



Smoking Cessation

part 1:

by:

Solmaz Hassani

(Pharm. D, Board Certified Clinical Pharmacist)

Learning Outcomes

At the end of this session, the learner is expected to:

- Know the health consequences of tobacco use and the benefits of smoking cessation
- Know tobacco withdrawal symptoms and Fagerstrom test for assessing nicotine dependence
- Know the 5 A's, 5 R's, and the Condensed AAR Tobacco Intervention for assist patients in tobacco cessation





What is tobacco?

It is a derivate from *Nicotiana Tabacum*



نیکوتین چیست؟

- نیکوتین علت اصلی ایجاد وابستگی در تنباکو است.

- این ترکیب آکالوئید اصلی در تنباکو میباشد و بیوسنتز و تجمع آن در ریشه و برگهای گیاه توتون رخ میدهد.

- نیکوتین مادهای شفاف با قوام مایع روغنی در دمای اتاق و یک باز ضعیف با $pK_a=8$ می باشد.

- پس از استنشاق فرآورده های حاوی نیکوتین، این ماده از ریه ها جذب بسیار سریع و کامل خواهد داشت و غلظتهای خونی بسیار بالایی به طور ناگهانی ایجاد میشود.

- عبور از BBB



معرفی فرآورده های تنباکو

محتوای نیکوتین در انواع تدخینی:

❖ Cigarette: سیگارت که در ایران به نام سیگار شناخته شده است. هر سیگار کارخانه ای یا رول شده دستی که حاوی 10mg نیکوتین است.

❖ Cigar: هر سیگار برگ حاوی 6 الی 300 میلیگرم نیکوتین است.

❖ Pipe and Water Pipe (Hookah): پیپها که از نظر مقدار تنباکو مورد استفاده و زمان مورد مصرف متغیر هستند. عموماً 3 الی 4 گرم تنباکو در پیپ و 20 گرم در قلیان موجود میباشد.



معرفی فرآورده های تنباکو (غیر تدخینی)

- Moist and dry Snuff: انفیه دهانی و بینی که هر گرم آن حاوی 3.4 الی ۱۱/۵ میلیگرم نیکوتین است
- Chewing tobacco: هر گرم از تنباکوی جویدنی حاوی 3 الی 39.7 میلیگرم نیکوتین است

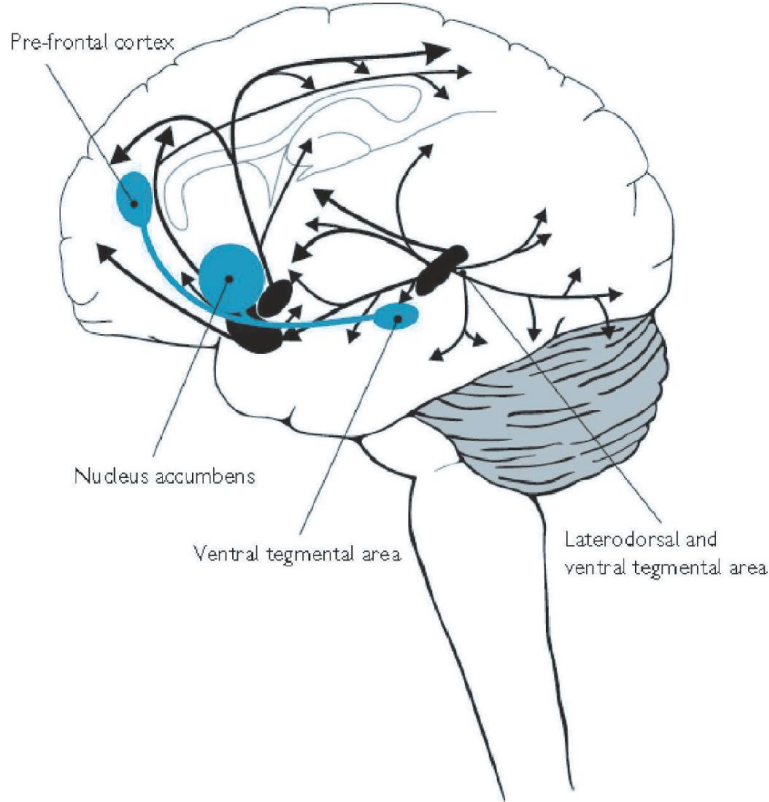


فارماکولوژی نیکوتین

- نیکوتین با اثر بر روی رسپتورهای استیل کولین باعث افزایش آزاد سازی نوروترنسمیترهای مختلف میشود:
 - اپی نفرین
 - نوراپی نفرین
 - دوپامین
 - گلوتامات؛ گابا؛ سروتونین



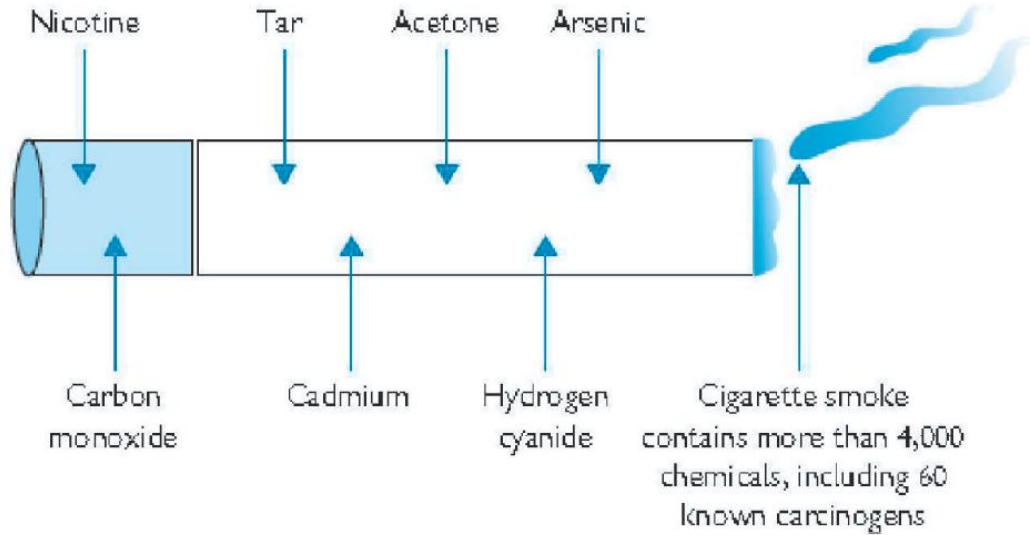
تداخل مسير هي كولينرژيک و دوپامينرژيک



- پاداش
- سرخوشي



سایر اجزای تنباکو و اثرات سمی آنها



تداخل داروها با تنباکو

القا کننده قوی آنزیمهای میکروزومال سیتوکروم P450 کبدی CYP1A1, CYP1A2 و احتمالاً CYP2E1
کاهش اثرات داروها
بیشتر تداخل داروها از نوع تداخلات فارماکوکینتیکی



نمونه تداخلات دارویی

آپرازولام

هپارین

پروپرانول

بنزودیازپین ها

وارفارین

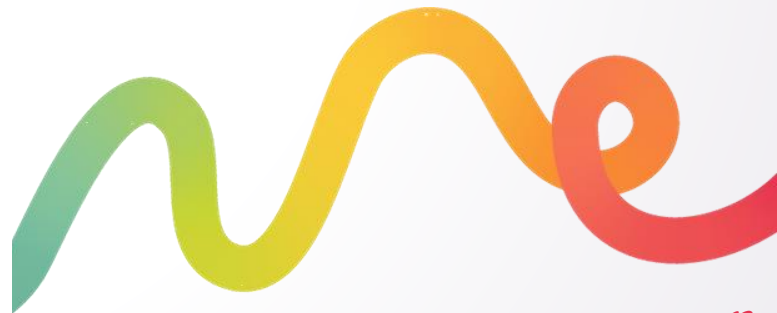
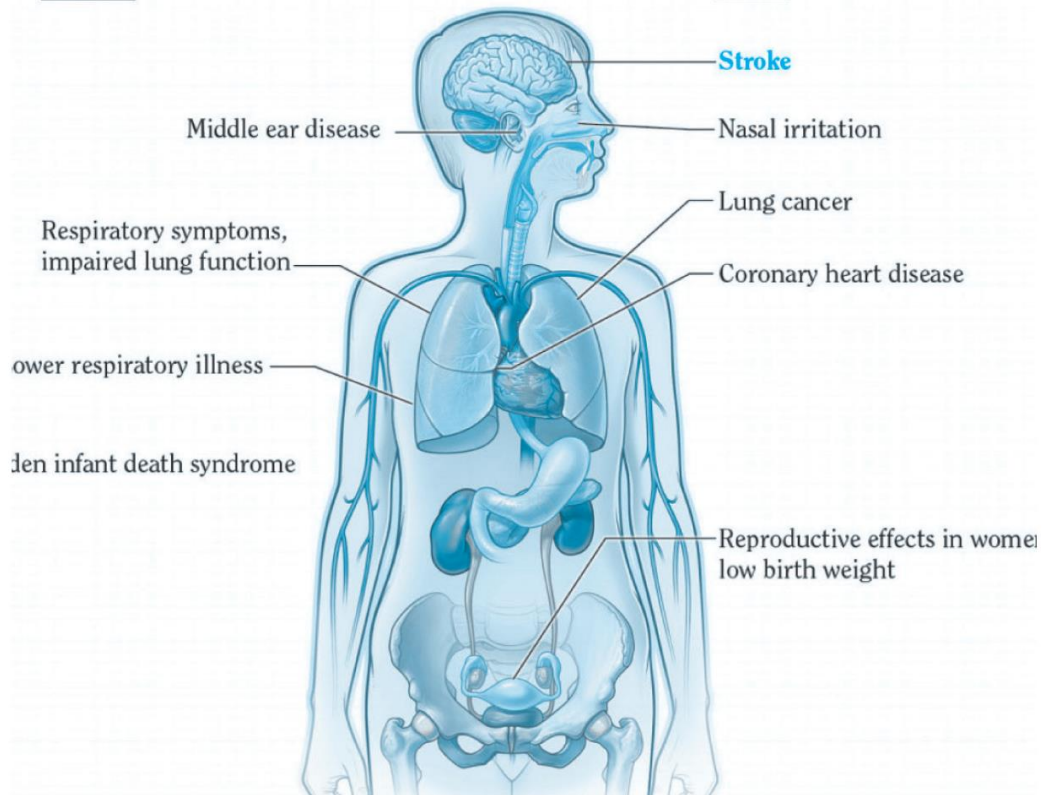
قرص های ضد بارداری خوراکی و



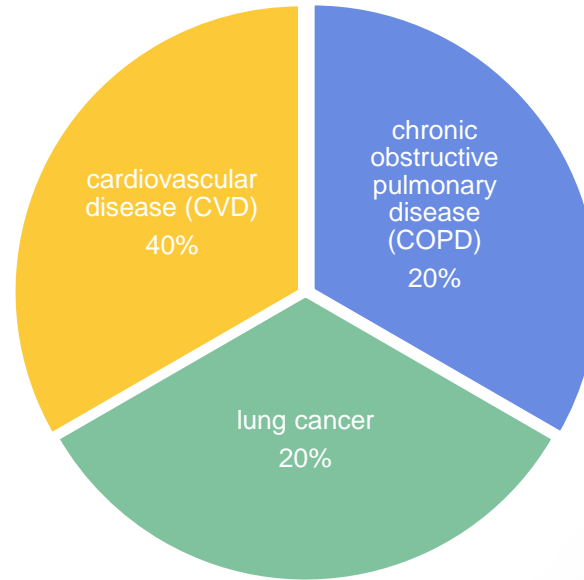
پیامدهای ناشی از قرار گرفتن در معرض دود دست دو سیگار بر روی سلامتی

Children

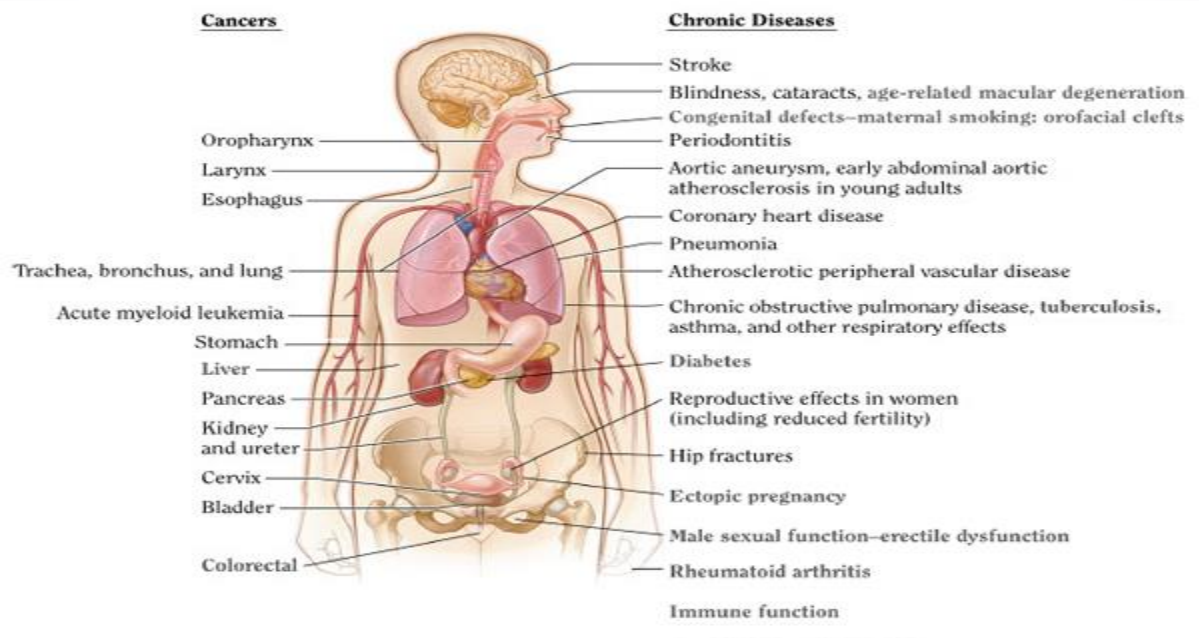
Adults



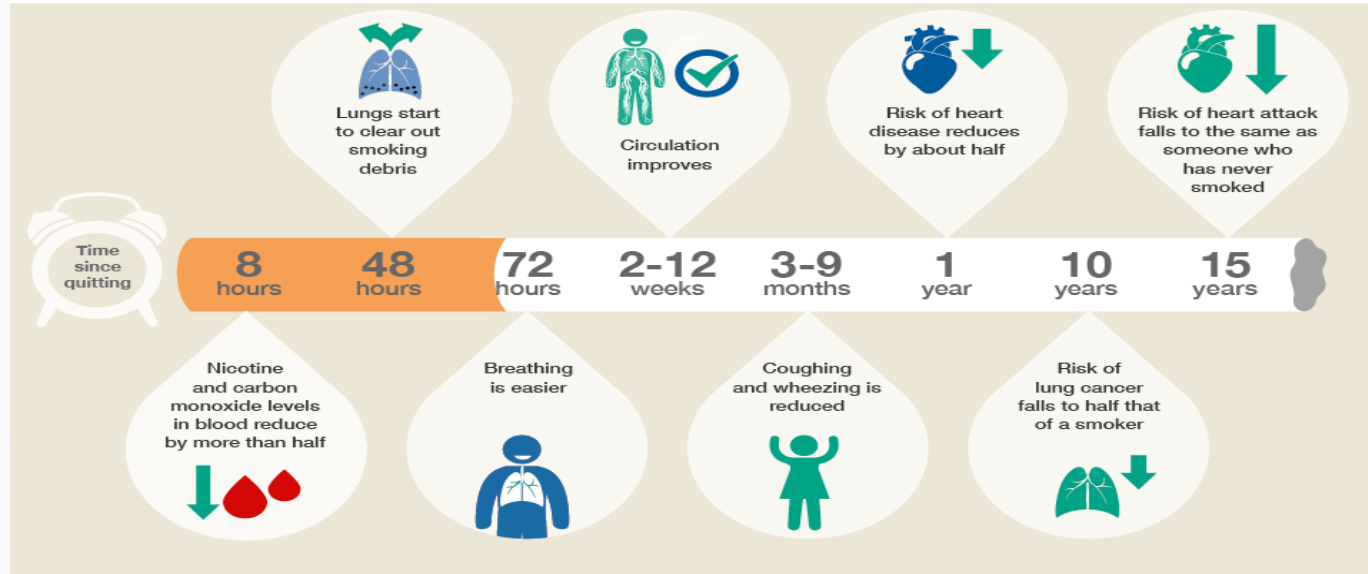
Nearly 80% of smoking- related morbidity and mortality are accounted for by three conditions:



SMOKING'S HEALTH CONSEQUENCES

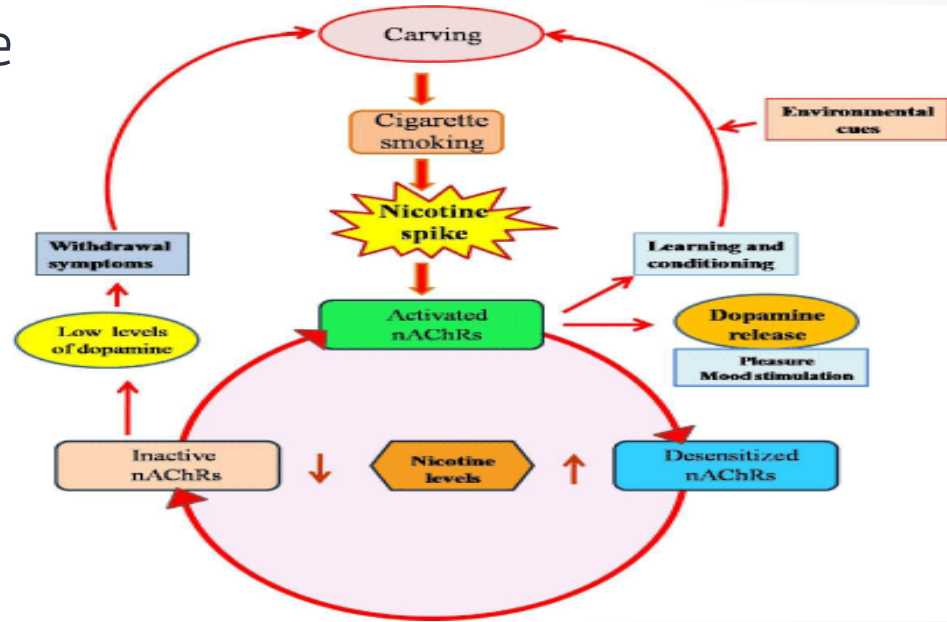


The health benefits of quitting



Nicotine dependence pathway:

- The primary reason that many smokers find it difficult to stop is their depe



Tobacco withdrawal symptoms



Assess nicotine dependence(Fagerstrom test for nicotine dependence)

	0	1	2	3
1.How soon after you wake up do you smoke your first cigarette?	After 60 mins	31-60 mins	6-30 mins	Within 5 mins
2. Do you find it difficult to refrain from smoking in places where it is forbidden (e.g., in church, at the library, in the cinema)?	no	yes		
3. Which cigarette would you hate most to give up?	All others	The first one in the morning		
4. How many cigarettes per day do you smoke?	10 or less	11-20	21-30	31 or more
5. Do you smoke more frequently during the first hours after waking than during the rest of the day?	no	yes		
6. Do you smoke when you are so ill that you are in bed	no	yes		

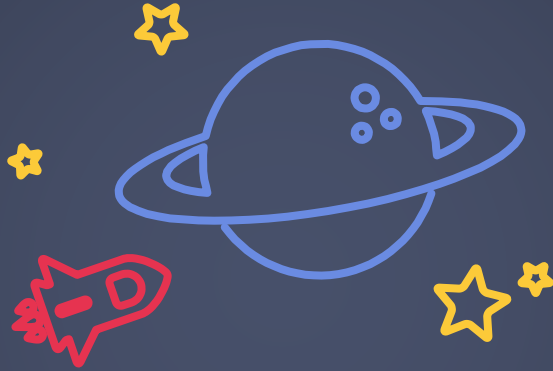
Total score _____ most of the day?

Low dependence (0 to 3 points)

Moderate dependence (4 to 6 points)

High dependence (7 to 10 points)

Smoking & covid-19



World health organization



A review:

- At the time of this review, the available evidence suggests that smoking is associated with increased **severity of disease and death** in hospitalized COVID-19 patients



Related WHO Recommendations

- Given the well-established harms associated with tobacco use and second-hand smoke exposure;² WHO recommends that tobacco users stop using tobacco.
- Proven interventions to help users quit include toll-free quit lines, mobile text-messaging cessation programmes, nicotine replacement therapies and other approved medications.





Smoking Cessation

part 2:

by:

Paria Baharvand

Pharm. D

(Board Certified Pharmacotherapy Specialist)

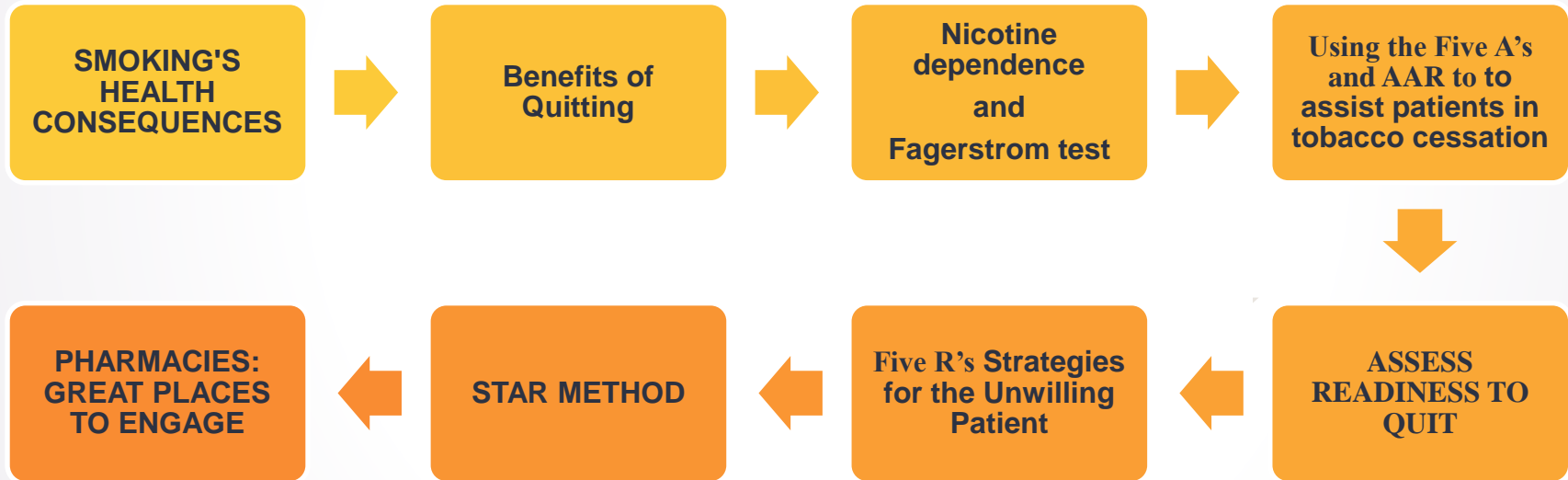
Learning Outcomes

At the end of this session, the learner is expected to:

- **Know the 5 A's, 5 R's, and the Condensed AAR Tobacco Intervention for assist patients in tobacco cessation**
- **Know Pharmacotherapy Options for assisting patients in tobacco cessation**
- **Know dosing informations, precautions, adverse effects and how to instructing patients based on drug of choice**
- **Know Effective smoke cessation treatments for specific populations**



Smoking cessation flowchart





*APPROACH
TO
SMOKING CESSATION*

Ask

What do you smoke?
How much do you smoke?
How long have you smoked?

Advise

Discuss harmful effects and
urge patient to quit

Assess

Willingness to Quit

Assist

Help create best plan for
quitting

Arrange

Follow up
If quitting, within 1
week of quit date

5 A's of Smoking Cessation



Ask. Advise. Refer.
Three minutes or less can save lives.

The transtheoretical model (TTM)



Precontemplation: Current smokers who are not planning on quitting smoking in the next 6 months



Contemplation: Current smokers who are planning on quitting smoking in the next 6 months but have not made a quit attempt in the past year



Preparation: Current smokers who are definitely planning to quit within next 30 days and have made a quit attempt in the past year

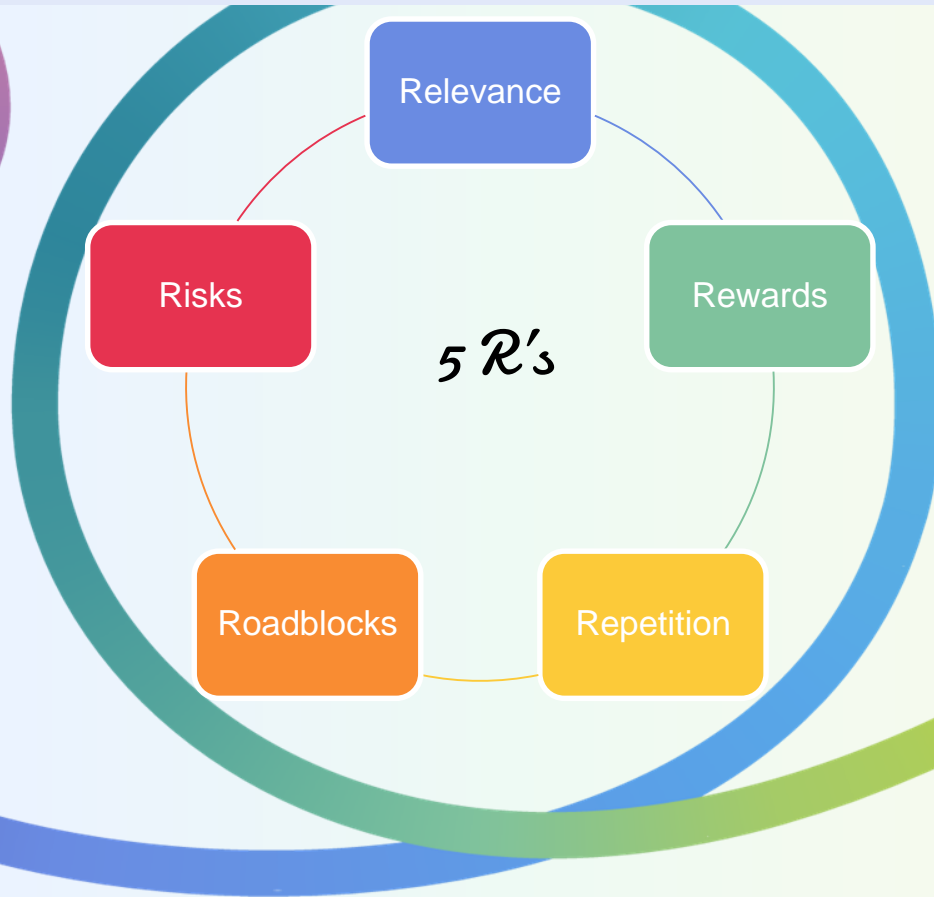


Action: Individuals who are not currently smoking and have stopped smoking within the past 6 months



Maintenance: Individuals who are not currently smoking and have stopped smoking for longer than 6 months but less than 5 years

Strategies for the Unwilling Patient



PREPARING FOR A QUIT DATE: THE “STAR” METHOD

The “STAR” method is a preparation process that should be used for patients actively seeking help to quit smoking.⁹ This allows the patient to start their initiative with a plan to transition to a non-smoking state.

- | |
|--|
| • <i>Set a quit date</i> |
| • <i>Tell friends, family, and co-workers</i> |
| • <i>Anticipate adherence challenges</i> |
| • <i>Remove tobacco products to prevent easy accessibility</i> |





*Pharmacologic
Therapy
for
Smoking
Cessation*

FDA-Approved Pharmacotherapy

Nicotine-replacement Therapy (NRT)

- Patch (OTC)
- Gum (OTC)
- Lozenge (OTC)
- Inhaler (Prescription)
- Nasal Spray
(Prescription)

Prescription Medications

- Bupropion
- Varenicline

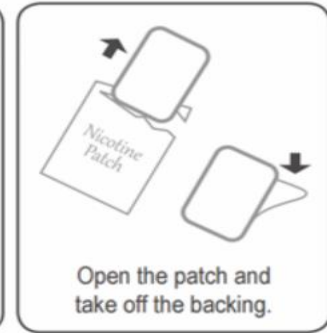
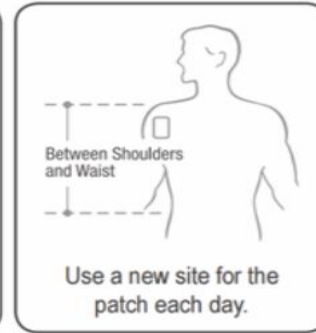
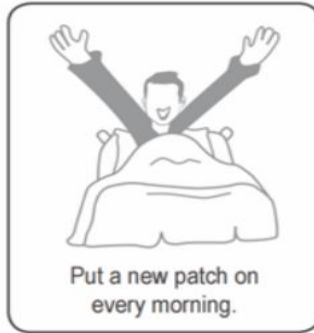
NRT IN IRAN DRUG LIST

نام دارو	شکل دارویی	مقدار دارو	راه مصرف	سطح دسترسی
Nicotine	spray	10 mg/ml	nasal	OTC medicines
Nicotine	patch, extended release	14mg/24h	transdermal	OTC medicines
Nicotine	patch, extended release	15 mg/16h	transdermal	OTC medicines
Nicotine	lozenge	2 mg	oral	OTC medicines
Nicotine	gum	2 mg	oral	OTC medicines
Nicotine	patch, extended release	21mg/24h	transdermal	OTC medicines
Nicotine	lozenge	4 mg	oral	OTC medicines
Nicotine	patch, extended release	7mg/24h	transdermal	OTC medicines



Drug	Product	Dosing	Administration†	Common adverse effects	Advantages	Disadvantages and precautions	Other notes
Nicotine patch	7 mg, 14 mg, 21 mg (24-hr release) 5-10-15 mg(16-hr)	21 mg for >10 cigarettes/day 14 mg for ≤10 cigarettes/day 7 mg used when tapering	<p>>10 cigarettes/day: 21 mg/day x 4–6 weeks 14 mg/day x 2 weeks 7 mg/day x 2 weeks</p> <p>≤10 cigarettes/day: 14 mg/day x 6 weeks 7 mg/day x 2 weeks</p> <p>• Rotate patch application site daily; do not apply a new patch to the same skin site for at least one week</p> <p>• May wear patch for 16 hours if patient experiences sleep disturbances (remove at bedtime)</p> <p>• Duration: 8–10 weeks</p>	<ul style="list-style-type: none"> Local skin reactions (erythema, pruritus, burning) Headache Sleep disturbances (insomnia, abnormal/vivid dreams); associated with nocturnal nicotine absorption 	Provides steady nicotine level Easiest nicotine product to use	<ul style="list-style-type: none"> Recent (≤ 2 weeks) myocardial infarction Serious underlying arrhythmias Serious or worsening angina pectoris Pregnancy⁴ (Rx formulations, category D) and breastfeeding Adolescents (<18 years) <p>User cannot alter nicotine level in case of craving</p>	If removed before bedtime, takes 0.5 to 3 hrs after reapplication to reach effective levels













INSTRUCTING PATIENTS IN THE USE OF NICOTINE PATCH



Drug	Product	Dosing	Administration†	Common adverse effects	Advantages	Disadvantages and precautions	Other notes
Nicotine gum	Nicorette ZONNIC 2 mg, 4 mg original, cinnamon, fruit, mint	2 mg for <25 cigarettes/day 4 mg for ≥25 cigarettes/day	One piece every hour Maximum: ≤24 pieces/day No food or drink for 30 min before and during use	Mouth irritation, jaw soreness, heartburn, hiccups, or nausea (gastrointestinal side effects usually due to overly vigorous chewing)	User controls nicotine dose Oral substitute for cigarettes	Unpleasant taste Can damage dental work Difficult for denture wearers to use	Proper chewing technique required (chew and park)
Nicotine lozenge	Nicorette Lozenge Nicorette Mini Lozenge, 2 mg, 4 mg; cherry, mint	2 mg if first cigarette ≥30 min after waking 4 mg if first cigarette <30 min after waking	One piece every one to two hours Maximum: Five lozenges/six hours 20 lozenges/day No food or drink for 30 min before and during use	Mouth irritation, hiccups, heartburn, or nausea	User controls nicotine dose Oral substitute for cigarettes Can be used by smokers with poor dentition or dentures	Unpleasant taste	




















INSTRUCTING PATIENTS IN THE USE OF Nicotine gum and lozenges

 <p>Take 1 piece of gum from the package.</p>	 <p>Put the gum in your mouth.</p>	 <p>Bite into gum. Chew it slowly until the gum tastes like pepper.</p>	 <p>Take a lozenge out of the package.</p>	 <p>Put the lozenge in your mouth.</p>	 <p>Suck the lozenge until it tastes like pepper.</p>
 <p>Put the gum between your cheek and teeth.</p>	 <p>Repeat when the taste goes away.</p>	 <p>30 mins Throw the gum away after 30 minutes.</p>	 <p>Rest the lozenge between your cheek and jaw.</p>	 <p>Repeat when the taste goes away and alternate sides when resting the lozenge.</p>	 <p>Do not chew or swallow.</p>

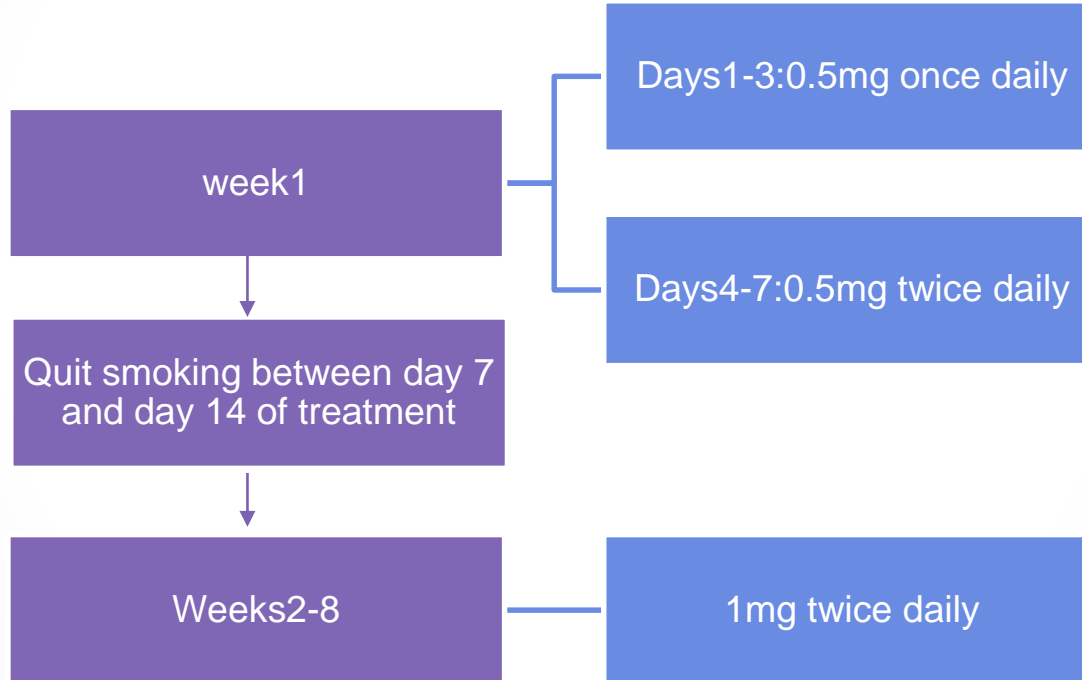
Drug	Product	Dosing	Administration†	Common adverse effects	Advantages	Disadvantages and precautions	Other notes
Nicotine inhaler	Nicotrol Inhaler 10 mg cartridge delivers 4 mg inhaled vapor	10 mg per cartridge	Inhale as needed (eg, every one to two hours) Maximum: 16 cartridges/day	Mouth and throat irritation	User controls nicotine dose Oral substitute for cigarettes	Device visible when being used Use caution in reactive airway disease	Frequent puffing required
Nicotine nasal spray	Nicotrol NS Metered spray 10 mg/mL aqueous solution	0.5 mg per spray (10 mg/mL)	Apply one spray to each nostril every one to two hours Maximum: 10 sprays/hour 80 sprays/day	Nasal and throat irritation, rhinitis, sneezing, cough, or teary eyes	User controls nicotine dose Most rapid delivery of nicotine among nicotine-replacement products	Local irritation to nasal mucosa is difficult for many to tolerate	

INSTRUCTING PATIENTS IN THE USE OF Nicotine inhaler and nasal spray

 <p>Take 1 cartridge out of the package.</p>	 <p>Put the cartridge into the inhaler device and push the pieces together.</p>	 <p>Twist so the markings do not line up.</p>
 <p>Gently draw air into your mouth through the inhaler.</p>	 <p>Puff into the cheeks, DO NOT inhale deeply.</p>	 <p>Hold the vapour in your mouth for a few seconds before breathing out.</p>

1 	2 	3 
4 	5 	6 
7 	8 	9  10  11 

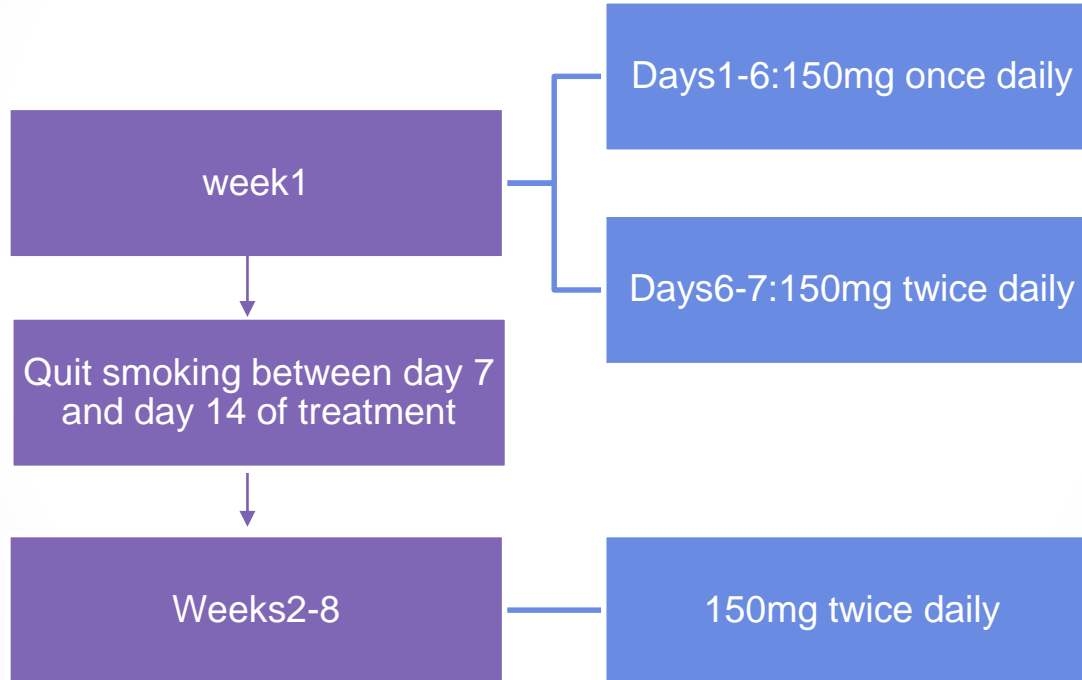
Varenicline Dosage regimen:



Varenicline summary drug information

Drug	product	Common adverse effects	Advantages	Disadvantages and precaution
Varenicline	Chantix 0.5 mg, 1mg tablet	Nausea, insomnia, abnormal dreams, headache, skin rash	Dual action: relieves nicotine withdrawal and blocks reward from smoking Oral agent	Reduced dose in several renal insufficiency Avoid in patient with unstable psychiatric status or history of suicidal ideation Monitor for neuropsychiatric symptom

Bupropion Dosage regimen:



Bupropion summary drug information

Drug	Product	Common adverse effects	Advantages	Disadvantages and precautions	Other notes
Bupropion sustained release	Zyban® 150 mg sustained-release tablet	Insomnia, agitation, dry mouth, headache	Blunts post cessation weight gain while being used Oral agent (pill)	Monitor for neuropsychiatric symptoms* Contraindicated in patients with seizure disorder or predisposition	A lower dose of 150 mg per day is an option for patients who do not tolerate the full dose

OTHER MEDICATIONS FOR SMOKE CESSATION(SECOND LINE)

Nortriptyline

Clonidine

Cytisine

Selective serotonin reuptake inhibitors (SSRIs)/anxiolytics

Mecamylamine

Naltrexone

(e-cigarettes) Electronic cigarettes

NicVAX



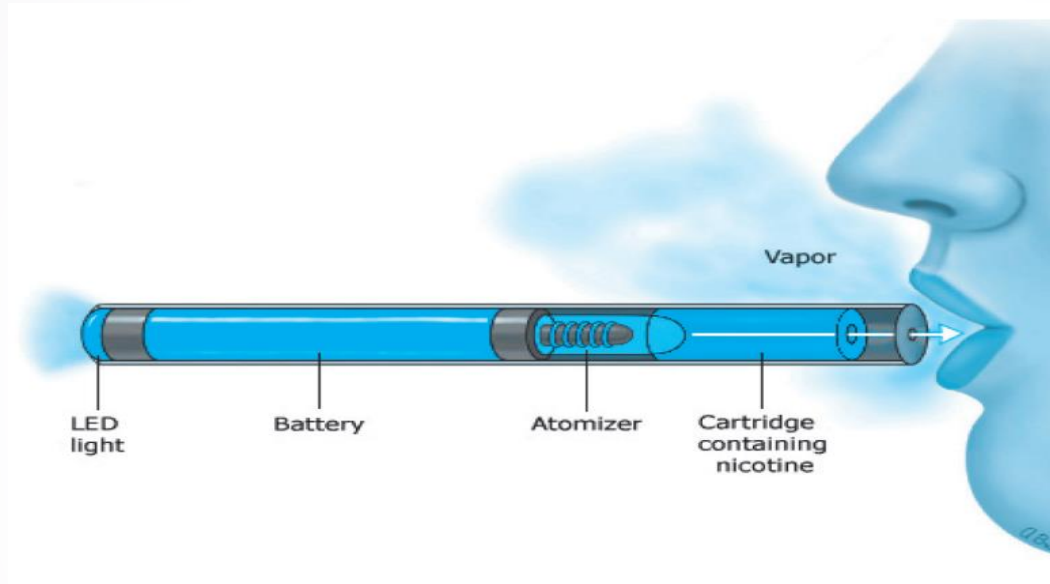
Clonidine as a second-line medication for smoke cessation

Dosage	Doses used in various clinical trials have varied significantly, from 0.15–0.75 mg/day by mouth and from 0.10–0.20 mg/day transdermal (TTS), without a clear dose-response relation to treatment outcomes. Initial dosing is typically 0.10 mg b.i.d. PO or 0.10 mg/day TTS, increasing by 0.10 mg/day per week if needed. The dose duration also varied across the clinical trials, ranging from 3–10 weeks.
Precautions, warnings, contraindications, and side effects	<p>Pregnancy : (Clonidine is an FDA pregnancy Class C agent.)</p> <p>lactation: Clonidine has not been evaluated in breastfeeding patients.</p> <p>Side effects : Most commonly reported side effects include dry mouth (40%), drowsiness (33%), dizziness (16%), sedation (10%), and constipation (10%). As an antihypertensive medication, clonidine can be expected to lower blood pressure in most patients. Therefore, clinicians should monitor blood pressure when using this medication.</p> <p>Rebound hypertension : When stopping clonidine therapy, failure to reduce the dose gradually over a period of 2–4 days may result in a rapid increase in blood pressure, agitation, confusion, and/or tremor.</p>
Availability	Oral – Tab 0.1 mg
Prescribing instructions	<p>Initiate – Initiate clonidine shortly before (up to 3 days), or on the quit date.</p> <p>Dosing information – If the patient is using transdermal clonidine, at the start of each week, he or she should place a new patch on a relatively hairless location between the neck and waist. Users should not discontinue clonidine therapy abruptly.</p>

Nortriptyline as a second-line medication for smoke cessation

Dosage	Doses used in smoking cessation trials have initiated treatment at a dose of 25 mg/day, increasing gradually to a target dose of 75–100 mg/day. Duration of treatment used in smoking cessation trials has been approximately 12 weeks, although clinicians may consider extending treatment for up to 6 months.
Precautions, warnings, contraindications, and side effects	<p>Pregnancy : (Nortriptyline is an FDA pregnancy Class D agent.)</p> <p>Lactation: Nortriptyline has not been evaluated in breastfeeding patients.</p> <p>Side effects : Most commonly reported side effects include sedation, dry mouth (64–78%), blurred vision (16%), urinary retention, lightheadedness (49%), and shaky hands (23%).</p> <p>Activities – Nortriptyline may impair the mental and/or physical abilities required for the performance of hazardous tasks, such as operating machinery or driving a car; therefore, the patient should be warned accordingly.</p> <p>Cardiovascular and other effects – Because of the risk of arrhythmias and impairment of myocardial contractility, use with caution in patients with cardiovascular disease. Do not co-administer with MAO inhibitors.</p>
Availability	Nortriptyline HCl – prescription only. tab: 10, 25, 50 mg
Prescribing instructions	<p>Initiate – Therapy is initiated 10–28 days before the quit date to allow nortriptyline to reach steady state at the target dose.</p> <p>Therapeutic monitoring – Although therapeutic blood levels for smoking cessation have not been determined, therapeutic monitoring of plasma nortriptyline levels should be considered under American Psychiatric Association Guidelines for treating patients with depression. Clinicians may choose to assess plasma nortriptyline levels as needed.</p> <p>Dosing information – Users should not discontinue nortriptyline abruptly because of withdrawal effects. Overdose may produce severe and life-threatening cardiovascular toxicity, as well as seizures and coma. Risk of overdose should be considered carefully before using nortriptyline.</p>

(e-cigarettes) Electronic cigarettes



Combination Therapy for Tobacco Dependence

If single agent is insufficient to achieve abstinence:

Combine categories of FDA-approved drugs:

Varenicline+NRT

Varenicline + Bupropion

Bupropion + NRT

NRT+ Nortriptyline





*Considerations
for
special populations*

Smoking Cessation in Pregnancy :

- ❖ For all pregnant individuals who are smokers, we recommend :
- ❖ A behavioral counseling program (Grade 1B).
- ❖ For pregnant individuals who are heavy smokers or are unable to quit with behavioral counseling alone, we suggest adjunctive pharmacotherapy with nicotine replacement therapy (NRT) (Grade 2C).
- ❖ Bupropion is a reasonable alternative to NRT as adjunctive pharmacotherapy. The safety data for NRT are from more robustly designed studies compared with bupropion (trial versus observational data).
- ❖ We do not use varenicline for smoking cessation in pregnant women because of the lack of safety information. .

Smoking Cessation in Lactation :

- ❖ The optimal medication for smoking cessation in breastfeeding women is not known.
- ❖ For women who used medication during pregnancy, we continue the same drug postpartum.
- ❖ For women who wish to start a medication while breastfeeding, we discuss the risks and benefits of each medication based on the limited available data and ask the patient to participate in the medication selection.
- ❖ **NRT or bupropion are preferred over varenicline** in breastfeeding women, particularly for newborn or preterm infant.

Cardiovascular disease

	Outpatient With Stable CVD	Inpatient With ACS
1st line	Varenicline OR combination NRT*	<i>In-hospital to relieve nicotine withdrawal:</i> Nicotine patch OR combination NRT* <i>At discharge:</i> Combination NRT or varenicline†
2nd line	Bupropion OR single NRT product	<i>At discharge:</i> Single NRT product
3rd line	Nortriptyline‡	Bupropion§
If single agent is insufficient to achieve abstinence	Combine categories of FDA-approved drugs: Varenicline + NRT (single agent) Varenicline + bupropion Bupropion + NRT (single agent)	n/a

*Combination NRT comprises a nicotine patch plus the patient's choice of nicotine gum or lozenge or inhaler or spray.

†Some committee members planning to use varenicline would start it in-hospital; others would not start until discharge. Regardless, continue nicotine patch or short-acting form for 1 week to manage nicotine withdrawal symptoms during up-titration of varenicline dose.

‡Nortriptyline is not FDA-approved for smoking cessation indication and there are few data on use in patients with CVD.

§Bupropion is listed as 3rd line because of no evidence of efficacy when started during hospitalization for acute ACS or acute MI. However, there are no special safety concerns for bupropion in this setting.

ACS = acute coronary syndromes; CVD = cardiovascular disease; FDA = U.S. Food and Drug Administration; MI = myocardial infarction; NRT = nicotine replacement therapy.

Psychiatric illness

- **Depression :**

- For patients with mild untreated depression, [bupropion](#) is theoretically an attractive first-line agent since it has the ability to treat both depression and smoking.
- While we consider [varenicline](#) a safe option in smokers with stable depression who do not have a history of suicidal ideation, there are limited data in this population.

- **Schizophrenia :**

- [Bupropion](#) or [varenicline](#) are considered first-line therapies for smoking cessation in patients with schizophrenia. There was no difference in psychiatric symptoms; however, there were reports of suicidal ideation and behavior in two patients taking varenicline.

- **Bipolar disorder:**

- Nicotine replacement may be a good first-line choice for patients with bipolar disorder. Antidepressant therapy may trigger mania in patients with bipolar disorder. For this reason, we avoid [bupropion](#) in smokers with bipolar disorder. While [varenicline](#) appeared to be safe in the study cited above, this was a small study in selected patients who were followed closely

A decorative graphic featuring a central teal circle with the text "FOLLOW-UP" inside. Surrounding the circle are several thick, colorful lines in shades of red, orange, yellow, green, blue, and purple, which swirl and loop around the central circle. The background is a light, pastel gradient.

FOLLOW-UP

1-Timing

2-Assessment for persistent smoking

Incorrect use of medication(s)

Intolerance of side effects

Persistent nicotine withdrawal symptoms, despite correct use of the medication

3-Duration of pharmacotherapy

4-Management of relapse



Thanks!

Any questions?

