

Secondhand Marijuana Smoke: Health Consequences and Policy Considerations

“Smoke is smoke. Both tobacco and marijuana smoke impair blood vessel function similarly. People should avoid both, and governments who are protecting people against secondhand smoke exposure should include marijuana in those rules.”

*-Matthew Springer, cardiovascular researcher and associate professor of medicine,
University of California, San Francisco*

What is secondhand marijuana smoke?

- Marijuana smoke is created by burning components of plants in the genus Cannabis.
- Secondhand marijuana smoke is a complex chemical mixture of smoke emitted from combusted marijuana and the smoke that is exhaled by the user.
- Secondhand marijuana smoke contains fine particulate matter that can be breathed deeply into the lungs.
- Secondhand marijuana smoke contains many of the same cancer-causing substances and toxic chemicals as secondhand tobacco smoke. Some of the known carcinogens or toxins present in marijuana smoke include: acetaldehyde, ammonia, arsenic, benzene, cadmium, chromium, formaldehyde, hydrogen cyanide, isoprene, lead, mercury, nickel, and quinoline.¹
- Marijuana smoke contains tetrahydrocannabinol (THC), the active chemical in cannabis.

What are the health risks of exposure to secondhand marijuana smoke?

Since marijuana is illegal under federal law, there have been a limited number of studies examining health risks associated with marijuana use and exposure in the United States. Health risks from primary and secondhand smoke exposure may also be difficult to determine as marijuana is often used in combination with tobacco.

However, peer-reviewed and published studies do indicate that exposure to secondhand marijuana smoke may have health and safety risks for the general public, especially due to its similar composition to secondhand tobacco smoke.

- Secondhand smoke from combusted marijuana contains fine particulate matter that can be breathed deeply into the lungs,² which can cause lung irritation, asthma attacks, and makes respiratory infections more likely. Exposure to fine particulate matter can exacerbate health problems especially for people with respiratory conditions like asthma, bronchitis, or COPD.³
- Significant amounts of mercury, cadmium, nickel, lead, and chromium are found in marijuana smoke, as well as 20 times the amount of ammonia and 3-5 times more hydrogen cyanide in marijuana smoke than is in tobacco smoke.⁴
- In 2009, the California Office of Environmental Health Hazard Assessment added marijuana smoke to its Proposition 65 list of carcinogens and reproductive toxins, also known as the Safe Drinking Water and Toxic Enforcement Act of 1986. It reported that at least 33 individual

constituents present in both marijuana smoke and tobacco smoke are Proposition 65 carcinogens.^{5, 6}

- Secondhand smoke from marijuana has many of the same chemicals as smoke from tobacco, including those linked to lung cancer.⁷
- Secondhand marijuana exposure impairs blood vessel function. Thirty minutes of exposure to secondhand marijuana smoke at levels comparable to those found in restaurants that allow cigarette smoking led to substantial impairment of blood vessel function. Marijuana smoke exposure had a greater and longer-lasting effect on blood vessel function than exposure to secondhand tobacco smoke.⁸
- Secondhand marijuana smoke and secondhand tobacco smoke likely have similar harmful health effects because of their similar chemical composition, including atherosclerosis (partially blocked arteries), heart attack, and stroke.
- People who are exposed to secondhand marijuana smoke can have detectable levels of THC in their blood and urine.⁹
- Marijuana also can be contaminated with mold, insecticides or other chemicals that may be released in secondhand smoke.¹⁰

Why Should Marijuana Smoking Be Prohibited in Public Places and Workplaces?

- Everyone has the right to breathe smokefree air. Smokefree policies are designed to protect the public and all workers from exposure to the health hazards caused by exposure to secondhand tobacco smoke. The same should be true for secondhand marijuana smoke.
- The American Society for Heating, Refrigeration, and Air Conditioning Engineering (ASHRAE) is the organization that develops engineering standards for building ventilation systems. ASHRAE now bases its ventilation standard for acceptable indoor air quality on an environment that is completely free from secondhand tobacco smoke, secondhand marijuana smoke, and emissions from electronic smoking devices.¹¹
- In order to protect public health, improve consistency, and aid enforcement, smokefree laws for public places and workplaces should include tobacco as well as marijuana, whether it is smoked or aerosolized. Allowing marijuana smoking in places where smoking is now prohibited could undermine laws that protect the public from exposure to secondhand smoke. The Tobacco Control Legal Consortium issued an informative brief on [Lessons from Tobacco Control for Marijuana Regulation](#).¹²
- Smokefree policies provide incentives to quit smoking, help denormalize smoking behavior, and are particularly effective among youth and young adults who are vulnerable to visual cues and social norms of smoking. It is likely that smokefree policies for marijuana will have a similar effect.
- Currently, there are approximately 154 municipalities and 7 states that restrict marijuana use in smokefree spaces in some manner.

In the interest of public health, the use of combustible or aerosolized marijuana should be prohibited wherever tobacco smoking is prohibited.

ANR's Position on Marijuana Smoking

Marijuana smoke is a form of indoor air pollution. Therefore, ANR includes marijuana within our definition of smoking, and all of our model laws and policies include a prohibition on smoking marijuana wherever smoking of tobacco products is not allowed. ANR does not have a position on whether marijuana should be legalized; however ANR is against smoking in ways that harm other people. In states where marijuana is legalized, marijuana use should be prohibited in all smokefree spaces.

Nobody should have to breathe secondhand marijuana smoke at work, in public, or where they live. If we want healthy, smokefree air for workers and the public, then products like marijuana and electronic smoking devices (which can be used to “vape” a wide range of substances, including marijuana and hash oil) must not be used in smokefree environments where others are forced to breathe the secondhand emissions.

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