



**PAKISTAN  
CHEST SOCIETY**  
STRIVING FOR PULMONARY CARE

# NATIONAL GUIDELINES ON TOBACCO CESSATION

## CLINICAL PRACTICE GUIDELINES ON TREATMENT OF TOBACCO USE AND DEPENDENCE 2020





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**Pakistan Chest Society**

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TOBACCO USE AND DEPENDENCE

March 2020



**PAKISTAN  
CHEST SOCIETY**  
STRIVING FOR PULMONARY CARE

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**Message By The President Pakistan Chest Society (PCS)**

Smoking is a preventable cause of death. Tobacco smoke contains more than 7000 chemical compounds, out of which 69 are notorious for causing cancer. WHO reports that one out of ten deaths is associated with tobacco use. Tobacco smoke affect every part of the body like coronary artery disease, cancer of different parts of the body, COPD, stroke etc.

Second hand smoking is also injurious for health including sudden infant death syndrome in newborn babies.

Estimates show that prevalence of smoking in Pakistanis 36% in males and 9% in females. It is about 15% in university students.

Inhalation of tobacco smoke free air is each individual's right and smoke free laws ensure the health of non-smokers. Other helpful measures include pictorial health warnings on tobacco packets, bans on tobacco publicity, raising the taxes on such products etc.

Prof. Javaid Khan is the true leader in combating the war against all forms of tobacco. I am happy that with the concrete efforts the working group has developed this guideline on smoking cessation. I am optimistically hopeful that it will be of great help and beneficial for health care professionals of any specialty as tobacco affect any system of the body including Physicians, Cardiologist, Pulmonologist, Neurologist, surgeons etc. It will also be useful for under & postgraduate students and nursing staff.

**PROFESSOR NISAR AHMED RAO**

President Pakistan Chest Society

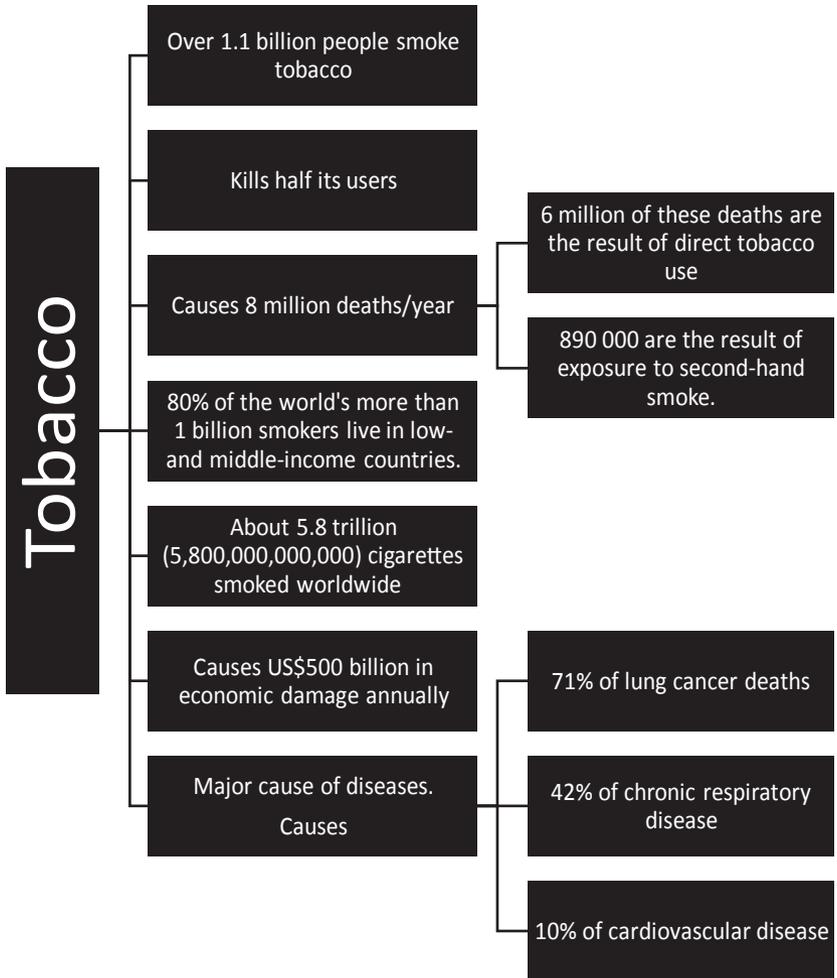
## **Preface**

Tobacco use is one of the major causes of premature and preventable deaths in our country. It is estimated that approximately 161,000 people die in Pakistan from the tobacco use every year. However, despite the high prevalence of tobacco use, the healthcare providers are not well trained to manage this problem effectively. Health professionals need to realize that treating tobacco dependence is much more cost effective than treating diseases caused by tobacco use. Research has clearly shown that health care advice is effective in motivating and making tobacco user quit this powerful addictive substance, which takes away over 8.1 million lives every year across the globe. The objective of this guideline is to provide the latest and updated treatment protocols to assist health care providers in managing tobacco use and dependence effectively. Research done within and outside Pakistan have shown that behavioral support along with pharmacotherapy is highly effective in tobacco cessation. It is hoped that clinicians and all other allied healthcare providers will follow this evidence based guideline to maximize the success rate of tobacco cessation. However, this guideline is not meant as a substitute for clinical judgment and clinicians are recommended to individualize their treatment strategies. I am most grateful to all the members of the guideline committee for their help in producing these guidelines.

### **Prof Javaid Khan FRCP (Edin)**

Chairman Tobacco Cessation Guideline Committee,  
Pakistan Chest Society

## The Tobacco Epidemic Global Scenario



## The Tobacco Epidemic Global Scenario

Tobacco consumption is a grave public health issue, being the leading preventable cause of death, causing 8 million deaths per year worldwide. Developing countries, home upto 80% of the 1 billion smokers present globally, have to shoulder the greatest proportion of the burden of tobacco related mortality and morbidity. (3) Tobacco use has a myriad of deleterious ramifications: health related, social and economic. Tobacco is responsible for causing many pulmonary and extra pulmonary ailments like chronic pulmonary and cardiovascular diseases, reproductive disorders, head and neck and lung cancers as well as a wide array of other cancers. (4). Smoking is responsible for over a quarter of all cancer deaths. Tobacco use is a risk factor for six of the eight leading causes of death in the world inclusive of ischemic heart disease, cerebrovascular disease, lower respiratory infections, COPD, tuberculosis, and trachea and bronchus lung cancers (5). Moreover, second-hand smoke takes 600,000 lives a year, mostly of women and children. In addition, according to the World Health Organization (WHO), annually US\$500 billion in economic damage is attributed to smoking (6). WHO estimates that 36.1% men and 6.8% women smoke globally. In the 20th century, more than 100 million people died worldwide due to use of tobacco and tobacco related products, with 70% of these deaths occurring in developing countries. By 2030, the death toll will exceed eight million a year. Moreover, unless urgent action is taken, tobacco could kill one billion people during this century (5).

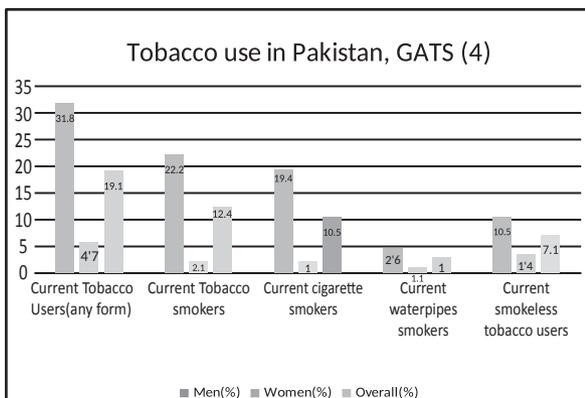
### *Tobacco*

- *Kills half its users*
- *Causes 8 million deaths per year*

One can be a bit optimistic that hundreds of millions of people do not have to die from tobacco-related illness - but only if the leaders of governments and the civil society take urgent action now. Leaders around the globe need to recognize that tobacco use can and must be confronted and stopped.

## Tobacco in Pakistan

## TOBACCO IN PAKISTAN KEY FACTS



- Tobacco kills 108,00 Pakistanis every year (298 per day)
- 5000 Pakistanis are admitted to hospitals every day because of tobacco
- 1200 Pakistani children between ages 6 and 15 begin smoking every day!
- 39% of households are exposed daily to Secondhand tobacco smoke
- 2 in 5 smokers initiated cigarette smoking before the age of 10.

Whereas the prevalence of smoking is declining in most developed countries, tobacco use is on the rise in developing countries like Pakistan. 31.8% of men and 5.8% of women consume tobacco in Pakistan. One of the biggest challenges for the country in tobacco control is the high prevalence of smoking amongst the medical doctors. In one of the surveys done at a major teaching hospital of Karachi, 32 % of male house officers were found to be regular smokers (7). Another study conducted in Karachi (Pakistan) revealed that the prevalence of smoking among medical students was alarmingly high i.e. 22.0% of male and 3.8% of female medical students were current smokers (8).

The whole credibility of the anti - tobacco message is lost if the public sees a doctor smoking. Doctors also need to be trained on smoking cessation skills. Most medical school curricula do not teach tobacco as a separate subject in spite of the fact that this powerful addictive substance is responsible for hundreds of preventable diseases.

Tobacco associated cancers in Karachi were responsible for 38.3% of tumors diagnosed in males. In females, breast and oral cavity cancers are responsible for 40% of cancers in Karachi (9).

## Different types of tobacco in use and their health consequences

Although standard cigarettes are the most commonly used type of smoked tobacco, other smoked tobacco products, such as bidis, kreteks, Naswar (snuff) and shisha, are gaining popularity - often in the mistaken belief that they are less hazardous to health. However, all forms of tobacco are lethal <sup>(1)</sup>.

### **Bidis**

- small hand - rolled cigarettes
- typically smoked in Sindh and part of Punjab and other south-East Asian countries.
- produce three times more carbon monoxide and nicotine, and five times more tar than regular

### **Cigarettes <sup>(10)</sup>**

- Bidi smokers have a three-fold higher risk of oral cancer compared with non-smokers and are also at increased risk of lung, stomach and esophageal cancer.

### **Shisha**

- tobacco mixed with flavorings and smoked from hookahs
- is popular in the Eastern Mediterranean region.
- A recent study from Karachi showed that shisha use is gaining popularity amongst the youth of the city <sup>(11)</sup>.

Shisha is linked to lung disease, cardiovascular disease and cancer <sup>(1)</sup>.

## Smokeless tobacco

### Prevalence

- Over one-third of tobacco consumed in South Asia is smokeless
- Traditional forms like betel quid, tobacco with lime and tobacco tooth powder are commonly used and the use of new products is increasing, not only among men but also among children, teenagers, women of reproductive age, and even medical and dental students.
- The prevalence of use of smokeless tobacco products was higher than cigarettes among high-school students (16.1% versus 13.7%) and the age at starting use of smokeless tobacco was also lower than for cigarettes (mean 11.5 years versus 13.1 years).

### Reasons for widespread use

- It is easy to obtain,
- Is more socially and culturally acceptable than cigarettes
- Easier to use than smoked products, especially in the school environment where smoking restrictions are enforced.
- Parental sanctions are also not very high for the use of smokeless tobacco because of the conviction of many people that smokeless tobacco poses a lower health risk than cigarettes.

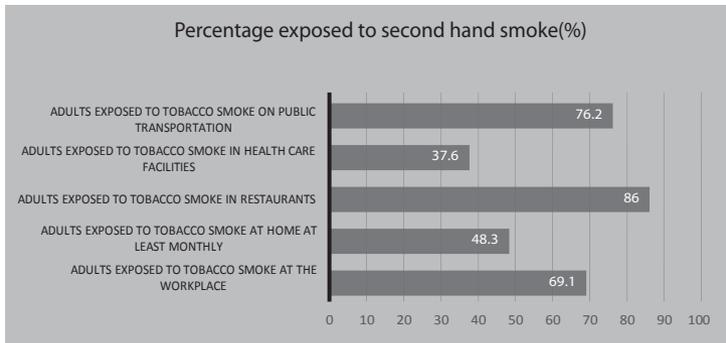
### Health effects

- Oral sub mucous fibrosis is increasing due to the use of processed areca nut products, many containing tobacco.
- Pregnant women in India who use smokeless tobacco have a threefold increased risk of still birth and a two- to threefold increased risk of having a low birth weight infant.

There is insufficient evidence at present to recommend the use of nicotine replacement therapy, bupropion or varenicline to aid smokeless tobacco cessation <sup>(12)</sup>.

## Second-hand/ Passive Smoking

The Global Adult Tobacco Survey (GATS) Pakistan shows the following statistics<sup>(9)</sup>:



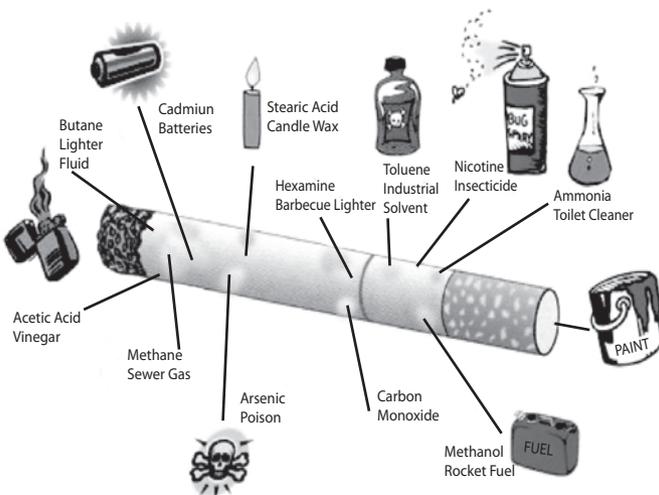
Breathing secondhand smoke is equivalent to smoking i.e. Two hours in a smoky office equals to smoking four cigarettes, two hours in a non smoking section of restaurant equals to smoking two cigarettes, and living together with a pack-a-day smoker for 24 hrs means smoking at least three cigarettes. Second-hand smoke also has serious and often fatal health consequences <sup>(13)</sup>.

- Non smokers who are exposed to secondhand smoke at home or at work increase their risk of developing heart disease by 25-30%, stroke by 20–30% and lung cancer by 20-30%

*In Pakistan, tobacco is responsible for 90% of Lung Cancers, 90% of COPD, 40% of overall cancers<sup>(11)</sup> and 20 other fatal diseases <sup>(12)</sup>.*

- Pre-term delivery & low birth weight babies are common in adults due to second-hand smoke <sup>(14)</sup>.

## TOBACCO DEPENDENCE



Tobacco smoke contains approximately 4,000 different constituents, including toxic substances such as carcinogens (N-nitrosamines, aromatic hydrocarbons), ammonia, nitrogen oxide, hydrogen cyanide, CO and nicotine <sup>(1)</sup>.

Tobacco dependence can be defined as “a cluster of behavioral, cognitive and physiological phenomena that develop after repeated use and typically include a strong desire to smoke, difficulty in controlling its use, persisting in its use despite harmful consequences, increased tolerance to nicotine, and a (physical) withdrawal state” <sup>(15)</sup>.

Dependence on tobacco is a complex behaviour, with both environmental and genetic influences <sup>(16)</sup>. Nicotine is the main component in cigarettes that contributes to addiction. It acts on specific nicotinic acetylcholine receptors in the brain, stimulating the release of dopamine that is believed to be associated with the acute rewarding effect of nicotine <sup>(17)</sup>. Moreover, chronic smoking leads to an up regulation of nicotine receptors.

Tobacco dependence is a disease, which drives the vast majority of tobacco use among adults. Doctors and health professionals must therefore take into account that tobacco dependence is a medical condition and not a habit, pleasure, or life-style choice.

## Measures of tobacco dependence

A smoker's degree of tobacco dependence may be assessed by a range of measures. These include the frequency and quantity of tobacco consumed, biochemical markers (such as levels of cotinine, a by-product of nicotine metabolism, in the saliva), and questionnaire measures of self-reported smoking behavior. Tests of psychological and physiological dependence, in the form of a questionnaire for smokers, include the Fagerström Test for Nicotine Dependence (which evolved from the earlier Fagerström Tolerance Questionnaire), the Cigarette Dependence Scales, the Nicotine Dependence Syndrome Scale, the Wisconsin Inventory of Smoking Dependence Motives, and instruments that assess whether a smoker satisfies the criteria for drug dependence in the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association. The most commonly used measure is the Fagerström Test for Nicotine Dependence. This instrument asks the smoker a set of questions, the answers to which are scored as shown below and added to give a total score: a score of six or more is seen as an indicator of high dependence.

**Table. The Fagerström Test for Nicotine Dependence**

Question	Answer	Score
How soon after you wake up do you smoke your first cigarette?	Within 5 minutes	3
	6–30 minutes	2
	31–60 minutes	1
	After 60 minutes	0
Do you find it difficult to refrain from smoking in places where it is forbidden?	Yes	1
	No	0
Which cigarette would you hate to give up most?	The first one in the morning	1
	All others	0
How many cigarettes per day do you smoke?	10 or less	0
	11–20	1
	21–30	2
	31 or more	3
Do you smoke more frequently during the first hours after waking than during the rest of the day?	Yes	1
	No	0
Do you smoke if you are so ill that you are in bed most of the day?	Yes	1
	No	0

Another, newer measure of levels of addiction is the 'Hooked on Nicotine Checklist,' or HONC, which assesses when the individual loses their control, or autonomy, over their use of tobacco use. Loss of autonomy is the point at which 'the sequelae of tobacco use, either physical or psychological, present a barrier to quitting' The HONC was originally devised for use with younger smokers for whom some of the questions in the Fagerström Test were much less relevant. For example, most adolescents would not be able to smoke within minutes of waking in the morning, or if ill in bed, unless they were doing so with parental permission. Subsequent research suggests that the HONC is also useful for measuring loss of autonomy over smoking in adults. The HONC asks 10 questions to assess degree of tobacco dependence.

1. Have you ever tried to quit, but couldn't?
2. Do you smoke now because it is really hard to quit?
3. Have you ever felt like you were addicted to tobacco?
4. Do you ever have strong cravings to smoke?
5. Have you ever felt like you really needed a cigarette?
6. Is it hard to keep from smoking in places where you are not supposed to, like school? *When you tried to stop smoking ... (or, when you haven't used tobacco for a while...)*
7. Did you find it hard to concentrate because you couldn't smoke?
8. Did you feel more irritable because you couldn't smoke?
9. Did you feel a strong need or urge to smoke?
10. Did you feel nervous, restless, or anxious because you couldn't smoke?(18)

Laboratory diagnosis of tobacco dependence Smoking status as defined based on clinical criteria may be also evaluated by biochemical laboratory tests to assess biomarkers of tobacco smoke exposure, such as carbon monoxide concentration in exhaled air and level of cotinine (a metabolite of nicotine). Biochemical validation is generally used in research to confirm self-reported rates of smoking abstinence and as such is not recommended as standard practice in clinical settings. Carbon monoxide (CO) Breath CO is the easiest biomarker to monitor; in the absence of CO in the environment, it is a well-accepted measure of tobacco consumption. Breath CO is easily measured by asking a smoker to exhale into a commercially available hand-held CO analyzer.<sup>(19)</sup> .

## ANTI-TOBACCO LAWS IN PAKISTAN

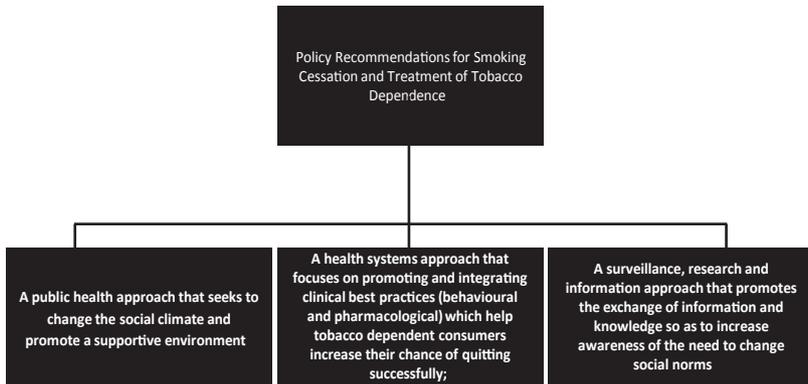
In 2002, the president of Pakistan implemented an ordinance by the name of ***“Prohibition of Smoking in Enclosed Places and Protection of Non-smokers Health Ordinance, 2002”*** According to this ordinance:

1. No person can smoke or use tobacco in any place of public work or use.
2. No person can smoke or use tobacco in any other form in any public service vehicle.
3. No persons/ companies can advertise tobacco and tobacco products on any media, in any place or in any public service vehicle, if such advertisement is not in accordance with guidelines prescribed for this purpose by a committee formulated by the Federal Government.
4. No person can sell cigarettes, or any other such smoking substance to anyone who is below the age of eighteen years.
5. No person can himself or by any person on his behalf, store, sell or distribute cigarettes or any other such smoking substance within an area of 50 meters from any college, school or educational institution.
6. The owner or manager or in charge of the affairs of every place of public work or use, shall display and exhibit a board at a conspicuous place in and outside the premises visited or used by general public prominently stating that the place is a "No Smoking Zone" and that "Smoking is an Offence".
7. Any person, who violates the law, would be punishable with a fine which may extend from one to five thousand rupees and in case of second or subsequent offence, would be punishable with a fine which shall not be less than one hundred thousand rupees or with imprisonment which may extend to three months, or with both.

However unfortunately, none of these laws are implemented in the true spirit. That's why the burden of tobacco usage in our country is ever increasing.

In 2004, Pakistan ratified the World Health Organisation's (WHO) Framework Convention on Tobacco Control and in 2009, the decision was made to introduce pictorial warnings on cigarette packets. In 2015, Minister for National Health Services Saira Afzal Tarar announced new pictorial warnings will cover 85 per cent of the cigarette pack, on both sides<sup>(20)</sup>.

## Key Guideline Recommendations(7)



## Clinical Practice Guidelines

The overarching goal of these recommendations is that clinicians strongly employ the use of effective tobacco dependence counseling and medication treatments to their patients who use tobacco.

1. In order to achieve the best smoking cessation rates, all smokers must be systematically identified at any medical contact. All doctors, no matter what their specialty, should use these occasions to identify smokers and to organize cessation therapy. Clinical evaluation of tobacco use is a mandatory medical act and must be legitimized as a routine intervention.
2. Tobacco dependence is a chronic disease that often requires repeated intervention and multiple attempts to quit. As tobacco dependence is a disease, it must be diagnosed and treated in the same way as other chronic diseases. A health professional has the duty to intervene and initiate tobacco cessation. Prompt initiation of treatment for tobacco dependence is a good practice for doctors and health professionals
3. Tobacco dependence treatments are effective across a broad range of populations. Clinicians should encourage every patient willing to make a quit attempt to use the counseling treatments and medications recommended in this Guideline.
4. Brief tobacco dependence treatment is effective. Clinicians should offer every patient who uses tobacco at least the brief treatments shown to be effective in this Guideline.
5. The key components of successful cessation (remission) are combinations of therapeutic education, behavioural support and pharmacotherapy.

## *Therapeutic education*

- . Explain tobacco dependence disease
- . Explain the reasons for lighting up a cigarette
- . Explain the health consequences of smoking
- . Explain the benefits of quitting smoking
- . Explain tobacco cessation treatment
- . Explain chronic tobacco dependence management to prevent relapse
- . Present tools available locally to smokers.

## **Behavioural support**

- . Identify the behavioural causes of smoking, the long-term and immediate smoking stimulation factors.
- . Increase motivation to quit and decrease fears of quitting and of becoming a nonsmoker
- . Learn how to deal with emotions.

## **Medications**

- . Nicotine replacement therapies
- . Varenicline is a partial agonist of alpha4 beta2 nicotine receptor used as smoking cessation monotherapy with an efficacy versus placebo, which has been found to be greater than other first line monotherapies. Varenicline and combined high dose nicotine replacement therapy are equally effective
- . Bupropion is a medication used initially to treat depression that has shown to be effective for smoking cessation. This drug can be combined with NRT.
- . Nortriptyline (a tricyclic antidepressant) and cytosine (a nicotine receptor partial agonist) are second line smoking cessation therapies available in some countries and have been shown to be effective. These medications. tend to be less expensive.
- . If a tobacco user currently is unwilling to make a quit attempt, clinicians should use the motivational treatments shown in this Guideline to be effective in increasing future quit attempts.

## **Recommendation for hospitalized patients**

Intervening with smokers while in hospital has been shown to be effective in supporting cessation. It is recommended that all categories of medical personnel in hospitals should assess smoking status and should provide brief smoking cessation advice for all hospitalized patients who smoke.

## **Recommendation for pregnant women**

It is recommended that all categories of medical personnel dealing with pregnant women (gynecologists, midwives, nurses and GPs) should assess smoking status and provide smoking cessation advice for all pregnant women who smoke.

## **Recommendation for patients with elective surgery**

It is recommended that all patients quit smoking 6 to 8 weeks before surgery in order to reduce risk of complications. It is essential to inform all patients of the need to quit smoking until the end of the healing process (three weeks for minor surgery and three months for orthopedic surgery) in order to overcome other risks<sup>(19)</sup>.

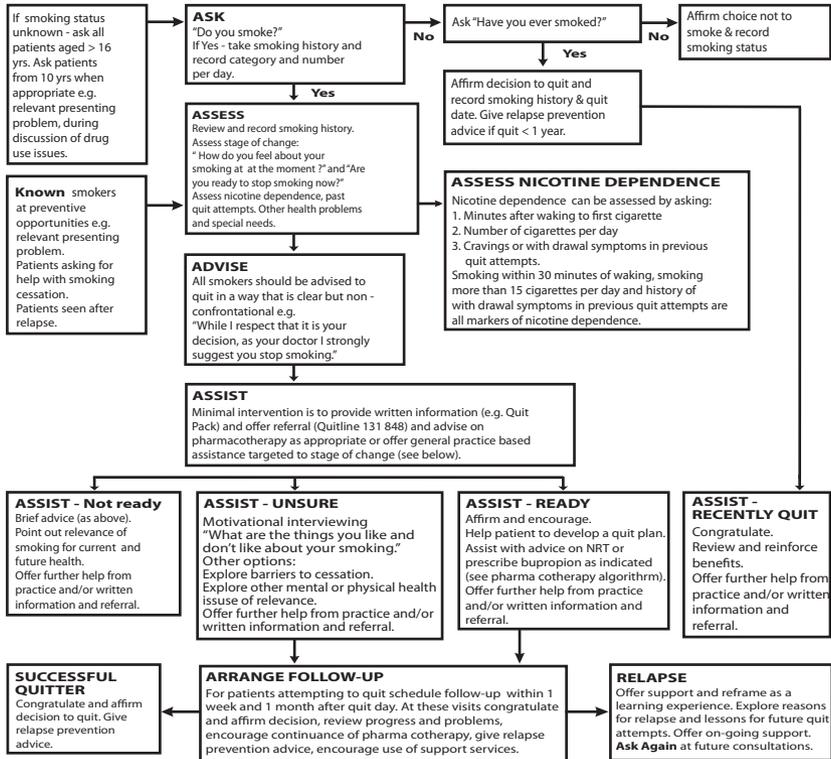
### **Several institutional policies would facilitate these interventions such as:**

- . Implementing a tobacco-user identification system in every clinic.
- . Providing adequate training, resources, and feedback to ensure that providers consistently deliver effective treatments.
- . Dedicating staff to provide tobacco-dependence treatment and to assess the delivery of this treatment in staff performance evaluations.
- . Promoting hospital policies that support and provide tobacco-dependence services.
- . Including tobacco-dependence treatments (both counseling and medication) identified as effective in this guideline, as paid or covered services for all subscribers or members of health insurance packages. Meta-analyses in the 2008 Update found that compared to not having tobacco-use treatment as a covered benefit, individuals with the benefit were more likely to receive treatment, make a quit attempt, and attain abstinence from smoking.
- . Including measures of outcome (e.g., use of cessation treatment, short- and long-term abstinence rates) in addition to measures of treatment provision in standard ratings and measures of overall health quality

Working with individual smokers to change their smoking behavior is an important goal, but it has a limited impact if the environmental factors that promote and support smoking are not also addressed. Hence, population-based interventions should be viewed as complementary approaches to individual-based behavioral or pharmacological interventions.

# CLINICAL INTERVENTIONS FOR TOBACCO USE AND DEPENDENCE

The **5A's approach** is the most widely used one in clinics to assess and control tobacco use<sup>(21)</sup>.



## The 5As

Five strategies are recommended for addressing tobacco use in clinical settings. Known as the 5As these strategies are:

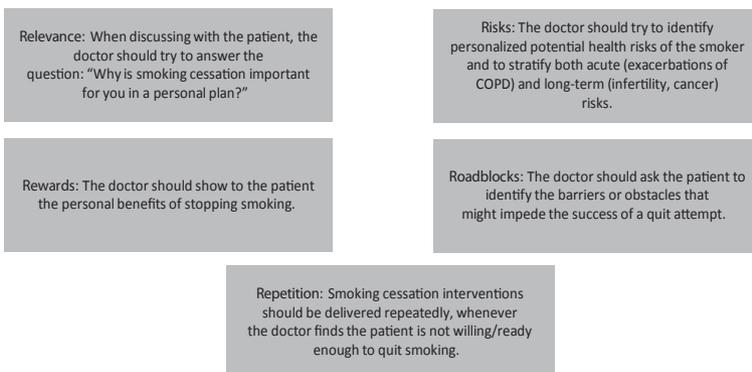
- Ask all patients about smoking status;
- Advise patients who smoke to quit;
- Assess readiness to quit;
- Assist with making a quit attempt, including providing behavioral counseling and prescribing first-line smoking cessation medications; and
- Arrange follow-up

## *Motivating tobacco users to quit*

### *The 5Rs strategy*

The 5Rs counseling strategy focuses on personally relevant reasons to quit, risks associated with continued smoking, rewards for quitting, and roadblocks to successful quitting, with repetition of the counseling at follow-up visits<sup>(19)</sup>.

The 5Rs strategy, as applied in the case of a smoker not willing to stop smoking immediately, consists of:



Interventions that aim to raise motivation towards smoking cessation that are grounded in motivational interviewing methods as outlined below:

- . Expressing empathy through open questions exploring attitude towards smoking ("How important do you think smoking cessation is for you personally?")
- . Using reflective listening techniques ("So, do you think smoking helps you keep your current weight?")
- . Supporting the patient's right to reject change ("I understand that you're not ready to stop smoking right now. When you are willing to try, I will be here to help you.")
- . Developing discrepancies between the patients' current behavior and their personal values ("You say your family matters a lot to you. How do you think your smoking affects your wife and children?")
- . Building a commitment to change ("We are going to help you avoid a heart attack, like your father had.")
- . Empathetic attitude ("Are you worried about possible withdrawal symptoms?")
- . Asking for permission to provide information ("Do you agree to learn together with me a few behavioral strategies that will help you face situations that make you smoke?")
- . Providing simple solutions, as small steps on the way towards abstinence: a phone number (toll-free quit line, leaflets to present tips about changing behaviors etc.)

## **COUNSELING A PATIENT**

Counseling a tobacco user to quit tobacco is an art which every health professional should try to learn.

### **Modifying counselling to individual circumstances**

It is very important that the doctor gives the right message while he counsels the patient about quitting tobacco use. For example, a middle aged COPD breathless patient should be told that his disease is mainly because of tobacco use and if he quits smoking not only his breathing will be easier but it will also help improve his quality of life. A smoker, on the other hand, who brings his child with an asthma attack, should be told that one of the important triggering agents for his child's asthma exacerbations is smoking. For a middle-aged lady who uses tobacco, the relevant message could be that if she quits smoking, she will have reduced wrinkling of skin

### **Modes of counseling**

#### **Brief Advice**

Current US clinical practice guidelines recommend that "all physicians should strongly advise every patient who smokes to quit because evidence shows that physician advice to quit smoking increases abstinence rates". The recommendations stem from a diverse array of studies that, in meta-analyses, demonstrated an odds ratio of quitting smoking of 1.3 with physician advice as compared with not receiving advice <sup>(22)</sup>

#### **Group Counseling**

Group therapy allows more people to be treated by one expert and could be more cause effective than individual counseling.

#### **Telephone Counseling**

A dramatic increase in smoking cessation of 82% was seen in Cochrane systematic reviews of randomized control trials when different techniques were used: physician counselling combined with pharmacotherapy or telephone or in person counseling.<sup>(23)</sup> Telephone quit line counseling is an important method as it has its utility in a myriad of populations and overall pooled odds ratio of smoking cessation with quit line counseling is 1.6 <sup>(24)</sup>

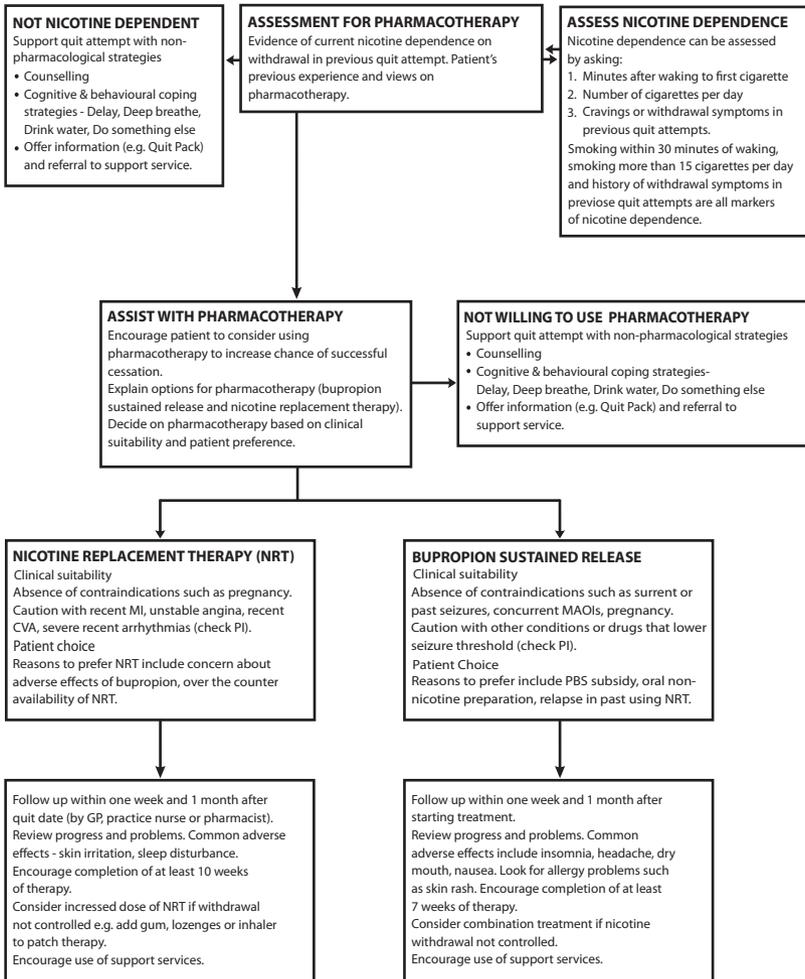
#### **Web-based programs on the Internet**

Like quit lines, Web-based programs offer smokers immediate feedback to help them quit. Many of the programs include links to quitting resources, stories from former smokers and cancer patients, live advice from counselors, and message boards. Web-based programs have been shown to help improve quit rates.

## WHO'S PACKAGE FOR CONTROLLING TOBACCO EPIDEMIC (1, 8, 10, 25-29)

Monitor tobacco use and prevention policies	<ul style="list-style-type: none"><li>• Good monitoring systems must track several indicators, including prevalence of tobacco use , impact of policy interventions, tobacco industry marketing, promotion and lobbying</li></ul>
Protect people from tobacco smoke	<ul style="list-style-type: none"><li>• There is no safe level of exposure to second hand smoke. On the other hand, smoke free environments help smokers who want to quit. For example, smoke free policies in workplaces in several industrialized nations have reduced total tobacco consumption among workers by an average of 29%.</li></ul>
Offer help to quit tobacco use	<ul style="list-style-type: none"><li>• Among smokers who are aware of the dangers of tobacco, three out of four want to quit . However, like people dependent on any addictive drug, it is difficult for most tobacco users to quit on their own and they benefit from help and support to overcome their dependence.</li></ul>
Warn about the dangers of tobacco	<ul style="list-style-type: none"><li>• Tobacco use is usually seen as merely a bad habit but people do not really know the health risks associated with its use. People generally believe they can reduce or stop tobacco use before health problems occur. However, the reality is that most tobacco users will never be able to quit, and up to half will die from tobacco related illnesses. Therefore, it is extremely important that we warn the general public about the dangers of tobacco. All this can be achieved through action by governments and civil society.</li></ul>
Enforce bans on tobacco advertising, promotion and sponsorship	<ul style="list-style-type: none"><li>• Marketing bans are highly effective in reducing tobacco use. In the United States, national level studies before and after advertising bans found a decline in tobacco consumption of up to 16%. Unfortunately, tobacco is falsely associated with desirable qualities such as youth, energy, glamour and sex appeal through marketing. Also, the tobacco industry has strong influence over the sporting and entertainment businesses via the media. Therefore, the tobacco industry strongly opposes marketing bans; and the tobacco industry lobbies heavily against even the narrowest restrictions.</li></ul>
Raise taxes on tobacco	<ul style="list-style-type: none"><li>• Increasing the price of tobacco through higher taxes is the single most effective way to decrease consumption and encourage tobacco users to quit . It has been demonstrated in a study that a 70% increase in the price of tobacco could prevent up to a quarter of all smoking related deaths worldwide .</li></ul>

# PHARMACOTHERAPY FOR TABACCO CESSATION



## *First-line medications*

There are now three first-line medical options available to assist smokers to quit smoking <sup>(1, 20)</sup>:

- Nicotine replacement therapy
- Bupropion
- Varenicline

### **1.) Nicotine Replacement Therapy** <sup>(21)</sup>

	Patient group		Duration	Adverse effects
Patch	> 10 cigs per day and weight > 45kg	21mg/24hr patch or 15mg/16hrs	>8 weeks	Skin erythema and allergy,
	< 10 cigs per day or weight < 45kg or CVD	14mg/24 patch or 10mg/16hrs	>8 weeks	insomnia, wild dreams (more with 24 hr patch)
Gum	>10 and <20 cigs per day	2mg gum, 8-12 per day	>8 weeks	Dyspepsia, nausea, headache, hiccup, dental problems
	>20 cigs per day	4mg gum, 6-10 per day	>8 weeks	
Inhaler	>10 cigarettes per day	6-12 cartridges per day	>8 weeks	Mouth and throat irritation, cough
Lozenge	First cigarette > 30 mins after waking	2mg lozenge, 1 lozenge every 1-3 hours	>8 weeks	Dyspepsia, nausea, hiccup, headache
	First cigarette < 30 minutes after waking	4mg lozenge, 1 lozenge every 1-2 hours	>8 weeks	
Sublingual tablet	Low dependence	2mg tablet every 1-2hrs	>8 weeks	Headache, nausea, dyspepsia, sore, dry or burning mouth, cough
	High dependence	Two 2mg tablet every 1-2hrs	>8 weeks	

## a) Nicotine Gum

<p>Prescribing Instructions Chewing technique. Gum should be chewed slowly until a peppery or mint taste emerges, and then parked between cheek and gum for 10 minutes or until the taste dissipates to facilitate nicotine absorption through the oral mucosa.</p>	<p>Avoid eating and drinking anything except water for 15 minutes before and during chewing as acidic beverages interfere with the buccal absorption of nicotine. Chew the gum on a fixed schedule (at least one piece every 1-2 hours during waking hours) for at least 1-3 months.</p>
<p><b>Nicotine Chewing Gum (Nukik 2 mg)</b></p>	
<p>Precautions Pregnancy. Lactating women. Cardiovascular diseases.</p>	<p>Side Effects Hiccups Mouth soreness Dyspepsia Jaw ache. Generally mild and transient, and can often be alleviated by correcting the patient's chewing technique</p>

## b) Nicotine Patch.

<p>At the start of each day, the patient should place a new patch on a relatively hairless location, typically between the neck and waist.No restrictions on activity while using the patch. Patches should be applied as soon as the patient wakes up on their quit day. In patients who experience sleep disruption, advise the patient to remove the 24-hour patch prior to bedtime or use the 16-hour patch.</p>	<p>Recommended Dosages 15 mg for 8 weeks, Then 10 mg for 2 weeks And finally 5 mg for 2 weeks. Currently not freely available in the country</p>
<p><b>Nicotine patch</b></p>	
<p>Side effects Local skin reaction. Usually mild and self-limiting, but may worsen over the course of therapy. Local treatment with hydrocortisone cream (1%) or triamcinolone cream (0.5%) and rotating patch sites may reduce such local reactions. Insomnia.</p>	<p>Precautions: Pregnancy. Lactating women. Cardiovascular diseases.</p>

## 2.) Bupropion (Zylexx 75 mg, Zyban 150mg, ANZEE SR, BURTIN XL, DEPRION SR

WELLBUTRIN-XL, ZION)

Originally developed as an antidepressant, bupropion is a non-nicotine oral therapy which reduces the urge to smoke and reduces symptoms from nicotine withdrawal.

<p>Begin with a dose of 150 mg QD for 3 days, then increase to 150 mg BD for 7-12 weeks. Bupropion SR treatment is started 1-2 weeks before the patient quits smoking. For maintenance therapy, consider bupropion SR 150 mg BD for up to 6 months.</p>	<p><b>Prescribing instructions</b> Some patients will lose their desire to smoke prior to their quit date, or will spontaneously reduce the amount they smoke. If insomnia is marked, taking the PM dose earlier (in the afternoon, at least 8 hours after the first dose) may provide some relief.</p>
<p><b>Bupropion</b></p>	
<p><u>Side effects</u> Insomnia , Dry mouth <u>Precautions</u> Pregnancy Lactating women Cardiovascular diseases. Infrequent reports of hypertension.</p>	<p><b>Contraindications</b> History of a seizure History of an eating disorder Patients taking any MAO inhibitor Using another form of bupropion i.e. Wellbutrin or Wellbutrin</p>

## 3.Varenicline (Chantix 0.5 mg and 1 mg Tablets)

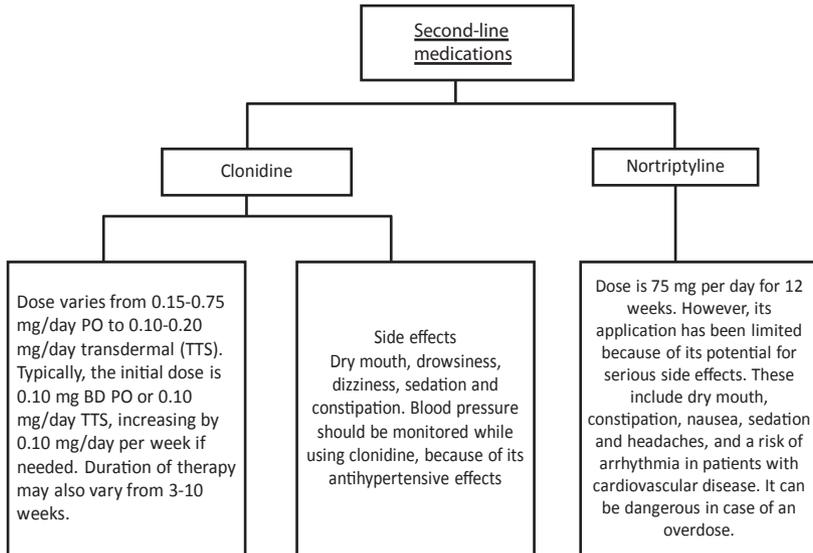
Mechanism of Action

It targets the nicotinic acetylcholine (ACh) receptor in the reward centres in the brain, where it acts as a partial agonist to alleviate symptoms of craving and withdrawal.

<p><b>Dosage</b> The recommended dose of varenicline is 1 mg twice daily following a 1 week titration as follows: Days 1-3: 0.5 mg O.D. Days 4-7: 0.5 mg B.D. Day 8-End of treatment: 1 mg B.D.</p>	<p><b>Prescribing instructions</b> The patient should set a date to stop smoking and Varenicline dosing should start 1 week before this date. Patients should be treated for 12 weeks. Once the patient has successfully stopped smoking at the end of 12 weeks, an additional course of 12 weeks treatment with Varenicline 1 mg B.D. is also recommended.</p>
<p><b>Varenicline</b></p>	
<p><b>Precautions</b> Known hypersensitivity to Varenicline Pregnancy lactation</p>	<p><b>Side effects</b> Nausea Headache Insomnia Abnormal dreams</p>

## **Second-line medications**

Second-line medications are also efficacious for treating tobacco dependence but their role is limited mainly because they may have more potential side effects than the 1st line medications. These are:



## **Possible future options**

There are a number of tobacco cessation therapies and nicotine vaccines in development. The selective type 1 cannabinoid receptor antagonist rimonabant <sup>(30)</sup> and the nicotine receptor partial agonist cytisine <sup>(31)</sup> have demonstrated some efficacy in studies.

Cytisine is a very important emerging cessation agent due to its effectiveness, affordability and low cost per quality-adjusted-life-year. Cytisine is more effective compared to nicotine -replacement therapy: 1-month continuous abstinence rates were found to be remarkably higher with cytisine therapy than with nicotine-replacement therapy (40% vs.31%)<sup>(32)</sup>

## **Addressing Smokeless Tobacco and building Research Capacity in South Asia (ASTRA)**

ASTRA is a world-class, interdisciplinary group, aiming to reduce the substantial burden of disease caused by smokeless tobacco (ST) <sup>(33)</sup>. ST refers to tobacco products that are consumed without smoking. Such products are particularly popular in South Asia and include 'chewing tobacco' (e.g. paan, gutkha or zarda), as well as various other types of oral and nasal tobacco (like naswar). ST products have historically been assumed to be less harmful than cigarettes, so not very much research has been done on smokeless tobacco. However, ST is highly addictive and is known to cause cancers of the mouth and neck, as well as cardiovascular disease and pregnancy problems.

ASTRA's international teams will carry out policy research and develop interventions to address the problems caused by the use of smokeless tobacco in South Asia. Their focus is on Bangladesh, India and Pakistan, where 80% of the world's 300 million smokeless tobacco users live, and where the most harmful types of ST are favoured.

The World Health Organisation's Framework Convention on Tobacco Control (WHO-FCTC) has set out tobacco control policies, aimed at improving global health by reducing tobacco demand and supply. In high-income countries, FCTC measures have had considerable success in reducing the harm caused by cigarettes. However, for smokeless tobacco, control policies are poorly developed and badly implemented, especially in low- and middle-income countries (LMICs).

### **Aims**

ASTRA aims to gather evidence about how the policies recommended by the WHO-FCTC are being implemented for ST in LMICs. This part of the programme will focus on young people, since 90% of ST users start their habit during adolescence.

Another aim is to develop and evaluate interventions, such as behavioral support or medicines, to help adult ST users to quit.

ASTRA also aims to build capacity, by training research teams at LMIC institutions to conduct high quality applied health research in Bangladesh, Pakistan and India.

ASTRA will use this capacity to support wider tobacco control efforts in the South Asia region.

Funder: ASTRA is a three-year programme, with a budget of £2M, funded by the National Institute for Health Research, UK (NIHR).

ASTRA is a new, international group, comprising experts from six UK Universities and five institutions from Bangladesh, Pakistan and India. Members from Pakistan include:

Prof. Javaid Khan (Aga Khan Medical University (AKU), Pakistan)

Dr. Romaina Iqbal (AKU, Pakistan)

Azmina Abdul (AKU, Pakistan)

Dr. Zohaib Khan (Khyber Medical University (KMU), Pakistan)

Prof. Arshad Javaid (KMU, Pakistan)

## **E-cigarette, or Vaping, Product Use - Associated Lung Injury (EVALI)**

As of November 13, 2019, 49 states, the District of Columbia, and two U.S. territories (Puerto Rico and U.S. Virgin Islands) have reported 2,172 EVALI cases to CDC, including 42 (1.9%) EVALI-associated deaths <sup>(34)</sup>. Based on established definitions, patients with EVALI require reported use of e-cigarette, or vaping, products within 3 months of symptom onset, positive imaging findings, and an evaluation to rule out infectious causes. Vitamin E acetate and tetrahydrocannabinol appear to be associated with the outbreak; however, no single causative agent has been identified. EVALI remains a diagnosis of exclusion because, at present, no specific test or marker exists for its diagnosis, and evaluation should be guided by clinical judgment. Rapid recognition of EVALI patients by healthcare providers is critical to reduce severe outcomes.

Influenza cannot be distinguished from EVALI by signs, symptoms, clinical features at presentations (medical examination), or testing. Acute respiratory illness in a patient with a history of e-cigarette/vaping and THC exposure could be caused by influenza viruses, other respiratory infections, EVALI, or all of the above.

### **Patient Interview**

Ask about the use of e-cigarette, or vaping, products in a confidential and nonjudgmental manner when evaluating patients with respiratory symptoms (e.g., cough, chest pain, and shortness of breath), gastrointestinal symptoms (e.g., abdominal pain, nausea, vomiting, stomach pain, and diarrhea), or nonspecific constitutional symptoms (e.g., fever, chills, and weight loss).

Ask patients about recent use of e-cigarette, or vaping, products. If confirmed, the types of substances used (e.g., THC and nicotine) and where they were obtained should be ascertained.

### **Physical Examination**

Assess vital signs and pulse oximetry.

### **Laboratory Testing and Imaging**

Laboratory testing should be guided by clinical findings. A chest radiograph (CXR) should be considered on patients with a history of e-cigarette, or vaping, product use, who have respiratory or gastrointestinal symptoms, particularly when chest pain, dyspnea, or decreased oxygen saturation (<95% while breathing room air) are present. Healthcare providers should evaluate for causes of community-acquired pneumonia according to established guidelines as indicated by imaging findings.

## **Consideration of Outpatient Management**

Some patients with history of e-cigarette, or vaping, product use who are evaluated for respiratory, gastrointestinal, or constitutional symptoms might be candidates for outpatient management.

Candidates for outpatient management should have normal oxygen saturation ( $\geq 95\%$  while breathing room air), no respiratory distress, no comorbidities that might compromise pulmonary reserve, reliable access to care, strong social support systems, and should be able to ensure follow up within 24-48 hours of initial evaluation and to seek medical care promptly if respiratory symptoms worsen; in some cases, patients who initially had mild symptoms experienced a rapid worsening of symptoms within 48 hours.

Hospital admission should be strongly considered for patients with concurrent illness such as influenza and potential EVALI, especially if respiratory distress, comorbidities that compromise pulmonary reserve, or decreased oxygen saturation ( $\geq 95\%$  while breathing room air) are present.

## **Treatment and Follow-up**

### **Corticosteroid Treatment**

Corticosteroids might be helpful in treating EVALI.

Use of corticosteroids for the treatment of EVALI in the outpatient setting has not been well studied and should be considered with caution. Corticosteroids might worsen respiratory infections commonly seen in the outpatient setting.

In published reports primarily including hospitalized patients, most patients with EVALI who received corticosteroids had rapid improvement; dosages have been previously described.

Some patients who have not received corticosteroids have also had clinical improvement with cessation of e-cigarette, or vaping, product use, and comparative studies have not been conducted.

### **Discharge Planning**

Hospitalized patients should be documented as clinically stable for 24-48 hours prior to discharge.

Healthcare providers should assure patients have social support and access to mental health and substance use disorder services.

Medication reconciliation and patient counseling should be provided by the inpatient pharmacist to help ensure medication adherence.

Healthcare providers should confirm patients have a follow-up appointment with a primary care provider or pulmonology specialist, optimally within 48 hours of discharge.

Healthcare providers can use the EVALI Discharge Readiness Checklist pdf icon[PDF- 110 KB] to help plan for safe discharge.

## Post- Discharge Follow-up

Patients discharged from the hospital after inpatient treatment for EVALI should have a follow-up visit with a primary care provider or pulmonology specialist, optimally within 48 hours.

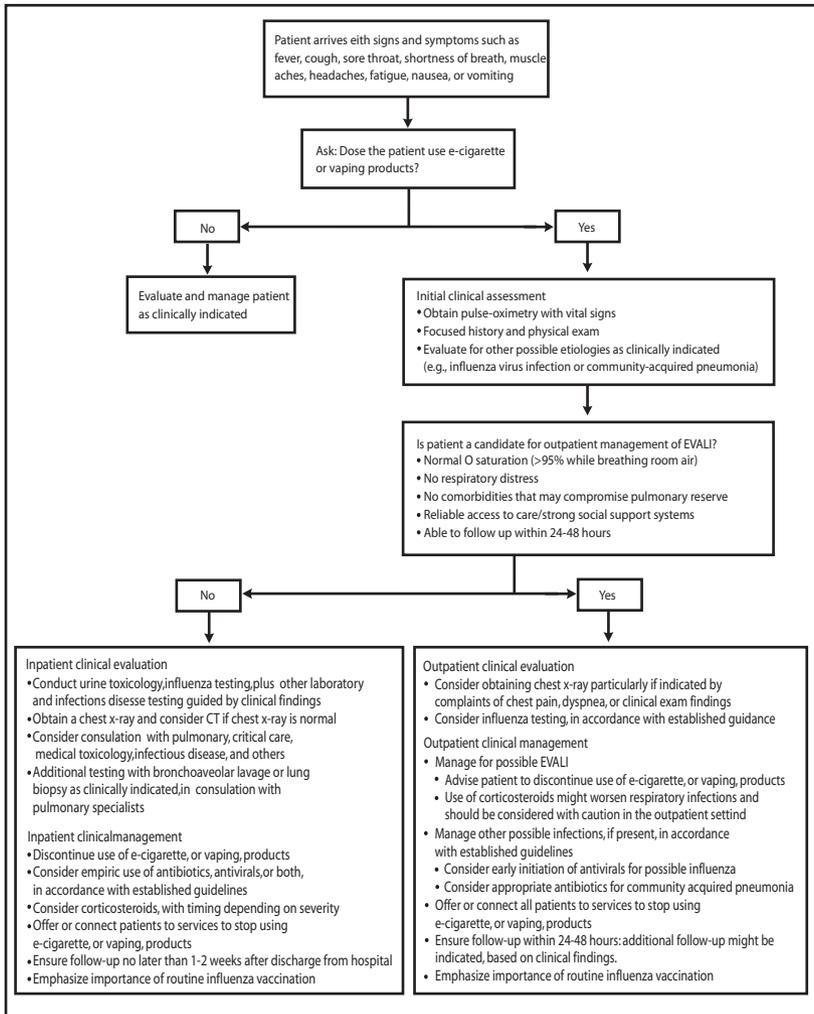
The follow-up evaluation should include: clinical assessment to confirm that the patient's respiratory status is stable; ongoing education about EVALI; ensuring adherence with medication regimens such as tapering of corticosteroids (if prescribed at the time of hospital discharge); reinforcing the importance of abstinence from e-cigarette, or vaping, product use; facilitating connection to outpatient care by all providers or services indicated by patients' medical history or conditions; connecting patients to needed social, mental health, and substance use disorder resources; and establishing connections to necessary services.

Longer-term pulmonary follow-up should generally occur within 2-4 weeks after discharge (often at completion of the corticosteroid taper) to assess pulmonary function and resolution of radiographic findings.

Additional follow-up testing 1-2 months after discharge might include spirometry, diffusing capacity of the lung for carbon monoxide (DLCO), and CXR.

Patients who have experienced prolonged immobilization during hospitalization (particularly those with intensive care unit-related deconditioning and muscle atrophy) might benefit from physical therapy. Ongoing engagement with addiction medicine and mental health services should be considered as indicated.

Healthcare providers should also advise patients with a history of EVALI to return as soon as possible if they develop new or worsening respiratory symptoms, with or without fever, for early evaluation with influenza testing and early initiation of antiviral or antibiotic treatment, as indicated <sup>(33)</sup>.



**FIGURE. Algorithm for management of patients with respiratory, gastrointestinal, or constitutional symptoms and e- cigarette, or vaping, product use<sup>(34)</sup>**

## **SMOKERS' FREQUENTLY ASKED QUESTIONS AND THEIR ANSWERS**

Following are some of the commonly asked questions by smokers when they consult a health professional and their possible answer. Every individual is different and answers may have to be modified according to the specific situation. What message you give to a young person may not appeal to a middle aged person.

**Q1. I am 60 years old. I started smoking 40 years ago. Damage has already been done. Isn't it too late to stop now? What would I gain by giving up smoking at this age?**

Ans. It's never too late to give up smoking. By stopping smoking, further damage to the lungs, heart and other organs would stop. Research on respiratory functions has shown that by stopping smoking patients are able to avoid further deterioration in lung functions, which allows them to continue performing all routine tasks in their life rather than becoming bedridden. Quality of life of an ex smoker is far superior compared to those who continue smoking.

**Q2. I have been smoking for over 20 years. Should I cut down on my cigarettes first or stop it altogether?**

Ans. Research has shown that those who set a firm quit date and stop suddenly, have a better chance of quitting, compared to those who attempt a gradual reduction. However, reducing the number of cigarettes in the week before the quit date is helpful.

**Q3. I am addicted to the nicotine present in the cigarettes and you are prescribing me nicotine chewing gum for quitting smoking. Isn't there a risk that I will be hooked on to nicotine chewing gum?**

Ans. Nicotine taken through chewing gum only provides 1/3 to 1/2 of nicotine delivered by cigarettes. It helps in reducing the "CRAVING" & breaking the bad habit. Chances of getting hooked to nicotine chewing gum itself are less than 5%. By taking nicotine in gum form, exposure to the other 4700 toxins present in cigarettes is avoided. Nicotine itself does not cause Lung Cancer or Heart Attack.

**Q4. How many chewing gums should I use every day?**

Ans. Someone who smokes between 10-20 cigarettes/day needs to use 1 (2mg) chewing gum every hour for about 10 to 15 hours (during awake hours). Most failures occur because people use less chewing gum than they need. One can also use additional gum at any time when there is an urge. Those who smoke more than 20 cigarettes should use a 4 mg chewing gum.

**Q5. How can I use the chewing gum and for how long?**

Ans. Generally chewing gum is required for a period of 2 to 3 months. Most people tend to reduce its use as time passes (craving for smoking get less after the initial 2 weeks). "Chew and park" method is the best. Chewing gum should stay in the mouth for

**Q6. I don't like the bad taste of chewing gum! It's very hard to chew!**

Ans. Remember it is a medicine; not a sweet. For example, one takes Quinine despite its bitter taste, in order to treat Malaria. Most people do not like the taste of their first cigarette but after few days they begin to enjoy smoking. Similarly it takes few days before one starts feeling the benefit of nicotine chewing gum use.

**Q7. Do all smokers need NRT, Zylexx (Bupropion) or Varenicline as a smoking cessation aid?**

Ans. If a person smokes less than 10 cigarettes/day and has had previous successful long term quit attempts without any problems then NRT or other medicines may not be necessary. But if patient has tried and failed previous "self attempt " of quitting smoking then he or she should be advised to use some pharmacotherapy.

**Q8. I have tried Nicotine Chewing gum before; it does not work for me...**

Ans. Nicotine chewing gum does not give the same "pleasure" as cigarettes. It only provides 1/3 to 1/2 of nicotine that the cigarette was providing. It will certainly decrease the "craving" but will not give the same relief as cigarettes. Nicotine from Chewing gum is delivered slowly than from inhaled smoke. Most people who fail do not use adequate amounts of chewing gum or are not motivated enough to get rid of this addiction.

**Q9. Is Nicotine chewing gum as effective as Nicotine patches?**

Ans. All NRT (patch or chewing gum) are equally effective, one can combine the two products in heavily addicted smokers but there is no added benefit in controlled trials. There is sustained delivery of nicotine through skin patches compared to chewing gum.

**Q10. I have developed mouth ulcer ever since I started using chewing gum...**

Ans. Mouth ulcers are the symptoms of nicotine withdrawal, which usually settles down in a few days. They don't occur because of using nicotine chewing gum.

**Q11. I have heard that by quitting smoking I would gain weight, but I want to look fit?**

Ans. Yes it's true that one gains about 6 kgs of weight within a year of quitting smoking. Nicotine chewing gum would delay the weight gain. Slight weight gain has far less risks compared to the serious hazards associated with "smoking". There is no need to worry too much about weight gain "Quitting smoking" & "controlling weight" should be tackled at a different time. One cannot climb two mountains at any one time!

**Q12. Can I smoke one or two cigarettes after the quit date?**

Ans. No, not at all. Not even one cigarette after the quit date. If you take even one cigarette you will go back to the same habit. "Do not feed a dying monster in your brain"!

**Q13. Smoking helps me to relax in my very hectic and tense life. Whenever I try to quit smoking I become angry and start fighting with my colleagues.**

Ans. Anger & restlessness are nicotine withdrawal symptoms. These symptoms last only for a few weeks. It can be controlled by NRT or with tablet ZYBAN.

**Q14. My life is very stressful. Smoking helps me in coping with stress.**

Ans. It is wrong to say that smoking decreases stress levels. Studies have shown that stress level at 4 weeks after quitting smoking is far less than the stress level during smoking. Smokers get 10- 15 episodes of stress every day which is relieved by smoking. In the first week after quitting smoking, smokers are more anxious but soon anxiety level goes down.

**Q15. How do I use Bupropion?**

Ans. You should start one week prior to quit date. Initially take 150 mg daily, then on the day of quitting increase Zyban to 150 mg / twice/ day. Continue Zyban for about 2 to 3 months.

**Q16. Is there any contra indication to use of Bupropion ?**

Ans. If somebody has H/O epilepsy or seizures then Zyban should not be used.

**Q17. What do I do if I get irresistible desire to smoke?**

Ans. Remember the 4Ds:

Delay acting on the urge to smoke. After five minutes the urge to smoke weakens and your resolve to quit will come back.

Deep breathing Take a long slow breath in and slowly release it out again. Repeat three

Drink water slowly holding it in your mouth a little longer to savour the taste.

Do something else to take your mind off smoking. Doing some exercise is a good alternative.

**Q18. My uncle smoked all his life but he is still alive at age 80. If smoking is so bad then why he is still alive?**

Ans. It's true that some people are more vulnerable to the effects of tobacco use than others. Genetic makeup of the individual does play a role in deciding the extent of damage caused by tobacco. Research has however clearly shown that half of all regular smokers will die prematurely from their smoking habit. On an average, smokers lose about 10 years of their life. For some smokers, years lost because of smoking may be as many as 35 years to as low as 1 to 2 years. The quality of life of a smoker is also much inferior compared to that of a non-smoker. An analogy is that of suicide: not everyone who commits suicide dies, but it is extremely deleterious nonetheless.

**Q19. Life is full of risks in any case then why there is so much talk against smoking these days? What is the harm if someone smokes?**

Ans. It's true that life has many risks. However, humans are gifted with intellect to make rational decisions to minimize these risks. Smoking is today the single largest preventable cause of disease and death. Active or passive smoking has serious health risks. Quitting smoking is in our hand. We can protect ourselves from several diseases which are directly caused by tobacco abuse.

**Q20. What are the side effects of Varenicline and are there any contraindication to its use**

Ans. In general Varenicline is a safe medicine. Its main side effect is nausea which usually occurs in the first week of the therapy. It's currently not recommended for use during pregnancy and for someone who has history of epilepsy.

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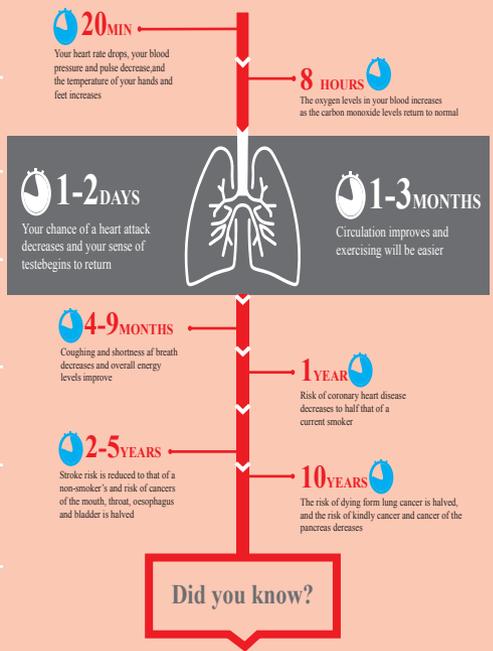
**PAKISTAN  
CHEST SOCIETY**  
STRIVING FOR PULMONARY CARE

# WHY SHOULD I QUIT?

Health benefits of quitting tobacco

<b>Within 20 Minutes</b>	Body starts to heal
<b>Within 12 Hours</b>	Carbon Monoxide levels in your blood drop to normal
<b>2 weeks to 3 months</b>	Heart attack risk drops and lung function begins to improve
<b>1-9 months</b>	Coughing and shortness of breath decreases
<b>Within 1 year</b>	Risk of heart attack drops sharply
<b>After 2-5 year</b>	Risk of stroke is similar to that of a person who never smoked
<b>After 5 year</b>	Risk of mouth, throat, esophagus, and bladder cancers are cut in half
<b>After 10 year</b>	Risk of lung cancer is cut in half

## WHEN YOU QUIT SMOKING - A timeline



**2-3 DAYS**  
Withdrawal symptoms are at their worst. They should subside entirely in just a few weeks. Don't give up!

**75% RELAPSE**  
Remember that the health benefits of quitting far outweigh the discomfort. You can do this.

**5-7 DAYS**  
Many smokers try to quit more than once. Make sure you have a strong support system.