HARVARD T.H. CHAN
SCHOOL OF PUBLIC HEALTH

News

E-cigs pack a harmful punch

Although e-cigarettes may be a useful tool for people trying to quit regular cigarettes, they also contain harmful chemicals, including formaldehyde and diacetyl, according to Harvard T.H. Chan School of Public Health's Joseph Allen.

In an April 4, 2018 op-ed in the *New York Times*, Allen, assistant professor of exposure assessment science, wrote that although manufacturers don't intentionally put formaldehyde into e-cigs, the carcinogen can be created when propylene glycol or glycerol—so-called "carrier fluids" used in e-cigs to help transport nicotine and flavors and to create a vapor cloud—are heated. Numerous studies have found emissions of formaldehyde from e-cigs, Allen said.

Studies have also found that diacetyl, a flavoring chemical used in e-cigs, is unsafe when heated—it has been linked with a severe and irreversible lung disease called obliterative bronchiolitis, according to Allen. The disease is also known also as Popcorn Lung because it was found in workers in a microwave popcorn packaging plant who had been exposed to diacetyl, which was used to create fake butter flavor and was heated in the manufacturing process. An April 2, 2018 *New York Times* article about the explosion of vaping (smoking e-cigs) among high school and middle school students cited a 2015 study led by Allen that found diacetyl in more than 75% of the leading brands of e-cigs.

"E-cigs are safer than cigarettes, no question," Allen wrote in his op-ed. "But 'safer' does not mean 'safe.' And all e-cig users need to be informed about the risks of inhaling these chemicals."

Read Allen's *New York Times* op-ed: The Formaldehyde in Your E-Cigs

Read the *New York Times* article about vaping in schools: 'I Can't Stop': Schools Struggle With Vaping Explosion

Learn more

E-cigarette emissions appear to contain pollutants (Harvard Chan School news)

The E-Cig Quandary (*Harvard Public Health* Magazine)

Chemicals linked with severe respiratory disease found in common e-cigarette flavors (Harvard Chan School release)