Tobacco Cessation



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Learning Objectives

- Recognize the health consequences, epidemiology, and disparities associated with tobacco use disorder.
- Evaluate and select evidence-based behavioral and pharmacologic treatments for tobacco cessation.
- Apply best practices for treating tobacco use disorder in patients with co-occurring substance use and psychiatric disorders.


Published as the Act directs Mar 20 1759 by J Johnson St Pauls Church Yard
Flowers of the Tobacco plant
Drawn and Engraved by Copland & Sansom N.º 16 Maiden Lane




TOBACCO, Potent Herb, and Sweet Repaſt,
Friend to the Thought, and grateful to the Taſt:
Heav'n in this Plant, its Goodneſs ſhew'd to Man,
Whoſe Kindled Leaves ſuch Virtues do contain:
Exhaling healthful Fumes the Head to Clear
Of noxious Humour, and the Spirits Chear.
CEPHALICK & OPTHALMICK
TOBACCO

Smoking and Physical Health

- Smoking is #1 preventable cause of death in the US
- 480,000 deaths per year attributable to smoking
- Heart attack, stroke, COPD, cancer

It's the smoke that kills.

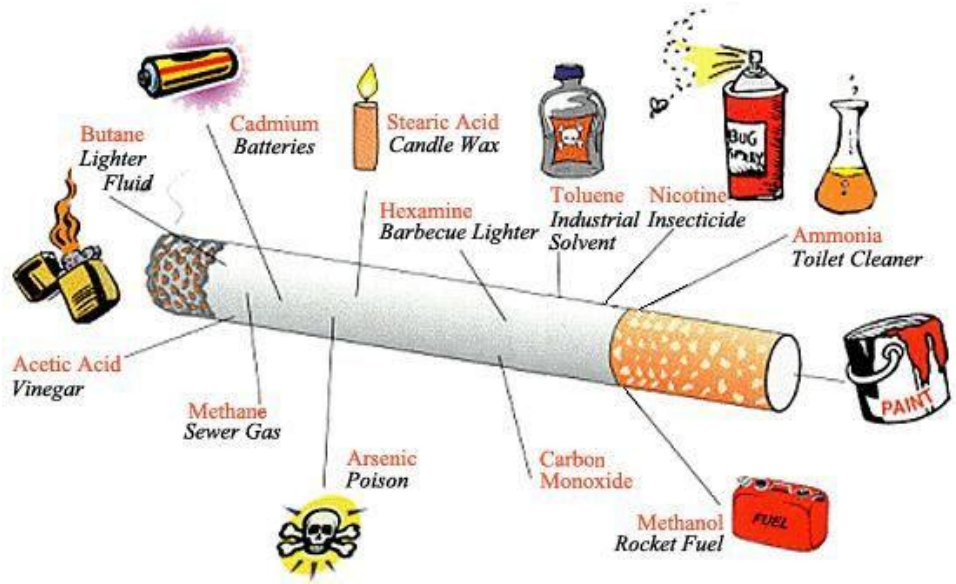
Cigarette smoke contains:

> 7000 compounds

- Acetone
- Cyanide
- Carbon Monoxide
- Formaldehyde

> 65 carcinogens

- Benzene
- Nitrosamines



USPSTF Guidelines

Population	Recommendation	Grade
Adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B

Tobacco Products

Table 1: Nicotine and Tobacco Product Descriptions

Name	Description
Tobacco Product*	Any product containing, made from, or derived from tobacco or nicotine that is intended for human consumption, whether smoked, heated, chewed, absorbed, dissolved, inhaled, snorted, or sniffed.
Combustible Tobacco	Traditional cigarettes, cigars, pipes, roll-your-own cigarettes, hookah
Heated Tobacco	Heat-not-burn tobacco
Smokeless Oral Tobacco	Snus, snuff, pouches, loose-leaf, dissolvable products
Electronic Nicotine Delivery Systems (ENDS)	Vaping or e-cigarettes

Product descriptions are based on definitions provided by the U.S. Food and Drug Administration, the Tobacco Dependence Treatment Toolkit from the Chest Foundation, and the U.S. Preventive Services Task Force.

*Tobacco products do not include products approved by the U.S. Food and Drug Administration for sale as a tobacco cessation product or for other therapeutic purposes where the product is marketed and sold solely for such an approved purpose (e.g., nicotine replacement therapy such as gum, patch, or lozenge).

Harm Reduction for Tobacco Use

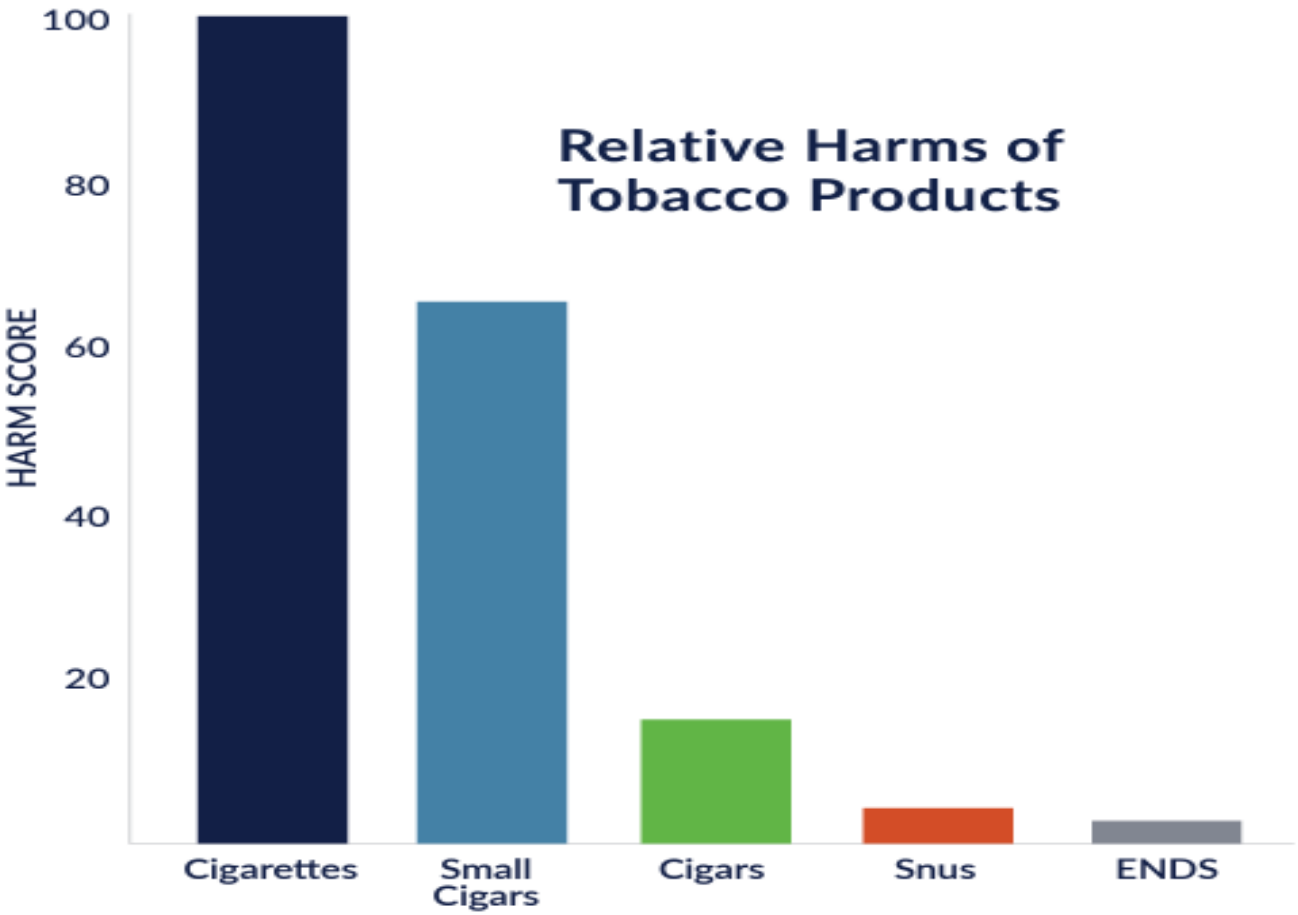
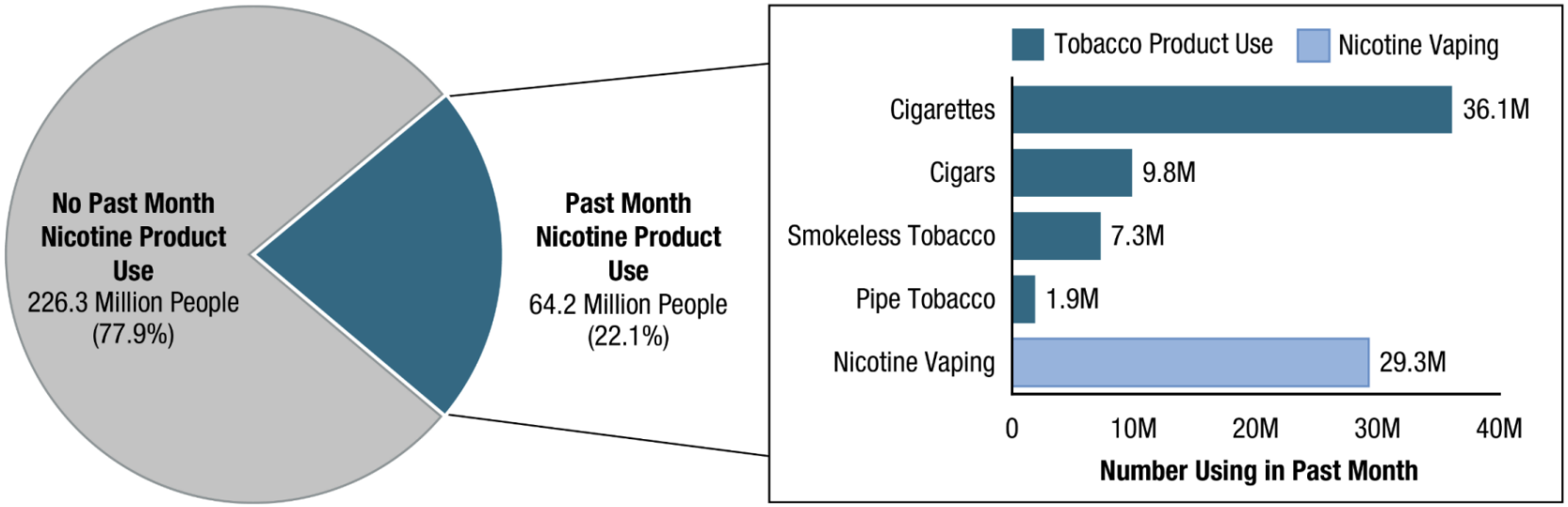


Figure 1. Figure based on Nutt et al., 2014, Figure 3. The data represented in the figure are overall harm scores reflective of mortality, morbidity, dependence, loss of tangibles and relationships, injury, crime, environmental damage, family adversities, international damage, economic cost, and community cohesion/reputation.[52]

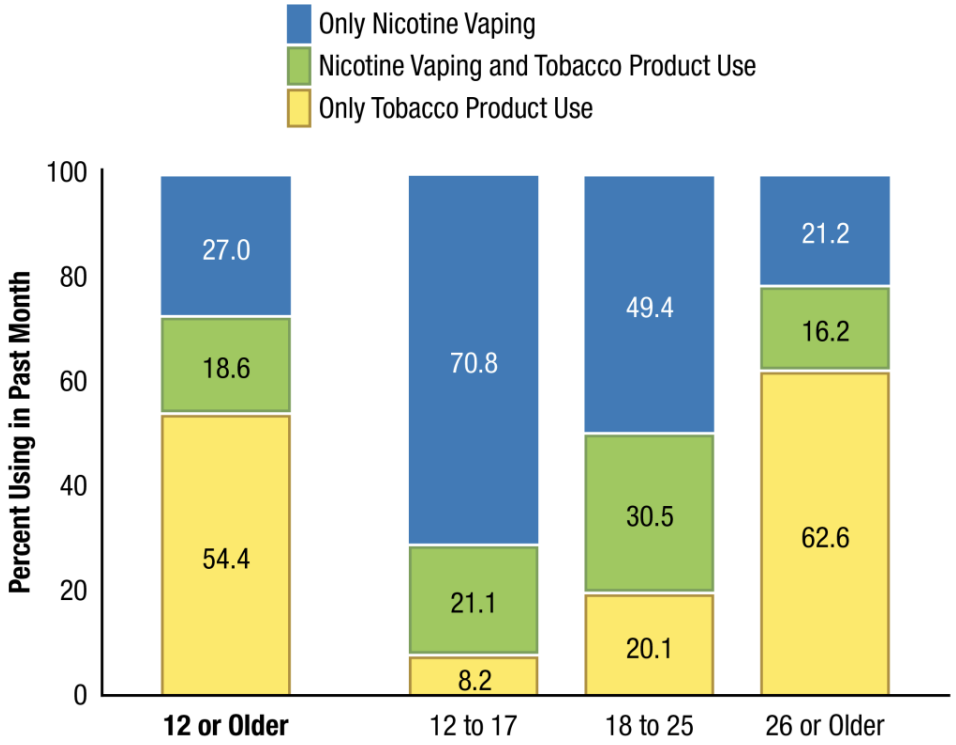
Past Month Nicotine Product Use: Among People Aged 12 or Older; 2025



Note: The estimated numbers of current users of different nicotine products are not mutually exclusive because people could have used more than one type of nicotine product in the past month.

SAMHSA
Substance Abuse and Mental Health Services Administration

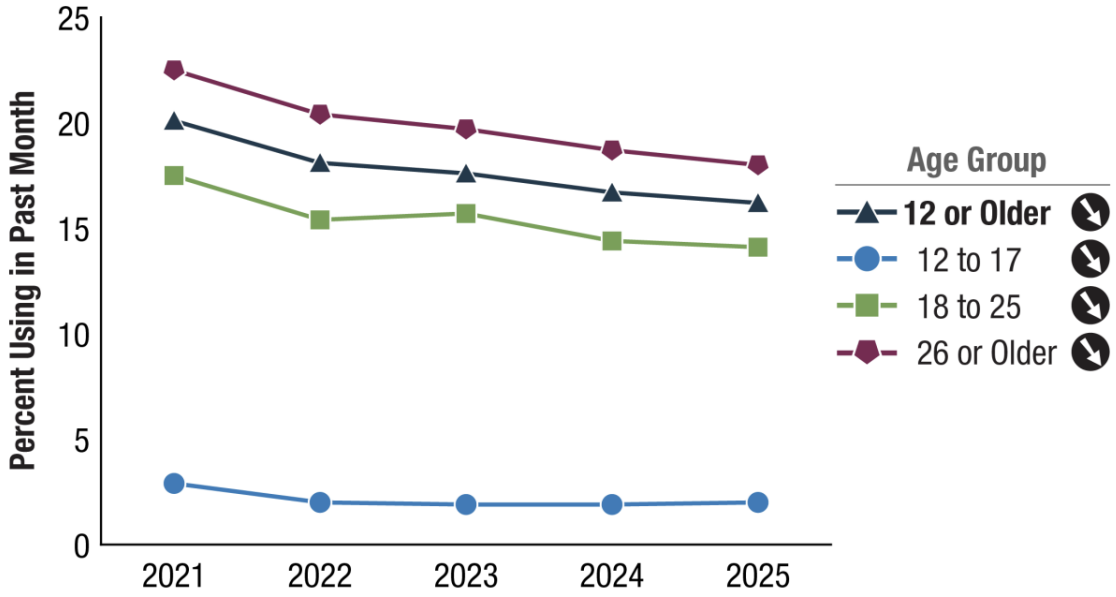
Type of Past Month Nicotine Product Use: Among Past Month Nicotine Product Users Aged 12 or Older; 2025



Note: The percentages may not add to 100 percent due to rounding.

SAMHSA
Substance Abuse and Mental Health Services Administration

Past Month Tobacco Product Use: Among People Aged 12 or Older; 2021-2025

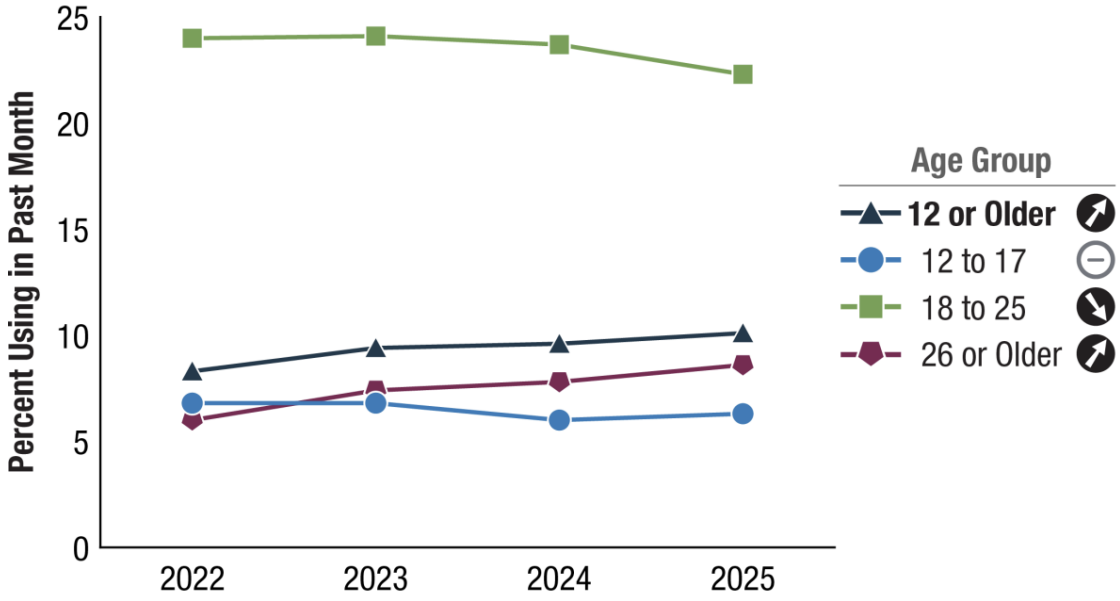


Age Group	2021	2022	2023	2024	2025	Trend
12 or Older	20.1	18.1	17.6	16.7	16.2	**Decreased**
12 to 17	2.9	2.0	1.9	1.9	2.0	**Decreased**
18 to 25	17.5	15.4	15.7	14.4	14.1	**Decreased**
26 or Older	22.5	20.4	19.7	18.7	18.0	**Decreased**

Note: Estimates for 2021 may differ from previously published estimates because the 2021 analysis weights were updated to facilitate between-year comparisons.

SAMHSA
Substance Abuse and Mental Health Services Administration

Past Month Nicotine Vaping: Among People Aged 12 or Older; 2022-2025



Age Group	2022	2023	2024	2025	Trend
12 or Older	8.3	9.4	9.6	10.1	**Increased**
12 to 17	6.8	6.8	6.0	6.3	No Change
18 to 25	24.0	24.1	23.7	22.3	**Decreased**
26 or Older	6.0	7.4	7.8	8.6	**Increased**

Note: Some 2022-2024 estimates may differ from previously published estimates due to updates to the editing procedures for this measure.

SAMHSA
Substance Abuse and Mental Health Services Administration

Tobacco Use Disorder Screening/Diagnosis



- 5As
- 5Rs
- Fagerstrom Test for Nicotine Dependence
  - FTND-ST (smokeless tobacco)

Fagerstrom Test for Nicotine Dependence

PLEASE TICK (✓) ONE BOX FOR EACH QUESTION			
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? e.g. Church, Library, etc.	Yes	☐	1
	No	☐	0
Which cigarette would you hate to give up?	The first in the morning	☐	1
	Any other	☐	0
How many cigarettes a day do you smoke?	10 or less	☐	0
	11 – 20	☐	1
	21 – 30	☐	2
	31 or more	☐	3
Do you smoke more frequently in the morning?	Yes	☐	1
	No	☐	0
Do you smoke even if you are sick in bed most of the day?	Yes	☐	1
	No	☐	0
	Total Score		

SCORE		
	1- 2 = low dependence	5 - 7= moderate dependence
	3-4 = low to mod dependence	8 + = high dependence

Figure 1: Scoring the Fagerstrom test for nicotine dependence.

Scoring & Interpretation:

0-2: Very Low Dependence
3-4: Low Dependence
5: Moderate Dependence
6-7: High Dependence
8-10: Very High Dependence

Tobacco Use Disorder - DSM 5

Substance use disorders are defined as a pattern of use that results in marked distress and/or impairment, with two or more of the following symptoms over the course of a 12-month period:

1. Using the substance in larger amounts or over a longer period of time than intended
2. Unsuccessful attempts or persistent desire to reduce use
3. Too much time spent on obtaining, using, and/or recovering from the effects of the substance
4. A strong craving for the substance
5. Significant interference with roles at work, school, or home
6. Continued use despite recurrent social or interpersonal consequences
7. Reducing or giving up important social, occupational, or recreational activities because of the substance use
8. Substance use in situations in which it may be physically hazardous
9. Substance use despite recurrent or persistent physical or psychological consequences
10. Tolerance of the substance
11. Withdrawal from the substance

Loss of Control
Use despite neg consequences
Physiologic changes

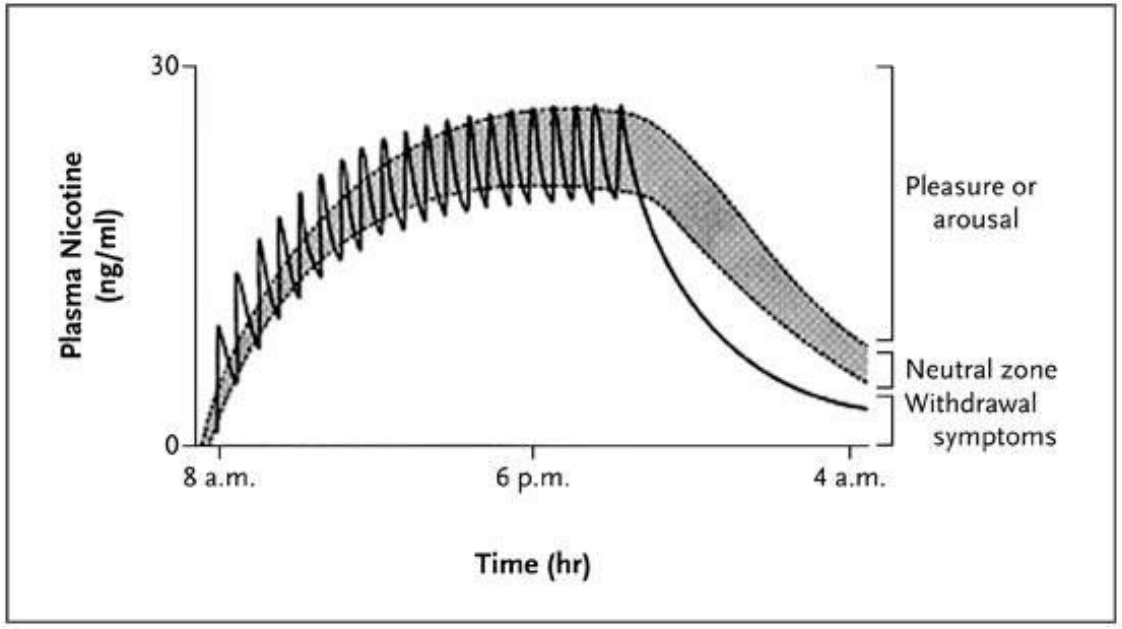
Mild = 2-3
Moderate = 4-5
Severe ≥ 6

Why is it so hard to quit?

- Smoking is the fastest, most addictive route of drug delivery.
- Smoking is driven by three rewarding components:
  - Reinforcing effects of nicotine
  - Oral and upper airway sensory effects
  - Habitual behaviors
- Poor utilization of treatment
  - Counseling is under-utilized
  - Medications - too low dose, not enough time
- Easy access to tobacco products

Nicotine Withdrawal

- **Low Dopamine:** (agitation, irritability, anhedonia, decreased motivation)
- **Low Serotonin:** (poor emotion regulation)
- **Low Norepinephrine:** (foggy headed feeling, poor attention, low productivity)



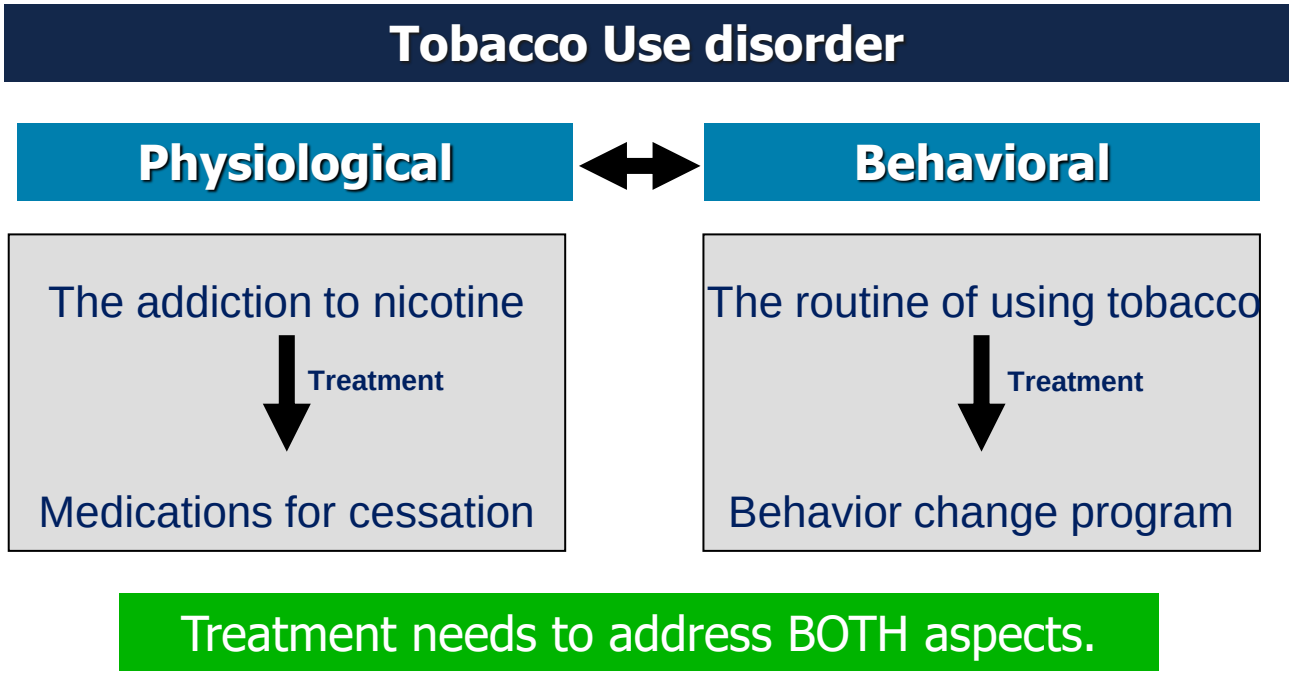
Miller, Shannon C., et al. *The Asam Principles of Addiction Medicine*. Wolters Kluwer, 2019.

Predictors of Successful Quitting

- Lower level of dependence
- Higher SE status, education, insurance
- Older age
- Male sex
- Lack of psychiatric comorbidity
- Social network with fewer smokers
- Use of cessation treatment

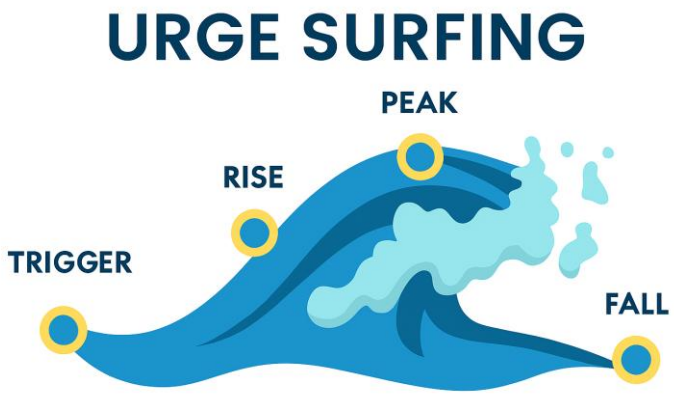
Foulds et al., 2006; Ashare 2013; Twyman et al., 2017

Effective Treatments for Tobacco Use



Behavioral Therapy Tips

- Motivational interviewing
- Mindful smoking
- 4 Ds
  - Delay
  - Distract
  - Deep breathing
  - Drink water
- Hand-to-mouth replacement



Medications

- Nicotine replacement therapy (NRT)
  - Patch
  - Gum
  - Lozenge
  - Nasal Spray
- Bupropion SR (XL off-label)
- Varenicline

Pharmacological Treatment

Rationale

- Cost-effective
- Reduce or eliminate withdrawal
- Lessen/delay weight gain
- Block reinforcing effects of nicotine

Medication increases chances of successful quit 2-3X.

Best treatment plan is Counseling + Medications:

- Varenicline + counseling
- Combination NRT + counseling

Nicotine Replacement

- Use high enough dose
- Use all day long, not just for cravings
- Use long enough treatment time period
- Can be combined with bupropion.
- Can be combined with each other.
- Have almost no contraindications
- Have no drug-drug interactions
- Safe enough to be OTC

FDA Labeling Updates

- No significant safety concerns associated with using > one NRT
- No significant safety concerns associated with using NRT at the same time as a cigarette.
- Safe to use > 12 weeks

Cardiovascular Review

- No increase in serious CVD events in those who use NRT (compared to ongoing smoking)
- Use NRT 2 weeks after MI, at discharge for angina
- No increased CV events with bupropion
- No evidence that varenicline linked to increased heart and circulatory problems

SUMMARY:

Low risk of harm

Benefits outweigh low risk of serious adverse cardiovascular events associated with use of tobacco treatment medications

Benowitz et al., 2018; Sharma et al., Curr Cardiology Reports 2015

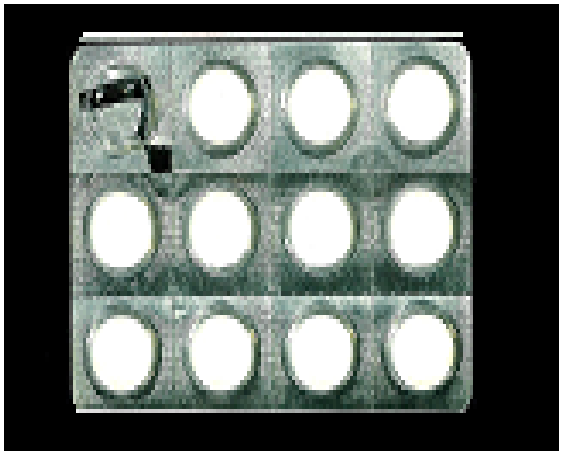
Nicotine Patch

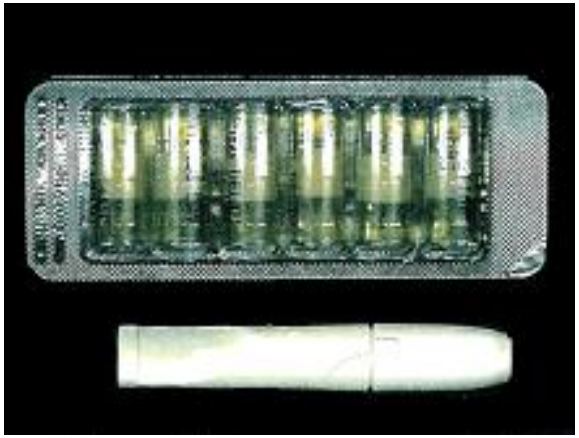


- Slow onset of action
- Continuous nicotine delivery.
- 24 or 16 hour dosing
- Usual dose 21mg/day for 1 ppd smoker
- Easy, good adherence.
- No strict tapering or timeline.
- Side effects- skin reaction, insomnia.
- OTC/Rx

Oral Forms of Nicotine







- Dose frequently – every 1-2 hours
- Slow, buccal absorption
- Acidic foods ↓ absorption
- Mild side effects - mouth, throat burning
- GI upset if swallowed (chew and park gum)

Combination NRT

- Long acting (patch) + short acting (gum/lozenge)
- Delivers higher dose
- Immediate withdrawal and craving relief

	OR
Patch + gum or spray	**1.9** (1.3-2.7)
Patch + bupropion	**1.3** (1.0-1.85)

2008 PHS Guideline Update; *Carpenter et al., 2013*

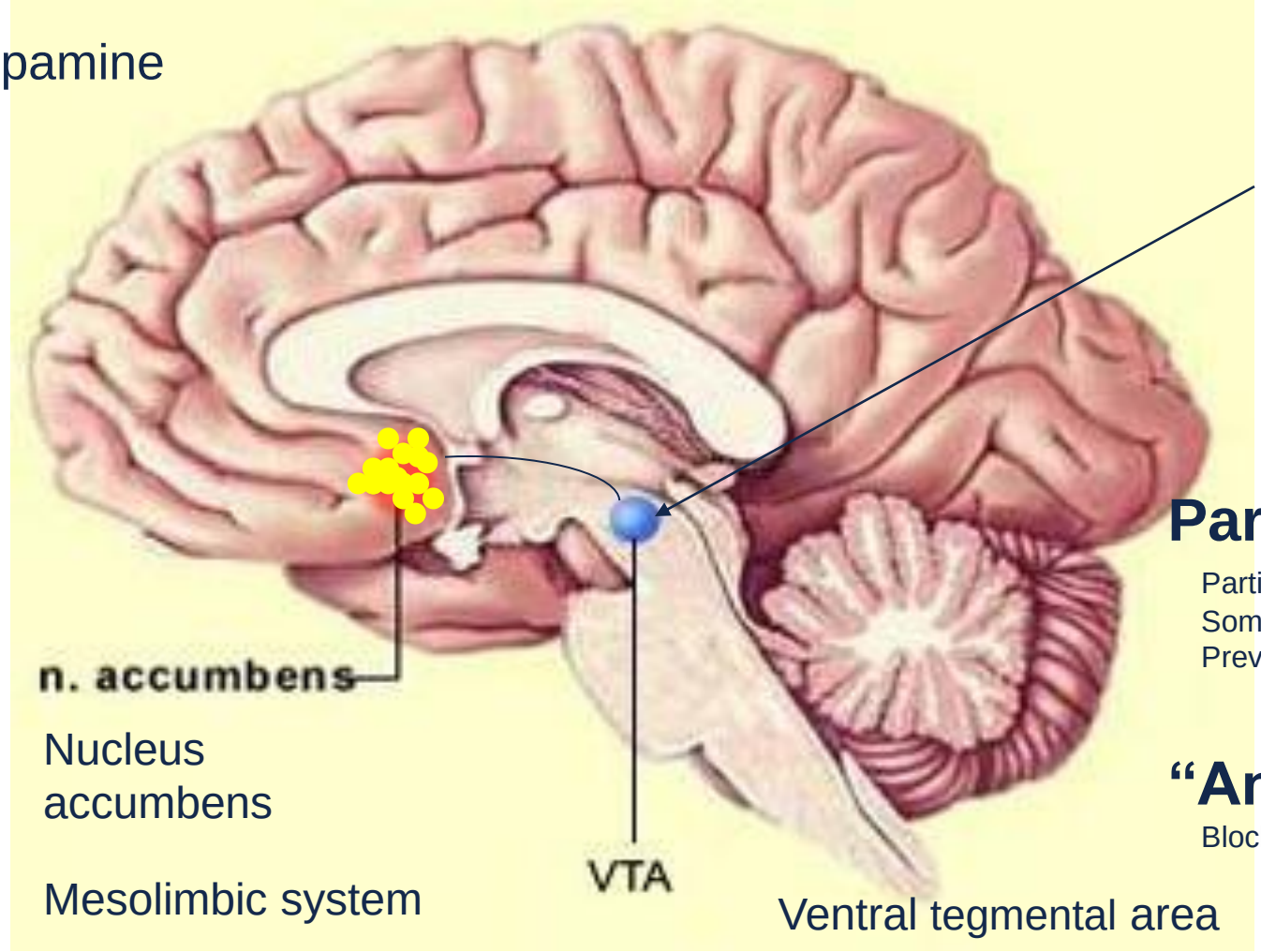
Bupropion SR

- Non-sedating, activating antidepressant with effects on NE and DA systems
- Non-competitive nicotinic receptor antagonist
- Effective at 150-300mg daily
- Start 10-14 days prior to quit date. Improved efficacy if combined with NRT
- Effect independent of depression
- Side effects - headache, insomnia
- Contraindicated in h/o seizures or bulimia
- Less weight gain with 300mg than placebo

Slemmer 2000

Varenicline

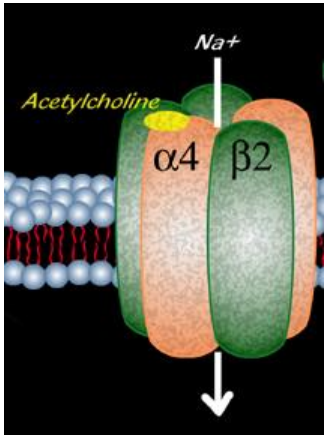
- Dopamine



Nucleus accumbens

Mesolimbic system

Ventral tegmental area



Partial Agonist

Partially stimulates receptor
Some dopamine release
Prevents withdrawal

"Antagonist"

Blocks nicotine binding

Most Common Varenicline Side Effects

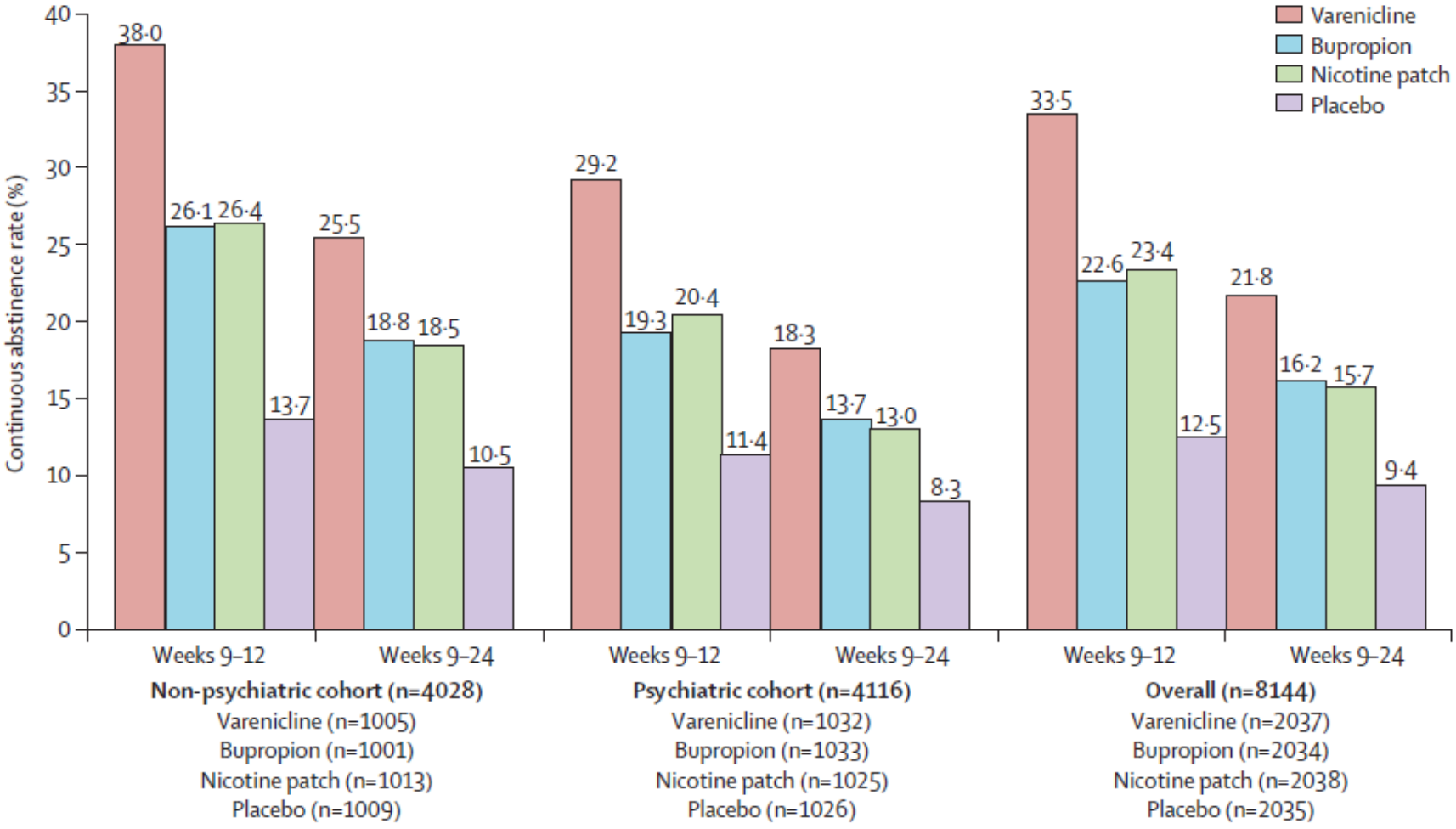
- Nausea
- Insomnia
- Abnormal dreams
- Constipation
- Flatulence
- Vomiting

Dose BID with food/water to reduce nausea

Increase dose in week one to 1mg BID

Excreted by kidney - no drug interactions

Neuropsychiatric Safety and Efficacy Varenicline, Bupropion, Nicotine Patch Smokers with and without Psych Disorders (EAGLES)



Anthenelli et al., 2016

2nd Line Pharmacotherapy

1) Clonidine

-alpha-2 agonist

-Not FDA approved

-0.1-0.3 mg/d -> HIGH RATES of dry mouth/sedation

2) Nortriptyline

-TCA

-Not FDA approved

-as good as Bupropion

-25 mg/d gradually increasing to 75-100 mg/d

-dry mouth/sedation

Not Ready to Quit? Use Medications?

- A reasonable option.
- Lessen dependence.
- Minimize withdrawal
- Harm reduction
- Smoke less
- Higher OR for future quitting/ “Reduce to quit”

Fiore et al., 2008. PHS Guideline

Patients with SUD

- Quit rates for individuals with SUD are lower than the general population
- Research has clearly demonstrated the **efficacy of treating TUD in parallel with other SUDs**
- Evidence-based treatment for TUD during addiction treatment is associated with a **25% increased likelihood of long-term abstinence** from alcohol and illicit substances.
- Continued tobacco use corresponds to **poorer addiction treatment outcomes**, including a higher likelihood of return to use.
- **Offer pharmacotherapy** rather than waiting until they are ready to stop tobacco use completely. This strategy can help patients **decrease** tobacco use, increase self-efficacy, and become familiar with available tools.

Patient Case

- 62 yo female with a 50+ pack year smoking history is referred to you by their orthopedic surgeon for smoking cessation prior to impending L total shoulder replacement.
- Smoking 1-2 ppd for majority of adult life. Pt reports no previous quit attempts or periods of time without smoking since age 18.
- Began cutting down 1 month ago when she first learned she would need to quit prior to surgery. Now 1 pack lasts her 4-5 days.
- First cigarette ~1 hr after getting up. Usually smokes 3-4 cigs before work and is able to go the whole workday, 8-10 hrs, without smoking. Some days will also smoke 1-2 cigs when she gets home in the evening.

Patient Case

- 69 yo male with a ~15 pack year smoking history is referred to you by their PCP surgeon for smoking cessation in setting of COPD, T2DM, HTN, and prostate cancer.
- Smoking less than 0.5 ppd from late twenties until he retired 3 years ago and smoking increased to 0.5-1 ppd. First cigarette within 45 min of waking up. Boredom appears to be main trigger for him.
- Reports he has previously tried nicotine gum but did not like it. Also thinks he has tried varenicline, which he felt made him nauseous. He has attempted to quit cold turkey during Ramadan but was only able to last 6 hrs.

Conclusions

- It's the smoke that kills.
- Treat tobacco use as a co-occurring disorder.
- Consider meds for every pt, esp. if TTFC < 30 min
- Varenicline or combination NRT (patch + lozenge) + counseling are first-line options.
- Consider meds for people who are not ready to quit, especially if willing to cut down. ("reduce-to-quit")
- You (yes, you!) have the skills to give effective tobacco counseling.

Resources

Resources for Clients and Clinicians

Cessation Mobile Applications	Additional Cessation and Abstinence Apps
SmartQuit - Google Play Craving to Quit! - Google Play Quit Guide - Google Play quitSTART - Apple Store, Google Play Quit Tracker - Google Play SmokeFree - Apple Store	**Mindfulness Apps** UCLA Mindful App - Free meditation app Insight Timer - Free meditation app **Exercise Apps** Couch to 5k - Free beginner running app Zombies, Run! - Free beginner running app 7-minute Workouts Charity Miles - Exercise for donations

Federal, State, Local Resources	Special Populations
Center for Disease Control and Prevention Smoking and Tobacco Use 800-232-4636 **National Cancer Institute** Risk Factors > Tobacco 800-422-6237 **UCSF Schools of Pharmacy & Medicine** Medicine Rx for Change (comprehensive training for health professionals) **Motivational Interviewing** - MINT website	**Pregnant women/mothers** - SmokefreeMOM or text **MOM** to **222888**. At least six weeks, 3-5 texts per day. - You Quit Two Quit **Veterans** - SmokefreeVET: 6-8 weeks, 3-5 texts/day - Quitline - 1 (855)-QUITVET **Spanish-speakers** SmokefreeEspañol: 6-8 weeks, 3-5 texts/day **Youth** SmokefreeTEEN or text QUIT to 47848. **Age 60+** SmokeFree 60+

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