

Smoking, E-Cigarette Use, and COVID-19

Current Evidence

Smokers and e-cigarette users may be at greater risk for severe illness when confronted with COVID-19

- COVID-19 attacks the lungs and behaviors that weaken the lungs put people at greater health risk. The harmful impact of smoking on the lungs is well-documented, and there is evidence that e-cigarette use can also harm lung health.
- Leading public health organizations and experts are concerned that smokers face a higher risk for severe illness from COVID-19. As e-cigarette use impacts the immune system and can harm lung health, e-cigarette users may also face higher risks. Especially at this time, all smokers and e-cigarette users should quit in order to protect their health.

Smoking Harms Lung Health

Smoking damages the lungs and negatively impacts how well they function.

- The lungs of smokers produce more and thicker mucus than the lungs of nonsmokers. This mucus is both difficult to remove and makes the lungs prone to infection.¹
- Smoking also inhibits and eventually destroys the cilia, the small hair-like projections on the surfaces of cells in the breathing airway that brush away dirt and other particles to protect the lungs.²
- Exposure to cigarette smoke causes airway inflammation. This inflammation and the resulting scar tissue damage the membranes that pass oxygen to the bloodstream.¹

Smoking causes lung cancer, chronic obstructive pulmonary disease (COPD), asthma, and other respiratory diseases.

- The lung diseases caused by smoking occur among smokers and non-smokers exposed to tobacco smoke.¹
- The lung diseases caused by smoking are among the underlying conditions known to place people at greater risk of more severe illness when diagnosed with COVID-19.^{3,4}

Smoking Impairs Immunity

Smoking harms the immune system and, therefore, the body's ability to fight infection.

- The chemicals in tobacco smoke suppress the activity of different types of immune cells that

are involved in general and targeted immune responses.¹

- The components in tobacco smoke also over-activate immune cells, which are recruited to combat the toxins that are inhaled and their effects. Over time, this pro-inflammatory effect can damage different tissues throughout the body and result in a number of chronic diseases including various autoimmune diseases, cardiovascular disease, cancer, diabetes, and COPD.^{1,5}

Smoking increases susceptibility to respiratory infections.

- There is overwhelming evidence that people who smoke are at higher risk of getting viral and bacterial respiratory infections:
 - Smokers have two to four times the risk of pneumococcal diseases like pneumonia and meningitis than nonsmokers.¹
 - Influenza risk is twice as high in smokers compared with nonsmokers.
 - Smokers have about twice the risk of contracting tuberculosis.⁶

The World Health Organization (WHO) has emphasized that smoking requires repeated hand-to-face motion, which increases the risk of viral transmission from fingers and cigarettes to the mouth.^{3,7} Along the same lines, many have raised concerns that waterpipe use, which often involves using shared mouthpieces in social settings, contributes to the spread of the novel coronavirus.^{8,9}

Smoking Caused Non-Communicable Diseases (NCDs) Increase Risk For Severe Illness From COVID-19

- Smoking causes cancer, COPD and other lung diseases, cardiovascular disease, and diabetes.¹
- Conditions like respiratory and cardiovascular diseases increase risk of severe disease in patients infected with other known coronaviruses, including those that cause MERS and SARS.¹⁰
- The WHO has stated that people with NCDs appear to be at higher risk for experiencing more severe forms of COVID-19.³

According to the WHO, smokers face a 40–50% higher risk of developing severe disease and death from COVID-19.¹¹

Waterpipe and smokeless tobacco use also increase the risks of COVID-19 for both users and non-users.

- The social nature of waterpipe use provides a pathway for the virus that causes COVID-19 to spread easily among users. Waterpipe use occurs in communal settings that are inconsistent with the social or physical distancing required to curb the spread of virus. In addition, the sharing of waterpipe equipment adds another layer of risk of transmission. Finally, anyone handling contaminated waterpipe equipment could be exposed to the virus.¹²
- Smokeless tobacco use involves spitting, which often occurs in public places. Since the virus that causes COVID-19 can exist in expelled fluid¹³, the spitting from smokeless tobacco users poses a threat to the public. This is especially concerning for countries in South Asia where smokeless tobacco use is common and population density is high.¹⁴

E-cigarette Use Impacts Health

Early studies into the effects of e-cigarette use show detrimental effects on the lungs, as well as the immune and cardiovascular systems. This research, considered alongside emerging evidence that patients with compromised respiratory, immune, and cardiovascular systems are at higher risk for severe COVID-19 infection, has led health authorities and others to caution against using e-cigarettes, particularly amidst the coronavirus pandemic.^{15,16,17}

Lungs

- Exposure to e-cigarette aerosol can have negative effects on various types of lung cells, including those involved in maintaining normal, healthy lung function.^{18,19}

Immune Response

- Long-term exposure to e-cigarette aerosol also can change, injure, or kill several kinds of immune cells in the lungs, compromising the lung's ability to fight infection.^{18,19} Additionally, nicotine, a critical component of e-cigarette aerosol, is known to suppress immune function throughout the body.¹

Cardiovascular System

- E-cigarette use can have short-term effects in reducing the function of cardiovascular tissue that controls blood flow.^{20,21} A 2021 review of the biological evidence identified additional studies with similar findings as well as studies documenting increased blood pressure, heart rate, and arterial stiffness.¹⁹ Although it is too early to draw conclusions on the long-term effects of e-cigarette use, these dysfunctions are commonly observed early in the development of cardiovascular disease.²²

Researchers have not yet found a direct link between e-cigarette use and likelihood of COVID-19 infection or severity of disease in those who are infected. However, given the early evidence of potential health risks from using e-cigarettes, there is mounting concern that people who use e-cigarettes may be at greater risk for severe illness when confronted with COVID-19.

We urge all smokers and e-cigarette users to make every effort to quit

- There has never been a better or more urgent time for people to quit smoking and using e-cigarettes.
- In order to protect health and reduce the risk of severe COVID-19 symptoms, we urge all those who smoke or use e-cigarettes to quit. Quitting smoking rapidly improves lung function, thus reducing risk for severe illness from COVID-19.

Quitting Smoking Rapidly Improves Lung Health

Quitting smoking improves lung function, immune response, and cardiovascular health, putting former smokers in a stronger position to fight severe infections like COVID-19.

- Lung function improves after quitting smoking. Cilia, the hair-like projections that protect the lungs, regrow and return to normal activity levels, making it easier to fight infection.²³ Many smokers begin to notice a decrease in respiratory symptoms like coughing and shortness of breath within one month of quitting smoking.²³
- After quitting, the immune inflammation caused by smoking decreases, white blood cell counts return to normal, and immune function improves. Rates of respiratory infections, including pneumonia and bronchitis, are significantly lower among former smokers than current smokers.²³

- Quitting smoking lowers blood pressure and heart rate almost immediately. Twenty-four hours after quitting smoking, the risk of heart disease begins to decline.²³

There has never been a better time to quit smoking. According to Dr. Tedros Adhanom Ghebreyesus, Director General of the WHO, “quitting tobacco is one of the best things any person can do for their own health.”²⁴

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