UNITED ARAB EMIRATES
MINISTRY OF HEALTH & PREVENTION

Practical Guideline for Management of Tobacco Dependence

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Who Can Use this Guide?

This guide is intended for health care providers who are interested in providing tobacco cessation services to their clients. This guide is written in a way that the reader will get an overall idea about tobacco cessation services in his or her current practice including:

- Preventing the onset (or initiation) of use of tobacco products.
- Protecting individuals from exposure to second hand smoke (SHS)
- Cessation through motivating, encouraging and supporting efforts to quit tobacco use.

This guide will be helpful to physicians, social workers, psychologists, nurses who provide services in a clinical set up. It is also suitable for public health workers in different sectors. A simple way of writing is followed throughout this manual to make it easier for the reader. 'Guide' as the name implies should serve only as a frame or model that should be adapted depending on the specific context and needs of the population you are working with.

Introduction

Tobacco is the single greatest preventable cause of disease and premature death in the world today. Tobacco epidemic is one of the biggest public health threats the world has ever faced, killing nearly 8 million people a year. More than 7 million of those deaths are the result of direct tobacco use, while more than 1.2 million are the result of non-smoker being exposed to second hand smoke. Tobacco kills up to half its users. All forms of tobacco are harmful, and no safe level of exposure to tobacco. Approximately one person dies every six seconds due to tobacco use. Tobacco caused 100 million deaths in the 20th.century and if current trend continues; it may cause one billion deaths in the 21St. century.[12]

Basic and Essential Facts.[11]

1. Tobacco dependence is a chronic disease that often requires repeated intervention and multiple attempts to quit. Effective treatments exist, that can significantly increase rates of long-term abstinence.
2. It is essential that clinicians and healthcare delivery systems consistently identify and document tobacco use status and treat every tobacco user seen in a health-care setting.
3. Brief tobacco dependence treatment is effective. Clinicians should offer every patient who uses tobacco at least the brief advice shown to be effective in this guideline.
4. Individual, group and telephone counseling are effective and their effectiveness increases with treatment intensity. Two components of counseling are especially effective and clinicians should use these when counseling patients making a quit attempt: Practical counseling and social support.
5. There are numerous effective medications for treatment of tobacco dependence and clinicians should encourage their use by all patients attempting to quit smoking, except when medically contraindicated or with specific populations for which there is insufficient evidence of effectiveness (i.e., pregnant women, smokeless tobacco users, light smokers). Seven first-line medications (5 nicotine and 2 non-nicotine) reliably increase long-term smoking abstinence rates.
6. Counseling and medication are effective when used by themselves for treating tobacco dependence. However, the combination of counseling and medication is more effective than either alone. Thus, clinicians should encourage all individuals making a quit attempt to use both counseling and medication.
7. Telephone quit line counseling is effective with diverse populations and has broad reach. Therefore, clinicians and healthcare delivery systems should both ensure patient access to quit lines and promote quit line use.

8. Tobacco dependence treatments are both clinically effective and highly cost-effective relative to interventions for other clinical disorders.[11]

This Reference Guide for Clinicians provides them with the tool necessary to effectively deal with the three main groups of tobacco users:

- Those who are willing to quit.
- Those who are unwilling to quit now.
- Those who recently quit "former tobacco users".

There is no clinical intervention available today that can reduce illness, prevent death, and increase quality of life more than effective tobacco treatment interventions. It is hoped that this Reference Guide will reach and influence the practice of clinicians in tobacco cessation.[35]

Tobacco Smoking...The Scope of The Problem

- In Middle East countries, it has been estimated that half of the chronic disease burden is attributed to smoking. Cigarette smoke contains more than 7000 chemicals, at least 69 of these chemicals are known to cause cancer, and many are toxic. including tar, carbon monoxide and nicotine. At least 43 of the contents are known to cause cancer. Smoking causes lung cancer (20 times the risk of non-smokers), chronic bronchitis, and emphysema, and is a major risk factor for ischemic heart disease (10 times the risk of nonsmokers), peripheral vascular disease and stroke.[42]

- Smoking is the major modifiable risk factor for both lung cancer and chronic obstructive pulmonary disease (COPD). Smoking causes 9 out of 10 lung cancers. A smoker of 20 cigarettes per day has 20 times the risk of lung cancer compared to a non-smoker. Passive smokers who live or work with a smoker also have an increased risk.[23]

- Cigarette smoking is the major cause of COPD. 15- 20% of smokers will develop COPD which is a progressive condition that leads to increasing shortness of breath, first on exertion then at rest, and eventually to respiratory failure. Smoking is associated with many other cancers including oral, laryngeal and esophageal, pancreatic, bladder and cervical cancer.

- Smoking promotes the development of the atheromatous plaques that can block coronary arteries resulting in a heart attack. Smoking causes more than one in three deaths from heart disease in people 65 years and younger, passive smoking has been found to be a cause of heart disease in non-smokers. [8,23]

- Smoking is a major risk factor for stroke and peripheral vascular disease. Smoking substantially increases the risk of venous thrombosis especially for older women taking the oral contraceptive pill or hormonal replacement therapy. Smoking decreases the ability of the blood to transport oxygen.

- Smoking affects the skin, damaging elastic tissue and leading to premature aging and wrinkling. Smoking is a factor in gum disease (gingivitis) which can lead to loss of teeth.

- Smoking in pregnancy increases the risk of miscarriage, premature birth and low birth weight babies. These infants are more likely to have perinatal health problems. They are at increased risk of SIDS. Children exposed to environmental tobacco smoke are more likely to get respiratory infections such as bronchiolitis, and middle ear infection.[44]

Prevalence of Tobacco Use in the United Arab Emirates

WHO report on Global Tobacco Epidemic 2021 had published the most recent information and data related to tobacco control and smoking prevalence.[48]

Table 1. Prevalence of Tobacco Use in the United Arab Emirate

According to the National Health Survey, 2018			
Age 18-69 Y	Percentage (%)		
	Male	**Female**	**Overall**
Current use of any tobacco product	15.7	2.4	9.1
Current cigarette smoking	15.9	2.5	9.3
According to Global School-Based Student Health Survey, 2016			
Age 13-15 Y	Percentage (%)		
	Male	**Female**	**Overall**
Current use of any tobacco product	17.8	7.7	12.7
Current cigarette smoking	11.3	5.0	8.1
Global Youth Tobacco Survey GYTS, 2013			
Age 13-15 Y	Percentage (%)		
	Male	**Female**	**Overall**
Current use of any tobacco product	16	8.2	12.2
Current cigarette smoking	9.7	2.7	6.2

Smoking and Covid-19

During the last two years; COVID-19 pandemic had posed major challenges to the global public health. COVID-19 is the disease caused by a new coronavirus called severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2, a deadly and novel respiratory pathogen. It has had a devastating impact on health systems and national economies forcing countries to divert valuable resources to address this one health emergency.

It was crucial for countries to keep on tobacco control efforts while they grapple with the COVID-19 pandemic. Already, research is accumulating that delineates the critical role of tobacco use in COVID-19 risk of infection and disease severity. Smoking and tobacco-related noncommunicable diseases confer a higher risk for worse outcomes with COVID-19.

Risk of Infection

Smokers are more susceptible to both bacterial and viral infections, including Middle East respiratory syndrome coronavirus (MERS-COV), which is remarkably similar to SARS-COV2.
Hand to mouth contact is acknowledged as one pathway to becoming infected with COVID-19. Hand to mouth contact occurs frequently and repeatedly when smoking. Smokers are unable to keep their masks on while smoking. If they smoke in public places where other unmasked smokers congregate, it will increase the likelihood of becoming infected.
The COVID-19 virus enters human cells through a receptor in the respiratory tract called ACE-2.
Smoking up-regulates the ACE-2 receptor, causing it to replicate and provide more entry points for the virus. This may make smokers more susceptible to getting the infection

Waterpipe smoking is usually a social activity, that might involves sharing of a single apparatus by users who are physically close to each other.[22] It precludes the use of face masks, and there is frequent hand to mouth contact. These facilitate the spread of SARS-COV-2 from one person to another.
The waterpipe apparatus provides a favorable environment for the virus to thrive.[40] Most cafés tend not to clean the waterpipe equipment, including the water jar, after each smoking session because washing and cleaning waterpipe parts is labor intensive and time consuming.[7,17] These factors increase the potential for the transmission of infectious diseases between users. This is consistent with evidence demonstrating that waterpipe use is associated with an increased risk of transmission of other infectious agents, including respiratory viruses, herpes simplex virus and tuberculosis. E-cigarette and HTP use preclude the use of face masks and involves frequent hand to mouth contact. If users are in a shared public place, with other unmasked smokers close by, transmission of the virus is facilitated. There is concern that asymptomatic, infected users of these devices may be spreading the virus when generating aerosols.[16]

Severity of Infection

Multiple studies had documented that smokers infected with COVID-19 had more severe disease and were more likely to require ventilation support.[20,27,45]
Smokers are more likely to have co-morbid conditions caused by their tobacco use, including heart disease, hypertension, chronic lung disease, diabetes and cancer, which have been associated independently with more severe COVID-19 disease and increased risk of death.[13,14]
In the United States of America, the proportion of young people with severe cases of COVID-19 appeared higher than in some other countries. One hypothesis for this difference is the higher prevalence of e-cigarette use by youth.[9]
Young adults who smoked or used e-cigarettes had double the medical vulnerability to COVID-19 as compared to non-smokers/non-users.[1]
Cellular and immune alterations and lung damage caused by e-cigarettes, ESDs and HTPs can be considered risk factors for the more severe manifestations and progression of COVID-19.[36]

Effectiveness of treating tobacco dependence

The benefits of quitting smoking are well established. Successfully quitting smoking can result in an increase in life expectancy of up to 10 years, if it occurs early enough.6 There is also substantial evidence that advice from health professionals including doctors, nurses, pharmacists, psychologists, dentists, social workers and smoking cessation specialists helps smokers to quit.[3,31,37,38]

Offering brief advice (as little as 3 minutes) has been shown to have clear benefits.[19,32,38] Providing brief advice to most smokers is more effective and efficient than spending a longer time with a few patients.[19,44]

Smoking cessation is both cost and clinically effective compared with other medical and disease preventive measures, such as the treatment of hypertension and hypercholesterolemia.[5,6]

Research shows that the cost per life year saved by smoking cessation interventions makes it one of the most cost- effective healthcare interventions.[5,18]

Along with childhood immunization and aspirin use with high risk adults; overall efforts to reduce tobacco smoking are among the most effective preventive interventions for human health.[18,21]

Advice based help and pharmacotherapy can both increase the rate of success of quit attempts, and when they are used the benefits are cumulative. [11] Smokers should be offered cessation treatment, either counselling (individual or group) or medication, or both, which is individualized and customized to their own personal situation and experience.

Tobacco Use Prevention and Cessation - Role of the Health Professional

- Tobacco Control legislations contribute a lot to curbing the menace of tobacco in the country while health care professionals also play a vital part. Tobacco users come in contact with the health care system more often than the non-users.
- Tobacco use is an important public health problem. Health professionals can help decrease the extent of the problem by providing tobacco cessation interventions.
- Therefore, the role of health professional is essential in promoting tobacco-free lifestyles and cultures. Health professionals can help people by giving advice, guidance and answers to questions related to tobacco use and its health harms.[8,28]
- A significant number of tobacco users see health professionals each year; this provides an opportunity to reach many smokers. Healthcare professionals can help patients quit by:
  ✓ Advising them to quit.
  ✓ Offering brief counselling.
  ✓ Prescribing cessation medications.
  ✓ Connecting them to additional resources, like a Quitline.
  ✓ Following up with continued support to help prevent relapse.
  ✓ Providing cessation treatment is reimbursable and can help meet quality measures.
- This Reference Guide summarizes the guideline strategies for providing appropriate treatments for all smokers. Many effective treatments that support tobacco cessation do exist, including behavioral therapies and FDA-approved medications. Many researches have indicated that smokers receiving combination of behavioral treatment and cessation medications quit at higher rates than ones receiving minimal interventions.[25]
- Unsuccessful smoking cessation efforts might be referred to three main categories: Physician based, patient based and system based.[15]
-

Table 2. Causes of Unsuccessful Smoking Cessation Efforts

Physician based	Patient based	System based
Insufficient knowledge	Inadequate training on tobacco dependence treatment	Lack of insurance coverage for reimbursement of cessation services
Inadequate training on tobacco dependence treatment	Poor compliance with the treatment	Expensive and scarce smoking cessation medications
Time Limitations	Patient's withdrawal symptoms	

Guidelines for treating tobacco use and dependence

The “5 A’s” structure for smoking cessation

- Tobacco dependence is a chronic condition that typically requires repeated cessation treatment and ongoing care.[11,39] A minority of smokers achieve long term abstinence on the first attempt to quit, while the majority cycle through multiple attempts with relapse and remission before achieving long term, or permanent abstinence. Multiple attempts over a period of years are not unusual.

As per a report published by CDC, data indicates that only less than one third of adult cigarette smokers use any type of cessation counseling and/or FDA-approved cessation medication to achieve smoking cessation. Furthermore, undertreatment is common among smokers using cessation treatments, as rates of relapse are above 50%, and most smokers attempt quitting without using any treatment.[2]

The “5 A’s” approach (five components of effective tobacco cessation counselling) originally proposed by the US Clinical Practice Guideline, provides health professionals with an evidence-based framework for structuring smoking cessation by identifying all smokers and offering support to help them quit.[49,50] The approach is adopted in guidelines from the Netherlands, WHO[26,30] and adopted in modified forms in other international guidelines.[24]

The “5 A’s” structure allows health professionals to provide the appropriate support for each smoker’s level of interest in quitting (Table3). Where possible, health professionals should maintain long term and ongoing relationships with smokers, in order to foster the person’s motivation and confidence to attempt smoking cessation.

It is important for health professionals to ask all patients/clients if they use tobacco, assess their willingness to make a quit attempt, advise on the importance of quitting and offer assistance in the form of help from the health professional or referral. The first step in this process is to separates patients into three treatment categories.

Identification and Assessment of Tobacco Use Status

I. Patients who use tobacco and are willing to quit should be treated using the "5 A's" Treating Tobacco Dependence as a Chronic Disease (Ask, Advise, Assess, Assist, and Arrange).
II. Patients who use tobacco but are unwilling to quit at this time should be treated with the "5 R's" motivational intervention (Relevance, Risks, Rewards, Roadblocks, and Repetition).
III. Patients who have recently quit using tobacco should be provided relapse prevention treatment.

Table 3. The "5 A's" Model for Treating Tobacco Use and Dependence

Ask about tobacco use	Identify and document tobacco use status of every patient at every visit
Advise to quit	In a clear, strong and personalized manner urge every tobacco user to quit
Assess	For current tobacco user, is the tobacco user willing to make a quit attempt at this time? For the ex-tobacco user, how recent did you quit and are there any challenges to remaining abstinent?
Assist	For the patient willing to make a quit attempt, offer medication and provide or refer for counseling or additional behavioral treatment to help the patient quit. For patients unwilling to quit at this time, provide motivational interventions designed to increase future quit attempts. For the recent quitter and any with remaining challenges, provide relapse prevention
Arrange	All those receiving the previous A’s should receive follow up

TOBACCO USERS WILLING TO QUIT

- The "5 A's," Ask, Advise, Assess, Assist, and Arrange, are designed to be used with the smoker who is willing to quit.
- Brief tobacco counseling interventions of about 3 minutes are effective. More intensive (more time spent) interventions are even more effective.
- There are 2 steps that should be used with every patient:

Ask every patient about tobacco use.
Advise tobacco-using patients to quit, and praise patients who are tobacco free.

- There are 3 more steps for patients who use tobacco:

Asses their interest in quitting.
Assist them in becoming motivated to quit.
Arrange for follow-up services for tobacco users who are willing to make a quit attempt.

ASK

Patients should be directly asked about their tobacco use and either praised for abstinence or advised to stop. Do you smoke? Ask about all types of tobacco products e.g. Water pipe (Shisha), Medwakh, E-cigarettes and Heated tobacco.

ADVISE

A health professional's advice is respected. Patients want to believe their doctor's advice (Table 4). Even brief advice can significantly increase patient quit rates and long-term abstinence rates. As little as 3 minutes of advice has been shown to be effective.[10] Likewise, advise nonsmokers not to start using tobacco.

Table 4. Advise - Strongly Urge All Tobacco Users to Quit

Action	Strategies for Implementation
In a clear, strong and personalized manner, urge every tobacco user to quit.	**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

1- Assess Patient's Willingness and Readiness to Quit.

Assess the patient's interest in quitting by asking questions such as the following:
"Do you want to quit?" "Do you feel you need to quit?" "Are you ready to quit?"
It is important to understand how the tobacco user feels about quitting in order to determine what type of assistance to provide (Table 5).
Many smokers are not ready to quit but know enough about adverse health effects to know that they should quit. Others are ready to quit and can be provided assistance.
Even if a smoker is not actively interested in quitting, it is still important to provide an intervention appropriate for his or her current frame of mind. Regular discussions about quitting can be effective.

Table 5. Assess—Determine Willingness to Make A Quit Attempt

Action	Strategies for Implementation
Ask every tobacco user if he or she is willing to make a quit attempt at this time (e.g., within the next 30 days).	**Assess patient's willingness to quit:** • If the patient is willing to make a quit attempt at this time, provide assistance (STARR, see page 24, 23). • If the patient clearly states he or she is unwilling to make a quit attempt at this time, provide a motivational intervention (5Rs, see page 30).

2- Assess Stages of Quitting

Assess the patient's stage in the quitting process. Quitting smoking is a process of change with several stages. People typically move through stages of change in a complex fashion.[28,29]
Most successful former smokers have attempted to quit many times, repeating the cycle over and over (Figure 1 Table 6).

Figure 1: Patient's stage in the quitting process

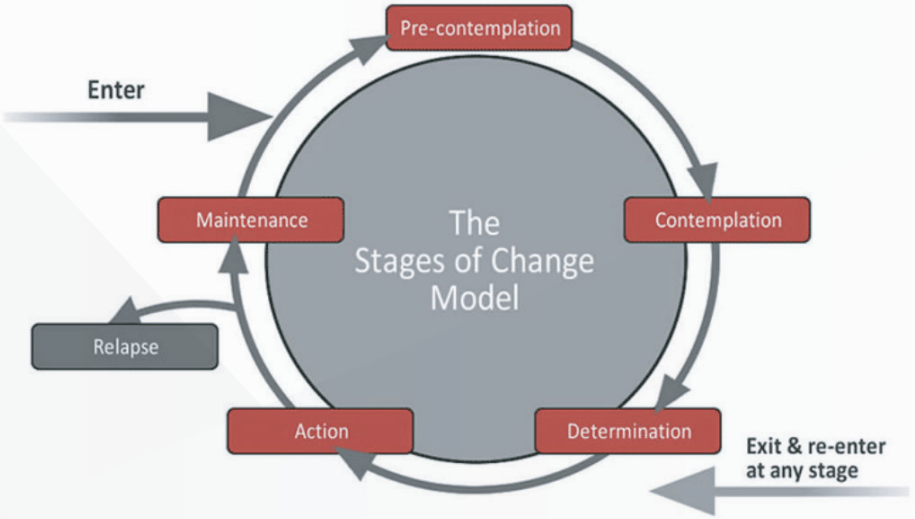


Table 6. Quitting Tobacco Use Is a Process

Stage of Tobacco Cessation	Definition
Contented User	A stage of pre-contemplation. No intention of taking action within the next 6 months.
Thinking about Quitting	A stage of contemplation. Intends to change in the next 6 months.
Deciding to Quit	A stage of preparation. Intends to take action soon, usually within 30 days.
Quitting	A stage of action. A person has made behavior modifications within the last 6 months. With smoking, this step is equated with total abstinence.
Trying to Stay Quit	A stage of maintenance. Maintenance may last from 6 months to 5 years; however, some smokers remain in maintenance permanently.
Relapsing	Not actually a stage but an event: the moment a patient first returns to smoking. It is quickly followed by return to one of the other stages of tobacco cessation. As a clinician, you can help motivate the patient to progress toward the action stage of quitting.
Staying Quit	A stage of termination. No urge to do the behavior that is being avoided (e.g., no temptation to smoke), and 100% self-efficacy in managing it. About 20% of ex-smokers reach termination

3- Assess Motivation and Confidence in Quitting

Ask the patient to rate his motivation and confidence in quitting on a scale of 1 to 10. Such a self-rating approach is similar to asking people to rate their level of pain and is generally easily understood by patients. Distinguishing motivation and confidence can provide an insight into the barriers to quitting and can be used to initiate a discussion on how to enhance motivation or confidence.

* **Rating your motivation to quit**
  On a scale of 1 to 10, where 1 is not at all motivated to stop smoking and 10 is100% motivated to give up, what number would you give yourself at the moment?

* **Rating your confidence in quitting**
  If you were to stop smoking now, how confident would you be that you would succeed?
  On a scale of 1 to 10, where 1 is not at all confident and 10 is 100% confident that you could give up and remain a non-smoker, what number would you give yourself now?

4- Assess for Tobacco Dependence

Does tobacco cause dependence?
Tobacco dependency is recognized by the WHO International Classification of Diseases as a medical condition that meets medical criteria for drug dependence, including compulsive use and self-reinforcing behavior. Tobacco dependency and the associated nicotine withdrawal syndrome are the cause of continued smoking.[43,47]

Biological basis of addiction

Nicotine inhaled from tobacco reaches the brain within 7- 9 seconds. Nicotine exerts its action in the brain by binding to nicotinic receptors.

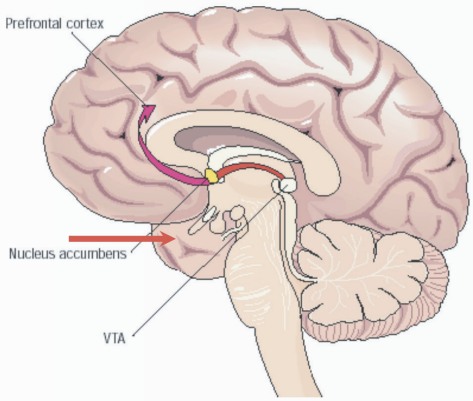
When smokers took a drag of cigarette for the very first time they feel a little dizzy and nauseated this is because the brain isn't equipped to handle the amount of nicotine that hit it.

With repeated exposure to nicotine, smokers experience no more dizziness because their brains are equipped to handle the amount of nicotine that hit them. This happens by" growing" more nicotine "receptor" sites to "receive" and "process" the nicotine. Thus, the main thing about addiction is that the brain physically changes.

The interaction between nicotine and its receptors in the brain leads to stimulation of the brain reward circuit (limbic system, nucleus accumbens & globus pallidus, Figure 2).

This circuit is a life-supporting internal reward system that helps humans learn to seek that which gives comfort or pleasure and avoid that which gives discomfort or pain. This system provides pleasure in the process of rewarding certain behaviors (e.g. eating). Nicotine and other psychoactive substances share common feature which is their ability to artificially stimulate this reward system. Stimulation of this complex system will eventually lead to release of dopamine (the primary neuro transmitter of reward).[10,33,39]

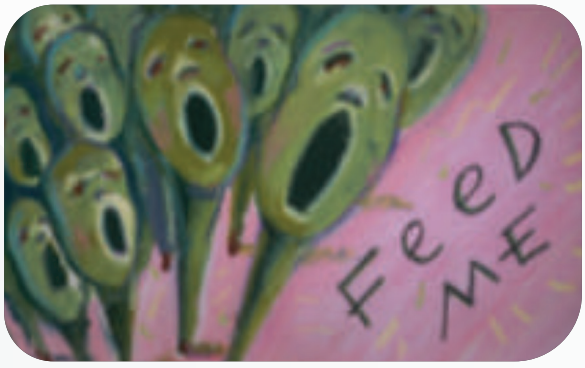
Figure 2: The mechanism of action of nicotine on the brain reward circuit



Source: National Institute on Drug Abuse (NIDA) website http://www.drugabuse.gov/pubs/teaching/largegifs/slide

What happens when smokers stop smoking?

When smokers stop smoking the nicotine receptors start demanding nicotine and the smokers experience craving" urge to smoke". Then if the receptors do not receive nicotine i.e. if he smokers do not feed them with nicotine, the smokers start to feel irritable, stressed, sad, nervous, or get a headache (Figure 3).



Source: Henning field J. Smoking and Health, 2001. Educational Resource Kit developed by the Institute for Global Tobacco control

The main symptoms of withdrawal syndrome are:

- Craving, Irritability, Frustration or anger, Anxiety, Difficulty concentrating,
- Decreased heart rate, Sleep disturbance, Increased appetite or weight gain
- Withdrawal symptoms typically begin within hours of quitting and peak within 2 to 3 days. The worst symptoms usually fade by 2 to 3 weeks, but some symptoms may persist.
- Most cravings only last a few minutes and then subside.
- They usually become rare after a few weeks.

Assessment of Tobacco Dependency

The Fagerstrom Test is useful for determining a patient's level of nicotine addiction (Table 7).
The test assesses the extent to which nicotine controls the behavior.
Healthcare providers working with smokers may use the test below to determine their smokers' dependence scores and set counseling priorities.
Add the points acquired from each question. The total determines to what extent the smoker is dependent on nicotine.
Withdrawal symptoms are more likely with a higher score and are likely to be stronger.

Table 7: Fagerstrom Tolerance Test for Nicotine Dependence (FTND)

	PLEASE TICK ( ) ONE BOX FOR EACH QUESTION	
How soon after waking do you smoke your first cigarette?	Within 5 minutes 5–30 minutes 31–60 minutes	☐ 3 ☐ 2 ☐ 1
Do you find it difficult to refrain from smoking in places where it is forbidden? e.g. Church, Library, etc.	Yes No	☐ 1 ☐ 0
Which cigarette would you hate to give up?	The first in the morning Any other	☐ 1 ☐ 0
How many cigarettes a day do you smoke?	10 or less 11 – 20 21 – 30 31 or more	☐ 0 ☐ 1 ☐ 2 ☐ 3
Do you smoke more frequently in the morning?	Yes No	☐ 1 ☐ 0
Do you smoke even if you are sick in bed most of the day?	Yes No	☐ 1 ☐ 0
Total Score		
SCORE	**1 – 2 = low dependence** **5 – 7= moderate dependence**	**3–4 = low to mod dependence** **8 + = high dependence**

ASSIST

Help the patient prepare to quit by following the acronym STARR:

Setting a quit date. Setting a date helps shift the focus toward preparation. Recommend allowing time for preparation and avoiding high stress time periods.
Telling friends and family and seeking support.
Anticipating problems and having a realistic understanding of what to expect when quitting. For instance, discuss possible withdrawal symptoms. Provide supplementary materials (self-help leaflets) to the patient.
Removing tobacco products from his or her environment and avoiding places he or she usually smokes.
Recommending or prescribing an appropriate nicotine replacement therapy: (nicotine patch, gum, lozenge, inhaler, or spray), varenicline or bupropion.

Provide Counseling

Three Types of Counseling
Assisting patients in quitting smoking can be done as part of a brief treatment or as part of an intensive treatment program. Evidence from the guideline demonstrates that the more intense and longer lasting the intervention, the more likely the patient is to stay smoke-free; even an intervention lasting fewer than 3 minutes is effective.

Three forms of counseling that were found to be effective in treating tobacco use and dependence:

- **Practical counseling** “problem solving/skills training” (Table 8).
- **Intra-treatment social support.** A supportive clinical environment is effective in helping patients quit smoking. Encouragement and support from clinical staff are crucial (Table 9).
- **Extra-treatment social support**. Social support systems outside the clinical setting, such as support groups, are effective in helping patients quit smoking

Table 8. Common Elements of Practical Counseling

Practical counselling (problem solving skills)	Examples
Recognize danger situations Identify events, feelings, or activities that increase the risk of smoking or relapse.	• Being around other smokers. • Drinking alcohol. • Experiencing urges. • Being under time pressure.
Develop coping skills Identify and practice coping or problem-solving skills. Typically, these skills are intended to cope with danger situations.	• Teach coping skills the "4Ds" **(see below) • Learning to anticipate and avoid temptation. • Accomplishing lifestyle changes that reduce stress, improve quality of life, or produce pleasure e.g. exercise. • Learning activities to cope with smoking urges (e.g., distracting attention, see the "4 Ds" below).
Provide basic information about smoking and successful quitting.	• Any smoking (even a single puff) increases the likelihood of full relapse. • Withdrawal typically peaks within 13- weeks after quitting. • Withdrawal symptoms include negative mood, urges to smoke, and difficulty concentrating. • The addictive nature of smoking.

**The 4Ds: Steps for Coping with Withdrawal Symptoms

Most people feel withdrawal symptoms when they quit smoking. The 4 D's listed below can help smokers to deal with cigarette cravings. These are some messages that the physician can give to assist smokers during withdrawal:

Deep Breaths
Breathe in and breathe out slowly, as if you were smoking a cigarette. Deep breathing will help you relax and make the craving dissipate.

Drink Water
Drink lots of water all day long, especially during a craving. Drinking water helps flush the toxins out of your system, and it will help keep your hands and mouth busy if that's something you miss from smoking. Some ex-smokers prefer to drink through a straw, which also helps with the oral fixation.

Distract
Distract yourself by getting up and making yourself active. Go for a walk. Go out and meet with a friend. If you choose to stay indoors, go into a different room. Grab a carrot stick and munch on it elsewhere. Put on some music. Open a book or browse through a magazine. Call up a friend. Many smokers have said that when they get an urge to smoke and then make the effort to change their surrounding environment, they do get distracted and actually forget that they wanted to smoke.

Delay
Most smokers falsely assume that each craving lasts a long time -- maybe 45 minutes or so. Time yourself to learn the truth. Cravings come and go quickly. The average craving time really only lasts about 5 to 10 minutes. No matter how strong the craving is, convince yourself that you can wait 10 minutes. To help those 10 minutes go by, practice the other D's.

Table 9. Common Elements of Intra-Treatment Social Support

Supportive treatment	Examples
Encourage the patient in the quit attempt.	• Note that effective tobacco dependence treatments are now available. • Note that one-half of all people who have ever smoked have now quit. • Communicate belief in patient's ability to quit.
Communicate caring and concern.	• Ask how patient feels about quitting. • Directly express concern and willingness to help. • Be open to the patient's expression of fears of quitting, difficulties experienced, and **ambivalent feelings***.
Encourage the patient to talk about the quitting process.	• Ask about: • Reasons the patient wants to quit. • Concerns or worries about quitting. • Success the patient has achieved.

Ambivalence: Conflicting feelings about a course of action or wanting 2 conflicting courses of action. Example of Ambivalence: Wanting both the pleasures of indulgence and the benefits of restraint in substance abuse. Patients often have a high degree of ambivalence about changing their addictive behavior.[46] Ambivalence or a lack of resolve is assumed to be a principle obstacle that must be overcome to trigger change.[34]

Recommend the use of approved pharmacotherapy, except in special circumstances

The use of pharmacotherapy is a key part of a multicomponent approach to assist patients with their tobacco dependence.

Who should receive pharmacotherapy for smoking cessation?

All smokers trying to quit, except in the presence of special circumstances. Special consideration should be given before using pharmacotherapy with selected populations: those with medical contraindications, those smoking fewer than 10 cigarettes/day, pregnant/breastfeeding women, and adolescent smokers.

What are the pharmaco-therapeutics available and approved for smoking cessation?

U.S. Department of Health and Human Services, Public Health Service, had published a report titled “Clinical Practice Guideline, Treating Tobacco Use and Dependence 2008 Update”.
This identifies seven first-line medications (Bupropion SR, Nicotine gum, Nicotine inhaler, Nicotine lozenge, Nicotine nasal spray, Nicotine patch, Varenicline) for treating tobacco use.
These pharmacotherapies have been found to be safe and effective for treating tobacco dependence and have been approved by the U.S. Food and Drug Administration (FDA) for use.[41,42]

Smoking Cessation Management Multidisciplinary Approach [49]

First-line:
Nicotine Replacement Therapy (NRT) and Non-nicotine medications; Bupropion, Varenicline
Second-line:
Clonidine, Nortriptyline

First-line pharmacotherapies [35,37]

- Nicotine Replacement Therapy (NRT) patch, gum, lozenge, inhaler, nasal spray,
- Nicotine abstinence leads to craving and withdrawal symptoms which promote relapse.
- So, assist quitting by providing clean nicotine, in lower and slower dose to blunt craving, withdrawal symptoms and facilitate quitting.
- Binds to same brain receptors as nicotine from cigarettes and provides nicotine without the harmful tar and gases inhaled in smoke.
- Smokers wean off nicotine gradually by reducing dose over the treatment period. Eventually to become tobacco and nicotine free. Roughly doubles chances of quitting
- Medical contraindications:
- immediate myocardial infarction (< 2 weeks)
- serious arrhythmia
- serious or worsening angina pectoris
- accelerated hypertension
- Acute phase stroke
- Under 18 years

NICOTINE PATCH:
- Available as both prescription and OTC
- A new patch is applied each morning, rotating placement site can reduce irritation
- Provides a slow, consistent release of nicotine throughout the day.
- People who smoke more than 10 cigarettes per day should usually start with the highest strength (21mg) patches, then reducing to (14mg) after six to eight weeks and then to (7mg) after a further two weeks.
- Advantages: Little effort & Craving relief,
- Side effects: Skin irritation, Insomnia
- Cautions: Do not use if you have severe eczema or psoriasis

NICOTINE GUM:
- Available OTC as 2mg & 4mg
- Taken as 1 piece every 1-2 hours up to 18 pieces /day
- Up to 20 cigs. /day use 2mg, if more than 20 cigs. /day use 4mg up to 12 weeks
- Avoid eating and drinking for 15 minutes before and after chewing of nicotine gum
- Chew nicotine gum slowly until you can taste the nicotine or feel a slight tingling in your mouth. Then stop chewing and place (park) the chewing gum between your cheek and gum.
- When the tingling is almost gone (about 1 minute), start chewing again; repeat this procedure for about 30 minutes.
- Side effects: mouth soreness and stomachache

NICOTINE LOZENGE:
- Available as 2mg & 4mg
- Lozenge is highly effective for smoking cessation in reducing craving and withdrawal symptoms
- To relieve symptoms in times and places where one cannot smoke
- Nicotine released through dissolution
- Slow absorption due to absorption via cheek, not stomach
- PH dependent (avoid using after eating)
- Could be used up to 3 months, in combination with patch (up to 12weeks 2mg lozenges / day)

- Side effects: hiccups, cough, and heartburn

* Smoking rate:	* Time to First Cigarette (TTFC)
2mg for < 20 cigarettes/day	2mg for TTFC>30 minutes
4mg for ≥ 20 cigarettes/day	4mg for TTFC≤30 minutes

NICOTINE INHALER:

- Prescription only
- Local irritation of mouth and throat
- 6-16 cartridges/day
- Inhale up to 80 times/cartridge
- May save partially-used cartridge
- Up to 6 months; taper at end

NICOTINE NASAL SPRAY:

- The nasal spray provides effective relief from nicotine cravings. Each 10 ml spray bottle contains 100 mg nicotine (10 mg/ml) in an inactive vehicle.
- It is dispensed only by prescription
- By applying the spray directly into the nostril, the nicotine is released speedily into your system – it's a fast way of getting powerful relief from withdrawal symptoms
- Dosing:
- 1 squirt per nostril
- 1 to 2 doses per hour
- 8 to 40 doses per day
- Do NOT inhale

BUPROPION SR:

- Prescription only… Zyban & Wellbutrin
- Enhances dopaminergic and noradrenergic neurotransmission
- Indicated in those who prefer to not use nicotine replacement therapy or who are depressed
- Equally effective in patients without depression
- Dose: 150 mg once daily for 7 days then 150 mg twice per day
- Starts 7-14 days before quit date and used for 6-12 weeks
- Favorable Cardio Vascular profile, no withdrawal symptoms, low potential for abuse
- **Contraindicated** in patients currently use monoamine oxidase (MAO) inhibitor, history of seizure, bipolar affective disorder, anorexia and bulimia nervosa as well as pregnancy.
- Used with caution in patients with history of head trauma, diabetes, hepatic or renal problems and old age. Most common side effects: dry mouth, headache, insomnia, decrease appetite
- See FDA package of warning regarding suicidality and antidepressant drugs when used in children, adolescents, and young adults

VARENICLINE: Champix

- Partial agonist at the nicotine receptor
- Partial agonists have some effects like nicotine but can also act like antagonists
- A dual mechanism of action is proposed:
  - Partial nicotine-like effects
  - Nicotine blockade from cigarette smoking
- Begin Varenicline treatment 1 week before quit date and use up to 6 months
- **Dosing:**
  - Start with 0.5 mg every morning for three days, then increase to 0.5 mg twice a day for four days.
  - On Day eight patients should begin taking 1 mg twice a day for 3 to 6 months.
- **FDA Warning:** Varenicline patients have reported depressed mood, agitation, changes in behavior, suicidal ideation, and suicide.
- **Use with caution in patients:** with significant renal impairment, serious psychiatric illness, undergoing dialysis
- **Gastrointestinal side effects** are common. Nausea and less common side effects include change in taste, vomiting, abdominal pain, flatulence, and constipation.

ARRANGE

- ✓ Arranging for follow-up is the next step. Follow-up is extremely important for patients who agree to quit smoking or for whom you prescribe therapy. Ideally, the steps toward cessation should proceed as follows:
- ✓ The patient decides to quit and sets a quit date.
- ✓ Within 7days, the patient receives a follow-up letter or phone call from the office, confirming patient's decision to quit.
- ✓ The patient receives a call from the office a day or two before the quit date, as a reminder.
- ✓ The first follow-up visit should be 1 to 2 weeks after the quit date, when withdrawal symptoms will be at their worst. The next follow-ups should be at the end of the first, second, and third months because relapse rates are highest within the first 3 months of the quit date. The brain slowly recovers during this period as it adjusts to not having nicotine. Long-term follow-up is also important because a smoker takes an average of 8 attempts before he successfully quits.

TOBACCO USERS UNWILLING TO QUIT

The "5 R's," Relevance, Risks, Rewards, Roadblocks, and Repetition, are designed to motivate smokers who are unwilling to quit at this time. Smokers may be unwilling to quit due to misinformation, concern about the effects of quitting, or demoralization because of previous unsuccessful quit attempts. Therefore, after asking about tobacco use, advising the smoker to quit, and assessing the willingness of the smoker to quit, it is important to provide the "5 R's" motivational intervention.[34]

Relevance:

Encourage the patient to indicate why quitting is personally relevant, being as specific as possible. Motivational information has the greatest impact if it is relevant to a patient's disease status or risk, family or social situation (e.g., having children in the home) and other health concerns.

Risks:

The clinician should ask the patient to identify potential negative consequences of tobacco use. The clinician may suggest and highlight those that seem most relevant to the patient. The clinician should emphasize that smoking low-tar/low-nicotine cigarettes or use of other forms of tobacco (e.g., smokeless tobacco, cigars, water pipes, and pipes) will not eliminate these risks. Examples of risks are:
Acute risks: Shortness of breath, exacerbation of asthma, harm to pregnancy, impotence, infertility, and increased serum carbon monoxide.
Long-term risks: Heart attacks and strokes, lung and other cancers (larynx, oral cavity, pharynx, esophagus, pancreas, bladder, cervix), chronic obstructive pulmonary diseases (chronic bronchitis and emphysema), long-term disability, and need for extended care.
Environmental risks: Increased risk of lung cancer and heart disease in spouses; higher rates of smoking in children of tobacco users; increased risk for low birth weight, Sudden Infant Death Syndrome, asthma, middle ear disease, and respiratory infections in children for smoker parents.

Rewards:

The clinician should ask the patient to identify potential benefits of stopping tobacco use. The clinician may suggest and highlight those that seem most relevant to the patient (Table 10). Examples of rewards follow:

✓ Improved health. Food will taste better.
✓ Improved sense of smell. Save money.
✓ Feel better about yourself. Feel physically better
✓ Home, car, clothing, breath will smell better. Can stop worrying about quitting.
✓ Set a good example for children. Have healthier babies and children.
✓ Not worry about exposing others to smoke. Perform better in physical activities.
✓ Reduced wrinkling/aging of skin.

Table 10. Benefits of Quitting

After 20 minutes	Your heart rate drops
After 12 hours	Carbon monoxide levels in your blood drop to normal
After 2 weeks	Circulation improves, Lung function increases
After 1 month	Coughing and shortness of breath decrease; Lungs' ability to handle mucus, clean the lungs, and reduce risk of infection improves
After 1 year	Excess risk of coronary heart disease is half that of a smoker
After 10 years	Lung cancer death rate is about half that of a continuing smoker Risk of cancer of the mouth, throat, oesophagus, bladder, cervix, and pancreas decrease

Roadblocks:

The clinician should ask the patient to identify barriers or impediments to quitting and note elements of treatment (problem solving, pharmacotherapy) that could address barriers. Typical barriers might include:

- Withdrawal symptoms. Fear of failure.
- Weight gain. Lack of support. Depression. Enjoyment of tobacco.

Repetition:

The motivational intervention (Table11) 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.

Table 11. Motivational Interviewing Strategies. [34,46]

Express Empathy	**Use open-ended questions to explore:** • The importance of addressing smoking or other tobacco use e.g. “How important do you think it is for you to quit” • Concerns and benefits of quitting (e.g., “What might happen if you quit?”)
	Use reflective listening to seek shared understanding: • Reflect words or meaning (e.g., “So you think smoking helps you to maintain your weight?”). • Summarize (e.g., “What I have heard so far is that smoking is something you enjoy. On the other hand, your boyfriend hates your smoking and you are worried you might develop a serious disease”)
	Normalize feelings and concerns (e.g., “Many people worry about managing without cigarettes.”)
	Support the patient’s autonomy and right to choose or reject change (e.g., “I hear you saying you are not ready to quit smoking right now. I’m here to help you when you are ready.”)
Develop Discrepancy	**Highlight the discrepancy** between the patient’s present behavior and expressed priorities, values, and goals (e.g., • It sounds like you are very devoted to your family. • How do you think your smoking is affecting your children and spouse/partner?.
	Reinforce and support “change talk” and “commitment” language. • “So, you realize how smoking is affecting your breathing and making it hard to keep up with your kids.” • “It’s great that you are going to quit when you get through this busy time at work.”
	Build and deepen commitment to change • “There are effective treatments that will ease the pain of quitting, including counseling and many medication options.” • “We would like to help you avoid a stroke like the one your father had”
Roll with Resistance	**Back off and use reflection when the patient expresses resistance.** • “Sounds like you are feeling pressured about your tobacco use.”
	Express empathy. • You are worried about how you would manage withdrawal symptoms
	Ask permission to provide information. • “Would you like to hear about some strategies that can help you address that concern when you quit?”
Support Self Efficacy	**Help the patient to identify and build on past successes.** • “So, you were fairly successful the last time you tried to quit.”
	Offer options for achievable, small steps toward change: • Read about quitting benefits and strategies. • Change smoking patterns (e.g., no smoking at home). • Ask the patient to share his or her ideas about quitting strategies.

III. TOBACCO USERS WHO RECENTLY QUIT

Most relapses occur soon after a person quits smoking, yet some people relapse months or even years after the quit date. All clinicians should work to prevent relapse. Relapse prevention includes Ask, Assess, Assist and Address.
Ask every patient at every visit if they use tobacco and his or her status documented clearly in the clinical record (e.g., as part of the vital signs, displayed prominently in the electronic medical record).

Table 12. Assess Former Tobacco User Relapse Potential

Action	Strategies for implementation
How long has it been since you quit?	Most relapse occurs within the first 2 weeks after the quit date and the risk decreases over time. Tobacco users who have quit very recently should be provided assistance. But the risk for relapse can persist for a long time for many tobacco users. Therefore, assess all former tobacco users, regardless of how long ago they quit, about challenges by asking the question below:
Do you still have any urges to use tobacco or any challenges to remaining tobacco free?	Any recent quitter or former tobacco users still experiencing challenges should receive assistance.

Table 13. Assist Former Tobacco Users with Encouragement to Stay Abstinent

Action	Strategies for implementation
The former tobacco user should receive congratulations on any success and strong encouragement to remain abstinent.	When encountering a recent quitter, use open-ended questions relevant to the topics below to discover if the patient wishes to discuss issues related to quitting: *The benefits, including potential health benefits, the patient strong may derive from cessation. *Any success the patient has had in quitting (duration to remain abstinent, reduction in withdrawal, and so on). *The problems encountered or anticipated threats to maintaining abstinence (e.g., depression, weight gain, alcohol, and other tobacco users in the household, significant stressors.

Table 14. Address Specific Challenges and Potential Responses to The Tobacco User Who Recently Quit

Challenges	Response
Lack of support for cessation	• Schedule follow up visits or telephone calls with the patient. • Help the patient identify sources of support within his or her environment.
Negative mood or depression	• Refer the patient to an appropriate organization that offers counselling or evidence-based support. • If significant, provide counseling, prescribe appropriate medication, or refer the patient to a specialist
Strong or prolonged withdrawal symptoms	• If the patient reports prolonged craving or other withdrawal symptoms consider extending the use of an approved medication, adding or combining medications to reduce strong withdrawal symptoms
Wight gain	• Recommend starting or increasing physical activity. • Reassure the patient that some weight gain after quitting is common and is usually self-limiting. • Emphasize the health benefits of quitting relative to the health risks of modest weight gain. • Emphasize the importance of a healthy diet and active lifestyle. • Suggest low-calorie substitutes such as sugarless chewing gum, vegetables, or mints. • Maintain the patient on medication known to delay weight gain (e.g., bupropion SR, NRTs, particularly 4 mg nicotine gum, and lozenge). • Refer the patient to a nutritional counsellor or program.
Smoking lapses	• Suggest continued use of medications, which can reduce the likelihood that a lapse will lead to a full relapse. • Encourage another quit attempt or a recommitment to total abstinence. • Reassure that quitting may take multiple attempts, and use the lapse as a learning experience. • Provide or refer for intensive counseling.

SUMMARY

There is a strong behavioral component to tobacco dependence that should be addressed with behavioral support, in addition to use of drugs that support tobacco cessation.

There are 5 steps to basic, behavioral tobacco interventions:

- Ask about tobacco use.
- Advise patients not to use tobacco.
- Assess whether tobacco-using patients are interested in quitting.
- Assist patients who are ready to quit or who are in the quitting process. Assist patients who are at other stages in the tobacco cessation cycle in moving to the next stage.
- Arrange for follow-up.

The following are the stages of change in the tobacco cessation cycle:

- Contented User: Pre-contemplation with no intention to change Thinking About Quitting: Contemplation without commitment Deciding to Quit: Preparation to quit
- Quitting: Action stage
- Trying to Stay Quit: Maintenance by working to prevent relapse
- Staying Quit: Termination due to no further desire to smoke relapse

The 5 R's for motivating smokers to quit are as follows:

- Relevance: Personal importance of quitting
- Risks: Negative consequences of tobacco use
- Rewards: Benefits of quitting
- Roadblocks: Barriers to quitting
- Repetition: Regular motivational intervention

To support patients in quitting tobacco, guide them in the following:

- Setting a quit date
- Telling friends and family Anticipating challenges
- Removing tobacco from their environment
- Recommending drug therapy, if appropriate

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