Behavioral Health & Wellness Program

Department of Psychiatry
SCHOOL OF MEDICINE
UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

DIMENSIONS: Nicotine-Free Toolkit

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The DIMENSIONS: Nicotine Free-Toolkit was developed by the
Behavioral Health and Wellness Program
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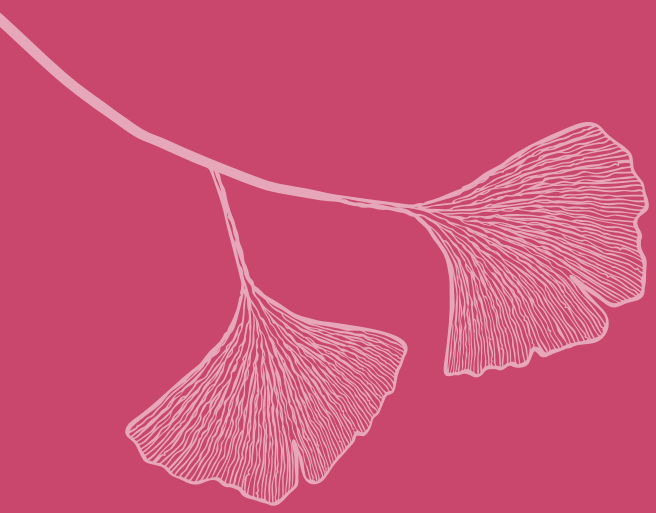


Overview

1. Why is a Nicotine Use Treatment Toolkit Needed?
2. A Social Justice Issue
3. Tobacco Industry Targeting
4. Social Determinants of Health
5. Health Equity
6. Cultural Competency

Overview

Why is a Nicotine Use Treatment Toolkit Needed?

In 2021, 11.5% of U.S. adults smoked cigarettes and 66.5% of adults who had ever smoked cigarettes had quit smoking.[1] Although rates of nicotine use have generally decreased in recent years, these gains have not been equally distributed. The negative health effects of combustible products like cigarettes continue to unduly burden populations already facing significant health inequities. It is vital that healthcare professionals understand why people use nicotine, the health effects of use, and how they can assist in healthy lifestyle changes for those they serve. Healthcare professionals are on the front lines for nicotine cessation and for reversing the related health disparities faced by at-risk populations.

Nicotine dependence is a chronic, relapsing disease. Like other chronic conditions, every person who uses nicotine should be offered treatment.[2] An easy and cost-effective way to identify individuals at risk of and currently using nicotine is through screening, assessment, and referral to treatment. Like other chronic care issues, healthcare organizations can identify individuals currently using nicotine products through screening and adding nicotine use as a vital sign.[3]

As healthcare reimbursement continues to advance, now is the time to expand these services in all healthcare settings. Advancements are being made in how to code and bill for treatment. In 2010, the Centers for Medicare and Medicaid Services began covering tobacco cessation counseling for outpatient and hospitalized Medicare beneficiaries, regardless of whether people have signs and symptoms of tobacco-related disease, and this benefit remains available.[4] In addition, in most states, Medicaid covers cessation medications. The Patient Protection and Affordable Care Act mandated expansion of preventive services for most health insurance plans, including tobacco use screening and tobacco cessation treatment.

> Nicotine use remains the single largest preventable cause of death and disease in the United States with almost half a million U.S. adults dying each year due to smoking related illness.[5]

People Who Use Nicotine Want to Quit

Most people who use nicotine want to quit. Among adult smokers in 2017, approximately 60-70% had made a quit attempt in the past year.[6] However, many people are not utilizing treatment because they do not have access to care, or they are not being provided appropriate evidence-based cessation treatment which includes counseling and FDA-approved cessation medications.

Healthcare Professionals Have an Important Role to Play

Although healthcare professionals are aware of the negative effects of nicotine use, they do not always view themselves as having a role in helping people to quit. Healthcare professionals and organizations can have a significant impact on helping individuals avoid and reduce chronic illness through increased attention to nicotine treatment and provision of nicotine-free treatment settings. Promoting proven, evidence-based treatments and other available resources is supportive as well.

- Despite individuals' desire to quit, unaided quit attempts have poor outcomes with more than 90% of individuals relapsing before 6 months.[7]
- All healthcare professionals have a potential role in helping people quit.[7]

Terminology: Nicotine Versus Tobacco

This toolkit utilizes the term "nicotine" as opposed to "tobacco" in most instances. This choice was made to be inclusive of the tobacco industry's rapidly evolving development of new and emerging products such as electronic nicotine delivery systems (ENDS), "heat-not-burn" products, nicotine pouches, etc., while still including traditional tobacco products such as cigarettes and smokeless tobacco. Throughout the toolkit if referenced research was completed for smoking combustible products, such as cigarettes, we will reference smoking or tobacco rather than nicotine use.

About This Toolkit

Who is this toolkit for?

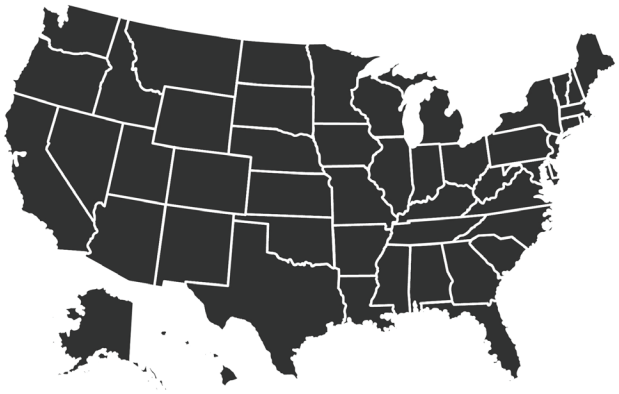
This toolkit is designed for a broad continuum of healthcare professionals, including physicians, nurses, Tobacco Treatment Specialists, peer specialists, behavioral health providers, and other tobacco/nicotine champions. Materials are intended not only for direct healthcare providers, but for administrators, healthcare organizations, and other advocates.

How do I use this toolkit?

The toolkit contains a variety of information on:

- Education about nicotine use
- Skills for engaging individuals in discussions about their nicotine use
- Efficient methods for assessing people's level of dependence
- Evidence-based treatment

Rates of Nicotine Use



18.7% of adults in the U.S. currently use nicotine products.[1]

11.5% Cigarettes
4.5% ENDS products
3.5% Cigars
2.1% Smokeless tobacco
0.9% Pipes (including hookah)

Smoking kills more people than alcohol, HIV/AIDS, car accidents, drug overdoses, weight-related deaths, homicides, and suicides combined.[5, 8-12]

Economics of Nicotine Use

Cigarette smoking cost the United States more than $600 billion in 2018,[13] including:

- More than $240 billion in healthcare spending[14, 15]
- Nearly $185 billion in lost productivity from smoking-related illnesses and health conditions[15]
- Nearly $180 billion in lost productivity from smoking-related premature death[5, 15]
- $7 billion in lost productivity from premature death due to secondhand smoke exposure[5, 16]

A Social Justice Issue

Everyone deserves the right to live a nicotine-free life as part of the highest standard of health. Notably, the World Health Organization's Framework Convention on Tobacco Control asserts the importance of strategies to reduce both demand and supply of tobacco products, and provides a framework for tobacco control measures to be implemented at regional, national, and international levels.[17] Moreover, people who use nicotine deserve access to a full suite of treatment services (behavioral interventions, medication, etc.) designed to help them quit. Most people who use nicotine want to quit and yet far too often the most at-risk individuals have limited access to proven help. The burden of nicotine on individuals and our society is extensive, severe, and unnecessary. And this burden falls most heavily on populations such as individuals with behavioral health issues, the justice involved, and persons living in poverty or who are homeless. By advocating for the concept of "the right to live a nicotine-free life" as a social justice issue, we empower community champions and providers like you to extend access to evidence-based care and eventually eliminate commercial nicotine use.

Tobacco Industry Targeting

Throughout its existence, the tobacco industry has spent billions upon billions of dollars marketing their deadly products. In 2022 alone, the amount spent on cigarette advertising and promotion exceeded $8 billion. The landmark Master Settlement agreement of 1998 led to the release of numerous documents from large tobacco companies that highlighted some of their tactics, including[18]:

- Targeting already vulnerable populations and those with limited access to cessation services
- Promoting smoking in treatment settings, homeless shelters, and soup kitchens
- Monitoring or directly funding research supporting the idea that individuals with serious mental illnesses like schizophrenia need to smoke to manage their symptoms
- Marketing to youth and adolescents as well as certain racial/ethnic groups (e.g., menthol products for Black communities)

Project Scum was a plan proposed by R.J. Reynolds Tobacco Company (RJR) to sell cigarettes to members of the "alternative lifestyle" areas of San Francisco. SCUM was an acronym that stood for "Sub-Culture Urban Marketing", and the targeted populations included gay, homeless, and immigrant groups. Documents from RJR describing Project Scum can be viewed at the RJR Online Litigation Document Archive. Enter "Project Scum" into the search area.

In April 2023, a group of several states announced a $462 million settlement with Juul Labs to resolve lawsuits claiming the company had aggressively marketed its electronic products to young people. Some lawsuits contended that Juul did not disclose that its devices contained nicotine, handed out free samples of their products at trendy events, and utilized social media marketing tactics. State attorneys general conducted investigations, finding that Juul executives were aware that their marketing lured teenagers into buying their products and did little to address the problem while youth vaping rates rose exponentially.

The tobacco industry targets specific populations through a mix of practices including magazine and billboard advertising, funding scholarship programs, developing products that appeal to certain racial/ethnic groups, and the sponsoring of art and other cultural events, among many other tactics. The tobacco industry is now using this same playbook to target youth and normalize vaping and other new products like oral nicotine pouches.

Social Determinants of Health

The U.S. Centers for Disease Control and Prevention (CDC) defines the social determinants of health (SDOH) as the nonmedical factors

that influence health outcomes, such as the conditions in which people are born, grow, work, live, and age.[19] These factors shape daily life through multiple means, such as economic policies and systems, the built environment, social norms, community policies, and political systems. While SDOH can be harnessed for positive change, these factors can also create an inequitable health landscape in which people are at a disadvantage, have limited ability to access treatment services, and are subsequently taken advantage of by the tobacco industry.

You can reduce the negative impact of the SDOH and thereby lessen the negative impact of nicotine use. Through cooperation and collaboration, your organization can identify service gaps and promote a continuum of nicotine use treatment services. Through engaged capacity building with your partners, you can identify service and policy strengths, needs, and challenges. Having identified your community assets, you can promote sustainable, coordinated resources; the Behavioral Health Cessation Coordination Model Toolkit described later can assist in this process.[20] A key to capacity building is data collection, monitoring, and surveillance to assure that the individuals your organization serves have access to the appropriate standard of care, which includes screening, assessment, treatment, and referral to treatment. You can start by asking: what is your organization's realistic role in addressing SDOH and promoting equitable access to nicotine use treatment services?

Health Equity

Historically, we referred to groups of individuals most at risk for adverse tobacco-related outcomes as disparity populations. Often, disparities are commonly related to SDOH, but health disparities can occur due to a variety of naturally occurring factors such as sex and age.

Therefore, the concept of "health equity" is a better fit when discussing the impacts from nicotine use.[21] Health equity explicitly captures the moral dimension and distinguishes between health differences that reflect injustice and health differences or disparities in general. Health inequity is defined by differences that are unnecessary, avoidable, unfair, and often deliberate. Inequities manifest in socially disadvantaged populations as these groups are more likely to face tobacco industry targeting and reduced access to nicotine use treatment. Health equity applies a social justice lens to health and acknowledges that[22]:

- All people should be valued equally
- Health is a prerequisite for reaching one's potential and to function normally in society
- Every person should be able to achieve optimal health status without discrimination
- Rapid improvements need to first focus on those who are the most impacted

Health inequities are avoidable. When addressing nicotine use, equal treatment is a necessary component of health equity and an ethical obligation of healthcare and public health.[23] Evidence-based treatment which is adequately funded increases reach to those who are often left behind. Proven nicotine use treatment strategies are:

- The fastest route to justice in health outcomes
- The only route to health justice overall
- The fastest means to eliminate commercial nicotine sales
- The best way to reduce illegal sales
- The best option to reduce the need for alternative products (often referred to as harm reduction)
- The simplest way to decrease the need for nicotine-free enforcement policies

One of the most effective means of increasing health equity is standardized, evidence-based care. When your organization standardizes treatment services, you assure that all people who use nicotine have access to equal, high-quality, state-of-the-art treatment. Standard treatment takes the guess work out of care because it assumes all people are treated using vetted care protocols which are automatically engaged when an individual is assessed as nicotine dependent. Critically, standard care eliminates provider decision-making that often introduces bias.

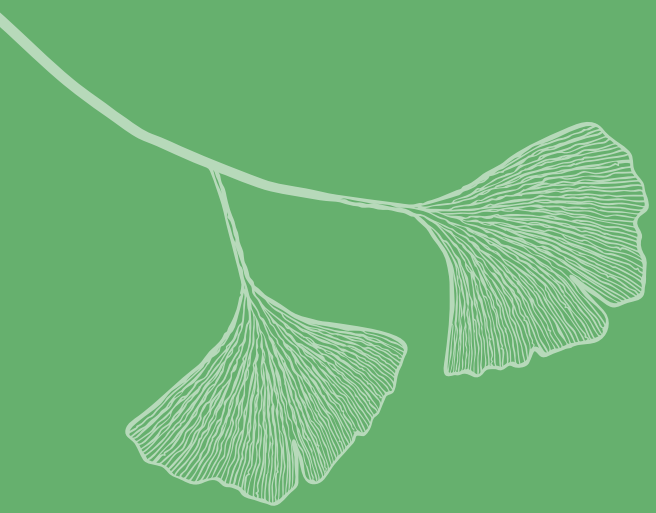
Cultural Competency

Offering culturally competent care to the people you serve is another method for reducing health disparities. Cultural competency involves offering care that meets individuals' social, cultural, and linguistic needs. Care should be responsive to the unique values, beliefs, and behaviors that people possess. The development of cultural sensitivity is essential to offering culturally competent care and may include being mindful of your own assumptions and biases, assuming the people you serve have the best intentions, exposing yourself to other cultures, and listening to and respecting people.[24]

Healthcare organizations and professionals can embody these ideals by offering culturally tailored care. Whether intensive or minor in scope, tailored care will be beneficial to the people you service and will be applicable and impactful across diverse groups and diverse treatment settings. Culturally tailored interventions utilize members of the community as leaders and guides, are responsive to the unique needs of a community, appeal to aspirational values within the community, and contain images and language familiar to them. Tailored care has a history of success in treating nicotine use disorder and promotes the delivery of equitable care.[24]

Culturally-Tailored Care in Action

Promotoras are community-based, Spanish-speaking health navigators also referred to as Community Health Workers. Many Spanish-speaking individuals have a pronounced distrust of government and healthcare systems.[25-27] Promotoras are trusted members of the community. They build health literacy when they help individuals translate and fill out forms, ask questions and get answers, and understand treatment options and follow effective regimens. Promotoras have been shown to be effective in helping individuals to navigate within the healthcare system.[28] Although Promotoras are a popular example of how to guide community members through fragmented, complex health systems, the health navigator concept is easily expanded to include other nationalities/ethnicities. Navigators can also be individuals that have a common "lived experience" with those they are serving such as having a behavioral health condition, being involved with the criminal justice system, or having a similar chronic illness.



Nicotine Use and Health

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2. Nicotine Affects the Levels of Many Neurotransmitters
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8. Why are Some People More Likely to use Nicotine than Others?
9. Discrimination Directed at Individuals Who Use Nicotine
10. Who is Most at Risk of Nicotine Use?
11. Policies and Strategies that Affect Nicotine Use Rates

Nicotine Use and Health

Nicotine Causes a Chemical and Behavioral Addiction

- Nicotine is the addictive substance in tobacco.[29]
- Nicotine activates reward pathways—the circuits in the brain that regulate feelings of pleasure. It does this primarily by increasing levels of the neurotransmitter dopamine.
- People who use nicotine experience a brief "high" or euphoria due to a surge of endorphins in the reward circuits of the brain.[29]
- Behaviors that naturally stimulate the reward pathway include eating to relieve hunger, drinking to alleviate thirst, or engaging in sexual activity. Stimulation of the reward pathway reinforces behavior so that it will be repeated. Obviously, these behaviors are necessary for individuals' continued survival. The reward pathway can also be stimulated by drugs such as cocaine, opiates, amphetamines, and nicotine.

- Long-term use of nicotine can result in brain changes that contribute to addiction.[30] These changes include the increase of nicotinic acetylcholine receptor (nAChRs) in the brain and the desensitization of receptors.
- Cigarettes deliver small doses of nicotine (1-2mg per cigarette) and are typically used regularly throughout the day. Many people who smoke use 15-20 cigarettes each day and cigarettes come packaged in groups of 20. The frequency and regularity of use leads people who smoke to "practice" the rituals and habits associated with smoking hundreds of times each day, which ingrains the habit. The smoke from cigarettes is designed to be inhaled into the lungs, providing a large surface area for absorption. Nicotine absorbed through the lungs moves to the brain where it is rapidly metabolized. Rapid metabolization allows for prompt resensitization of the nicotinic receptors, which means the quick onset of withdrawal and the subsequent cravings for another cigarette.
- "Podmod"-style electronic nicotine delivery systems (ENDS) like Juul use nicotine salts to reproduce the addictive effects of cigarettes. Mounting evidence suggests that transitioning from conventional cigarettes to ENDS is merely a shift from one addictive product to an equally addictive substitute.[31-35]

Dopamine Reward Pathway

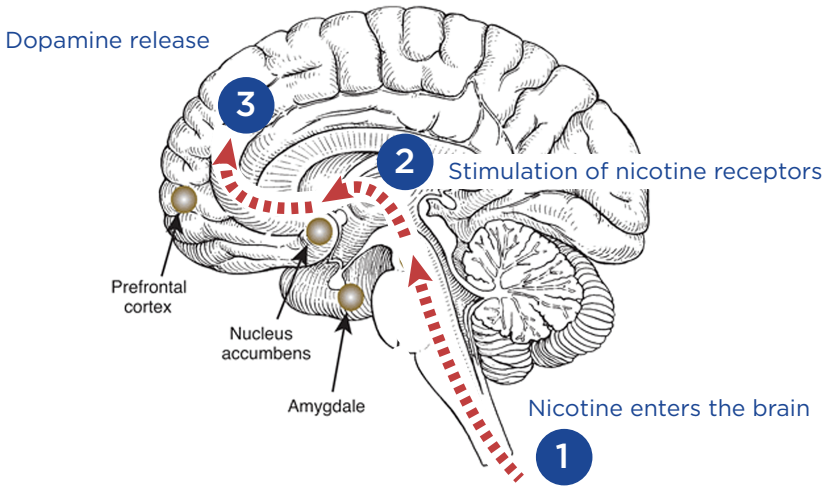


Image adapted from Wand[36]

Nicotine Affects the Levels of Many Neurotransmitters

Nicotine	Dopamine	Pleasure, appetite suppression
	Norepinephrine	Arousal, appetite suppression
	Acetylcholine	Arousal, cognitive enhancement
	Glutamate	Learning, memory enhancement
	Serotonin	Mood modulation, appetite suppression
	Beta-Endorphin	Reduction of anxiety and tension
	Gaba	Reduction of anxiety and tension

Table adapted from Benowitz[37]

Nicotine receptor activation promotes the release of neurotransmitters, which may then mediate various effects of nicotine.

Smoking Increases Risk for Specific Medical Disorders

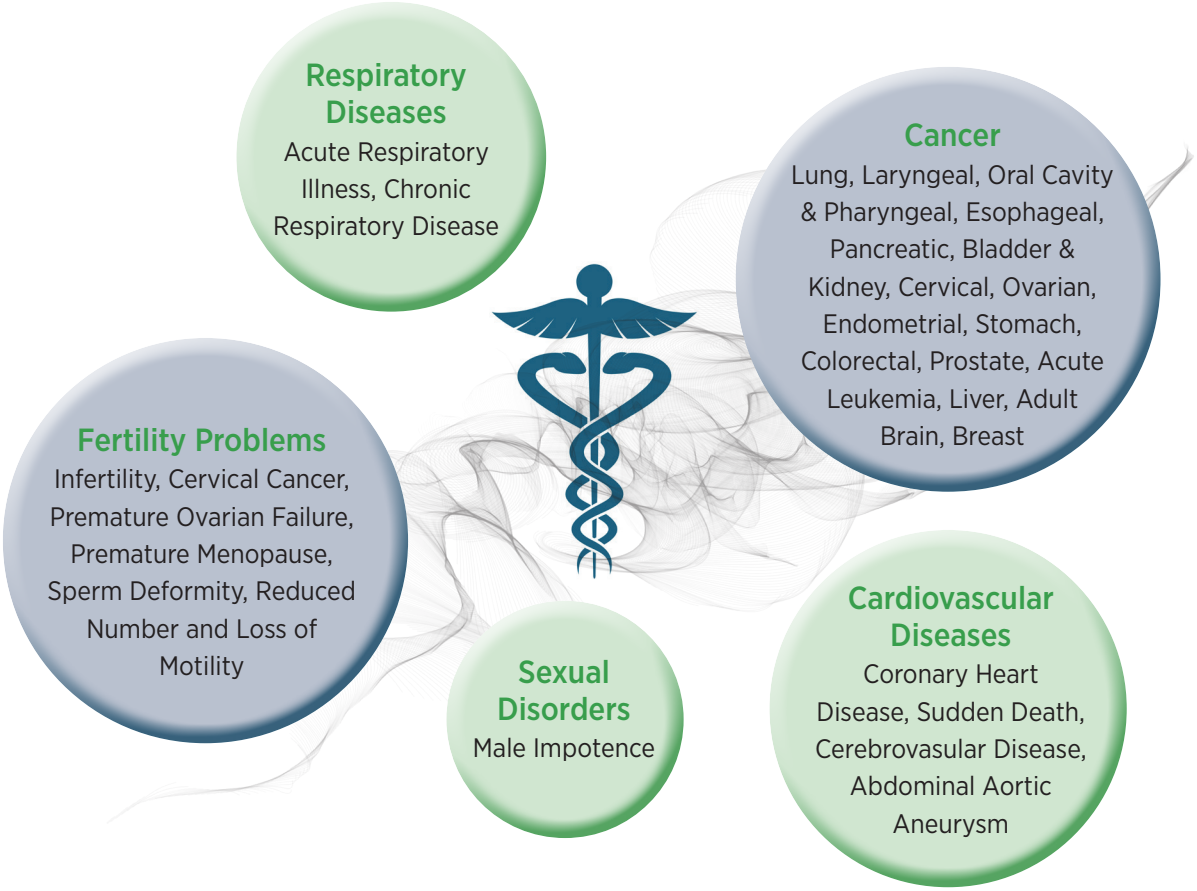
- Smoking harms almost every organ in the body.[38]
- At present, four of the top six causes of death for U.S. adults are tobacco-related diseases.[11, 39]
- Tobacco use causes 25% of all cardiovascular disease deaths and 30% of all cancer deaths.[5, 40]
- Smoking creates 12 to 13 times increased risk of death from chronic obstructive lung diseases.[5]
- Research continues to add to the list of diseases caused by smoking, including such common diseases as diabetes mellitus, rheumatoid arthritis, and liver and colorectal cancer. It also leads to an increased risk for tuberculosis disease and death.[5]

The relative risk for lung cancer death among people who smoke cigarettes is now 25 times higher than for both men and women who do not smoke cigarettes.[41]

The U.S. Preventive Services Task Force recommends annual lung cancer screening with low-dose computed tomography in people who meet all of these criteria[42]:

- Are ages 50 to 80 years
- Have a 20 pack-year smoking history
- Currently smoke cigarettes or quit within the past 15 years

The following diseases are among those that may be caused by tobacco use.



THE RATE OF DEATH from cigarette smoking-related diseases is three times higher among people who currently smoke cigarettes compared to those who have never smoked cigarettes.[38]

Nicotine Use is Associated with Other Health Risk Behaviors

Poor Sleep

Compared to those who do not use nicotine products, people who smoke experience poor sleep health, including shorter sleep duration, difficulty falling asleep, difficulty staying asleep, and early and nighttime awakenings.[43-45] Moreover, indicators of sleep health before and following a cessation attempt are associated with cessation success and influence relapse rates.[46,47] Some FDA-approved treatments for nicotine use disorders, such as varenicline, may also disrupt healthy sleep.[48, 49] Poor sleep health may exacerbate difficulties regulating emotions, increasing chances of relapse.[50]

Poor Nutrition

Nicotine use is also associated with nutritional choices and appetite regulation. Smoking is associated with obesity-related behaviors, including an unhealthy diet and increased cravings for high-fat and fast foods.[51, 52] While nicotine use decreases appetite, food intake, and body weight, cessation attempts often result in the opposite effects, discouraging those attempting to quit.[53]

Physical Inactivity

Lack of exercise and increased sedentary behavior are also more common among those who use nicotine compared to those who do not,[54, 55] possibly because nicotine use can adversely affect pulmonary function and endurance, resulting in people who use nicotine feeling more tired during exercise and less likely to enjoy it. Yet physical activity is recognized as a promising potential treatment for individuals recovering from substance use disorders, including nicotine addiction.[56-58]

Please see https://tobaccoatlas.org/challenges/health-effects/ for more information on tobacco's impact on the body.

Nicotine-Containing Products: A Review

Nicotine

Nicotine occurs naturally in the plants of the nightshade family which includes tomatoes, potatoes, and others; but no plant contains more nicotine than tobacco. Nicotine is a psychoactive compound that activates acetylcholine receptors all over the body, but primarily in a part of the brain called the ventral tegmental area or VTA.[59] At lower doses nicotine produces a stimulating, euphoric effect which increases attention and focus. Although technically a stimulant, at higher doses, nicotine produces the illusion of calming the body, reducing both stress and anxiety. In extremely high doses, indigenous people were able to obtain hallucinogenic effects for sacred use.[60] Nicotine is a neurotoxin used as an organic pesticide. Even in humans, at high enough doses, it can lead to death.[61]

Conventional Tobacco Products

The tobacco plant was and continues to be used by indigenous peoples around the globe for medicinal, spiritual, and ceremonial purposes. When European explorers first arrived in the Western Hemisphere in the late 15th and early 16th centuries, they noted the high esteem of this tradeable commodity and began shipping it back to Spain, England, and continental Europe whereupon this highly addictive crop took immediate hold. Its popularity surged so rapidly that by 1604 King James VI and I took note of it and famously implored his countrymen to avoid it, comparing tobacco smoke to the smoke from "the pit that is bottomless."[62]

At this time, the nicotine molecule had not been identified nor could it be extracted. Early explorers and conquerors of the Americas commonly used tobacco by inhaling the smoke, snorting, or drinking it. All of these methods, but primarily inhaling the smoke from cigars and pipes, characterized tobacco use until the late 19th century.[60]

Conventional tobacco products include both combustible and smokeless varieties. "Combustible" refers to the fact that the tobacco is burned during use, creating directly inhaled and secondhand smoke. Combustible products include cigarettes, cigars, pipes and hookahs, bidis, and clove cigarettes and cigars.

Smokeless tobacco products include chewing tobacco, moist snuff (i.e., "dip"), dry snuff, and dissolvable tobacco. Dry snuff can be inhaled through the nose, but it can also be used by placing it on the gums or cheeks and allowing the nicotine to be absorbed through the mucosal membranes of the mouth. The most common dry snuff product today is Snus where dried and powdered tobacco is placed in small pouches. The pouches are then placed between the gums and cheek. Dissolvable products use finely ground tobacco pressed into sticks, pellets, or strips typically with flavors and sweetener additives.

Current Nicotine Landscape

Based on United States national survey data, among adults of all ages (21-65+), the nicotine use landscape appears similar over the last two decades.[1] Most adult nicotine use in the U.S. is still in the form of cigarettes. Smokeless tobacco also remains popular, at least among men. Pipes and cigars, although rarer, have maintained a solid hold on a small percentage of the adult population. Hookah, bidi, clove cigarette and cigar and other product use remain rarer still, but at historically consistent levels. The rate of use of electronic nicotine delivery systems (ENDS) has risen in recent years but remains lower than traditional cigarette use.

18.7% of adults in the U.S. currently use tobacco/nicotine products, including[1]:

- 11.5% Cigarettes
- 4.5% ENDS
- 3.5% Cigars/cigarillos/small cigars
- 3.0% Oral nicotine pouches
- 3.4% Chew/snuff/dip
- 1.1% Pipes

Electronic Nicotine Delivery Systems

Fundamentally, ENDS contain a nicotine solution, a coil to heat that solution, and a battery to power the heating element. Early e-cigarettes were fully disposable and the only customizing a consumer could do was to switch brands or products. Over time, batteries became rechargeable and the container that holds the nicotine solution added flavors and became refillable. Eventually, consumers could purchase flavors themselves to mix their own e-juices, could buy batteries of different sizes and strengths, and could buy customizable tanks as well.

The "podmods", like Juul and its competitors, represent a move away from customizability. The most popular brands of podmods are disposable with prefilled cartridges. However, their nicotine delivery is so advanced that consumers appear to overlook this potential downside.

Since 2007, ENDS have continually grown in popularity. However, until very recently, this trend was hardly noticeable when looking at statistics of adult use. As recently as 2019, only 4.5% of adults had used ENDS in the past 30 days.[63] In

2020, researchers noted that in 2014 the growing popularity of ENDS was almost exclusively among younger adults and among a small fraction of recently quit older adults.[63]

2014 was a watershed year for youth ENDS use. Among adolescents, use of ENDS more than doubled from the year before, surging from 4.5% of high schoolers to 13.4%—becoming the most popular method of consuming nicotine in that age group.[64] At the same time, cigarette prevalence declined from 12.7% in 2013 to 9.2% in 2014. Over the next nine years, cigarette use among high schoolers consistently declined to about 2.0% while ENDS use waxed and waned. ENDS use grew to 16% in 2015, but declined in popularity in 2017 to 13.2%. It then surged hitting record highs in 2018 (20.8%) and 2019 (27.5%).[65-70] The ENDS use trend since then has been mostly downward, hitting 10.0% in 2023, the lowest number in a decade.

High schoolers in 2014-2019 are young adults now. And while ENDS use among adults is still in the single digits, around 6.9% according to the Behavioral Risk Factor Surveillance System, use among young adults is nearly triple that (18.0%).[71] In fact, about half of all nicotine use among young adults is via ENDS. This suggests that ENDS use over the next 10-20 years may completely supplant conventional cigarettes as more and more adolescents who only used ENDS reach adulthood.

Nicotine Salts

A crucial distinction between ENDS products of today and those from 2007-2014 is the use of nicotine salts. Prior to 2015, e-juice contained freebase nicotine suspended in a solution of propylene glycol and/or vegetal glycerin. According to studies, nicotine in this form and delivered through a commercial electronic device delivered far less nicotine than a conventional cigarette and at a much slower rate—although at a higher concentration and faster rate than any FDA-approved nicotine replacement therapy product.[72-74]

Juul and the other "podmod" products that followed combine nicotine with an acid, like benzoic acid. The effect is that the experience of using one of these products is remarkably like a cigarette—not just in terms of the concentration and speed of delivery, but also in the rapidity at which it is metabolized by the body.[73] Rapid metabolization allows for, and even encourages, more frequent use thereby mimicking, in most respects, cigarettes' highly addictive character.

Nicotine pouches use a similar nicotine plus acid formulation. Nicotine pouches are a form of smokeless tobacco, analogous to Snus but without containing any plant product. Pouches contain nicotine, food grade fillers, sweeteners, and pH adjusters. The first of these products, Zonnic, was produced in the early 2000s as a medicinal nicotine replacement therapy before being bought by R.J. Reynolds and sold as a commercial product. It is still sold in pharmacies in parts of Europe as nicotine replacement therapy. The first of these products sold in the U.S. was Zyn. Snus manufacturer, Swedish Match, is also the manufacturer of Zyn. Other brands have followed, such as On!, Lyft, Rogue, Loop, and Nordic Spirit. A recent article in the Wall Street Journal reports the dramatic rise in the popularity of these products over the past couple years, with sales climbing 200% globally from 2022 to 2024.[75]

Synthetic Nicotine

In addition to the new formulations of nicotine found in contemporary ENDS and in nicotine pouches, nicotine itself is changing from a plant-extracted product to a fully lab-created one, commonly referred to as "synthetic nicotine" or even "tobacco-free nicotine." Synthetic nicotine

offers the potential for some benefits as well as new risks. Most nicotine derived from plants is a version of nicotine called S-nicotine, while synthetic nicotine is 50% S-nicotine and 50% of another version of nicotine called R-nicotine.[76] Chemists note that S-nicotine is a more powerful agent and thus products containing R-nicotine may be less addictive than plant-based products. However, we have learned historically that weakening the addictive power of a tobacco product often results in consumers simply using more of it to match their level of dependency. Thus, even if R-nicotine is less addictive, this does not imply there will be any public health benefit. A key difference between synthetic and plant-derived nicotine is that the latter also contains tobacco-specific nitrosamines (TSNAs) which are known to be carcinogenic.[77, 78] ENDS and nicotine pouch manufacturers using synthetic nicotine market their products as "tobacco-free," or "cleaner." Such phrases may mislead consumers into believing these products are safe or even non-addictive.

Heated Tobacco Products

The fourth important new class of product is the heated tobacco products, sometimes called heat-not-burn products. These products represent a hybrid of conventional and electronic products. Like conventional tobacco products, they do contain tobacco plant material, although sometimes it is highly processed.[79] However, unlike conventional tobacco products, this plant material is not burned. Rather, more like e-cigarettes and other ENDS, the plant material is heated to a temperature below combustion, producing an inhalable aerosol. While manufacturers would like to market these products as safer alternatives to conventional smoking, a 2016 World Health Organization report found no evidence to support this claim.[80]

Why Do People Use Nicotine?

Biological Considerations[37]

- Nicotine has the potential to enhance concentration, information processing, and learning, particularly for people who have abstained from use recently.[81]
- Other biological factors include nicotine's positive effects on mood and feelings of pleasure and enjoyment.

Psychological Considerations[82]

- Nicotine use may temporarily relieve feelings of tension and anxiety and is often used to cope with stress.
- People typically engage in a daily habit of nicotine use, and the behaviors associated with nicotine use become habitual.
- Nicotine use may allow people to temporarily escape unpleasant emotional states.
- Nicotine use may be a way to manage body image and food intake, particularly for women.[83, 84]
- Nicotine is often used to manage symptoms of other health conditions (e.g., anxiety, bipolar disorders, depression, schizophrenia, other SUDs, and PTSD).

Social and Cultural Considerations

- People may use nicotine to feel "part of a group."
- Social networks (family, friends, coworkers) can be a powerful influence on the initiation of nicotine use, continued use, and cessation.

- Nicotine use behavior spreads through close and distant social ties; groups of interconnected people stop using nicotine jointly, and those who continue to use nicotine are increasingly socially isolated.[85, 86]
- Social connections and peer influence may be particularly important for youth who use nicotine.
- Nicotine use has been shown to affect who adolescents select as friends—youth tend to select friends whose nicotine use level is like their own.[87, 88]

Reasons for Continued Nicotine Use:

- Improved concentration/alertness
- Sense of relaxation
- Sense of euphoria
- Stress reduction
- Social acceptance
- Relief from withdrawal symptoms
- Weight management

- Nicotine use is often associated with social activities such as gatherings outside, restaurants, holidays, etc. After long-term use in specific environments and situations, the mere sight of the social activity causes urges (both at a chemical and behavioral level) to use nicotine.

Why is Nicotine so Difficult to Quit?

It is important to have empathy and understanding when working with individuals who currently use nicotine. Everyone, including people trying to quit, may underestimate how hard it is to quit nicotine, especially if the individual is not ready to quit. It is essential to remember that individuals are dependent on nicotine through neurobiology and behavioral components. Therefore, the positive effects of nicotine use are chemical, behavioral, and psychological. Understanding why people are susceptible to nicotine addiction and why it may be hard to quit is key to helping them.

Why are Some People More Likely to Use Nicotine than Others?

Genetic Factors

Decades of biometric research on twins and adoptive families have demonstrated that a significant portion of the risk for nicotine use and tobacco use disorder is genetic in origin.[89] Some forms of genetic variation influence vulnerabilities to nicotine addiction specifically, whereas other genetic variation may influence vulnerability to problematic substance use more broadly. For example, people differ in how fast or slow they metabolize nicotine or in how sensitive their nicotinic receptors are, which impact nicotine dependence and cessation success.[90] Personal characteristics such as impulsivity and behavioral disinhibition also have a large genetic component, and these traits have been shown to explain individual differences in the likelihood of substance use and dependence.[90]

Environmental Factors

Parents and caregivers who use nicotine role model these behaviors. Studies show that parents who smoke or use ENDS products and those who are nicotine dependent have children who are more likely to use cigarettes and ENDS, become daily smokers, and develop nicotine dependence themselves.[91-94] As well, children exposed to familial nicotine use have more positive perceptions about smoking and vaping behaviors and are more likely to underestimate the harms that come from smoking and vaping.[95-97] The availability of nicotine products in the home and perception that parents and caregivers will not react negatively to discovering their children's ENDS use are also associated with adolescent ENDS use, as is having friends who use ENDS.[98] As discussed further below, experiencing traumatic environments, particularly during childhood, also increases the likelihood that individuals will become nicotine dependent.[99, 100]

Discrimination Directed at Individuals Who Use Nicotine

People who use nicotine—particularly people who smoke cigarettes—are increasingly the targets of discrimination. This may lead to a sense of isolation and shame, making it harder to talk about their nicotine use. Furthermore, consequences of discrimination may reduce access to necessary resources and treatments for cessation. For example, individuals may be denied employment because of nicotine use.[101] Similarly, more companies are penalizing individuals who use nicotine by requiring them to pay a greater percentage of their healthcare insurance, essentially decreasing their income.[102, 103]

Importance of Person Centered Language[104]

How we refer to people who use nicotine products can be stigmatizing. Terms like "smokers", "vapers", "users", or "addicts" should be avoided. Labels like these imply that nicotine use is an essential, unchanging part of people's identity, making it easier to overtly discriminate against these individuals and to dismiss the severity of their disease. The use of person centered language opens the door to change and recovery. As a healthcare professional, it is important you do your part to destigmatize this chronic, relapsing disease. Integrate these phrases into your practice: persons who are nicotine dependent, people who use nicotine, and people who smoke.

Withdrawal Symptoms are Real

An individual in nicotine withdrawal may experience decreased concentration, heightened irritability and anxiety, depressed mood, insomnia, increased eating, and difficulty with personal relationships.[104] Withdrawal symptoms can last several weeks and can be severe.

Personal Costs to Quitting

Among the reasons that quitting nicotine is so hard is that people must dramatically change aspects of their lives and develop new ways of coping. Because of the way in which our brains make connections, many aspects of our day-to-day world become associated with nicotine use and therefore, become triggers. When individuals decide to quit nicotine, they may need to avoid many routines, habits, places, and relationships to escape triggers until they have healthier coping strategies available.

- Food and alcohol are often associated with nicotine use, so specific foods, beer, wine, and other beverages may need to be avoided.
- Places are often associated with nicotine use, so an individual's car, home, or work environment may trigger a desire to use nicotine.
- Relationships are often associated with nicotine use, so individuals may have to avoid specific friends, family events, or outings to avoid triggers.
- Activities are often associated with nicotine use, so individuals may have to avoid specific activities in which they used nicotine simultaneously (e.g., watching television, hanging out in the park, going to a bar with friends, holiday events with friends and family, etc.).

When you are trying to **QUIT,** the **WHOLE WORLD** is a **CUE** to **SMOKE.**

Who is Most at Risk of Nicotine Use?

Demographic Risk Factors

There are several demographic characteristics that may influence patterns of nicotine use among the U.S. population. Tobacco companies have invested billions of dollars in marketing nicotine products. In 2022 alone, the industry spent $22 million each day on marketing.[18] Many populations with higher rates of nicotine use have been specifically targeted by marketing campaigns to encourage nicotine use. Here are a few key statistics to remember:

Age

- Cigarette smoking rates are highest among adults aged 45-64 (14.9%) and lowest among adults older than 65 (8.3%).[1]
- Most (nearly 100%) adults who smoke cigarettes daily started using nicotine by young adulthood (prior to turning 26).[105]
- ENDS use is highest among young adults aged 18-24 (11%) and lowest among adults 45 and over (2%).[106]

Socioeconomic Status

- Individuals who are working class, earn low income, and/or have low educational levels have the highest percentages of nicotine use behaviors.[1, 107] This outcome is in part due to targeted marketing to these populations by tobacco companies.[108]
- The rate of cigarette smoking among individuals who are homeless is 57-82%.[109]
- ENDS use among adults aged 18 and over generally declines as family income increases.[106]

Race and Ethnicity

- 35% of Native American and Alaska Native adults smoke cigarettes—more than any other racial or ethnic group.[1]
- Hispanic Americans are an important group disproportionately impacted by nicotine.[110] Lung cancer is the leading cancer death among Hispanic men and second leading cause of cancer death among Hispanic women.[107] Hispanic men and women are less likely to receive screening for nicotine use, advice to quit, or evidence-based treatments than White adults.[112]
- Over 45,000 African Americans die from nicotine-related diseases each year.[113] This is the highest nicotine-related disease burden of any U.S. group.
- African Americans are more likely to smoke menthol cigarettes. A potential factor is tobacco company marketing campaigns for menthol cigarettes often target African Americans.[114, 115]
- Individuals who experience racial discrimination may be more likely to use nicotine, in part, because of the distress caused by these experiences.[116]
- Current ENDS use varies by race; among all adults 18 and over, White non-Hispanic adults (5.2%) exhibited higher rates than Asian non-Hispanic (2.4%), Black or African American non-Hispanic (2.4%), and Hispanic or Latino (3.3%) adults.[106]

Sexual Orientation and Gender Identity

- Numerous studies demonstrate that gay, lesbian and bisexual people have higher rates of nicotine use than heterosexual adults.[1]
- About 1 in 6 (15.3%) lesbian, gay, and bisexual adults smoke cigarettes, compared with about 1 in 9 (11.4%) of heterosexual adults.[1]
- Cigarette smoking is also higher among transgender adults (35.5%) than among adults whose gender identity corresponds with their birth sex (cisgender).[117]
- Tobacco companies have a long history of targeting LGBTQ communities through event sponsorships, bar promotions, giveaways, price discounting, and advertisements at Pride festivals and other LGBTQ community events.[118]
- The reported ever use of ENDS products among individuals who do not identify as heterosexual (48%) is higher than among their heterosexual peers (39%).[119]

Geographic Area

- Thirteen U.S. states in the South and Midwest – termed "Tobacco Nation" – consistently rank in the highest 25% of tobacco use prevalence among all 50 states, based on BRFSS data: Alabama, Arkansas, Indiana, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Ohio, Oklahoma, South Carolina, Tennessee, and West Virginia.[120]
- In rural areas, use of tobacco is about 50% higher than urban areas.[1]
- Prevalence of smokeless tobacco use in rural areas is about 2.5 times that of urban areas.[121]

People Who Have Experienced Trauma and/or Early Life Adversity

- People exposed to trauma or diagnosed with posttraumatic stress disorder (PTSD) are more likely to use nicotine products, commonly for self-regulation of unpleasant affective states and symptom management.[99]
- People who have PTSD report more significant withdrawal symptoms, experience higher rates of nicotine dependence, and are less likely to achieve long-term abstinence from nicotine and other substances.[99]

- Compared to people who have not experienced any Adverse Childhood Experiences (ACEs), people who have experienced four or more ACEs are 2 times more likely to have ever smoked and are 4 times more likely to currently smoke.[100]
- People who have experienced four or more ACEs may also have an "increased likelihood of current and heavy smoking, tobacco initiation, persistent tobacco use, craving, nicotine dependence, and using electric cigarettes."[100]

Justice Involved Individuals

- Individuals who have been involved with the criminal justice system have an estimated cigarette smoking prevalence rate between 50-83%.[1]
- The high smoking prevalence among the justice-involved is an outcome of larger social and economic inequities that are risk factors for smoking (e.g. poverty, housing instability, unemployment) that are overrepresented in the criminal justice system.[40]
- As many as 90% of individuals who smoked prior to incarceration will resume smoking once out of prison or jail.[122]
- This population has extremely high morbidity and mortality rates caused by smoking and other chronic illnesses.[123]
- Currently, many jails explicitly allow and profit from the purchase of ENDS products.[124]

If a person belongs to two or more of the above groups, they are at multiplicative risk of tobacco use, secondhand smoke exposure, and unnecessary death and disability.[40, 125]

Trauma Defined

As defined by SAMSHA, "trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional or spiritual well-being."[126]

Adverse Childhood Experiences (ACEs) are "potentially traumatic events that occur in childhood (ages 0-17)."[127] They include various forms of abuse, neglect, and challenges in the home experienced before age 18.

Post Traumatic Stress Disorder (PTSD) is a psychiatric disorder defined in the Diagnostic and Statistical Manual, Fifth Edition.[128] It develops after a person has been exposed to, witnessed, or learns that a loved one has experienced "actual or threatened death, serious injury, or sexual violence." The presentation of PTSD varies based on the symptoms experienced; however, to meet diagnostic criteria for PTSD, a person must experience intrusive symptoms, persistent avoidance, negative alterations in cognition and mood, and alterations in arousal and reactivity. Additionally, the symptoms must last longer than 1 month, cause clinically significant distress, and not be attributable to substance use or another medical condition.

Persons with Behavioral Health Conditions

Nicotine use is intricately associated with other behavioral health conditions and is often used by people to manage symptoms associated with anxiety, depression, psychosis, suicidal thoughts, PTSD, and other substance use disorders. Nicotine is also the first drug many individuals experiment with which makes it hard to determine if nicotine use plays a causal role in the development of these other conditions, if it acts as an early warning sign of a developing condition, or whether both conditions are products of other socioenvironmental conditions, like ACEs. Whether the link to downstream behavioral health conditions is causal or merely correlational, the interaction of nicotine use and other behavioral health conditions produces a synergistic effect.[129] This combination complicates the clinical picture and course of treatment by worsening symptoms of depression and anxiety, making conditions harder to treat, and causing recovery to be harder to obtain and sustain for people. In fact, nicotine dependence is associated with suicide attempts in the general population (independent of comorbid mental health disorders and physical disease),[130] tobacco use is one of three risk factors for suicide,[131] and quitting nicotine use is associated with a decreased likelihood of suicide.[130]

Persons with behavioral health conditions:

- Experience nicotine dependence at rates 2-3 times higher than the general population[132]
- Represent over 44% of the U.S. tobacco market[133, 134]
- Consume over 34% (1/3) of all cigarettes smoked[133, 134]

The available evidence has shown that integrative treatment models, those that concurrently treat co-occurring conditions, are the most efficacious and cost-effective.[135] For example, for people with other substance use disorders, concurrent treatment of nicotine increases the likelihood of long-term abstinence from all substances by 25%.[136] Several mechanisms likely contribute to these better results:

- The coping, mindfulness, and self-awareness skills learned to replace one unhealthy behavior can be used to replace a variety of unhealthy behaviors.
- When substances are used together, each serves to activate the desire to use the other. Quitting all substances removes key activators for the brain's reward system.
- While nicotine is often used to alleviate symptoms of other behavioral health conditions in the short term, the long-term effects of nicotine typically cause and/or exacerbate those same symptoms (e.g., anxiety, inability to focus, depression).
- Tobacco smoke interferes with the metabolization of other drugs, including medicines prescribed to treat other behavioral health conditions (see Table in Nicotine Cessation Treatment Section).

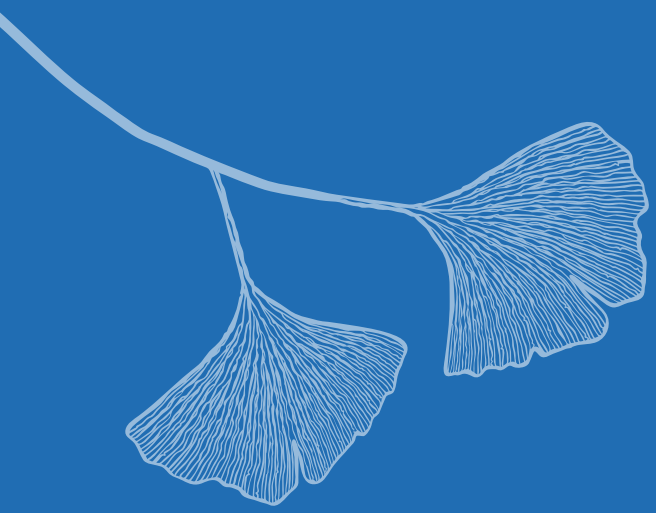
To effectively and efficiently treat nicotine and other co-occurring behavioral health conditions, clinicians need to adopt integrative treatment modalities with evidence to support the concurrent treatment of all conditions.

Please see the supplement to this toolkit, **Priority Populations: Behavioral Health** for a review of evidence-based integrative treatment modalities.

Policies and Strategies that Affect Nicotine Use Rates

Policies that support nicotine cessation have demonstrated positive effects on nicotine cessation rates and quit rates.[137, 138] Strategies proven to reduce nicotine use, prevent initiation, increase cessation, and decrease secondhand exposure include:

- Education campaigns like Tips From Former Smokers (Tips).[139]
- Increasing the price of nicotine products.[140]
- Ensuring all people have access to evidence-based cessation treatments, including through widely promoted, comprehensive insurance coverage with no barriers or cost sharing.[140]
- Comprehensive nicotine-free policies. Nicotine-free healthcare facilities are a central component of guidelines for treating nicotine use.[141] Treatment settings that have nicotine-free grounds are effective in decreasing smoking prevalence for the people served,[142] as well as reducing smoking prevalence of treatment staff.[143]



Assessment and Planning for Change

1. Assessment
2. Screening for Co-Occurring Conditions
3. Planning for Change
4. How to Address Nicotine Cessation for Individuals Not Yet Ready to Quit
5. The Opt-Out Model for Nicotine Cessation
6. Cultural Considerations
7. Screening for Nicotine Use

Assessment and Planning for Change

Assessment

As you prepare to talk with someone about stopping their nicotine use, it is important to know where they are in terms of their readiness for change. Everyone who uses nicotine should be offered assistance, but you will need to adjust your approach and intervention based upon a person's readiness for change.

Stages of Change

The Stages of Change Model (also known as the Transtheoretical Model) is a known and researched model of the process of change.[144, 145] The stages as applied to nicotine cessation include:

STAGE	DEFINITION	INTERVENTION
Pre-contemplation	No change is intended in the foreseeable future. The individual has not considered nicotine cessation.	Educate/inform
Contemplation	The individual is not prepared to quit at present but has considered nicotine cessation and has intention to do so in the next six months.	Encourage/motivate
Preparation	The individual plans to stop their nicotine use in the immediate future or within the next month.	Assist with goal setting
Action	The individual makes overt attempts to stop their nicotine use. However, the person has not been engaged in the quit process for longer than six months.	Provide support, assist as needed to overcome barriers
Maintenance	The individual has been abstinent from nicotine for longer than six months.	Continued support, set new goals when ready

As a person's readiness to change shifts through these five stages, you will want to adjust your intervention. When your intervention matches the person's readiness for change, you are more likely to increase that individual's motivation (see Figure to the right). When your intervention does not match the person's readiness for change, the person may not engage with you in the change process.

Often, the way in which people move through these stages is less linear and more organic or fluid than the Figure indicates. Individuals may need to cycle and re-cycle through specific stages, and they may skip stages or very briefly move through a stage.

In addition, individuals may be in different stages of change for different aspects of their lives. For example, a person may be in contemplation about changes needed to manage their heart disease while still in pre-contemplation about their nicotine use.

Meet the person where they are. Match your intervention to a person's stage of change.

Readiness for Change and Motivational Interviewing

Once someone has been identified as a person who uses nicotine, individual readiness to quit can be determined. The stages of change model helps us to recognize that nicotine use disorder is a chronic, relapsing disease. Most people who use nicotine in the general population require multiple attempts before they finally quit for good.[141, 146] Many people do not realize that it usually takes several attempts to stop their nicotine use and maintain long-term abstinence.

If someone has been unsuccessful in the past, they may need additional support to evoke motivation to make another quit attempt. In a study on quit attempts, the results indicate that individuals are likely to under-report their history of quit attempts, especially if they are unable to quit for longer periods of time. As time passed, if they did not quit for a long period of time, they tended not to "count" the quit attempt.[147] This is important to know since this information could affect your perception of their motivation to quit.

Listen and ask open questions to explore a person's motivation. Be aware that a significant proportion of quit attempts are unplanned and that these attempts can be a successful path to cessation.[148] Whether a person has contemplated change for a long time or makes a quick decision to quit, it will be important to offer treatment and support.

People who use nicotine and are in the pre-contemplation stage need different interventions than those who feel ambivalent or want to quit. With people in the pre-contemplation stage (not considering quitting) and contemplation stage (considering quitting), a conversation that uses the Motivational Interviewing approach can help to evoke motivation and increase change talk.

These types of questions may help achieve this result:

"What do you wish you could change about your nicotine use?"

"What are the reasons you want to change your nicotine use?"

"Once you've stopped your nicotine use, what do you hope will be different in your life?"

Be aware of how you engage a person in conversation. Research has shown that the more people hear themselves talk about the disadvantages of change, the more committed they become to the status quo.[146]

TIP: Think of nicotine cessation as a process rather than an event.

During a conversation with a person who uses nicotine you'll want to actively encourage them to quit and offer support and treatment as well as convey the message that individuals can successfully stop using nicotine. These messages need to be communicated with empathy and in a tone that guides individuals rather than lectures them.

Motivational Interviewing is aligned with Self-Determination Theory, which suggests that you can help people to become self-motivated and competent to make cessation attempts.[149] You can elicit and acknowledge an individual's perspectives, support their initiative, offer choice about treatment, and provide relevant information, while minimizing pressure and control. This approach stands in contrast to strategies focused on pressure through threats of negative health consequences, shame, or guilt. It may be helpful to use the My Nicotine-Free Life handout (found at the end of this section) with people to help them clarify their reasons to work toward a quit, and to envision a nicotine-free life.

Motivational Intervewing Defined

MI is a particular way of talking with people about change and growth to strengthen their own motivation and commitment.[146]

How Can Motivational Interviewing Encourage and Support Change?

To support people most effectively in the change process, you will want to embody a stance of collaboration, empathy, and genuine partnership.

Is your conversation about change person-centered?

The Spirit of MI[146]

THE SPIRIT OF MI	
Partnership	• Explore the change together • Remember that each person is an expert on themselves • Engage in active collaboration
Acceptance	• Value the inherent worth and potential of each person • Seek to understand the person's perspective • Honor and respect each person's autonomy • Explore and affirm a person's strengths and resources
Compassion	• Actively promote the person's welfare • Prioritize the person's need
Empowerment	• Help each person to realize and use their strengths and abilities • Evoke their wisdom and experience to help facilitate positive change

You can guide individuals towards changs that make sense for their unique circumstances and needs and share specific treatment options. Empower people to take small, manageable steps, and use their own strengths, resources, and creativity to make changes and overcome challenges.

Most importantly, LISTEN for their motivations, benefits, and readiness to change.

As Miller and Rollnick suggest, helpers need to resist the fixing reflex.[146] The fixing reflex is the natural desire of helpers to prevent harm and promote a person's welfare with attempts to correct or repair perceived problems. This desire becomes a reflex—automatic and compelling. This can lead to lecturing, which tends to make people resist persuasion and focus on the disadvantages of change.

Instead, we need to LISTEN.

TIP: Use the Motivational Interviewing Acronym **WAIT** to help you listen: **WHY AM I TALKING?**

Listen for Change Talk

Change talk is any statement a person makes that favors movement toward a particular change goal. Listen for statements that express a desire to change, the ability to change, reasons to change, need to change, and a commitment to change. Focus strategically on these change talk statements to help people move through ambivalence and toward change.

Desire to Change: "I **wish**" "I **want**" "I **like** the idea."

Ability to Change: "I **could** probably lower the level of nicotine in my vape." "I think I **can** come to group next week." "I **might** be able to stop smoking in the house."

Reasons for Change: "I'm sure I'd **feel better** if I quit." "Smoking **keeps me** from hiking, which I love."

Need to Change: "I **must** get healthier for my kids." "I've **got** to get back to work."

Commitment to Change: "I **will** only use chew when I'm driving." "I **promised** my daughter I would quit." "I **plan** to try these patches and attend group."

Commitment at a lower level: "I **will** think about what you said." "I'll **consider** medication to help with withdrawal." "I **hope** I can quit."

Learn Motivational Interviewing (MI) skills and strategies to support nicotine cessation. The Behavioral Health & Wellness Program offers three levels of training to meet your MI training needs.

DIMENSIONS: Motivational Interviewing for Behavior Change

Level I (Introductory): Participants will be guided through a sequence of learning activities to support the development of proficiency in the application of MI. Through activities designed to facilitate a deep understanding of the core MI concepts, participants will have an opportunity to practice and implement basic MI skills and strategies to reinforce their learning. Learn more here: https://www.bhwellness.org/mibc-level-i/

Level II (Intermediate): Participants will build on their foundational Motivational Interviewing skills through a deep exploration and practice of MI skills, strategies, and concepts. This training features cooperative learning activities, real-play practice, trainer demonstrations, and peer engagement. Learn more here: https://www.bhwellness.org/mibc-level-ii/

Level III (Advanced): Participants will focus on advanced application of Motivational Interviewing skills and strategies. This dynamic and experiential training will feature activities that deepen engagement and evocation skills and support development of skills through recorded practice, coding, and self-evaluation. Learn more here: https://www.bhwellness.org/mibc-level-iii/

Screening for Co-Occurring Conditions

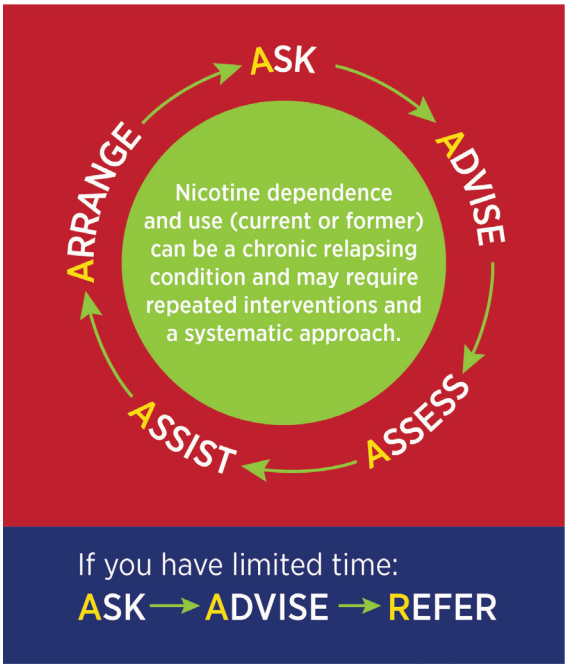
The effectiveness of cessation medications and clinical interventions and the appropriateness of a treatment plan will be negatively impacted when co-occurring behavioral health conditions are present and ignored. Screening for common co-occurring conditions is a quick and evidence-based strategy to improve the chances for cessation success. Standardized evidence-based screeners for anxiety, depression, trauma, early life adversity, and other substance use disorders are free and widely available online. Integration of these measures into standardized assessment is ideal and can be done with minimal time and financial resources.

Planning for Change

Once you have assessed a person's readiness to quit and screened for co-occurring conditions, you can collaborate to create an individualized plan of care. Planning involves continued assessment of an individual's motivation and potential barriers to change. Motivational Interviewing techniques are essential in the planning stage. Another strategy to assess nicotine use and cessation is the 5As.

The 5As: Ask, Advise, Assess, Assist and Arrange

The 5As are a strategy originally created for use in healthcare settings to assess and address tobacco use and cessation.[146] This strategy may be utilized in any setting and can serve as a guide for conversations with individuals who currently use nicotine. You'll want to move through the 5As one at a time and discuss each of the 5As in order: Ask, Advise, Assess, Assist, Arrange.



THE 5As	
ASK	**Ask all individuals about nicotine use** • "Do you, or does anyone in your household, use any type of nicotine?" • "How many times have you tried to quit?" • Explore nicotine use history
ADVISE	**Advise people who use nicotine to quit by offering a clear, personalized and non-judgmental message about the health benefits of quitting nicotine** • For healthcare professionals: "Quitting smoking entirely is the best way to improve your current and future health. We can talk about cessation medications and support." • For Tobacco Treatment Specialists, peers, coaches: "We can work together to help you quit nicotine and manage your mood and stress at the same time."
ASSESS	**Assess readiness to quit** • "What are your thoughts about your nicotine use?" • "Have you considered quitting?" • "What would be a first step for you?" • Explore barriers to quitting • Assess nicotine dependence - "How soon after you wake do you use nicotine?" - "How often do you use nicotine in a day?"
ASSIST	**Assist individuals interested in reducing and quitting** • Listen to the person's story and provide information about options • Set a quit date or create a plan to gradually cut down • Discuss their concerns • Encourage social support
ARRANGE	**Arrange follow-up visits to track progress** • People who have follow-up appointments are much more likely to be able to quit and sustain their quit attempt • Encourage individuals to talk with their medical providers about cessation medications • Brainstorm together on ways to remove barriers to quitting or staying nicotine-free • Congratulate successes no matter how small

2As and R

Some organizations are unable to provide nicotine use treatment or follow up with care. Even so, these organizations can still Ask-Advise- and Refer to available community services like state quitlines.

How to Address Nicotine Cessation for Individuals Not Yet Ready to Quit

How do you support an individual in the pre-contemplation or contemplation stage? Recognize that some people may feel unsure or hopeless about their ability to change their nicotine use due to past unsuccessful quit attempts or a lack of support from their social networks. Every encounter is an opportunity to engage and build rapport. When you can embody the Spirit of Motivational Interviewing (Partnership, Acceptance, Compassion and Empowerment) in your conversations, people will be more likely to return to you for help when they are ready.

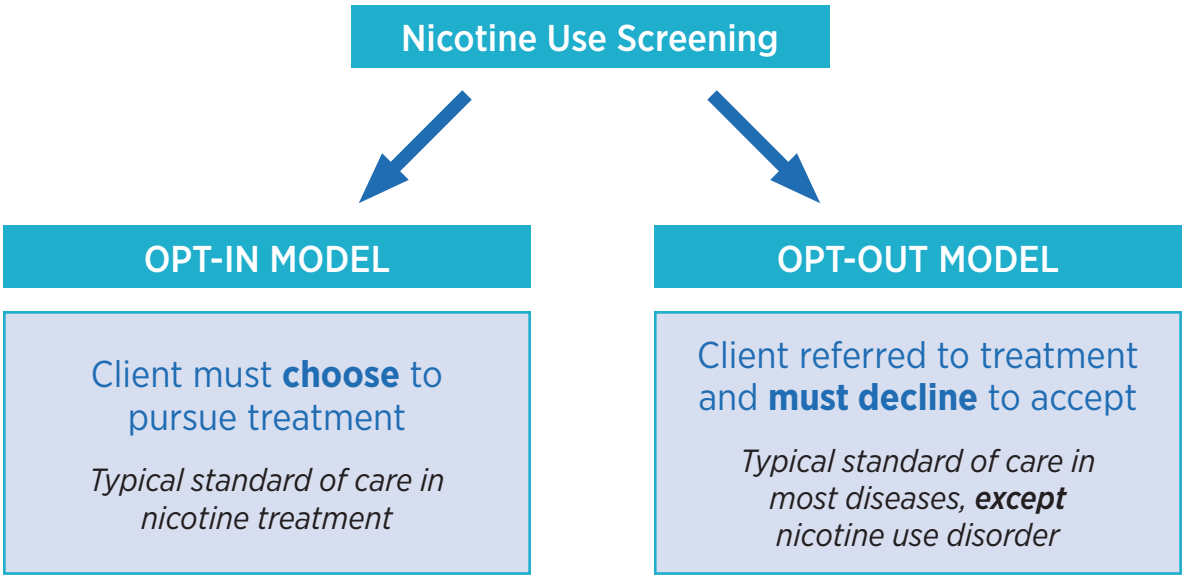
You'll want to provide nicotine cessation information at the pre-contemplation and contemplation stage. Even if people are not ready to make a change with their nicotine use, they may be able to take action that helps them to get ready to change. They can read handouts or access resources you provide. They can keep track of their current nicotine use. Or they could consider the benefits of quitting nicotine. They may also be ready to make a health behavior change in another area, which can ultimately support their readiness to quit nicotine. Meet them where they are.

The Opt-Out Model for Nicotine Cessation

For decades, the standard of care in treatment for nicotine use disorders has utilized the opt-in model. Under this traditional approach, people who report nicotine use are asked if they would like to receive treatment. This approach is unique to nicotine use; for essentially every other health condition, people are systematically referred to further treatment. For example, if a person is diagnosed with diabetes, they will be referred automatically to resources such as education, medication, and monitoring supplies.

Simply put, utilizing the opt-out model for nicotine cessation is an effort to align treatment for nicotine use disorders with the standard of care for most medical conditions. Under the opt-out model, people who report nicotine use are referred automatically to treatment for nicotine use disorder.[151] Because these referrals occur automatically, people must proactively decline to accept them; in other words, they must "opt-out" of the treatment recommendation. Many people will not do so, and as a result more people will receive treatment for nicotine use disorders, more people will pursue quitting, and more people will succeed in their quit attempt.

Contrasting Models



The opt-out model allows for a spectrum of services to be offered within its framework. For instance, a low-intensity approach might only consist of providing people with information about available nicotine use disorder treatment options, while a high-intensity approach may include scheduling people for treatment automatically. Again, the primary differentiator from the historical approaches to nicotine use is that the next step in treatment occurs automatically, and the individual's participation is assumed. The opt-out model can also be customized via the means through which treatment is offered. People who report nicotine use might be referred to services at their appointment, but a similar referral could also occur later via direct phone or email outreach or even from periodic bulk communications. Moreover, these varying approaches may all be used together as part of a comprehensive strategy. Referrals stemming from the opt-out model need not be made within the referring organization but could be offered to external partners or resources instead.

Research into the opt-out model for nicotine cessation has found that it may increase treatment engagement and quit attempts and can positively impact short-term cessation outcomes and even optimize care for other conditions.[152-155] Critically, the opt-out model also upholds the ethical standard of offering evidence-based care to all people as a standardized practice, while likewise mitigating the potential impacts of stigma and biases. Further research into the opt-out model is ongoing, but this approach offers a promising opportunity for helping more people to quit nicotine.

Cultural Considerations

Research over many decades has demonstrated that specific populations experience health disparities and are at greater risk for chronic disease and premature mortality simply due to their economic status and/or racial/ethnic group. Nicotine use is another area in which income, race, and ethnicity has a significant impact. Income is a major driver of tobacco use, as individuals with low income use tobacco at much higher rates (24.7%) than individuals with middle (18.9%) or high income (14.8%).[1]

Key findings from the 1998 Surgeon General's Report indicate that of the four racial/ethnic groups studied (African American, American Indian/Alaska Native, Asian American/Pacific Islander and Hispanic), African American men

bear one of the greatest health burdens, with death rates from lung cancer that are 50% higher than those of Caucasian men.[113] Rates of other nicotine-related cancers vary widely among members of different racial/ethnic groups, however while cancer rates declined nationally in the first 20 years of this century, African Americans continue to have the highest cancer death rates.[156]

Nicotine use among adolescents from racial and ethnic minority groups has begun to increase rapidly, threatening to reverse the progress made against lung cancer and other diseases among adults in these racial/ethnic groups. Nicotine and tobacco use varies over the lifespan by racial/ethnic group, gender, and other factors, and this wide variety of life course patterns requires consideration.[157, 158] Part of the problem has been access to treatment and specific nicotine cessation programming for people of color and/or low socioeconomic status individuals.

Focus on Youth—Now is the Time to Engage Youth

- Nicotine product use primarily is started and established during adolescence.[5, 105, 159]
- 16.5% of U.S. high school students report using some sort of tobacco product.[70]
- Approximately 3,500 young people try a cigarette for the first time each day and nearly 1,000 become daily smokers.
- Nearly 9 out of 10 adults who smoke cigarettes daily tried their first cigarette before they turned 18.[160]
- Approximately 1/3 of youth smokers will eventually die from a tobacco-related disease.
- When implemented together, national, state, and local program activities have been shown to reduce and prevent youth nicotine product use.[105, 161, 162]
- ENDS have been the most commonly used nicotine product among youth since 2014.[160]

Recommendations

Research demonstrates that tailoring healthcare initiatives to account for the culture of individuals in need of treatment improves effectiveness of programming.[163]

- Offer nicotine use disorder treatment and resources to everyone.
- Provide information about treatment options. Work with each individual to find treatment choices that fit the person's cultural background.
- Ask questions and empower people to make a choice to quit. Avoid making assumptions about someone's culture and barriers to quitting.
- Hire culturally competent staff.
- Provide staff training in cultural competence and cultural tailoring of treatment approaches. Cultural tailoring refers to anticipating and planning for the needs, preferences or circumstances of particular cultural groups.
- Screen every youth for nicotine use and offer cessation treatment, if needed. If they are not using nicotine, provide support and education regarding the importance of avoiding nicotine use.

Resources

For more information about nicotine/tobacco use and intervention for racial/ethnic populations, consult the CDC's Office on Smoking and Health and Division of Cancer Prevention and Control National Networks. These eight National Networks seek to eliminate tobacco use and cancer disparities and serve as a resource hub for organizations, healthcare professionals, and public health professionals seeking to address health inequities.

Screening for Nicotine Use

The following box provides an example of a common method for screening for nicotine use.

ACTION	STRATEGIES FOR IMPLEMENTATION
Implement an office-wide system that ensures that for every patient at every clinic visit, nicotine use status is queried and documented.	Expand vital signs to include nicotine use or use an alternative universal identification system.

VITAL SIGNS

Blood Pressure: _____

Pulse: _____ Weight: _____

Temperature: _____ Respiratory Rate: _____

Nicotine Use (circle one): Current Former Never

Repeated assessment is not necessary in the case of an adult who has never used nicotine or has not used nicotine for many years, and for whom this information is clearly documented in the medical record.

Alternatives to expanding the vital signs are to place nicotine-use status stickers on all patient charts or to indicate nicotine-use status using electronic medical records or computer reminder systems.

Tobacco or Nicotine Use EHR Fields

1. Are you currently using tobacco (or nicotine products)?

○ Yes ○ No

2. If yes, are you interested in stopping your tobacco use?

☐ I have tried to stop unsuccessfully
☐ I would like to stop over the next month
☐ I would like to stop over the next six months
☐ I have no interest in stopping

3. What kind of tobacco (or nicotine products) do/did you use?

☐ Cigarettes ☐ Cigars ☐ E-cig ☐ Chew ☐ Snuff/Snus ☐ Other_____

4. How many cigarettes do/did you smoke or use in an average day?

○ 1-5 ○ 6-10 ○ 11-20 ○ 21-30 ○ 31+

5. How many minutes after waking do/did you use tobacco?

○ 1-5 ○ 6-30 ○ 31-60 ○ 61+

6. Diagnosis (e.g., Tobacco Use Disorder, ICD code F17.200 which refers to "nicotine dependence, unspecified, uncomplicated") _____

7. Counseling provided

○ A brief intervention (3-10 minutes)
○ More intensive treatment (10+ minutes)

8. Medications prescribed and dosage

☐ NRT Dosage_____
☐ Varenicline Dosage_____
☐ Bupropion Dosage_____

9. Referrals made

☐ Quitline
☐ Other _____

Department of Psychiatry
SCHOOL OF MEDICINE
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Behavioral Health & Wellness Program

My Nicotine-Free Life

Write down the top three reasons you want to be nicotine-free.

1.

This reason motivates me because...

2.

This reason motivates me because...

3.

This reason motivates me because...

Being Nicotine-Free

Take a few moments to contemplate being nicotine-free. What does nicotine-free mean for you? What would be different from your current level of physical health and wellness? Answer the following questions:

What does being nicotine-free look like to me?

What would being nicotine-free feel like for me?

What behaviors would I engage in when I am nicotine-free?

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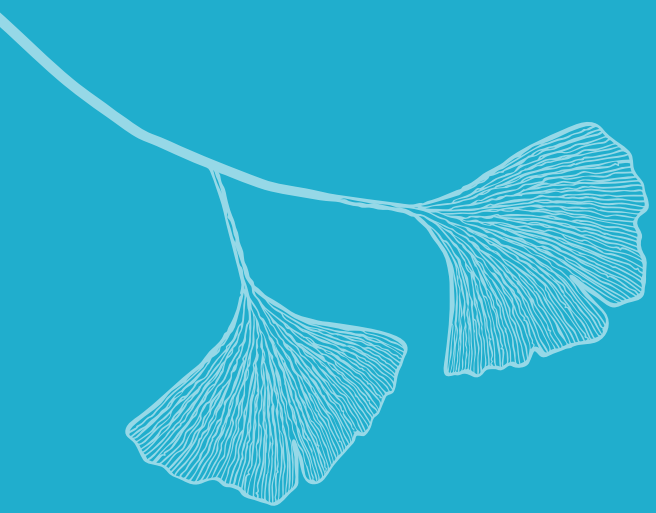

Nicotine Cessation Treatment

1. Overview
2. Components of Successful Intensive Intervention Programs
3. Key Cessation Medication Findings
4. The Safety of Cessation Medications
5. Use of Nicotine Cessation Medications Prior to Quit Date
6. Tobacco Smoke Interactions with Common Medications
7. Combination Medication Treatments
8. Behavioral Treatments
9. Types of Behavioral Interventions
10. Whole Health Approach to Treatment
11. Emerging Nicotine Treatment Strategies

Nicotine Cessation Treatment

Overview

People are unique and therefore need individually tailored treatment to support them to become nicotine-free. 66.5% of adults who had ever smoked cigarettes have quit smoking.[1, 5] Unfortunately, most have quit without proven treatments. There are many different options for nicotine use treatment; however, the most effective approach combines elements of numerous treatment strategies. These strategies include:

- Medication to decrease physical withdrawal symptoms
- Behavioral treatments to change an individual's habit of using nicotine and the development of healthier coping strategies
- Supportive education about the physical, psychological, and social costs of nicotine use
- Referral to nicotine cessation resources and supports (e.g., quitlines, local groups, etc.)

The research in each of these areas is briefly reviewed below. However, a few key points for this section:

- It is important to offer treatment to everyone and to continue to offer treatment repeatedly over time as a person's readiness to quit can change quickly.
- Treatments that include all three components (physical, behavioral, and supportive) are the most effective. Providing education and choices about different treatment approaches is essential.

It is NEVER TOO LATE to Quit

Quitting at ANY Age Buys Years of Life[164]:

Components of Successful Intensive Intervention Programs

Nicotine use disorder has two parts:

Physical	Behavioral
The addiction of nicotine	The habit of using nicotine
↓ *Treatment*	↓ *Treatment*
Medications for cessation	Behavior change program

Treatment should address both the addiction and the habit.

Physical Treatments

FDA-approved nicotine use treatment medications are a key component of care. Using nicotine replacement therapy is a form of medication assisted treatment (MAT), similar to the standard of care for most other substance use disorders. MAT assists with nicotine cessation in numerous ways:

- Provides relief for nicotine cravings and withdrawal symptoms[37]
- Allows the individual to continue to experience stress release and increased arousal without the harmful chemicals in nicotine products[37]
- Allows individuals to focus on changing behaviors related to nicotine use and healthier coping strategies[141]
- Improves chances of a successful quit attempt[7]

There are seven medications approved by the Food and Drug Administration (FDA) for smoking cessation. These are considered first line therapies for treating nicotine use disorder. Currently there are five types of medications which contain nicotine, called nicotine replacement therapy or NRT, and two medications that do not contain nicotine. The two non-nicotine medications are the psychotropic bupropion SR (Zyban) and the partial nicotinic receptor agonist, varenicline (Chantix or Champix). It should be noted that the nicotine inhaler (Nicotrol) is no longer being produced and is currently unavailable.

Medications Approved by the Food and Drug Administration (FDA) for Nicotine Cessation

Nicotine gum	No prescription
Nicotine lozenge	No prescription
Nicotine patch	No prescription *(some prescription versions)*
Nicotine nasal spray	Prescription required
Nicotine inhaler	Prescription required
Bupropion SR tablets	Prescription required
Varenicline tablets	Prescription required

Key Cessation Medication Findings:

- Treatments that combine medications with behavioral interventions have the best rates of treatment acceptance and cessation.[165] This was reinforced by Rigotti and colleagues' review of 65 randomized trials, finding that adding behavioral support to medication was associated with higher cessation rates at 6 months.[166]
- Reviews of 133 trials of NRT suggest that NRT is effective in all forms and might increase smoking abstinence at 6 months or longer by 50-60% compared to placebo or no NRT.[167]
- Reviews of 46 trials of bupropion SR (Zyban) suggest that bupropion might increase smoking abstinence at 6 months by 52-77% compared to placebo.[168]
- A review of 27 trials of varenicline found relatively larger effects and suggests that varenicline more than doubles smoking abstinence at 6 months or longer compared to placebo.[169]
- Varenicline (Chantix) was more effective than placebo, nicotine patch, and bupropion in helping smokers achieve abstinence, whereas bupropion and nicotine patch were more effective than placebo.[170]
- A review of 363 trials for effectiveness of tobacco use treatment medications found that varenicline used alone increased the chance of cessation compared to bupropion and to NRT, while finding inconclusive evidence of a difference in likelihood of quitting between bupropion and NRT.[171]
- The most effective duration of nicotine cessation medication is not known. Some individuals benefit from and may need long-term use of medications (e.g., ≥ 6 months), but almost all individuals eventually stop using cessation medications. Thus, patient preference should be the major determinant for the duration of nicotine cessation medication use.

The Safety of Cessation Medications

Nicotine Replacement Therapy[172, 173]

It is important to note that nicotine replacement medications do not have the cancer-causing chemicals in them that combustible tobacco products like cigarettes have.

- NRT is a very safe medication with typically few side effects.
- There are no significant safety concerns associated with the combination use of NRT products with other nicotine-containing products, including cigarettes.
- There are no significant safety risks associated with the use of NRT products for longer than the labeled number of weeks of use.
- Current marketed NRT products do not appear to have significant potential for misuse or dependence.
- There are no interactions with psychiatric medications. However, the combination use of bupropion and NRT for nicotine cessation may increase risk for hypertension. Nevertheless, FDA still approves combination therapy with bupropion and NRT.
- NRT can be used safely by individuals with stable cardiovascular disease but should not be used within two weeks of a heart attack or if the individual has a serious arrhythmia (abnormal heart rhythm) or severe or worsening angina (chest pain due to an inadequate supply of oxygen to the heart muscle).

Bupropion[174]

- There are several contraindications (i.e., inadvisable treatments) for bupropion. Bupropion can lead to higher incidence of seizures, including among individuals with anorexia or bulimia.
- Special consideration should be given to the potential impacts of prescribing bupropion to individuals with bipolar disorder, schizophrenia, or schizoaffective disorder given the potential risk of worsening neuropsychiatric symptoms such as mania or psychosis.
- Results of controlled studies consistently showed bupropion to be associated with no greater incidence of serious neuropsychiatric adverse events than active or placebo comparators.[170, 175]

Varenicline

- In March 2015, the FDA approved additional label warnings concerning potential reactions with alcohol as well as reports of seizures in people treated with Chantix. The label warns that until people know how Chantix affects their ability to tolerate alcohol, they should decrease the amount of that they drink. People who have a seizure while taking Chantix should stop the medicine and seek medical attention immediately.
- Even for those diagnosed with a psychiatric disorder, neither varenicline nor bupropion resulted in more serious risks than did NRT or placebo.
- There are several contraindications for varenicline. It may impair the ability to drive or operate machinery. Also, those with kidney problems or taking insulin, asthma medications, or blood thinners need to consult their prescribing provider before use.

Until 2016, both bupropion and varenicline had a "black box" warning, which is used when a prescription drug is known to be effective for some people but may cause serious side effects in others based on adverse events that are reported. Some people who had taken Chantix or Zyban had reported experiencing unusual changes in behavior, becoming depressed, or had their depression worsen, and had thoughts of suicide or dying. Because of these findings, independent studies have examined the safety of bupropion and varenicline specifically in people with serious mental illness, and these studies found no significant safety concerns,[170, 175] leading to the removal of the black box warning.

The Safety of ENDS

- ENDS are not FDA-approved for nicotine use treatment.
- Cartridges for vape devices generally contain 20mg of nicotine, but ENDS product variation can make it difficult to determine the actual amount of nicotine a person is using.[176]
- Refill kits can contain as much as 1 gram of nicotine and there is concern that many refill kits could be lethal to young children and/or adults if ingested.[177]
- Hundreds of product flavors appeal to youth, young adults, and other nonsmokers, especially due to the mistaken belief that they are harmless.[178, 179]
- ENDS products emit a complex mixture of chemicals, as well as small particles, and therefore release an aerosol (as opposed to a vapor) and not pure nicotine.

> *While ENDS may have the potential to benefit established adult smokers... [they] should not be used by youth and adult non-tobacco users because of the harmful effects of nicotine and other risk exposures.*
>
> - Tim McAfee, former Director of the CDC's Office on Smoking and Health

- There is minimal information about the long-term effects of ENDS products or how other chemicals (e.g., propylene glycol added to make it look like real smoke) in the solutions affect health.[179]
- Individuals may also use them because it allows nicotine use in places where traditional cigarettes are banned.[180]

Use of Nicotine Cessation Medications Prior to Quit Date

Pre-cessation nicotine replacement (providing replacement therapy prior to the quit date) has been shown to be effective for nicotine cessation. In fact, individuals who used the nicotine patch prior to quitting were twice as likely to have maintained their abstinence as those who initiated the patch on their quit date.[181, 182] Moreover, the use of pre-cessation NRT has not demonstrated significant differences in side effects.

Tobacco Smoke Interactions with Common Medications

Aromatic hydrocarbons in tobacco smoke are metabolized by the same system responsible for metabolizing many other drugs. This process enhances the metabolic activation of these substances, increasing the risk of cancer.[183] It is important to note that these interactions are due to the chemicals in combustible nicotine products, not nicotine itself. When individuals reduce or stop smoking, many medication levels may significantly increase potentially leading to toxicity and increased side effects.

Drug Interactions with Tobacco Smoke

Many interactions between tobacco smoke and medications have been identified. Note that in most cases it is the tobacco smoke—not the nicotine—that causes these drug interactions. Tobacco smoke interacts with medications through pharmacokinetic (PK) and pharmacodynamic (PD) mechanisms. PK interactions affect the absorption, distribution, metabolism, or elimination of other drugs, potentially causing an altered pharmacologic response. The majority of PK interactions with smoking are the result of induction of hepatic cytochrome P450 enzymes (primarily CYP1A2). Smokers may require higher doses of medications that are CYP1A2 substrates. Upon cessation, dose reductions might be needed. PD interactions alter the expected response or actions of other drugs. The amount of tobacco smoking needed to have an effect has not been established, and the assumption is that any smoker is susceptible to the same degree of interaction. **The most clinically significant interactions are depicted in the shaded rows.**

Drug/Class	Mechanism of Interaction and Effects
Pharmacokinetic Interactions	
Alprazolam (Xanax®)	▪ Conflicting data on significance, but possible ↓ plasma concentrations (up to 50%); ↓ half-life (35%).
Bendamustine (Treanda®)	▪ Metabolized by CYP1A2. Manufacturer recommends using with caution in smokers due to likely ↓ bendamustine concentrations, with ↑ concentrations of its two active metabolites.
Caffeine	▪ ↑ Metabolism (induction of CYP1A2); ↑ clearance (56%). Caffeine levels likely ↑ after cessation.
Chlorpromazine (Thorazine®)	▪ ↓ Area under the curve (AUC) (by 36%) and serum concentrations (by 24%). ▪ ↓ Sedation and hypotension possible in smokers; smokers may require ↑ dosages.
Clopidogrel (Plavix®)	▪ ↑ Metabolism (induction of CYP1A2) of clopidogrel to its active metabolite. ▪ Clopidogrel's effects are enhanced in smokers (≥10 cigarettes/day): significant ↑ platelet inhibition, ↓ platelet aggregation; while improved clinical outcomes have been shown, may also ↑ risk of bleeding.
Clozapine (Clozaril®)	▪ ↑ Metabolism (induction of CYP1A2); ↓ plasma concentrations (by 18%). ▪ ↑ Levels upon cessation may occur; closely monitor drug levels and reduce dose as required to avoid toxicity.
Erlotinib (Tarceva®)	▪ ↑ Clearance (24%); ↓ trough serum concentrations (2-fold).
Flecainide (Tambocor®)	▪ ↑ Clearance (61%); ↓ trough serum concentrations (by 25%). Smokers may need ↑ dosages.
Fluvoxamine (Luvox®)	▪ ↑ Metabolism (induction of CYP1A2); ↑ clearance (24%); ↓ AUC (31%); ↓ Cmax (by 32%) and Css (by 39%). ▪ Dosage modifications not routinely recommended but smokers may need ↑ dosages.
Haloperidol (Haldol®)	▪ ↑ Clearance (44%); ↓ serum concentrations (70%); data are inconsistent therefore clinical significance is unclear.
Heparin	▪ Mechanism unknown but ↑ clearance and ↓ half-life are observed. Smoking has prothrombotic effects. ▪ Smokers may need ↑ dosages due to PK and PD interactions.
Insulin, subcutaneous	▪ Possible ↓ insulin absorption secondary to peripheral vasoconstriction. ▪ Smoking may cause release of endogenous substances that cause insulin resistance. ▪ PK & PD interactions likely not clinically significant, but smokers may need ↑ dosages.
Irinotecan (Camptosar®)	▪ ↑ Clearance (18%); ↓ serum concentrations of active metabolite, SN-38 (~40%; via induction of glucuronidation); ↓ systemic exposure resulting in lower hematologic toxicity and may reduce efficacy. ▪ Smokers may need ↑ dosages.
Methadone	▪ Possible ↑ metabolism (induction of CYP1A2, a minor pathway for methadone). ▪ Carefully monitor response upon cessation.
Mexiletine (Mexitil®)	▪ ↑ Clearance (25%; via oxidation and glucuronidation); ↓ half-life (36%).
Olanzapine (Zyprexa®)	▪ ↑ Metabolism (induction of CYP1A2); ↑ clearance (98%); ↓ serum concentrations (by 12%). ▪ Dosage modifications not routinely recommended but smokers may need ↑ dosages.

Pharmacokinetic Interactions (continued)	
Drug/Class	**Mechanism of Interaction and Effects**
Propranolol (Inderal®)	▪ ↑ Clearance (77%; via side-chain oxidation and glucuronidation).
Riociguat (Adempas®)	▪ ↓ Plasma concentrations (by 50–60%). ▪ Smokers may require dosages higher than 2.5 mg three times a day; consider dose reduction upon cessation.
Ropinirole (Requip®)	▪ ↓ Cmax (by 30%) and AUC (by 38%) in study with patients with restless legs syndrome. ▪ Smokers may need ↑ dosages.
Tacrine (Cognex®)	▪ ↑ Metabolism (induction of CYP1A2); ↓ half-life (50%); serum concentrations 3-fold lower. ▪ Smokers may need ↑ dosages.
Tasimelteon (Hetlioz®)	▪ ↑ Metabolism (induction of CYP1A2); drug exposure ↓ by 40%. ▪ Smokers may need ↑ dosages.
Theophylline (Theo-Dur®, etc.)	▪ ↑ Metabolism (induction of CYP1A2); ↑ clearance (58–100%); ↓ half-life (63%). ▪ Levels should be monitored if smoking is initiated, discontinued, or changed. Maintenance doses are considerably higher in smokers; ↑ clearance also with second-hand smoke exposure.
Tizanidine (Zanaflex®)	▪ ↓ AUC (30–40%) and ↓ half-life (10%) observed in male smokers.
Tricyclic antidepressants (e.g., imipramine, nortriptyline)	▪ Possible interaction with tricyclic antidepressants in the direction of ↓ blood levels, but the clinical significance is not established.
Warfarin	▪ ↑ Metabolism (induction of CYP1A2) of R-enantiomer; however, S-enantiomer is more potent and effect on INR is inconclusive. Consider monitoring INR upon smoking cessation.
Pharmacodynamic Interactions	
Benzodiazepines (diazepam, chlordiazepoxide)	▪ ↓ Sedation and drowsiness, possibly caused by nicotine stimulation of central nervous system.
Beta-blockers	▪ Less effective BP and heart rate control effects; possibly caused by nicotine-mediated sympathetic activation. ▪ Smokers may need ↑ dosages.
Corticosteroids, inhaled	▪ Smokers with asthma may have less of a response to inhaled corticosteroids.
Hormonal contraceptives (combined)	▪ ↑ Risk of cardiovascular adverse effects (e.g., stroke, myocardial infarction, thromboembolism) in women who smoke and use combined hormonal contraceptives. Ortho Evra patch users shown to have 2-fold ↑risk of venous thromboembolism compared with oral contraceptive users, likely due to ↑ estrogen exposure (60% higher levels). ▪ ↑ Risk with age and with heavy smoking (≥15 cigarettes per day) and is quite marked in women ≥35 years old.
Serotonin 5-HT_1 receptor agonists (triptans)	▪ This class of drugs may cause coronary vasospasm; caution for use in smokers due to possible unrecognized CAD.
Adapted and updated, from Zevin S, Benowitz NL. Drug interactions with tobacco smoking. An update. *Clin Pharmacokinet* 1999;36:425–38 and Kroon LA. Drug interactions with smoking. *Am J Health-Syst Pharm* 2007;64:1917-21.	

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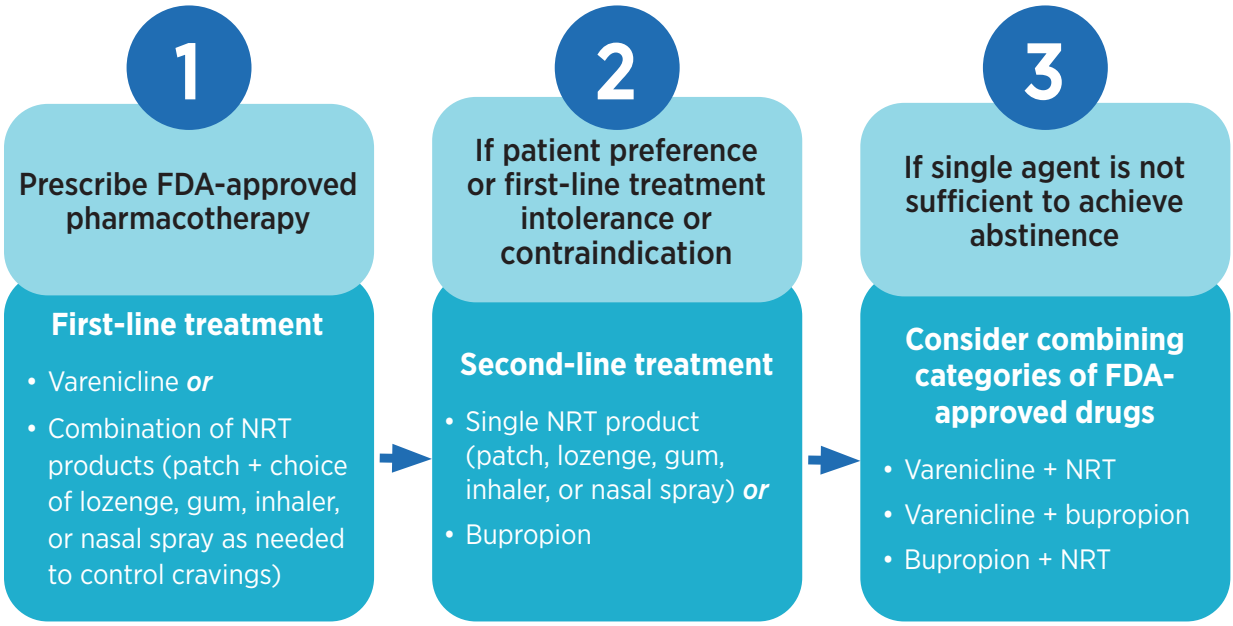
Combination Medication Treatments

- Combined therapies (use of two or more nicotine cessation medications) are more effective (33-37% abstinence rates versus 19-26% with a single medication).[141]
- Although FDA-approved, a review of randomized controlled trials indicates that adding bupropion to NRT shows no clear evidence of providing additional benefit, compared to using NRT alone.[167]
- Combining varenicline and NRT improves the probability of quitting compared to bupropion and NRT used alone.[171, 184]

Based on the current state of the science, Rigotti and colleagues[166] provide a treatment intervention model with suggested treatment adaptations if initial treatment regimens are unsuccessful:



The best medication to use is based on the choice of the person who is attempting to quit. Consider a person's health history, their experiences with past quit attempts, reasons for relapse, the amount of tobacco used, level of dependence, the cost of medications, potential medication side effects, and access to care. Continued education and options for the patient are encouraged. When you are working with someone who is attempting to stop nicotine use, strongly encourage them to talk with their provider to determine what products and what amounts are best for them.

An emerging type of nicotine use treatment model which accommodates treatment preferences is referred to as "adaptive treatment."[185] In this model, treatment evolves to meet each person's individualized changing needs, offering additional support for individuals when they do not respond to an initial treatment option.[186] Initial treatment is based on patient choice followed by treatment intensification for those who need it. This is particularly important as many cessation medications have been historically underdosed. That is, medication levels did not adequately meet individuals' level of nicotine dependence. There are two promising types of adaptive models, one using pre-quit medication and combining medication across medication classes and the other focusing on increased medication doses for those who relapse on standard dose medication.[49, 187]

Resources for updates on medications and tobacco products:

FDA's Center for Tobacco Products

CDC Quit Smoking Medicines

National Institute on Drug Abuse

Behavioral Treatments

Once the individual's readiness for change has been assessed and Motivational Interviewing (MI) techniques have identified unique concerns, behavioral treatment options in addition to MAT should be provided. The combination of MAT and behavioral treatments generates the greatest cessation rates.[141] Consistent evidence confirms that more intensive counseling —which includes longer duration sessions (more than 20 minutes) and higher numbers of counseling sessions—relates to increased abstinence from nicotine use.[165] Long-term abstinence from nicotine may require treatments that are extended in nature and designed to address a chronic-disease model rather than a short-term acute illness, particularly for individuals with long-standing nicotine use disorder.[188]

People can be more successful in quitting if they see quitting as an opportunity to learn. Every person who uses nicotine had to learn how to use it. Quitting is a way to learn how to live nicotine-free. People tend to be more successful if they prepare and plan. Many people who try to quit decide to "try" to quit without a plan and see what happens, because they think they can simply "make" themselves stop their nicotine use. This approach often leads to unsuccessful quit attempts.

Ultimately, an important component of a successful quit is behavior change in a few important ways. First, it requires individuals to stop a behavior—the use of nicotine, which is a significant habit and activity throughout their day. Second, individuals need to develop coping skills to manage cravings from nicotine withdrawal. This may mean avoiding situations, places, or even people who represent a cue for nicotine use. It may also mean the application of alternative methods to manage the craving and avoid nicotine use. These are cognitive and behavioral changes—individuals must do something different with their thoughts and their behaviors. Third, individuals must find alternative coping skills and behaviors for use during times when they would normally use nicotine, such as, when they are bored or stressed.

Types of Behavioral Interventions

The following information about behavioral interventions can be used to increase people's understanding about how these interventions can support their process of nicotine cessation. This information is an introduction to the various forms of behavioral treatments..

Motivational Interviewing

MI techniques are essential to nicotine cessation efforts. Carefully read the Assessment and Planning for Change section of this toolkit to review MI techniques. The use of these tools is important as you assess an individual's readiness for change and throughout the treatment phase of care. Cessation rates are higher when sessions are longer (more than 20 minutes) and occur more than once.[141]

Mindfulness

The practice of mindfulness comes from Eastern philosophy and religion. "Mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to things as they are."[189] With practice, individuals can use mindfulness to focus on the present moment (not the past or the future), to view thoughts as temporary mental events, and emotional and physiological experiences as useful data. These skills are

important for individuals to change behavior such as nicotine use for a number of reasons:

1. Mindfulness can allow an individual to be more aware of the moment and make changes in behavior that may be needed. *Example: Mindfulness may assist people to be aware that watching a particular television show is likely a trigger for nicotine use; therefore, they may want to avoid that show.*
2. Mindfulness can improve an individual's ability to tolerate unpleasant mental, emotional, and physiological states knowing that they will pass. *Example: Mindfulness can allow an individual who recently stopped nicotine use to be aware of a craving for nicotine and resist the urge with the knowledge that the craving will end in a few minutes.*
3. Mindfulness can improve an individual's ability to live in the present moment. When a person is present in the moment, they can avoid thoughts of the past that included nicotine use or thoughts of the future and how hard it will be to remain nicotine-free. The present moment is all that requires focus. This technique may also help people to enjoy the pleasures of the moment and take attention away from thoughts of nicotine use.

There is preliminary evidence that even brief instruction in mindfulness-based techniques for coping with urges can assist individuals in "urge surfing." Results indicate that this training may help change the way in which individuals respond to an urge to use nicotine.[190]

Similarly, research has found that individuals who receive mindfulness training had a greater reduction in nicotine use, and these gains were maintained at a 17-week follow-up. The authors state: "practicing to 'sit' through difficult mind-states (including unpleasant affect and craving) may train individuals to do the same when faced with an opportunity to smoke."[191]

> *Mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to things as they are.*[189]

Cognitive Behavioral Treatments

There is a broad range of Cognitive Behavioral Treatments (CBT), from behavior activation to cognitive distraction skills. The various treatments in research have been categorized into four groups:

1. Directly address motivation and provide rewards for nicotine abstinence
2. Maximize self-regulation skills, which includes problem solving
3. Develop alternative activities, which includes the use of MAT
4. Other behavior change techniques, which include building rapport[192]

Behavioral activation techniques are focused on the behavioral aspects of change and are an active therapy. These treatments are designed to promote the experience of positive consequences related to healthy behavior.[193] The hope is that as a person experiences the positive effects of these behaviors, they are more likely to continue to engage in the behavior.[193] With nicotine cessation, the goal is to activate other healthy behaviors rather than nicotine use (e.g., physical activity, social interactions, hobbies, etc.). The positive effect of the healthy behavior then reinforces continued healthy behaviors. Behavioral activation can be an effective intervention to promote nicotine cessation and improve depressive symptoms for individuals who are underserved and from diverse backgrounds.[194]

Distraction skills are techniques developed to help people to tolerate distress. These skills have been used to assist with pain management, emotional distress, and substance use disorder treatment. Distraction techniques can be as simple as increased participation in pleasurable activities (e.g., watching movies, cooking, walking, etc.) or to learn specific ways to distract oneself from recurrent unhelpful thoughts. In nicotine cessation, distraction skills can be vital to remain focused on cessation and provide distraction from urges to use nicotine as well as decrease recurrent thoughts (e.g., "This is going to be terrible" or "I'll never be able to quit"). Although research on distraction skills in nicotine cessation is limited, there is evidence that this brief intervention can improve distress tolerance among individuals with other substance use disorders.[195]

Trauma Informed Care

Nicotine use is associated with higher rates of trauma, and trauma symptoms are correlated with greater nicotine dependence, withdrawal symptoms, and complexity of quit attempts.[100] Providers and healthcare organizations can best support people by deliverying all services through a trauma informed approach as defined by the Substance Abuse and Mental Health Services Administration[126]:

*"A program, organization, or system that is trauma-informed **realizes** the widespread impact of trauma and understands potential paths for recovery; **recognizes** the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and **responds** by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively **resist re-traumatization**."*

The 6 Key Principles of a Trauma Informed Approach follow. Their integration throughout all aspects of a system is fundamental to the delivery of trauma informed care.

- ✓ **Safety**
- ✓ **Collaboration and Mutuality**
- ✓ **Trustworthiness and Transparency**
- ✓ **Empowerment, Voice, & Choice**
- ✓ **Peer Support**
- ✓ **Cultural, Historical, & Gender Issues**

Contingency Management

Contingency management (CM) is an evidence-based behavioral treatment with demonstrated effectiveness across a wide range of substances and in diverse types of populations.[196] It is a behavior-modification method of providing reinforcement in exchange for evidence of a desired behavior during the treatment of substance-use disorders.[197] This approach typically involves financial incentives like gift cards delivered contingent upon a person meeting a predetermined therapeutic target (usually abstinence from drug use). CM has been shown to be successful in reducing tobacco use in both non-treatment-seeking and treatment-seeking adults. CM is also an efficacious intervention for a wide range of populations, including priority populations such as young people or pregnant women who use nicotine. Also, several state Medicaid systems are successfully utilizing incentives to drive smokers to utilize state quitlines.[198]

Group Nicotine Use Treatment

Another popular and effective behavioral intervention is group therapy. Groups can be facilitated by healthcare professionals as well as lay professionals and trained peer specialists who have used nicotine in the past. Often these groups meet weekly (60- to 90-minutes) and participants can join at any time. The Behavioral Health and Wellness Program (BHWP) trains program facilitators to run a 6-week DIMENSIONS: Tobacco Free Program group at their organization. This open group structure is designed for participants who are interested in learning about nicotine use, nicotine cessation, and healthy living skills. The groups cycle through the following topics:

1. Session A: Envisioning a Tobacco Free Life
2. Session B: A Tobacco Free Plan
3. Session C: Mindful Tobacco Free Behaviors
4. Session D: A Tobacco Free Journey
5. Session E: Living Tobacco Free
6. Session F: Maintaining A Tobacco Free Life

To contact BHWP regarding training for the DIMENSIONS: Tobacco Free Program, please call 303.724.3713 or email bhwellness@ucdenver.edu

Quitlines

Every U.S. State has a quitline service that offers some combination of nicotine cessation counseling and pharmacotherapy via telephone, text, online services, and/or apps. For those successfully enrolled and sustained in quitline services efficacy rates are excellent, rivaling any other type of cessation services.

THE QUITLINE: 1-800-QUIT-NOW	
SERVICES	• Quitline services are provided free-of-charge. They provide telephonic coaching, web-based and texting options, self-help materials, and referrals for additional support. • Most states' quitlines provide NRT or other cessation medications. • Services are often provided in Spanish and may be available in other languages. • Most quitlines (such as the Colorado QuitLine) have made it easy for providers to make online referrals. • Additionally, many states have the capacity to refer smokers from healthcare institutions to quitlines through the healthcare institution's electronic health records (EHRs). This is referred to as an eReferral.[199] • Healthcare professionals should research information about quitlines in their state.
RESULTS	• Quitlines are a key component to state tobacco control programs in the United States. • They have been proven to be effective at helping people quit using nicotine. • When healthcare professionals directly connect an individual to a quitline, the individual is 13 times more likely to enroll in treatment as compared to when they simply give people the information with encouragement to call.[200]
RESOURCES	www.naquitline.org www.smokefree.gov www.tobaccofreekids.org www.cdc.gov/tobacco/campaign/tips/

Whole Health Approach to Treatment

As mentioned earlier, nicotine use is associated with many other health-risk behaviors. People who live in poverty, those who experience racial discrimination, and those who struggle with behavioral health conditions are especially vulnerable when it comes to the burdens of nicotine use, stress management, and the ability to maintain healthy sleep, stress management, nutrition, and physical activity.[201-205] These challenges place priority populations at greater risk for the development of chronic diseases and other health problems. Moreover, the tendency for nicotine use and other poor health behaviors to be passed on within families highlights the importance of intervention efforts directed at the family system. One promising way to reach at-risk individuals and families is to integrate cessation services into a community-based, whole-health intervention. Nicotine use disorder often carries stigma. When nicotine treatment is approached through the 'side door' of general health and wellness, treatment stigma may be lessened. For those with complex needs, a broad focus on health behavior change has unique benefits that extend to nicotine cessation.

A whole-health perspective is inherently person centered in that it meets people where they are and supports their readiness for change as they identify individual wellness priorities. Multi-domain interventions offer the opportunity to address disease risk clusters in a cost-effective way. Studies indicate that concurrent attention to nicotine cessation along with other health behaviors positively impacts outcomes for both nicotine cessation and other behaviors, such as improved diet and physical activity.[202-204] As well, attention to multiple wellness domains allows individuals to develop generalizable motivation, coping skills, and self-efficacy. While individuals may not choose to start their wellness journey with a focus on nicotine cessation, they often build confidence and motivation to do so as they work on other wellness goals.

Nutrition, physical activity, sleep, and stress impact the health of not only individuals, but families across generations. Poor health and chronic disease tend to run in families for several reasons. Factors such as genetic predispositions, engagement in similar behaviors that increase risk for the development of chronic disease, and environmental factors such as availability of nutritious food and stress, can change how genes are expressed. Priority populations are especially likely to struggle to attain healthy lifestyles. For these reasons and more, the Behavioral Health and Wellness Program has developed two programs that address treatment from a whole health approach.

RAISE Families for Health: This program was developed by BHWP to interrupt the intergenerational transmission of poor health and disease within vulnerable populations. RAISE provides integrated nicotine cessation and prevention services within a whole-health framework and targets efforts toward the family system. The program provides training on strategies to cope with stress, maintain healthy environments (which includes nicotine-free families), healthy sleep, healthy eating, and physical activity, as well as ways to promote positive behavior change through motivational engagement and behavior change strategies. The program also includes a multi-session curriculum designed to help parents and caregivers envision a healthy lifestyle for their families and achieve their personal wellness goals. Learn more here: https://www.bhwellness.org/raise/

DIMENSIONS: Well Body Program: This program is an evidence-based curriculum intended to provide administrators, healthcare professionals, and peer specialists the necessary knowledge and skills to promote physical health and well-being. This innovative program provides training on strategies to cope with stress and maintain healthy sleep, healthy eating, and physical activity as well as ways to promote positive behavior change through motivational engagement and behavior change strategies. The information, strategies, and skills contained in this program can be used to support individuals to build a healthy lifestyle by helping them to envision and achieve their personal Well Body goals. The Well Body training covers topics that include coping with stress, healthy sleep, healthy eating, physical activity, motivation for behavior change, and the DIMENSIONS: Well Body Motivational Intervention. Trainees will also learn to facilitate the DIMENSIONS: Well Body Group curriculum—a 6-week group focused on the creation of a healthy lifestyle. Learn more here: https://www.bhwellness.org/dimensions-well-body-program/

Emerging Nicotine Treatment Strategies

Cytisine

The FDA is expected to approve cytisinicline (cytisine) for use as a nicotine cessation medication in the near future. Cytisinicline is already in use as a nicotine cessation medication in Europe and recently was shown to be successful in a rigorous Phase 3 clinical trial.[209] In this trial, 12 weeks of cytisinicline outperformed a placebo 21.1% to 4.8%; less than 10% reported nausea, abnormal dreams, or insomnia and only 2.9% discontinued the medication due to one of these adverse events. In a subsequent trial, cytisinicline was shown to be an effective cessation medication for individuals who solely used ENDS.[205] In that study, cytisinicline was twice as effective as the placebo treatment (31.8% vs. 15.1%).

Psychedelic-Assisted Therapies[210]

In a much smaller, but impressive study out of Johns Hopkins University, the psychedelic mushroom Psilocybe cubensis ("magic mushrooms") was demonstrated to be a potential cessation medication. Although the study only included 15 participants, 67% were still smoking abstinent at a 12-month follow-up.[210, 211] Unfortunately, 6 of the 15 reported mild adverse events, mostly associated with the psychedelic character of the drug and 8 reported headaches. The extreme nature of the psychedelic experience may make this modality unacceptable for many people who use nicotine.

Virtual Reality

Another potential avenue is the use of virtual reality (VR). In this modality, VR is often used as an adjunct to traditional therapeutic approaches and pharmacotherapy.[212] The VR technology is used to artificially immerse people into situations where their urge to use nicotine may be activated (e.g., introducing them into a traditional tavern space). This synthetic exposure can then be used as low risk practice and preparation for the real experience outside the provider's office.[212] And, if the person is activated, they can process their experience and the accompanying emotions with the provider while they are still together, rather than being first exposed to a high-risk encounter without such a support system nearby.

Alternative Therapies

Interest continues in the potential for yoga, deep breathing, acupuncture, hypnosis, and other "alternative" therapies. Evidence is mixed or lacking for most of these approaches[213-215]; however, there is growing evidence that acupuncture may be effective.[216, 217] More rigorous studies are needed to build an evidence base for these alternative therapies. We encourage clinicians to meet people where they are. So long as an alternative approach to cessation does not induce a harm itself, people should be encouraged to make a quit attempt in whatever manner provides them the confidence to do so. However, since these modalities lack sufficient scientific evidence, healthcare professionals should attempt to add evidence-based supports and be prepared to work with people should lapse or relapse occur. One more word of caution: although "adverse events" may be low with many alternative therapies, healthcare professionals should be aware that often there are associated time and financial costs. The loss of confidence that comes with lapse and relapse is also a cost. Clinicians should address these costs with the people they serve and attempt, to the best of their ability, to reduce their exposure to these risks.

TIPS FOR PREPARING TO STOP USING NICOTINE

1. Assist them to get ready

- Help them to identify that they want to quit.
- Work together to decide what evidence-based aids they will use.
- Set a "quit date" if they are ready (as a reminder, treatment is not contingent on setting a quit date).
- Support disposal of all nicotine products and ashtrays, and clean their clothes, car, and house to remove evidence of nicotine use, the day before their quit date.
- Explore ways to keep distracted and change their routine as much as possible to avoid the daily triggers that remind them of using nicotine. Encourage them to stay busy.

2. Refer to available supports

- Help them call the quitline and any other available local treatment options (e.g., nicotine anonymous, groups offered through local healthcare and public health organizations).
- Help them identify friends, family, and other people who they can count on for support through this difficult behavior change.
- Have them share their plan and "quit date" with you and their support system.

3. Encourage them to learn new skills and behaviors

- With their permission, suggest new habits and help them to identify hobbies to replace nicotine-related activities.
- Suggest they grab sugar-free gum, mints, carrots or celery, cinnamon sticks, or toothpicks when they have the urge to use nicotine.

4. Prepare them for potential relapse

- Guide them to think and plan for times when they will be tempted to use nicotine.
- Talk to them about the cycle of craving and how to distract themselves when cravings are experienced.
- Remind them that a return to use is a common part of the recovery journey. If this happens, they can come to you for support and together you will identify additional strategies to continue their quit.

Talking to People Who Want to Quit Using ENDS or Other New Nicotine Products

- Congratulate the person on wanting to stop their nicotine use.
- Provide information on what we know about ENDS and other product use in contrast to FDA-approved medications. If they are willing, provide education based on the information in this toolkit.
- Highlight that, although ENDS are less dangerous than products they smoke like cigarettes, individuals remain addicted to nicotine, the long-term risks of these products remain unknown, and they continue to spend significant money on their nicotine use.
- Ask if they want to work toward stopping all nicotine use. If they are willing, set a collaborative treatment plan for moving toward a nicotine-free life.

Healthy Living

1. Maintain a Nicotine-Free Life
2. Support for Healthy Living

Healthy Living

Maintain a Nicotine-Free Life

Although relapse can be a normal part of the nicotine cessation process, it is not inevitable. It is important for all healthcare professionals to maintain a positive attitude with individuals about their efforts to remain nicotine-free. Healthcare professionals can provide education and assist people to develop a strong plan for quitting that includes strategies to manage triggers, navigate challenges, and obtain adequate support. They should continue to provide support and encouragement around how to live a healthy nicotine-free life throughout the nicotine cessation process and into the maintenance phase. It will be useful for healthcare professionals to think about how to support healthy living behaviors and prevent relapse.

Although people can return to nicotine use at any time, most relapses occur soon after a person attempts to stop. Helping people to maintain a healthy lifestyle can occur at different levels of intensity depending on individual needs.

Support for Healthy Living

The following interventions should be part of every encounter with a person who has recently quit nicotine. Congratulate every individual for taking steps towards living nicotine-free. Strongly encourage people to remain abstinent by engaging them in discussion on the benefits of living nicotine-free. For example, ask open-ended questions, such as "How has stopping nicotine use helped you?" or "What have you enjoyed about living nicotine-free?" In addition, continue to use the assessment and planning skills described earlier in this toolkit to assist people with problem solving or navigating challenges to living nicotine-free. Topics may include:

- Benefits, including potential health benefits that people may derive from nicotine cessation.
- Success the individual has had in quitting (duration of abstinence, reduction in withdrawal, etc.). These may also include learning about treatment interventions that people tried and found successful in managing cravings or urges to use nicotine.

TIP: Stay engaged in cessation efforts and be present with people throughout the process.

- The problems encountered or challenges anticipated to maintaining abstinence (e.g., depression, weight gain, alcohol use, or other people who use nicotine in the household). As individuals raise potential challenges, use MI techniques to explore solutions. Remember that the best solutions come from the individual who will be using them.

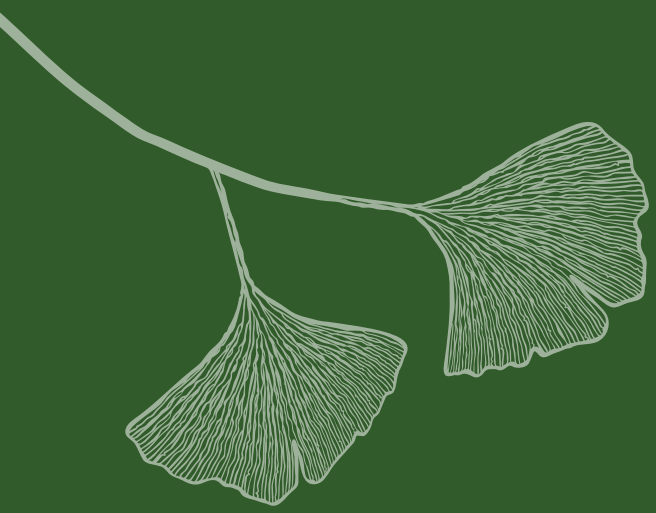
Responding to Nicotine Use

If an individual returns to nicotine use, explore their triggers to resuming their use and assess their readiness for change. Be positive about the value of their experience. Relapse can be a valuable educational experience for individuals learning to live nicotine-free. It is an opportunity for continued growth on the journey towards abstinence. Celebrate the time the person remained nicotine-free. Then, explore the supports and challenges of maintaining a nicotine-free life. Finally, assist in the preparation and planning for the next quit attempt.

Intensive Support for Healthy Living

If an individual is having difficulty maintaining a nicotine-free life, an intensive exploration of challenges may be needed. It may also mean that more intensive treatment or changes to the treatment approach are needed. Common problems likely to be reported by people include:

CHALLENGES	SUGGESTED INTERVENTIONS
Lack of Support	• Schedule follow-up visits or telephone calls with the individual. • Help the person identify sources of support within their environments. • Provide or refer the individual to nicotine cessation counseling or support.
Unpleasant Mood or Depression	• If significant, provide counseling, prescribe appropriate medications, or refer the individual to a specialist. • If not already involved, encourage engagement in behavioral interventions for nicotine cessation. Either provide or refer them to this treatment.
Strong or Prolonged Withdrawal Symptoms	• If the individual reports prolonged craving or other withdrawal symptoms, consider extending the use of an approved pharmacotherapy or adding/combining medications to reduce strong withdrawal symptoms. • If not already involved, encourage engagement in behavioral interventions for nicotine cessation. Either provide or refer them to this treatment.
Weight Gain	• Recommend focusing on eating reasonable amounts of healthy, non-processed food and perhaps starting or increasing physical activity; discourage strict dieting. • Reassure the individual that some weight gain after quitting is common. • Emphasize the importance of a healthy diet. • The individual may want to consider pharmacotherapy known to delay weight gain (e.g., bupropion SR, nicotine-replacement pharmacotherapies, particularly nicotine gum). • Refer the individual to a specialist or program. Help connect them to additional support. • Remind the individual that the benefits of quitting nicotine far outweigh the impact of some weight gain.
Reduced Motivation or Feeling Deprived	• Reassure the individual that these feelings are common. • Recommend rewarding activities. • If not already involved, encourage engagement in behavioral interventions for nicotine cessation. Either provide or refer them to this treatment. • Emphasize that periodic use of nicotine will increase urges and make quitting more difficult.



Practice and Organizational Change

1. Evaluate Your Organization
2. Integrate Peer-Based Services
3. Nicotine-Free Policies

Practice and Organizational Change

If your organization is considering implementing new nicotine use disorder treatment services and/or policies, or expanding upon those that you currently offer, changes in your organizational structure and practices may be necessary. Organizational change may involve numerous adjustments, such as hiring new staff, convening a Wellness Committee, implementing new billing practices, integrating peer-based services, and/or implementing an organization- or facility-wide nicotine-free policy, among many others. Similarly, organizational practices may include substantive adaptations, such as refining nicotine use screening, treatment, and referral, as well as documentation and billing methods.

Evaluate Your Organization

In many cases, the successful implementation of new nicotine use disorder treatment services and/or practices, as well as the expansion of existing services, requires organizational self-evaluation. This process helps organizations identify areas of strength and weakness as well as opportunities for the expansion and refinement of nicotine use treatment services. Critically, organizations must plan to allow time for collecting baseline data, initiating health system changes, and then measuring outcomes over time. Potential health system targets and tools are expanded upon below.

CHANGE CONCEPTS AND CHANGE IDEAS[218]

The CDC has recommended that healthcare organizations consider the following areas where organizational changes might be made to increasingly integrate nicotine use treatment into standard care.

Key Foundations: Approaches and tools to assess the current status of nicotine treatment in your practice or system and to make nicotine dependence treatment a priority.

- Make nicotine cessation a practice and system priority
- Create a supportive environment for cessation

Equipping Care Teams: Approaches and tools to prepare and motivate healthcare professionals to consistently address nicotine use.

- Equip all staff to engage in nicotine cessation efforts
- Provide clinician and system-level feedback on progress and impact

Screening: Approaches and tools that promote consistent universal screening for nicotine use (i.e., asking about nicotine use) as a prerequisite for intervening with people who use nicotine.

- Make nicotine use a vital sign: screen every person for nicotine use at every visit

Treatment: Approaches and tools to help ensure the people you serve who use nicotine are consistently advised to quit, assessed for willingness to make a quit attempt, and offered assistance in quitting nicotine use.

- Establish a nicotine treatment protocol
- Enhance clinical decision support
- Implement standardized approaches to support cessation efforts

Referral and Follow-Up: Approaches and tools for arranging follow-up for the people you serve who use nicotine and for providing referral to internal or external resources that can serve as an adjunct to treatment provided by the clinician.

- Establish protocols to identify and connect people to referral resources
- Employ population management strategies to better identify and reach people who use nicotine

The Behavioral Health Cessation Coordination Model (BHCCM) Toolkit

The Behavioral Health Cessation Coordination Model (BHCCM) was created to provide a framework for organizations operating within the behavioral healthcare system to implement new or updated nicotine use treatment services. The BHCCM outlines several categories of services through which individuals may access the behavioral health care system, including descriptions of the types of services offered within each category. The **BHCCM Toolkit** provides organizations with a blueprint for evaluating their services and implementing sustainable changes utilizing the BHCCM as a planning tool, whether operating in a behavioral health or non-behavioral health setting.

Billing for Nicotine Treatment Services

For practices to be sustainable within organizations, they must be integrated into the organization's standard workflow, and to the extent possible, be low burden. Even brief interventions and referrals to other service providers like state quitlines can dramatically increase the success of quit attempts. Nicotine use treatment must also become part of the organization's business plan. Organizations should seek reimbursement for the services they provide. For insurance plans to be in compliance with the Affordable Care Act, they must reimburse for nicotine use treatment services. Medicare, Medicaid, TRICARE, and the U.S. Department of Veterans Affairs all either provide or reimburse for evidence-based tobacco cessation counseling/coaching and prescriptions (provided by qualified providers).[219] Several organizations like the American Lung Association have produced and regularly update billing guidance for various professionals (see Box below). Organizations should also attempt to reduce the workforce burden through intentional task alignment. In short, the kind of task alignment involves coordinating the tasks associated with providing nicotine cessation services (e.g., screening and assessment) with similar tasks already performed by the organization and assigned to the same people (e.g., individuals who already perform intake also provide nicotine use screening). For many organizations, this results in distributing the work of providing nicotine cessation services across a team of individuals. Thus, what would be experienced as a high additional burden by one individual is experience as a much lighter burden by a healthcare team.

The most common ICD-10-CM codes for Tobacco Use Disorder include:

Z72.0	**MILD** (2-3 criteria met)
F17.200	**MODERATE** (4-5 criteria met)
F17.200	**SEVERE** (6 or more criteria met)

In addition, code F17.203 is commonly used for Tobacco Withdrawal and F17.209 for Unspecified Tobacco-Related Disorder. Talk to your billing department and/or insurance providers to learn more about how these billing codes may be applied in your setting.

Nicotine Treatment Billing

For a more complete description of billing practices and codes for nicotine cessation treatment, please review the below resources.

- American Lung Association Lung Cancer Screening Billing Guide
- Documentation, Diagnosis and Billing in Behavioral Health Settings
- Medical Billing and Coding for Tobacco Dependence Treatment Services Resource List

For a description of what your state Medicaid plan covers please visit the American Lung Association's State Tobacco Cessation Coverage Database.

Integrate Peer-Based Services

Peer-based services empower organizations to support recovery and resiliency. Peer specialists are people who use their lived experiences of recovery, plus skills learned in formal training, to deliver services in healthcare settings to promote recovery and resiliency.[220] The Centers for Medicare and Medicaid Services considers peer support services to be evidence-based and the New Freedom Commission on Mental Health cites them as a "critical pathway" of increasing peoples' involvement in behavioral healthcare. Organizations that integrate peer-based services into their operations leverage the lived experiences of their peer specialists to help others who might not otherwise engage in their services. The addition of peer-based services represents an organizational shift that can benefit all involved by providing effective evidence-based interventions, support for workforce shortfalls, and a unique perspective that upholds the values of recovery and equity.[221-225]

Peer Support Key Resources

The **DIMENSIONS: Peer Support Program Toolkit** is designed for use by a broad spectrum of organizations that serve populations who would benefit from a peer support program. The purpose of the toolkit is to provide evidence-based information to help individuals and organizations understand the value of adding peer specialists to their teams. The toolkit also provides practical tools and step-by-step instructions to plan for, implement, and sustain a successful peer support program.

The **Collective Impact for High Public Service Utilizers Project** (Collective Impact Project) offers a valuable case-study to learn more about implementing peer-based services. During this three-year project, Peer Navigators were integrated into community partner organizations to provide services to people experiencing homelessness. The Collective Impact Project Playbook presents the process and outcomes of this work in detail, including a synthesis of the lessons learned.

Nicotine-Free Policies

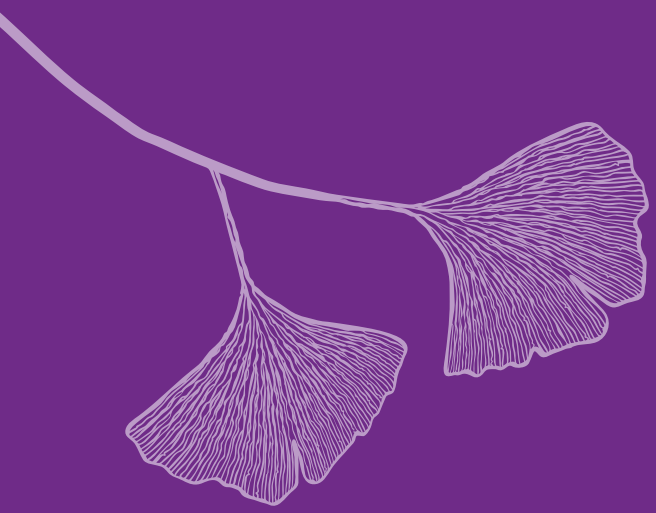
Nicotine-free policies (NFPs) are one of the most important ways that organizations can promote and support the health and well-being of all staff, people served, and visitors to their facilities, while creating an environment that fosters healthful decision making. NFPs demonstrate an organizational commitment to these principles by prohibiting the possession, use, manufacture, trade, purchase, or sale of all recreational nicotine products within the organization's jurisdiction. In the workplace setting, NFPs have been found to encourage people to reduce the amount of nicotine they use each day and increase successful quit attempts, while greatly reducing exposure to secondhand smoke.[226-229] Moreover, organizations typically experience an overall return on investment after implementing an NFP, including increased productivity and job satisfaction.[38]

Nicotine-Free Policies Key Resources

BHWP's **DIMENSIONS: Tobacco-Free Policy Toolkit** is designed for use by a broad spectrum of organizations, including hospitals, healthcare clinics, behavioral health organizations, and community agencies. Organizations that serve populations with high rates of nicotine use and disparate health outcomes associated with nicotine use, such as people with behavioral health conditions, justice-involved individuals, and low-income individuals, among others, are encouraged to utilize this toolkit. The toolkit contains effective and evidence-based information, including complete instructions from start to finish for implementing a nicotine-free policy.

BHWP's **Model Nicotine-Free Policy (NFP)** is intended for use across outpatient, inpatient, and residential behavioral health settings, with applicability across a variety of other healthcare settings nationwide. The Model NFP was created in response to a growing need to address all forms of nicotine use disorder, thereby responding to the growing use of ENDS and other emerging products. The Model NFP is a synthesis of a policy review and best practices from leading tobacco control organizations from around the country. The Model NFP includes key policy components and incorporates best practices for providing a healthy environment for the benefit of the people served, staff, and all visitors to a facility.

While you can download the complete Model NFP, you can also access a web-based interface that allows you to create a customized version of the original Model NFP that addresses your organization's unique characteristics. This online interface is hosted on the BHWP website and enables users to not only input their organization's name, details, and branding, but also allows users to select which components of the original policy to retain or delete based on their own specific organizational needs. Upon going through the interface, inputting organizational information, and selecting the desired components, you are then able to download a tailored version of the Model NFP to support your policy implementation.



National Resources

National Resources

American Cancer Society
www.cancer.org

American Lung Association
www.lung.org/stop-smoking/

American Public Health Association
www.apha.org/

Association for the Treatment of Tobacco Use and Dependence
www.attud.org/

Center for Disease Control and Prevention - Smoking and Tobacco Use
http://www.cdc.gov/tobacco/
http://www.cdc.gov/Quitting/Tips

National Association of State Mental Health Program Directors
www.nasmhpd.org/

National Behavioral Health Network for Tobacco and Cancer Control
https://www.bhthechange.org

National Institute on Drug Abuse (NIDA)
www.drugabuse.gov/drugs-abuse/tobacco-addiction-nicotine

Nicotine Anonymous
www.nicotine-anonymous.org/

North American Quitline Consortium
https://www.naquitline.org

Smoking Cessation Leadership Center
http://smokingcessationleadership.ucsf.edu/

Society for Research on Nicotine and Tobacco
www.srnt.org

Truth Initiative
https://truthinitiative.org

U.S. Department of Health and Human Services

U.S. Surgeon General
www.surgeongeneral.gov/

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The Behavioral Health and Wellness Program's DIMENSIONS: Tobacco Free Program is designed to train peers and providers to assist people to live a nicotine-free life. The DIMENSIONS: Tobacco Free Program Advanced Techniques training supports stopping nicotine use through motivational engagement strategies, group process, community referrals, and educational activities. Contact the Behavioral Health and Wellness Program at bh.wellness@ucdenver.edu for more information.

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