**States with recreational marijuana have lower rates of vaping associated lung injury**

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In the past six months, over 1,600 cases of e-cigarette or vaping associated lung injury (EVALI) have been reported to the CDC. The specific cause of EVALI is unknown, but most patients report using e-cigarettes to consume tetrahydrocannabinol (THC), the psychoactive ingredient in marijuana. The CDC and others have hypothesized that black-market THC products may cause EVALI1,2.

Some states have legalized marijuana and THC-containing products for recreational use. Many other states allow purchases for qualifying medical purposes. In the remaining states, all forms of consumption and distribution are illegal, and those who use THC likely obtain it from the black market.

If black market THC products are responsible for EVALI, then case rates may be lower in recreational marijuana states. To examine this hypothesis, we compared EVALI case rates across states with different marijuana regulations.

We obtained EVALI case data from the CDC2 and population data from SEER3, and defined the case rate as the mid-point of the CDC reported range divided by the state population. We classified states as medical marijuana states if they had a medical marijuana law by January 2019, but no recreational marijuana dispensaries. We classified states as recreational marijuana states if they had a recreational marijuana law and at least one recreational marijuana dispensary at that time: Alaska, Washington, Colorado, Oregon, Nevada, California, and Maine.

Figure 1 shows the number of reported EVALI cases per 1 million population in each state. We sorted states by the EVALI rate and found that recreational marijuana states have significantly fewer EVALI cases/million than other states. The average recreational marijuana state had 1.7 EVALI cases/million. This is 7.1 (p < .001 ) fewer cases/million than the average medical marijuana state, and 6.4 (p < .002) fewer cases/million than the average prohibition state. The difference in the EVALI case rate between medical and prohibition states is not statistically significant.

The distribution of EVALI cases suggests that they are concentrated in states where consumers do not have legal access to recreational marijuana dispensaries. This analysis is limited in that these are simple cross-sectional comparisons of case rates and do not attempt to adjust for the possibility of confounding by other factors that might explain differences in EVALI case rates. Still, one possible inference is that THC products obtained through the black market may be responsible for EVALI and that further restricting the legal market may lead to more cases of EVALI.

Figure 1

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**References**

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