UP IN SMOKE

Nicotine Addiction Causes Preventable Deaths

By Mark Harris

Cigarette smoking and other forms of tobacco use are harmful to a person's health, a generally accepted truth because the medical evidence is undeniable. Cigarette smoking and other forms of tobacco use are linked to about 20% of all cancers and 30% of all cancer deaths in the United States. In fact, tobacco use causes about 80% of all lung cancer diagnoses and deaths.[1]

Indeed, the list of serious diseases and health risks linked to tobacco use includes not only cancer but also heart disease and stroke, chronic obstructive pulmonary disease, type 2 diabetes, autoimmune conditions such as rheumatoid arthritis, reproductive health and pregnancy complications, and more. All in all, more than 16 million Americans are currently living with a disease related to the use of tobacco products.[2]

When There's Smoke ...

Tobacco products contain a dense blend of toxic chemicals and a highly addictive chemical compound called nicotine.[3] About 600 ingredients are in cigarettes, including at least 69 cancer-causing chemicals, according to the American Lung Association.[4]

The use of nicotine-rich tobacco has a long history. Reports of tobacco being used in social and ceremonial settings date as far back as 1400 BC.[5] In 16th century Europe, as global trade expanded and tobacco use was introduced on the continent, interest also grew in potential medicinal uses for tobacco, including as a treatment for joint pain, epilepsy, and plague. In turn, tobacco use began to spread internationally.[6]

For the first half of the 20th century, while there were concerns about the safety of tobacco products, tobacco use became generally accepted in society. From the 1930s to the 1950s, cigarette manufacturers even advertised in medical journals or used physicians to endorse particular brands, offering attractive claims about the pleasantness and safety of their products.[7]

From the mid-1950s, this social acceptance began to falter, as medical evidence began to mount about causal links between tobacco use and the development of lung cancer and other health problems. A turning point came in 1964 with the release of the surgeon general's first Advisory Committee on Smoking and Health report, which linked cigarette smoking to lung and laryngeal cancer. Cigarette use was also cited as the leading cause of chronic bronchitis.[8]

The surgeon general's report marked the beginning of a long-term decline in tobacco use. Indeed, the overall percentage of people who smoke has declined from about 43% in 1965 to 12% in 2022.[9]

Gone now are the days of smoking sections in commercial and public transportation and other examples of the once widespread cultural acceptance of tobacco use. Today, both state and local laws commonly ban smoking in most enclosed public spaces, including workplaces, restaurants, bars, and public transportation.

A Slow Burn

With widespread public awareness of tobacco's harms, it might today seem unnecessary or a low priority for health care providers to continue to focus on tobacco prevention issues. But the overall decline in tobacco use is only part of the story, according to experts.

"We have made substantial progress in bringing down the prevalence of tobacco use in the general population, but we are far from being done in addressing tobacco use as a public health problem," says Maya Vijayaraghavan, MD, MAS, the director of the Smoking Cessation Leadership Center (SCLC) at the University of California San Francisco. "We need to celebrate that progress but also contend with the fact that 480,000 people die yearly from tobacco-related illnesses and that it's the leading preventable cause of death."

"Despite the gains, tobacco use accounts for more deaths than alcohol, AIDS, vehicle fatalities, illegal drugs, murders, and suicides all combined," adds Jennifer Folkenroth, national senior director of tobacco programs for the American Lung Association. "The current percentage of smokers is equal to 28.8 million people. And 10.1% of high school students, representing 1.58 million students, are also using some form of tobacco product, such as e-cigarettes, vaping devices, or cigarettes."

In many respects, tobacco use constitutes an unusually complex public health challenge.

"Tobacco is a unique legal consumer product," says Folkenroth. "It's the only one that kills half of its users when consumed as directed. When you're dealing with a product that is this lethal, it doesn't matter how healthy the individual is; the health risks are always significantly harmful. Watching the trends of tobacco and product use, even though we're seeing a decline in cigarette smoking, we also know it is not equal across the board. Tobacco use disproportionately affects the health and well-being of vulnerable populations. These include residents of rural areas, military veterans, LGBTQ people, adults [who] did not graduate from high school, [residents of] lower income areas, uninsured persons, communities of color, people [with] mental health or substance use disorders, as well as adults living in public housing. So, although we're seeing a decline, we are not seeing a significant change among specific disparate populations."

In fact, a 2024 report from the U.S. surgeon general's office "Eliminating Tobacco-Related Disease and Death: Addressing Disparities" concludes that many Americans remain uniquely vulnerable to the harmful effects of tobacco products due to disparities in tobacco use and exposure across the population spectrum:

> Despite strong progress in reducing tobacco use at the population level, disparities in use persist by race and ethnicity, level of income, level of education, sexual orientation, gender identity, type of occupation, geography, and behavioral health status.[10]

The report also documents that exposure to secondhand smoke is greater among the Black population, youth, and people from lower socioeconomic backgrounds than other racial and ethnic groups, adults, or those from wealthier socioeconomic backgrounds.[10]

A contributor to the surgeon general's report, Dr. Vijayaraghavan says public health policy, prevention, and cessation efforts must consider the full landscape of tobacco products currently in use. "Cigarette smoking is still the predominant form of tobacco use in these populations, but new and emerging

Smoke = Out

"The tobacco industry has designed, engineered, and marketed menthol cigarettes and other tobacco products that deliver multisensory flavor experiences which increase the likelihood of tobacco initiation, addiction, and sustained use," according to the 2024 surgeon general's report on tobacco-related disease and death. "Policies that restrict the availability of menthol cigarettes can reduce smoking initiation and prevalence among adolescents, young adults, Black people, and other population groups that have disproportionately higher use of menthol cigarettes."[17]

products like vapes and nicotine pouches are also contributing to this burden," she notes.

Tobacco control advocates should also remain alert to the ways the commercial tobacco industry works to circumvent public health initiatives to curb tobacco use. "There is a long history of some populations being specifically targeted by the tobacco industry, including Native Americans, the LGBTQ [community], low-income populations, and those with mental health and substance use disorders," says Dr. Vijayaraghavan. Native populations [who have a] history of sacred and traditional tobacco use … [also] have a history of sacred tobacco being taken away from them and replaced with commercial tobacco. This has normalized the use of commercial tobacco in these communities.

"In other communities, including LGBTQ groups and those experiencing homelessness, populations have been directly targeted by the tobacco industry's marketing strategies. The tobacco industry has capitalized on the unique, challenging experiences [of] these groups and the potential for tobacco to be used as a coping mechanism. This is a structural and systemic issue on how these disparities were initiated and perpetuated."

Smokescreen

The surgeon general's report also notes the strong relationship between tobacco use and mental health.[10]

A recent analysis by Dr. Vijayaraghavan and her SCLC colleagues in *Preventive Medicine Reports* highlights the scope of this issue, noting that compared to the nearly 12% of tobacco users in the general population, the prevalence of smoking among people with any mental illness is 23%. Notably, behavioral health conditions are estimated to be present in over half of the 480,000 people who die from cigarette smoking annually.[11]

"Tobacco use is a behavioral health issue," says Dr. Vijayaraghavan. "As the leading cause of preventable death, it is associated with substantial economic loss, loss in terms of improvement in mental health conditions, and loss in terms of overall quality of life and well-being. Any reference to thinking about tobacco use as anything other than a behavioral health issue is one major change that we need to make in terms of messaging, building awareness, and improving access to treatment and policies."

Accordingly, SCLC collaborates with health, community, and government partners at local, state, and federal levels to promote tobacco-free policies and increase access to tobacco treatment. This includes establishing Leadership Academies to facilitate cooperative action among mental health, substance use treatment, tobacco control, and public health departments.[11]

Light's Out

One key issue in the effort to curb tobacco use is how to best support individuals who want to quit. As an addictive substance, the nicotine in tobacco products can make the habit very hard to quit. Fortunately, many treatment resources and tools are now available to support smokers who want to stop smoking. For instance, the American Lung Association sponsors the Freedom from Smoking program, which offers multiple resources and treatment options.[12]

Led by certified facilitators, the goal of Freedom from Smoking is to address the physical, mental, and social factors involved in nicotine addiction and support program participants with counseling, stress management, relapse prevention, and more.

"The Freedom from Smoking program is an evidence-based smoking cessation program that has been around for over 40 years now," says Folkenroth. "The program is available in a variety of different modalities to fit the needs of the individual. Whether they prefer an in-person group class, a virtually delivered group program, working directly one-on-one with a counselor over the phone, a digital online option that can be accessed through any digital device, or our self-help kit, there are a variety of different ways that folks can begin their journey to freedom from tobacco and nicotine product use. The program has also proven effective. It has a 57% stay quit rate at six months post-graduation when used in combination with an FDA-approved [U.S. Food and Drug Administration–approved] cessation medication."

Going through multiple attempts to quit smoking is not uncommon, observes Folkenroth: "If someone has tried multiple quit attempts and has not been successful before, they are not alone. Unfortunately, that's the nature of tobacco dependency and it being a lifelong addiction, a chronic relapsing condition that requires repeat intervention. … Over 50 million individuals across America have successfully quit smoking. The Freedom from Smoking program has assisted over one million individuals in breaking free from tobacco and nicotine use and living a tobacco-free lifestyle."

The key to individual success in ending tobacco use is to have a plan. "It's so difficult to break free from nicotine addiction," she remarks. "The addiction has three different components. There is the physical addiction to nicotine, which involves stimulation of the receptors in the brain that release dopamine—that happy chemical. There is also the psychological or mental addiction. This can become an automatic behavior that's intertwined [with] your day-to-day lifestyle. The nicotine addiction becomes your best friend. It's how you deal with grief. It's your

anxiety medication. It is how you cope. The other link is sociocultural. This involves our natural desire to socialize and fit in with our peers. This is the major reason why the majority of individuals started tobacco use years before. [However], as we mature, those social factors can play a role in our continued use. We take smoking breaks with coworkers or have opportunities to socialize with friends or family where we would not otherwise. People can be reluctant to give up those connections."

Accordingly, a treatment plan should address not only the physical addiction but also the psychological and social components. "Without a proper plan in place to overcome all the components and challenges of the addiction, many times we will have increased urges and cravings and can struggle while attempting to quit," explains Folkenroth.

Often, physicians and counselors recommend a combination approach to smoking cessation, using both medications and counseling support. Such medications include prescription medications—such as bupropion (Zyban, Wellbutrin) and varenicline (Chantix)—and nicotine replacement therapies. Replacement therapies include over-the-counter products such as the transdermal patch, gum, and lozenge and prescription-only products, including nasal spray and oral inhaler.[15]

Fight Fire

Interested in becoming a Freedom from Smoking facilitator? The American Lung Association's training program is designed for a variety of people[19]:

- Public health professionals
- Health care workers
- Anyone interested in supporting their fellow community members in going tobacco-free

Fire Fighters

For support, smokers who want to quit may be referred to qualified counselors in tobacco treatment, such as certified Freedom from Smoking facilitators or other credentialed specialists. These trained tobacco treatment specialists work in different medical and community settings, including primary care, hospitals, neighborhood health centers, specialty practices, and schools.

Certifications available in tobacco treatment may be sponsored by professional medical organizations, regional medical centers, state public health agencies, and other groups. Many are accredited by the Council for Tobacco Treatment Training Programs.[14]

For instance, the Mayo Clinic's Nicotine Dependence Education Program sponsors a training program that allows participants to qualify as a certified tobacco treatment specialist (CTTS).[15]

"We rely heavily on utilizing best practice–advised methods for everything that we do," says Adam Bennett, MSW, LSW, CTTS, NCTTP, the tobacco cessation coordinator for Hillside Medical Center, an outpatient affiliate of the University of Pittsburgh Medical Center in Hanover, Pennsylvania. "This isn't just a 'Show up and I'll give you a few tips based on things I've heard or what I could Google about how to effectively stop using tobacco.' With a new patient or client, we always start with an intake assessment or what we call a *biopsychosocial assessment*."

This initial assessment entails a review of the patient's overall health, including mental or behavioral health concerns and other health issues, explains Bennett. The assessment will also include a discussion of the client's reasons for wanting to quit tobacco and their immediate and long-term goals.

In addition to his CTTS training, Bennett is a certified Freedom from Smoking facilitator. "The nature of tobacco treatment counseling should [strive] to empower the patient," he asserts. "Our approach is about forming a client- or patient-centered plan. A lot of experience has shown me that we need to make sure the client or the patient is in the driver's seat. A tobacco treatment specialist is most effective when they adopt the copilot role, as opposed to an approach that says 'I am going to pilot this, and you're going to come along for the ride.' "

In turn, a patient-centered approach emphasizes the importance of creating an individualized strategy or plan to help patients achieve their goals. This includes offering tools, resources, and education to support individuals to make the changes necessary to end their tobacco use. "The Freedom from Smoking program, while being a structured curriculum, works so well because it does just that," says Bennett. "It provides a framework for each participant to make their own individualized plan. It also provides the support that is so vital to long-term success. This applies to tobacco

Playing with Fire

Young people are at a higher risk of becoming addicted to the nicotine in tobacco products because their brains are still developing. Further, nicotine exposure can have negative consequences on normal brain development.[19]

"The younger a person is when they start using tobacco, the more likely they are to become addicted," according to the U.S. Food and Drug Administration. "Because of nicotine's powerfully addictive nature and major effects on the developing brain, no tobacco products are safe for youth to use."[19]

Resources

UCSF Smoking Cessation Leadership Center
https://smokingcessationleadership.ucsf.edu

American Lung Association
https://www.lung.org/quit-smoking

and nicotine dependence counseling or coaching on an individual basis as well."

As an experienced tobacco treatment specialist, Bennett offers insight into the nature of nicotine addiction and how it should be approached from a treatment perspective. "Tobacco and nicotine dependence is best viewed as being similar to a chronic disease," he explains, "like asthma and diabetes for example, with ongoing management being necessary, periods of success when things are going well, and periods where things go out of balance or relapse occurs. A common misperception by patients and health care providers is that tobacco and nicotine dependence is more like an acute condition that can be treated acutely and just goes away like an infection after taking a short course of antibiotics. This isn't the case for the majority of people when it comes to tobacco. But that's the way most of society views this issue, like you should be able to make up your mind to quit, like flipping lights off with a switch, and—poof—it's done. Most tobacco users don't quit the first time they try, relapse and slips are not uncommon, and there's typically no simple solution to 'just make it go away.' "

Accordingly, Bennett notes that a team approach works best for tobacco dependence. "As is the case with management of any other chronic disease, the health care team approach is essential to helping the patient learn about, treat, and manage the patient's condition over time," he says. "Tobacco treatment specialists are uniquely positioned to serve as the point person for this issue, keeping current on advancements in the field of tobacco and nicotine dependence treatment and translating that into practical steps and strategies that work to help real people … navigate a frustrating and confusing path toward becoming tobacco- and nicotine-free."

Like others, Bennett wants tobacco users to know that no matter how difficult, ending their nicotine dependence is possible. "Every single person has the ability to change this—to become free of this addiction—when they decide that it doesn't make sense to keep on with the status quo as it relates to tobacco use. If [they don't] see that yet, we tobacco treatment specialists can help the individual discover it [and] provide the resources they need to help them take action. When they're ready, we will be here to help them develop the skills and the confidence to bring it forward, put it to work, and make this change."

Notably, not all tobacco users today are cigarette smokers. "The most common cases I handle are those individuals that use nicotine vaping devices," says Jessica Blessinger, CTTS, a tobacco treatment specialist and clinical preceptor lead for Hancock Health in Greenfield, Indiana. "Very few of these patients smoke cigarettes."

In Blessinger's work, the initial patient assessment takes anywhere from 45 minutes to an hour, with subsequent follow-up visits lasting 20 to 30 minutes. "I assess a patient's dependence [on] nicotine [and] tobacco products, create personalized treatment plans, educate patients on long-term risks of smoking, benefits of quitting nicotine [and] tobacco products, and help identify barriers and potential hurdles along their cessation journey," she reports.

Patients are referred by clinic providers (e.g., physicians or nurse practitioners), who may prescribe medications or nicotine replacement therapy. "From my experience, the biggest challenge one faces achieving cessation is finding healthy alternatives to the tobacco habit," says Blessinger. "The time a person would spend smoking or using nicotine products leaves time for lifestyle changes to have a greater impact on their health—such as walking, trying new hobbies, learning new skills, or [generally] taking more time to care for themselves."

Brighter Futures

"To be successful when counseling patients, you must be open-minded to everyone's situation," says Blessinger. "Great communication skills, empathy, [adaptability], [and readiness] to solve problems [are] key to being a CTTS. Each patient is unique and will require personalized care plans. Being able to think outside the box [will] make the individual feel well cared for."

What do ex-smokers say about quitting? "I started smoking when I was 16 years old, and I am now 38 and have been smoke-free for three years," says Jennifer McCabe, CMA (AAMA), a staff member for Monarch Behavioral Health in Albemarle, North Carolina. McCabe initially sought help from her primary care provider to quit: "I was prescribed Chantix, which I needed to take for only two or three weeks. I also changed my habits. Instead of looking for that [post-meal] smoke, for example, I washed the dishes. I also have a supportive family [who] agreed not to smoke in my home or vehicle, especially in the early stages. Now, the craving still hits me on occasion, but I am able to take my mind off of it."

To best help patients who use tobacco, McCabe suggests medical staff be patient. "The best advice I can give is just to listen," she says. "You can only inform people to the best of your ability about the risks, but if someone is not ready to quit, they won't. If a patient shows a genuine interest in [making] that change, encourage them and try to connect them with a support network. And let the provider know what you have discussed so they can further educate the patient on their options."

As a former smoker whose parents smoked, Marjorie Van Duyne, CMA (AAMA), an adjunct medical assisting educator at Wayne Community College in Goldsboro, North Carolina, is sensitive to these challenges. In her experience working in an oncology unit, Van Duyne saw many lung cancer patients who felt guilt or shame about their smoking history. "There is a stigma that surrounds people who smoke and who develop lung cancer," she observes. "For some, the stigma is that they did this to themselves and deserve it. I think this can be a barrier to their care. The attitude

was often not the same as with other cancer patients—not quite as much the 'I'm going to beat this' mindset because of this tremendous guilt and shame. Some of these patients would also [avoid] seeking care or getting a diagnosis out of fear of a cancer diagnosis. We have to try to deconstruct that stigma. It shouldn't matter what the patient did or didn't do. What matters is that we're here now to get the patient through this and to support them."

While the challenges are certainly many, and tobacco use remains a persistent public health issue, there is reason for optimism about the future of tobacco control initiatives. Beyond continuing public education and support for access to smoking cessation resources, proposed FDA regulatory changes are under consideration to significantly reduce nicotine levels in cigarettes and other tobacco products.[16]

"I believe it is the combination of strong prevention programs, policies, and cessation interventions informed by the communities that are impacted that will really help us to move forward," concludes Dr. Vijayaraghavan. "We need to do this across multiple levels. It happens at the individual level, but it also happens at our health systems level, community level, and population level. We also need to be on top of the regulation aspect of tobacco products to stay informed and vocal about the decisions that the FDA is making about these products. So, there is a lot of work for us to do. But as a team and as a society, if everyone is working together, we're going to be able to achieve our goals."

In doing so, tobacco control advocates are indeed hopeful that society can continue to chart a path toward the goal of a healthy, tobacco-free future for all. ✦

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