminated with tobacco smoke
2. Recognize that all workers have the right to work in places where they are not exposed to the harmful effects of SHS
3. Increase consciousness that smoking harms not only the person who smokes but also those around him/her. This is especially important to protect people from exposure to SHS at home, where legislation has no effect
4. Legislate in favour of an individual's right to a smoke-free environment. Governments can legislate to protect people from involuntary exposure to tobacco smoke by establishing smoke-free public places and workplaces.

EFFECTS OF PASSIVE SMOKING DURING PREGNANCY

Second-hand smoke during pregnancy is very harmful for both the mother and the baby.

Toxins in second hand smoke can cross the placenta and reach the fetus, affecting its blood circulation and oxygen supply leads to

- 1) miscarriage or premature delivery.
- 2) low birthweight
- 3) Sudden Infant Death Syndrome
- 4) learning or behavioral deficiencies in the child



Effects of passive smoking on children

The extent of effects of passive smoking on children is worse during the first 5 years of life where children spend most of their time with parents. Child's symptom severity related directly to how much smoke they are exposed to.

1. Ear infections
2. More frequent and severe asthma attacks
3. Respiratory symptoms (ex. coughing, sneezing, and shortness of breath)
4. Respiratory infections (bronchitis and pneumonia)
5. A greater risk for sudden infant death syndrome (SIDS)



smoking cessation aids



helping the smoker to quit with smoking cessation aids :

1. Cold turkey.
2. Behavioral therapy.
3. Nicotine replacement therapy.
4. Medication
5. Combo treatments

Overcoming nicotine symptoms

Common withdrawal symptoms and ways to cope with them			
Symptom	Cause	Duration	Relief
Craving for cigarette	Body's craving for nicotine	Most intense during first week but can linger for months	Wait out the urge; distract yourself; take a brisk walk.
Irritability, impatience	Body's craving for nicotine	2 to 4 weeks	Exercise; take hot baths; use relaxation techniques; avoid caffeine.
Insomnia	Body's craving for nicotine temporarily reduces time spent in deep sleep	2 to 4 weeks	Avoid caffeine after 6 p.m.; use relaxation techniques; exercise.
Fatigue	Body adjusting to lack of stimulation from nicotine	2 to 4 weeks	Take naps; do not push yourself.
Lack of concentration	Body adjusting to lack of stimulation from nicotine	A few weeks	Reduce workload; avoid stress.
Hunger	Craving for cigarettes may be confused with hunger pangs	Up to several weeks	Drink water or low-calorie drinks; eat low-calorie snacks.
Coughing, dry throat, nasal drip	Body ridding itself of mucus in lungs and airways	Several weeks	Drink plenty of fluids; use cough drops.
Constipation, gas	Intestinal movement decreases with lack of nicotine	1 to 2 weeks	Drink plenty of fluids; add fiber to diet; exercise.

The **5 R's**
to the Patient
Unwilling to Quit
Tobacco

Relevance _____
why quitting is important to them.
(second hand exposure, overall health, etc.)

Risks _____
*negative consequences of
ongoing habit.*

Rewards _____
benefits of tobacco cessation.

Roadblocks _____
identify impediments to quitting.
(withdrawal symptoms, fear, weight gain)

Repetition _____
*repeat every time the patient
comes to the clinic.*

The **5 A's**
to Quit Tobacco

Ask _____
to quit at every visit.

Advice _____
to quit tobacco at every visit.

Assess _____
willingness to quit at every visit.

Assist _____
*quitting within 2 weeks with
pharmacotherapy or counseling.*

Arrange _____
*follow-up contact in 1st week
after quitting.*

Role of PHC physician (smoking cessation clinic) :

Five "A's" for assessing for tobacco use and addressing smoking cessation

Intervention	Technique
Ask	Implement an officewide system that ensures that, for every patient at every clinic visit, tobacco-use status is queried and documented. Repeated assessment is not necessary in the case of the adult who has never used tobacco or has not used tobacco for many years, and for whom this information is clearly documented in the medical record.
Advise	Strongly urge all tobacco users to quit in a clear, strong, personalized manner. Advice should be: Clear - "I think it is important for you to quit smoking now and I can help you." "Cutting down while you are ill is not enough." Strong - "As your clinician, I need you to know that quitting smoking is the most important thing you can do to protect your health now and in the future. The clinic staff and I will help you." Personalized - Tie tobacco use to current health/illness, and/or its social and economic costs, motivation level/readiness to quit, and/or the impact of tobacco use on children and others in the household.
Assess	Determine the patient's willingness to quit smoking within the next 30 days: If the patient is willing to make a quit attempt at this time, provide assistance. If the patient will participate in an intensive treatment, deliver such a treatment or refer to an intensive intervention. If the patient clearly states he or she is unwilling to make a quit attempt at this time, provide a motivational intervention. If the patient is a member of a special population (eg, adolescent, pregnant smoker), provide additional information specific to that population.
Assist	Provide aid for the patient to quit. These actions are summarized in the accompanying table.
Arrange	Schedule follow-up contact, either in person or by telephone. Follow-up contact should occur soon after the quit date, preferably during the first week. A second follow-up contact is recommended within the first month. Schedule further follow-up contacts as indicated. Congratulate success during each follow-up. If tobacco use has occurred, review circumstances and elicit recommitment to total abstinence. Remind the patient that a lapse can be used as a learning experience. Identify problems already encountered and anticipate challenges in the immediate future. Assess pharmacotherapy use and problems. Consider use or referral to more intensive treatment.

Adapted from: Fiore MC, Jaen C, Baker T, et al. Treating tobacco use and dependence: 2008 update. Clinical Practice Guideline. Rockville, MD: US Department of Health and Human Services, Public Health Service, 2008.

Smoking cessation (pharmacological management)



Pharmacological management

- NRT, varenicline or bupropion should normally be prescribed as part of an abstinent- contingent treatment, in which the smoker makes a commitment to stop smoking on or before a particular date (target stop date).
- Quitting starts with self approaching and cooperation with the physician's advices including pharmacological tools then follow-ups as advised by the physician.

Nicotine replacement therapy (NRT)

Non nicotine replacement therapy (non-NRT):

- Bupropion
- Varniciline

Nicotine replacement therapy (NRT)

- Nicotine replacement therapy (NRT) aims to reduce motivation to consume tobacco and the physiological and psychomotor withdrawal symptoms through delivery of nicotine.
- These NRTs are in general well tolerated and have minimal adverse effects.
- **It is available as:**

Patches, short acting oral forms (lozenges, chewing gum) ,nasal sprays, nicotine inhalator.

Nicotine patch



- Placed on the skin and gives a small and steady amount of nicotine
- Available over the counter
- The main advantage of nicotine patches over acute NRT formulations is that compliance is simple; the patient simply places the patch on the body in the morning, rather than actively using a product throughout the day.

Side effects:

- Local skin reactions (irritation, sensitivity)
- Sleep disturbances
- Nausea and vomiting

Nicotine gum



- Chewed to release nicotine that gets absorbed through tissue inside the mouth.
- Available over the counter
- Appropriate patient education is required for optimal use of the nicotine gum “chewing and parking”.

Side effects:

- Mouth, throat or jaw soreness
- Hiccups
- Dizziness
- Heartburn
- Temporomandibular joint (TMJ) dysfunction and pain with excessive chewing

Nicotine Lozenge



- Looks like hard candy; placed in the mouth where it slowly dissolves, releasing nicotine.
- Available over the counter

Side effects:

- Heartburn
- Nausea and vomiting
- Sore throat
- hiccups

Nicotine nasal spray



- Pump bottle inserted into the nose and sprayed to deliver a specific amount of nicotine to the user with each spray.
- It is available for prescription use only.
- Nicotine nasal spray is absorbed into the blood rapidly relative to all other NRT forms.

Side effects:

- Irritation in mouth, nose, throat, or eyes
- Headache
- Cough
- Sneezing and runny nose

Nicotine inhaler



- It is available for prescription use only.
- Note that although termed an “inhaler” the majority of nicotine is delivered into the oral cavity (36%) and in the oesophagus and stomach (36%). Very little nicotine is delivered to the lung (4%).

Side effects:

- Headache
- Mouth or throat soreness
- Dyspepsia

Non NRT's, (Bupropion)

- Is an antidepressant medication which helps reduce nicotine withdrawal symptoms and urges to smoke.
- Inhibits reuptake of dopamine, noradrenaline, and serotonin in the central nervous system, and a non-competitive nicotine receptor antagonist.
- Contains no nicotine; can be used safely with nicotine replacement products.
- It is available for prescription use only.
- Known as **Wellbutrin** or **Zyban**

Side effects:

- Insomnia
- Changes in appetite
- Seizures
- Dry mouth

Contraindications:

- Epilepsy
- Pregnancy
- Breastfeeding
- Young < 18 years

Non NRT's (Varenicline)

- A selective nicotinic receptor partial agonist, blocks effects of nicotine from cigarettes if the user starts smoking again.
- Known as **Chantix**
- Contains no nicotine
- It is available for prescription use only.

Side effects:

- Psychological effects
- Nausea
- Headache
- Sleep disturbances

Contraindications:

- Pregnancy
- Breastfeeding
- Young < 18 years

Substance abuse (factors and types)



Substance abuse



Substance abuse, also known as **drug abuse**, is a patterned use of a drug in which the user consumes the substance in amounts or with methods which are harmful to themselves or others, and is a form of **substance-related disorder**. Widely differing definitions of drug abuse are used in public health, medical and criminal justice contexts.

In addition to possible physical, social, and psychological harm, use of some drugs may also lead to criminal penalties, although these vary widely depending on the local jurisdiction.

Factors that lead to substance abuse

1-Familial Risk Factors

- A- childhood maltreatment (including abuse and neglect).
- B- parental or familial substance abuse.
- C- marital status of parents (divorced).
- D- level of parental education.
- E- familial socioeconomic status.
- F- parent-child relationships.
- G- child perception that parents approve of their substance use.



Factors that lead to substance abuse

2-Social Risk Factors

- A- **Deviant peer relationships:** where an adolescent associates with a group of people who use substances.
- B- **Peer pressure and popularity:** Specifically, when adolescents believe that their popularity within a peer group increases with the use of substances.
- C- **Bullying:** All adolescents who participate in bullying, whether they are the perpetrator, the victim, or a combination of both roles, have been shown to have increased risk of mental health disorders and psychosocial problems when compared with those who do not participate.
- D- **Association with gangs:** Specifically, higher rates of alcohol and marijuana use have been reported among gang members than among those who are affiliated with a group of deviant peers.

Factors that lead to substance abuse

3- Individual Risk Factors

- A. Attention deficit hyperactivity disorder (ADHD)
- B. Anxiety and depression

4-trauma

A. Physical and Sexual Abuse:

Males are more likely to be physically abused, whereas females are generally more likely to be sexually abused

A. Neglect:

It is also more likely that females' relationship with their parents or conflict within the home will be linked to their choice to use substances than males

A. Post-traumatic stress disorder (PTSD)



Highlighting types of substance abuse

1- Alcohol:

A colourless volatile flammable liquid which is produced by the natural fermentation of sugars and is the intoxicating constituent of wine, beer, spirits, and other drinks, and is also used as an industrial solvent and as fuel.

Side effects: Slurred speech, Drowsiness, Vomiting, Diarrhea, Upset stomach, Headaches, Breathing difficulties, Distorted vision and hearing, Impaired judgment, Decreased perception and coordination, Unconsciousness, Coma, Blackouts.

2- Ayahuasca:

A hallucinogenic tea made in the Amazon from a DMT-containing plant (*Psychotria viridis*) along with another vine (*Banisteriopsis caapi*) that contains an MAO inhibitor preventing the natural breakdown of DMT in the digestive system, enhancing serotonergic activity. It was used historically in Amazonian religious and healing rituals.



Side effects: Strong hallucinations including altered visual and auditory perceptions; increased heart rate and blood pressure.

3- Central Nervous System Depressants:

Medications that slow brain activity, which makes them useful for treating anxiety and sleep problems. (Barbiturates, Benzodiazepines)

Side effects: Drowsiness, slurred speech, poor concentration, confusion, dizziness, problems with movement and memory, lowered blood pressure, slowed breathing.

Highlighting types of substance abuse

4- Cocaine:

A powerfully addictive stimulant drug made from the leaves of the coca plant native to South America.

Side effects: Narrowed blood vessels, enlarged pupils, increased body temperature, headache, abdominal pain and nausea, euphoria, increased energy, insomnia, restlessness, anxiety, violent behavior, panic attacks, paranoia, psychosis, heart attack, stroke, seizure, coma.

5- Heroin:

An opioid drug made from morphine, a natural substance extracted from seed pod of opium poppy plants.

Side effects: Euphoria, dry mouth, itching, nausea, vomiting, analgesia, slowed breathing and heart rate.



6- Marijuana (Cannabis):

Marijuana is made from the hemp plant, Cannabis sativa. The main psychoactive (mind-altering) chemical in marijuana is delta-9-tetrahydrocannabinol, or THC.

Side effects: Enhanced sensory perception and euphoria followed by drowsiness/relaxation, slowed reaction time, problems with balance and coordination, increased heart rate, problems with memory, anxiety



Highlighting types of substance abuse

7- Tobacco:

From the plant genus, which are dried and fermented before use.

Tobacco contains the alkaloid nicotine, which is a stimulant, and harmful alkaloids.

Side effects: Increased blood pressure, breathing, and heart rate.



8- Opioids:

Pain relievers with an origin similar to that of heroin. Opioids can cause euphoria and are often used nonmedically, leading to overdose deaths.

Side effects: pain relief, drowsiness, nausea, constipation, euphoria, slowed breathing, death.

9- Inhalants:

Solvents, aerosols, and gases found in household products such as spray paints, markers, glues, and cleaning fluids; also nitrites (e.g., amyl nitrite), which are prescription medications for chest pain.

Side effects: Confusion, nausea, slurred speech, lack of coordination, euphoria, dizziness, lightheadedness, hallucinations/delusions, headaches, death from asphyxiation, suffocation, convulsions or seizures, coma, or choking.

Method to approach subjects with substance abuse.



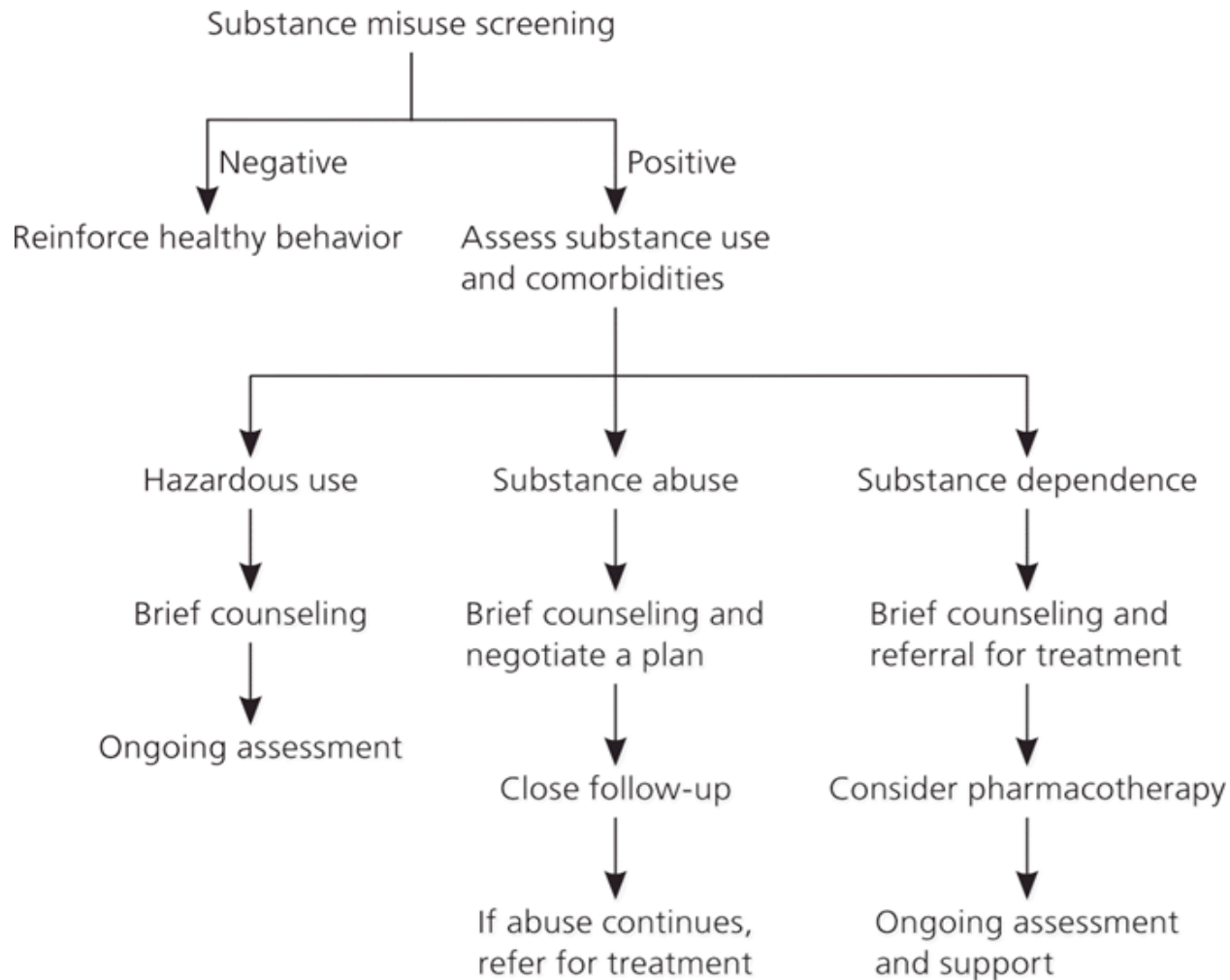
How to approach patients with substance abuse ?

Screening:



Single-question screen

“How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?”



Hazardous use :

Brief counseling using a motivational interviewing approach in the clinical setting has been shown to decrease the quantity and frequency of drug and alcohol use.

During counseling, the physician elicits the patient's own reasons for change, rather than telling the patient why he or she should change.

Physician should avoid Confronting or pushing the patient to change as its usually not successful and can decrease motivation for change.



Substance abuse:

- **Substance abuse** is characterized by the development of consequences from substance use, and these consequences can serve as motivators for change.
- Principles and techniques derived from **motivational interviewing** can be used to manage resistance and increase readiness to change.
- For patients with substance abuse, experts generally recommend advising **abstinence**
- For patients who are not committed to abstinence **harm reduction** strategies is an appropriate alternative .
- Harm reduction strategies reduce the **negative health consequences of substance use** for example:
 - providing clean needles to persons who continue to inject drugs.
 - Avoid driving while intoxicated.

Substance dependence:

Substance dependence is a chronic relapsing and remitting illness,

Patients require chronic care approach that can include:

- Pharmacotherapy,
- Referral to specialty treatment,
- Mutual help meetings,
- Ongoing counseling and care coordination .
- Engage family members in the treatment plan as family support is important in the recovery process.



Motivational Interviewing Principles for Physicians

Principle/Technique

Rationale

Listen to the patient

Physicians need to listen to patients to elicit the best path to behavior change.

Empower the patient

Physicians can help patients take an active role in their health care and support self-efficacy.

Motivational Interviewing Principles for Physicians

Principle/Technique	Rationale
Resist the righting reflex	Physicians want patients to change or correct unhealthy behaviors. Telling them to do so is a natural reflex, but it can generate resistance in patients. Instead, help them generate their own argument for healthy changes.
Understand the patient's motivations	Patients are more likely to change for reasons that they value highly. By eliciting these reasons, physicians can be more effective.

Motivational Interviewing Principles for Physicians

Principle/Technique	Rationale
Elicit-provide-elicite	A non confrontational approach to advice or information giving that allows the patient to express his or her feelings about change and assists the physician in assessing readiness for change.
Decision analysis (“pros and cons”)	Physicians can help patients make changes by articulating the advantages and disadvantages of the changes.

Motivational Interviewing Principles for Physicians

Principle/Technique	Rationale
Reflections	Physicians can identify statements that the patient makes in support of change and reflect them back to the patient, highlighting the patient's reasons for change.
Affirmations	Most patients with substance abuse and dependence feel guilt and shame about their drug use and may lack confidence that they can make changes. Physicians can promote self-efficacy with honest and meaningful affirmations.

1-OPIOID AGONISTS

BUPRENORPHINE

Partial agonist of mu opioid receptors

FDA approved Formulations **sublingual buprenorphine and sublingual buprenorphine/naloxone tablets** (preferred formulation) .The naloxone component is poorly absorbed via the sublingual route and is present only to prevent misuse of the medication by crushing and injecting the combined product.

METHADONE

Maintenance therapy reduces opioid abuse and associated harms

2-OPIOID ANTAGONIST

NALTREXONE

antagonist of mu opioid receptors

Recently approved by the FDA for treatment of opioid dependence.

Helpful in maintaining abstinence from opioids.

Referral:

Referral for specialty addiction treatment is recommended for patients with substance dependence disorders. However, primary care physicians with appropriate experience, training, and support can provide some or all of these services.



Follow-up:

- Although there are no established guidelines, it is reasonable to follow up with patients within **four to six weeks** after identifying risky drug use or a substance use disorder.
- In early recovery, patients are at an increased risk of **relapse**, and physicians can offer support and reinforce healthy behaviors.
- Relapse can be a source of **shame and guilt for patients**.
- Physicians can help by ensuring that their office is a safe and **blame-free** place for patients with drug problems, and by adopting a **nonjudgmental** and welcoming attitude toward patients in the event of relapse.

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C. Referral.

D. Pharmacotherapy .

Scenario:

30 years old female came to the clinic for smoking cessation



References

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Thank you !

