

# Smoking and Viral Respiratory Infections

Smoking weakens the immune system and compromises lung function.<sup>1</sup> There is evidence to suggest that e-cigarette use may also weaken lung function and increase susceptibility to respiratory viruses.<sup>2</sup> Common viral respiratory illnesses include Influenza (flu), bronchitis, pneumonia, and coronavirus infections (including COVID-19). Severe cases of viral respiratory infections can result in hospitalization or death. Smoking increases the risk of several chronic diseases, and people with chronic health problems are at an increased risk of complications from respiratory illnesses, including viral respiratory infections.<sup>3</sup>

## Influenza (Flu)

The flu is a contagious respiratory disease caused by the influenza virus.<sup>4</sup> Symptoms of the flu often include fever, cough, sore throat, muscle aches, headaches, and fatigue.<sup>4</sup> Occasionally, the flu may cause diarrhea or vomiting, although this is more common among children than adults.<sup>4</sup>

## Bronchitis

Acute bronchitis is when bronchial tubes that carry air to lungs get inflamed and swollen. It is often caused by the same viruses that cause a cold or influenza. Sometimes, bacteria bring it on. Symptoms of acute bronchitis include congestion, sore throat, cough that may bring up mucus, wheezing, shortness of breath, body aches, low fever, and fatigue.<sup>5</sup>

## Pneumonia

Pneumonia is an infection that causes the air sacks in lungs (alveoli) to fill with fluid. This can make it hard to breathe in enough oxygen to reach the bloodstream. Pneumonia is caused by bacteria and some viruses.<sup>6</sup>

## Coronavirus Disease (COVID-19)

Coronavirus disease (COVID-19) is an infectious disease caused by a new virus. The virus can cause respiratory illness with symptoms such as cough, fever, and in more severe cases, difficulty breathing.<sup>7</sup>

## Respiratory Infection Risk among Those who Smoke

In 2018, over 1 in 5 Hoosier adults (21.1%) smoked cigarettes.<sup>8</sup> Cigarette smoking can harm the immune system, which may increase the risk of respiratory infections such as influenza.<sup>3</sup> People with smoking-related chronic illnesses may be at increased risk of flu-related complications.<sup>4</sup> Smokers also have a higher risk of dying from respiratory infections such as influenza, COVID-19, and pneumonia.<sup>3,9</sup>

## Quick Facts

- Influenza (flu) is a contagious respiratory disease caused by the influenza virus.
- Coronavirus disease (COVID-19) is an infectious disease that causes respiratory illness with symptoms such as cough, fever, and in severe cases, difficulty breathing.
- Smoking weakens the immune system and decreases lung function.
- Evidence suggests that vaping may also weaken lung function and increase susceptibility to infections.
- People who smoke may have an increased risk of respiratory diseases like influenza and COVID-19.
- Over 1 in 5 Hoosier adults (21.1%) were current smokers in 2018.
- Smoking causes several chronic diseases including COPD, diabetes, and heart disease. People with these conditions have an increased risk of complications from respiratory illnesses including the flu and COVID-19.
- Children exposed to secondhand smoke have an increased risk of lower respiratory illnesses.

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## Smoking-related Health Conditions and Respiratory Illnesses

Smoking increases the risk of several chronic health conditions, including chronic obstructive pulmonary disease (COPD), type 2 diabetes, and heart disease.<sup>1</sup> Adults with these conditions are at greater risk of complications from respiratory illnesses that may result in hospitalization or death.<sup>3,9</sup>

## Secondhand Smoke Exposure and Respiratory Diseases

Exposure to secondhand smoke increases the risk of a number of respiratory health problems among adults and children, including respiratory illnesses.<sup>10</sup> Additionally, exposure to secondhand smoke can worsen the frequency and severity of asthma attacks among children with asthma.<sup>11</sup> Children with chronic health problems such as asthma, chronic lung disease, blood disorders, heart disease, and weakened immune systems are at greater risk of complications from respiratory viruses.<sup>12</sup>

## Steps to Protect Yourself and Your Family

- Getting a flu vaccine each year is the best way to prevent the flu.<sup>4</sup>
- Good hygiene practices, including covering coughs and sneezes and frequent handwashing, can help reduce the spread of viruses such as the flu, acute bronchitis, and COVID-19.<sup>4,5,7</sup>
- If you do have a respiratory virus, staying home while you are sick can help prevent spreading the virus to others.<sup>13</sup>
- For those who smoke or vape, quitting reduces the risk of smoking-related health problems.<sup>14</sup>
- Eliminate you and your family's exposure to secondhand smoke.
- For Hoosiers interested in quitting cigarettes, e-cigarettes, or other forms of tobacco, the Indiana Tobacco Quitline (1-800-QUIT-NOW, [www.QuitNowIndiana.com](http://www.QuitNowIndiana.com)) provides free evidence-based support.
- Youth and young adults who are interested in quitting e-cigarettes can text 'Indiana' to 88709 to enroll in the *This is Quitting* test messaging program.
- To prevent health complications due to secondhand smoke, do not allow smoking in your home or vehicle.

## References

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<sup>2</sup> Chronic inhalation of e-cigarette vapor containing nicotine disrupts airway barrier function and induces systemic inflammation and multiorgan fibrosis in mice. *Am J Physiol Regul Integr Physiol*. 2018 Jun 1; 314(6):R834-R847.

<sup>3</sup> Centers for Disease Control and Prevention. People at High Risk of Developing Flu-Related Complications. Retrieved April 4, 2020, from [https://www.cdc.gov/flu/about/disease/high\\_risk.htm](https://www.cdc.gov/flu/about/disease/high_risk.htm).

<sup>4</sup> Centers for Disease Control and Prevention. Key Facts about Influenza (Flu). Retrieved April 4, 2020, from <https://www.cdc.gov/flu/keyfacts.htm>.

<sup>5</sup> Centers for Disease Control and Prevention. Preventing and Treating Bronchitis. Retrieved April 24, 2020, from <https://www.cdc.gov/antibiotic-use/community/downloads/Flyer-Bronchitis.pdf>

<sup>6</sup> Centers for Disease Control and Prevention. Pneumonia. Retrieved April 24, 2020, from <https://www.cdc.gov/pneumonia/index.html>

<sup>7</sup> Centers for Disease Control and Prevention. Coronavirus (COVID-19). Retrieved April 24, 2020, from <https://www.cdc.gov/coronavirus>

<sup>8</sup> Behavioral Risk Factor Surveillance System, 2018.

<sup>9</sup> COVID-19 and smoking: a systematic review of the evidence. *Tob Induc Dis*. 2020, 18:21. Retrieved April 24, 2020 from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7083240/>

<sup>10</sup> U.S. Department of Health and Human Services. The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

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<sup>11</sup> U.S. Department of Health and Human Services. [The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General](#). Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014

<sup>12</sup> Centers for Disease Control and Prevention. Children, the Flu, and the Flu Vaccine. Retrieved April 4, 2020 from <https://www.cdc.gov/flu/protect/children.htm>.

<sup>13</sup> Centers for Disease Control and Prevention. CDC Says “Take 3” Actions to Fight the Flu. Retrieved April 4, 2020 from <https://www.cdc.gov/flu/prevent/preventing.htm>.

<sup>14</sup> Centers for Disease Control and Prevention. Quitting Smoking. Retrieved December 19, 2016 from [https://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/cessation/quitting/index.htm](https://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/quitting/index.htm).

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