



Clinician Approaches to Tobacco Cessation

Lindsey Lee, PharmD, BCACP
Clinical Pharmacist - Ambulatory Care
The Ohio State University Wexner Medical Center

MedNet21
Center for Continuing Medical Education

 **THE OHIO STATE UNIVERSITY**
WEXNER MEDICAL CENTER

Objectives

- Understand the health impacts of tobacco use
- Assess patient readiness to quit
- Apply evidence-based cessation strategies and interventions for nicotine dependence
- Implement appropriate treatment and follow up protocols to enhance patient adherence and reduce relapse

Prevalence and Impact

- In 2022, 49.2 million (19.8%) of U.S. adults reported current tobacco product use
- Over 16 million Americans live with a smoking-related disease
- Smoking and smoke exposure cause over 480,000 deaths in the U.S. each year

Cigarette smoking. Centers for Disease Control and Prevention. Published January 6, 2025. Accessed April 4, 2025. <https://www.cdc.gov/tobacco/about/index.html>.

Trends in tobacco and nicotine use

- Cigarette smoking has declined over the past decades
 - Highest prevalence among adults aged 45-64 years
- E-cigarette use among adults increased between 2019-2022
 - Highest prevalence among adults aged 18-24 years

Current cigarette smoking among adults in the United States. Centers for Disease Control and Prevention. Published September 13, 2024. Accessed April 4, 2025. <https://www.cdc.gov/tobacco/php/data-statistics/adult-data-cigarettes/index.html>.



Assessing a Patient

MedNet21
Center for Continuing Medical Education

 **THE OHIO STATE UNIVERSITY**
WEXNER MEDICAL CENTER

The 5 A's

Ask	<ul style="list-style-type: none">• About tobacco use status
Advise	<ul style="list-style-type: none">• To quit
Assess	<ul style="list-style-type: none">• Willingness to make a quit attempt
Assist	<ul style="list-style-type: none">• Offer medications and provide counseling
Arrange	<ul style="list-style-type: none">• Follow-up

Five major steps to intervention (The "5 A's"). Agency for Healthcare Research and Quality. Accessed April 4, 2025. <https://www.ahrq.gov/prevention/guidelines/tobacco/5steps.html>.

Ask about tobacco use status

- Do you currently use any tobacco or nicotine products?
- What kind of tobacco or nicotine products do you use?
- When did you start using these products?
- How often do you use these products?

Types of Nicotine/Tobacco Products

Cigarettes

Electronic
cigarettes
(vapes)

Smokeless
tobacco

Cigars

Hookah

Nicotine gels,
dissolvables,
pouches

Evaluating Pack Years

- One pack year is equivalent of smoking an average of 1 pack (20 cigarettes) per day for a year

$$\frac{\begin{array}{c} \text{Number of years smoked} \\ \times \\ \text{Average number of packs per day} \end{array}}{\text{Pack Years}}$$

Evaluating Average Nicotine Content

Cigarettes	• 1.1-1.8 mg (22-36 mg/pack)
Cigars	• 13.3-15.4 mg/cigar
Mini-cigars	• 3.8 mg/cigar (76 mg/pack)
Smokeless tobacco	• 88-144 mg/can or pouch
E-cigarettes	• Varies; 5% pod is 50 mg/mL
Nicotine pouches	• Varies; average user consumes 8-12 pouches/day

Essenmacher. Nicotine content in tobacco products. University of Florida. Published November 9, 2012. Accessed April 4, 2025. https://sntc.medicine.ufl.edu/Content/Webinars/SupportingDocs/3031-Essenmacher_-_Handout_1.pdf

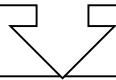
ZYN 101: What to know about big tobacco's latest addiction. American Lung Association. Published July 31, 2025. Accessed April 4, 2025. <https://www.lung.org/blog/zyn-nicotine-addiction>

Advise to quit

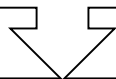
Quitting smoking is
one of the best things
you can do for your
health.

Assess willingness to quit

Desire to quit today on a scale of 1-10



Motivations to quit



Concerns about quitting

Assist with quit attempt

- Fagerström Test for Nicotine Dependence
 - Assesses intensity of physical addiction to nicotine
 - Higher score = more intense physical dependence
 - Six questions that evaluate quantity of cigarette consumption, compulsion to use, and dependence

Heatherton TF, Kozlowski LT, Frecker RC, Fagerstrom K. The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. British Journal of Addiction 1991;86:1119-1127.

Fagerström Test

Question	Answer	Points
How soon after waking do you smoke your first cigarette?	Within 5 minutes	3
	5-30 minutes	2
	31-60 minutes	1
Do you find it difficult to refrain from smoking in places where it is forbidden?	Yes	1
	No	0
Which cigarette would you hate most to give up?	The first one in the morning	1
	Any other	0

Heatherton TF, Kozlowski LT, Frecker RC, Fagerstrom K. The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. British Journal of Addiction 1991;86:1119-1127.

Fagerström Test (continued)

Question	Answer	Points
How many cigarettes per day do you smoke?	10 or less	0
	11 to 20	1
	21 to 30	2
	31 or more	3
Do you smoke more frequently during the first after waking then during the rest of the day?	Yes	1
	No	0
Do you smoke when you are so ill that you are in bed most of the day?	Yes	1
	No	0

Heatherton TF, Kozlowski LT, Frecker RC, Fagerstrom K. The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. British Journal of Addiction 1991;86:1119-1127.

Fagerström Test (continued)

Score	Dependence Level
1-2	Low
3-4	Low to moderate
5-7	Moderate
8+	High

Fagerstrom Test for Nicotine Dependence. American Association for Respiratory Care. Accessed April 4, 2025. https://www.aarc.org/wp-content/uploads/2014/08/Fagerstrom_test.pdf



Clinician Approaches to Tobacco Cessation

Suzanne Higginbotham, PharmD, BCACP, CDCES

Clinical Pharmacist - Ambulatory Care

The Ohio State University Wexner Medical Center

MedNet21
Center for Continuing Medical Education

 **THE OHIO STATE UNIVERSITY**
WEXNER MEDICAL CENTER



Pharmacotherapy for Nicotine Dependence

MedNet21
Center for Continuing Medical Education

 **THE OHIO STATE UNIVERSITY**
WEXNER MEDICAL CENTER

First Line Therapy

- FDA-approved smoking cessation medications considered as first-line therapy
 - Varenicline
 - Bupropion SR
 - Nicotine replacement therapy (NRT)
 - Nicotine patch
 - Short-acting nicotine-replacement formulations
 - Gum
 - Lozenges
 - Nasal Spray*

Varenicline

Dosage	Days 1 to 3: 0.5 mg once daily Days 4 to 7: 0.5 mg twice daily
Duration	12 weeks up to one year
Start date	Fixed, flexible, or gradual quit approach
Common Side Effects	Nausea (may persist for several months), stomach pain, indigestion, constipation, gas, vomiting, headaches, dry mouth, insomnia, vivid dreams
Precautions for Use	Pregnancy, cardiovascular disease, changes in mood, altered kidney function

Lexi-Comp. Hudson, OH: Lexi-Comp, Inc. c1978-2011. [cited 2025 March 30].

Varenicline

Fixed Quit Approach	Flexible Quit Approach	Gradual Quit Approach
<ul style="list-style-type: none"> Varenicline therapy is started Quit date: 1 week after starting therapy (day 8) 	<ul style="list-style-type: none"> Varenicline therapy is started Quit date: 1 month after starting therapy (days 8-35) 	<ul style="list-style-type: none"> Varenicline therapy is started Advise patient to reduce smoking by 50% during first 4 weeks of therapy; reduce 50% further weeks 5-8; further reduction weeks 9-12 Quit date: 12 weeks after starting therapy

Chantix® (varenicline) prescribing information. Available at: http://media.pfizer.com/files/products/uspi_chantix.pdf. Accessed March 18 2025.

Bupropion

Dosage	Bupropion SR 150 mg in the morning for 3 days then 150 mg twice daily thereafter
Duration	Usually 12 weeks (may use up to 6 months)
Start date	1-2 weeks prior to quit date
Common Side Effects	Insomnia, dry mouth, nausea, anxiety, agitation, and dizziness
Precautions for Use	Pregnancy, cardiovascular disease
Contraindications	Seizures, eating disorders, use with MAOIs within 14 days

Zyban (bupropion) [package insert]. Research Triangle Park, NC: GlaxoSmithKline; 2011

Bupropion Clinical Pearls

- Effective for patients with a history of depression
- If insomnia occurs, take 2nd dose 8 hours after first dose
- May delay weight gain (does not prevent)

Zyban (bupropion) [package insert]. Research Triangle Park, NC: GlaxoSmithKline; 2011

Black Box Warning Removed

- Updated 12-16-2016
- Based on review of large clinical trial, FDA determined the risk of serious side effects on mood, behavior, or thinking of use of varenicline and bupropion is lower than previously suspected
 - Risk of mental health side effects is still present, especially in those currently being treated for mental illnesses such as depression, anxiety disorders, or schizophrenia, or who have been treated for mental illnesses in the past
 - Prescribing information now listed as a precaution
 - Benefits of stopping smoking outweigh the risks of these medicines

Research C for DE and. FDA Drug Safety Communication: FDA revises description of mental health side effects of the stop-smoking medicines Chantix (varenicline) and Zyban (bupropion) to reflect clinical trial findings. FDA. Published online February 9, 2019. <https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-fda-revises-description-mental-health-side-effects-stop-smoking>

Nicotine Patch

Dosage	<p>Smoking >10 cigarettes/day</p> <ul style="list-style-type: none"> • Begin with step 1 (21 mg/day) for 6 weeks, followed by step 2 (14 mg/day) for 2 weeks; finish with step 3 (7 mg/day) for 2 weeks <p>Smoking ≤10 cigarettes/day</p> <ul style="list-style-type: none"> • Begin with step 2 (14 mg/day) for 6 weeks, followed by step 3 (7 mg/day) for 2 weeks
Duration	10 weeks
Start date	On quit date
Common Side Effects	Local skin reactions, insomnia, vivid dreams
Precautions for Use	Pregnancy, cardiovascular disease

Lexi-Comp. Hudson, OH: Lexi-Comp, Inc. c1978-2011. [cited 2025 March 30].

Nicotine Patch-Clinical Pearls

- Treat skin reactions with steroid cream and rotate patch site
- Recommended wear time for patch is 24 hours
 - If vivid dreams occur, take off prior to bed (wear for 16 hours)
 - Apply new patch at start of new day
- If patch comes off, place back on and never occlude patch (tape around)

Lexi-Comp. Hudson, OH: Lexi-Comp, Inc. c1978-2011. [cited 2025 March 30].

Nicotine Gum

Dosage	4 mg if smoking within 30 minutes of waking 2 mg if smoking > 30 minutes of waking
Duration	6-14 weeks or longer
Start date	On quit date
Common Side Effects	Mouth soreness, hiccups, dyspepsia, jaw ache
Precautions for Use	Pregnancy, cardiovascular disease

Lexi-Comp. Hudson, OH: Lexi-Comp, Inc. c1978-2011. [cited 2025 March 30].

Nicotine Gum-Clinical Pearls

- Chew and Park method
 - Gum should be chewed slowly until a “peppery” taste emerges
 - Park between cheek and gum for nicotine absorption through oral mucus
 - When tingling fades, gum can be chewed again until tingling returns
 - Process should be repeats for ~ 30 minutes until tingling is almost gone
- Avoid drinking for 15 minutes prior to chewing
- Effective dose is one piece every 1-2 hours for at least 1-3 months
- Maximum recommended dose is 24 pieces/day
- 4 mg may delay weight gain (not prevent)

Lexi-Comp. Hudson, OH: Lexi-Comp, Inc. c1978-2011. [cited 2025 March 30].

Nicotine Lozenge

Dosage	4 mg if smoking within 30 minutes of waking 2 mg if smoking > 30 minutes of waking
Duration	12 weeks
Start date	On quit date
Common Side Effects	Nausea, hiccups, heartburn, headache, and coughing
Precautions for Use	Pregnancy, cardiovascular disease

Lexi-Comp. Hudson, OH: Lexi-Comp, Inc. c1978-2011. [cited 2025 March 30].

Nicotine Lozenge-Clinical Pearls

- Lozenge should be dissolved in mouth rather than chewed or swallowed
- Avoid drinking for 15 minutes prior to use
 - Acidic beverages interfere with buccal absorption of nicotine
- Effective dose is one lozenge every 1-2 hours during first 6 weeks of treatment
 - Decrease to 2-4 hours weeks 7-9
 - Decrease to 4-8 hours weeks 10-12
- Maximum recommended dose is 20 lozenges/day
- 4 mg may delay weight gain (not prevent)

Lexi-Comp. Hudson, OH: Lexi-Comp, Inc. c1978-2011. [cited 2025 March 30].

Combination Therapy

- Certain combinations of first-line medications have been shown to be effective smoking cessation treatments
 - Long-term (> 14 weeks) nicotine patch (18-24 weeks in trials) + other NRT (gum, lozenge, spray) as needed for minimum of 26 weeks
 - Nicotine patch (10 weeks) + bupropion SR (12 weeks)
 - **Only the patch + bupropion combination has been approved by the FDA for smoking cessation**

Fiore MC, Jaen CR, Baker TB, Bailey WC, Benowitz NL, Curry SJ, et al. Clinical practice guideline. Treating tobacco use and dependence: 2008 update. Rockville, MD: US Department of Health and Human Services, Public Health Service; 2008. Available from: [Treating Tobacco Use and Dependence | Agency for Healthcare Research and Quality \(ahrq.gov\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2686161/)

Combination Therapy

- Improves efficacy by
 - Combining passive nicotine delivery with another that permits ad libitum nicotine delivery
- Dose patch as described according to cigarette use per day
 - Add 2 mg gum, 2 mg lozenge, or nicotine nasal spray for ad lib
- The goal is to minimize need for short-acting NRT dosing

Fiore MC, Jaen CR, Baker TB, Bailey WC, Benowitz NL, Curry SJ, et al. Clinical practice guideline. Treating tobacco use and dependence: 2008 update. Rockville, MD: US Department of Health and Human Services, Public Health Service; 2008. Available from: [Treating Tobacco Use and Dependence | Agency for Healthcare Research and Quality \(ahrq.gov\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2686161/)

Selection of Agent

Out of pocket
expense

Prior successful or
past use

Level of nicotine
dependence

Pregnancy status

Past medical
history, including
cardiovascular
disease

Potential drug
interactions



Clinician Approaches to Tobacco Cessation

Lindsey Lee, PharmD, BCACP
Clinical Pharmacist - Ambulatory Care
The Ohio State University Wexner Medical Center

Second Line Therapy

*off-label agents; not FDA approved for smoking cessation

Drug	Dosing	Clinical Pearls
Nortriptyline*	Initial dose: 25 mg at bedtime. Titrate as tolerated up to 75 mg daily. Can consider further titration up to 125 mg/day if needed.	-Begin at least 2 weeks before quit date. -Continue for at least 12 weeks, but up to 1 year. -Anticholinergic side effects
Clonidine*	Initial Dose: 100 mcg by mouth twice daily. Titrate up to max 400 mcg/day	-Begin at least 48-72 hours before quit date -Use in acute nicotine withdrawal and then taper off -Sedation, dry mouth, hypotension

Barua R, Rigotti N, Benowitz N, et al. 2018 ACC Expert Consensus Decision Pathway on Tobacco Cessation Treatment: a report of the American College of Cardiology Task Force on clinical expert consensus documents. *JACC*. 2018; 72(25):3332–3365.

Gourlay S, Stead L, Benowitz N. Clonidine for smoking cessation. *Cochrane Database Syst Rev*. 2004(3):CD000058. doi:10.1002/14651858.CD000058.pub2

Sadovsky R. Pharmacologic treatment to help with smoking cessation. *Am Fam Physician*. 2002;66(3):498-501

Special Populations: Pregnant Patients

- Smoking during pregnancy increases risk of preterm birth, low birth weight, and stillbirth death
- Behavioral modification recommended
- Evidence to support pharmacotherapy is limited
 - Most NRT studies in pregnancy showed benefit, but no statistically significant increase in cessation was seen. Limited evidence on harms (slight increased diastolic blood pressure, skin reactions)
 - Limited studies on bupropion or varenicline for tobacco smoking cessation in pregnancy
- Consider severity of tobacco dependence and use shared decision-making

Tobacco smoking cessation in adults, including pregnant persons: interventions. U.S. Preventive Services Task Force. Published January 2021. Accessed April 4, 2025. <https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/tobacco-use-in-adults-and-pregnant-women-counseling-and-interventions>

Special Populations: Non-Cigarette Tobacco and Nicotine Use

Less well-
established
evidence for
pharmacotherapy

Should not
discourage use
where clinically
appropriate

Barua R, Rigotti N, Benowitz N, et al. 2018 ACC Expert Consensus Decision Pathway on Tobacco Cessation Treatment: a report of the American College of Cardiology Task Force on clinical expert consensus documents. *JACC*. 2018; 72(25):3332–3365.
Fucito L, Baldassarri S, Baker N, et al. Varenicline for e-cigarette cessation in adults: a preliminary placebo-controlled randomized trial. *Am J Prev Med*. 2024;67(2):292-298.
<https://doi.org/10.1016/j.amepre.2024.04.007>



Clinician Approaches to Tobacco Cessation

Suzanne Higginbotham, PharmD, BCACP, CDCES

Clinical Pharmacist - Ambulatory Care

The Ohio State University Wexner Medical Center



Preventative Care

MedNet21
Center for Continuing Medical Education

THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

Lung Cancer Screening

United States Preventive Services Task Force (USPSTF) Recommendations (Grade B)

- **Criteria**
 - Adults aged 50 to 80 years with 20 pack-year smoking history + currently smoke
- OR**
- Have quit within the past 15 years
- **Recommendation**
 - Screen for lung cancer with low-dose computed tomography (CT) annually
 - Stop screening once a person has not smoked for 15 years or has a health problem that limits life expectancy or the ability to have lung surgery

Recommendation: Lung Cancer: Screening | United States Preventive Services Taskforce. www.uspreventiveservicestaskforce.org. Accessed August 1, 2021.
<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/lung-cancer-screening#:~:text=The%20USPSTF%20recommends%20annual%20screening%20for%20lung%20cancer>

Abdominal Aortic Aneurysm (AAA)

USPSTF recommendation (Grade B)

- Criteria
 - Men aged 65 to 75 who have ever smoked
- Recommendation
 - 1-time screening for AAA with ultrasonography

Guirguis-Blake JM, Beil TL, Senger CA, et al. Primary care screening for abdominal aortic aneurysm: updated systematic review for the US Preventive Services Task Force. Evidence synthesis no. 184. AHRQ publication no. 19-05253-EF-1. Agency for Healthcare Research and Quality; 2019.

Vaccines

- Pneumococcal conjugate vaccine vaccination
 - Adults 19 - 49 years who smoke cigarettes should receive 1 dose of PCV20 or PCV21
 - Adults 50 years of age or older who have not received a pneumococcal conjugate vaccine ~or~
 - Whose previous vaccine history is unknown

COVID-19 vaccination

- Individuals who smoke are recommended to receive the COVID-19 vaccination
- All persons aged ≥ 6 months should receive the updated 2023-2024 COVID-19 vaccine

Influenza vaccination

- Annual vaccination is recommended for all persons aged 6 months and older

Centers for Disease Control and Prevention. Adult Immunization Schedule: United States, 2024.



Clinician Approaches to Tobacco Cessation

Lindsey Lee, PharmD, BCACP
Clinical Pharmacist - Ambulatory Care
The Ohio State University Wexner Medical Center

MedNet21
Center for Continuing Medical Education

 **THE OHIO STATE UNIVERSITY**
WEXNER MEDICAL CENTER



Behavioral Modifications

MedNet21
Center for Continuing Medical Education

 **THE OHIO STATE UNIVERSITY**
WEXNER MEDICAL CENTER

The STAR Method

Set a quit date

Tell family and friends

Anticipate challenges

Remove tobacco products

Toolkit for delivering the 5A's and 5R's brief tobacco interventions in primary care. World Health Organization. Accessed April 4, 2025. https://iris.who.int/bitstream/handle/10665/112835/9789241506953_eng.pdf

Barriers

Cost of NRT

- State Quitlines

Lack of support

- 1-800-QUIT-NOW
- SmokefreeTXT

Spending time with others who smoke

- Discuss intent and quit plan

Withdrawal symptoms

- Modify medications and consider extending use

Barua R, Rigotti N, Benowitz N, et al. 2018 ACC Expert Consensus Decision Pathway on Tobacco Cessation Treatment: a report of the American College of Cardiology Task Force on clinical expert consensus documents. *JACC*. 2018; 72(25):3332–3365.

Common triggers and coping strategies

Hand to mouth/oral fixation

- Toothpicks, straws, mints, fidget devices

Coffee

- Switch flavoring
- Drink coffee in different spot

After meals

- Brush teeth
- Clean up after eating
- Go on a walk

Common triggers and coping strategies

Relaxing at home

- Set out limited number of cigarettes

Stress

- Listen to music, play video games, breathing exercises
- Call a loved one

Upon waking

- Store cigarettes out of sight
- Use nicotine lozenge or gum

Benefits of quitting smoking

Length of time after quitting	Benefits
Minutes	Heart rate drops
Several days	Carbon monoxide level drops to level of someone who doesn't smoke
1-12 months	Coughing and shortness of breath decrease
1 to 2 years	Risk of heart attack drops
3 to 6 years	Risk of coronary heart disease drops by half

Benefits of quitting smoking. Centers for Disease Control and Prevention. Published May 15, 2024. Accessed April 4, 2025. <https://www.cdc.gov/tobacco/about/benefits-of-quitting.html>

Benefits of quitting smoking

Length of time after quitting	Benefits
3 to 6 years	Risk of coronary heart disease drops by half
5-10 years	Risk of cancers of mouth, throat, and voice box drop by half
10 years	Risk of lung cancer drops by half
15 years	Risk of coronary heart disease drops to level of someone who doesn't smoke

Benefits of quitting smoking. Centers for Disease Control and Prevention. Published May 15, 2024. Accessed April 4, 2025. <https://www.cdc.gov/tobacco/about/benefits-of-quitting.html>

Other motivators for quitting smoking

Healthier kids

Smelling better

Improved sense of taste and smell

Saving money

- A pack-a-day smoker will save \$2900-5300 annually on average

Boonn A. Immediate smoker savings from quitting in each state. Campaign for tobacco-free kids. Published December 23, 2024. Accessed April 4, 2025. <https://assets.tobaccofreekids.org/factsheets/0337.pdf>



Clinician Approaches to Tobacco Cessation

Suzanne Higginbotham, PharmD, BCACP, CDCES

Clinical Pharmacist - Ambulatory Care

The Ohio State University Wexner Medical Center



Follow-Up

Slips and Relapses

Adjusting the Plan

- Slip
 - Some tobacco/nicotine use after a period of abstinence
 - Evaluate if a need for treatment adjustment is warranted
- Relapse
 - Resuming previous tobacco use
 - Warrants consideration for change in treatment plan