

Testimony of Lauren Vrabel, PharmD before the Pennsylvania Senate Transportation Committee  
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Hello and thank you for your attention today. My name is Lauren Vrabel and I am a licensed pharmacist in Pennsylvania. I earned my doctorate of pharmacy from Duquesne University and have been practicing in the cannabis industry since 2018. My testimony will not be extensive by any means and I will avoid using complex medical jargon, however I want to address why the current standard of measuring marijuana intoxication is entirely inappropriate.

Most people are aware of THC as the intoxicating cannabinoid responsible for the “high” associated with cannabis. However, the majority are unaware of the science behind cannabinoids. More specifically, what the body does to THC after it is consumed.

Naturally the body breaks down drugs into smaller, inactive compounds before it is eliminated or excreted. This occurs predominantly in the liver, whether THC is inhaled or ingested. The resulting compounds are an active metabolite, 11-OH-THC, and an inactive metabolite THC-COOH. Active metabolites can still interact with receptors to elicit a response, whereas inactive metabolites cannot.

When ingested, THC must be absorbed through the intestines and broken down by the liver to 11-OH-THC before it reaches the bloodstream and brain. Studies have indicated that 11-OH-THC can be 4-10 times more potent than its parent THC. This is why ingestibles produce a larger “high” compared to other routes of administration. The effects generally take one hour to begin and can last for 6-8 hours, sometimes longer in certain individuals.

On the other hand when inhaled, THC is absorbed by the lungs and sent through blood circulation to the brain before it is metabolized to 11-OH-THC. The onset of action occurs more quickly than ingestibles, producing effects within minutes after inhaling. Approximately 30 minutes after inhalation, the levels of THC-COOH are much higher than THC because elimination is much quicker. The effects of inhaled THC generally last between 2-4 hours.

Either way the active metabolite, 11-OH-THC, is then broken down into THC-COOH. Interestingly, THC-COOH is excreted through urine and is the metabolite that is tested in drug screenings. This is a misleading representation of intoxication, as it cannot and will not interact with receptors to produce a “high.” What this actually represents is simply consumption. It is not an indicator of the time frame of consumption. Therefore, measuring THC-COOH to prove intoxication at the time of operating a motor vehicle is arbitrary.

Furthermore, THC is a highly lipophilic molecule meaning that it loves fats and can be stored in fat tissues when consumed. Because of this, it can be redistributed to the bloodstream long after consumption occurs. This relates to how a person can test positive for cannabis although they have been abstinent for days or weeks. There is also a component of inter-individuality, meaning that everyone’s metabolism is different and processes not only marijuana, but other drugs and even food at different rates. Inter-individuality also relates to tolerance, as each patient’s cannabinoid requirement and resistance to the intoxicating effects varies.

The Mayo Clinic provides estimates of how long marijuana is detectable in urine based upon frequency and quantity consumed. Those who consume one time will have detectable metabolites for up to 72 hours, moderate users for 5-7 days, chronic or daily users for 10-15 days, and chronic heavy users for 30 days or more. The underlying presumption for these time frames is that the person has discontinued use of cannabis.

What does this mean for patients? The chronically ill patients who legally consume cannabis in the Pennsylvania Medical Marijuana Program will likely fall in the category of those who require 30-plus days of non-consumption in order to pass a drug screen. As a cannabis pharmacist I often recommend that patients consume multiple dosage formulations, perhaps multiple times per day in order to achieve consistent symptom relief. The recommended dose varies from patient to patient, but the literature suggests that the correct dose is one that provides symptom relief without causing side-effects. We often say, "Start low and increase slowly," when referring to dosing. Certain patients require much larger doses than others depending on their endocannabinoid system and level of tolerance. Tolerance increases with continued use, requiring higher dosages. Understandably, the more cannabis that is consumed directly relates to larger concentrations in the body.

In my humble opinion and expertise, testing for intoxication by way of drug screenings presents a huge obstacle and disadvantage to the 350,000 patients that have enrolled in the Commonwealth's program. The presence of THC and its metabolites in drug screens does not accurately prove intoxication. These patients deserve a better solution, specifically the standards outlined in SB 167.

## References

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