



Education and promoting effective laws to reduce Driving Under the Influence of Drugs (DUID) – We provide a science-based perspective from DUID Victims.

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Re: SB 55

February 23, 2025

Ohio's legalization of marijuana increases the importance of fixing the state's flawed OVI law. But any replacement must be based on scientific knowledge and improving traffic safety. **SB 55 does not do that.**

Ohio should reject SB 55. It contains the same fundamental flaws that doomed its predecessors SB 203 (2021) and SB 26 (2023). Previous offers to assist Ohio in crafting a competent OVI law were ignored. So, the last page of this letter includes a summary of recommendations to fix Ohio's current untenable position.

Background

Ohio's OVI law provides that a driver is in violation of 4511.19 if the driver was either under the influence of alcohol, a drug of abuse or a combination of them (OVI), or if the driver exceeded *per se* limits for alcohol or other psychoactive drugs and/or active and inactive metabolites of those drugs tested in breath, blood, plasma, serum, or urine (OVI *per se*).

Ohio's marijuana *per se* limits do not specify the chemical or chemicals assayed by forensic toxicology laboratories (e.g.: Δ^9 THC, Δ^8 THC) and do not differentiate between marijuana's psychoactive metabolite (11-hydroxy THC) and the psycho-inactive metabolite (11-nor-9 carboxy THC).

Ohio's legalization of marijuana requires that marijuana's flawed *per se* limits be properly addressed. Senate Bill 55 substitutes all current marijuana *per se* provisions with the following:

1. *Per se* violation with 5 ng/mL of Δ^9 THC in whole blood;
2. Inference of violation with 25 ng/mL of Δ^9 THC in urine, or;
3. Inference of violation with 2-5 ng/mL of Δ^9 THC in whole blood.

SB 55 Summary Analysis

Specifying an inference level for drug impairment is sound policy. Specifying a non-zero *per se* level for marijuana's Δ^9 THC violates all that is known about THC impairment. There is absolutely no correlation between blood levels of Δ^9 THC and levels of impairment. None whatsoever. There is no scientific support for any non-zero Δ^9 THC legal limit, whether it be *per se* or permissible inference. See pages 2-6. Any non-zero drug legal limits will be unjust to either legal drug users, the public, or both.

Specifying a 25 ng/mL Δ^9 THC inference level in urine is idiotic. There is no other polite word for it. Δ^9 THC is soluble in fats, but not in urine. Δ^9 THC is not even found in urine except in trace amounts. Ask your crime labs. Miami Valley is the only OVI lab that claims to be able to test for THC in urine and they will only report its presence, not its ng/mL level. They won't report THC levels because in their published

words, “THC exists in the urine in trace amounts.” Specifying a 25 ng/mL Δ^9 THC in urine inference level in jurisdictions that test urine for OVI would mean that no THC-impaired drivers could ever be convicted.

Expert opinions on THC non-zero *per se* laws

“ While the idea of establishing impairing concentrations for drugs is compelling, phenomena such as variable drug tolerance; alcohol and drug combinations; the sheer number of potentially impairing drugs; the decrease in blood drug concentration between the time of the incident and the time of blood collection; and other factors make this task impossible.”

Gary Reisfield et al. *Journal of Analytical Toxicology* (2012) ¹

“ ... *per se* limits cannot reliably discriminate between impaired from unimpaired drivers.”

Thomas Arkell et al. *Traffic Injury Prevention* (2021) ²

“Based on this analysis, a quantitative threshold for *per se* law for THC following cannabis use cannot be scientifically supported.”

AAA Foundation for Traffic Safety (2016) ³

“New AAA Foundation Research Also Shows that Legal Limits for Marijuana and Driving are Meaningless.”

AAA Press Release May 10, 2016⁴

“RESOLVED, that the International Association of Chiefs of Police ...[concludes] that operating vehicles under the influence of THC increases risk of injury and death and that there is no minimum blood THC concentration below which a driver can be considered unaffected after recent consumption of cannabis products.”

International Association of Chiefs of Police (2018)

“...the National Sheriffs’ Association ...[concludes that] there is no minimum blood THC concentration which a driver can be considered unaffected after recent cannabis product consumption.”

National Sheriff’s Association (2018)

Why are non-zero THC legal limits not scientifically accepted? -- They are unfair to DRUG USERS.

Chronic marijuana users can maintain a baseline THC blood level above 5 ng when not impaired

Ohio’s legislature will be besieged by the marijuana lobby claiming SB 55 is unjust. They will claim that the 5 ng/mL *per se* level is too strict. They will claim that their blood level of Δ^9 THC exceeds 5 ng/mL even when they are not impaired.

¹ <https://academic.oup.com/jat/article/36/5/353/746140>

² <https://doi.org/10.1080/15389588.2020.1851685>

³ <https://aaafoundation.org/wp-content/uploads/2017/12/EvaluationOfDriversInRelationToPerSeReport.pdf>

⁴ <http://newsroom.aaa.com/2016/05/fatal-road-crashes-involving-marijuana-double-state-legalizes-drug/>

Although I do not often agree with hyperbolic claims from the marijuana lobby, this one happens to be largely true. A University of Colorado study⁵ of 31 daily marijuana smokers/vapers found that the drug users' average baseline blood Δ^9 THC level was 5 ng/mL (SD 6.4) before dosing, with a range from less than the level of detection to 26 ng/mL. Users were subjected to blood cannabinoid testing, driving simulator tests and psychomotor assessments to ensure they were not measurably impaired at baseline.

So, yes. A chronic user may be able to maintain a blood THC level above 5 ng/mL after their acute impairment has subsided and they are no longer measurably impaired.

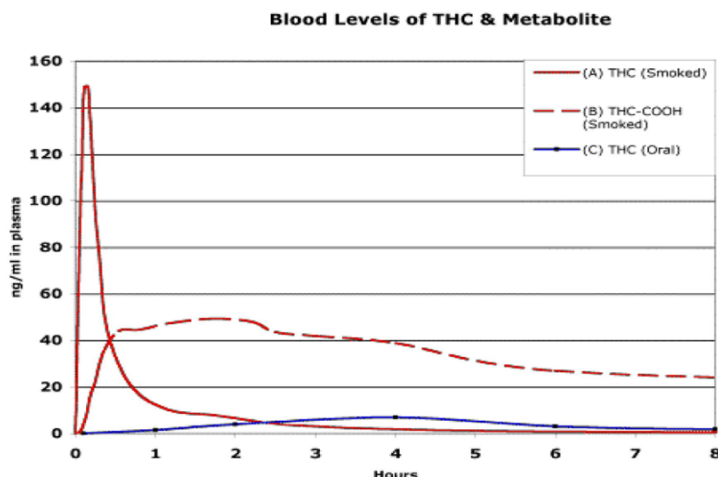
Why are non-zero THC legal limits not scientifically accepted? -- They are unfair to the PUBLIC.

Drivers may be impaired at very low blood THC levels

For smoked and vaped marijuana, blood Δ^9 THC levels rise very quickly, and then drop off nearly as quickly as the THC is absorbed from blood by the brain and other highly perfused fatty organs. See the graph below. Consider that blood is never impaired by THC or alcohol. These drugs impair the brain. Not the blood. Blood THC levels drop off so quickly that maximum blood THC levels have been shown to drop an average of 73.5% within the first 25 minutes of beginning to smoke a joint⁶. The typical time from a DUI arrest to taking a blood sample is an hour, two hours if there is a death or injury involved, and three hours if a warrant is required to obtain a blood sample⁷. No wonder AAA found that blood THC levels are meaningless!

The blood plasma Δ^9 THC level of a typical smoker is shown in solid red in the graph below. The blood level of THC's secondary metabolite THC-COOH is higher than THC itself as shown by the dashed line, since unlike THC, THC-COOH is soluble in blood and even urine.

But look at the solid blue line, showing the blood Δ^9 THC level over time for a user on marijuana edibles.

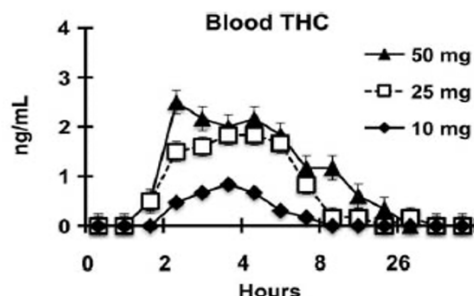


⁵ <https://www.sciencedirect.com/science/article/abs/pii/S0001457521003572?via%3Dihub>

⁶ <https://pubmed.ncbi.nlm.nih.gov/26823611/>

⁷ <http://dx.doi.org/10.1080/15389588.2015.1052421>

The normal dose for a marijuana edible is 10 mg. Vandry examined the blood THC levels from using THC edibles and showed⁸ that with a 10 mg dose, the blood Δ^9 THC level doesn't even rise as high as 1 ng/mL. And 1 ng/mL is the lowest reporting level for most forensic toxicology labs, although research labs like Vandry's can measure and report levels down to 0.2 ng/mL. Even at 5x the normal dose, the blood Δ^9 THC level still remains under 3 ng/mL.



This means that SB 55 will not help convict drivers impaired by marijuana edibles.

Blood THC levels disappear long before THC impairment does

From what we have shown so far, it should not be surprising that an impaired driver's blood Δ^9 THC level could be below legal limits long before their acute impairment subsides. That has been measured and reported by several scientists, summarized in the following graph:

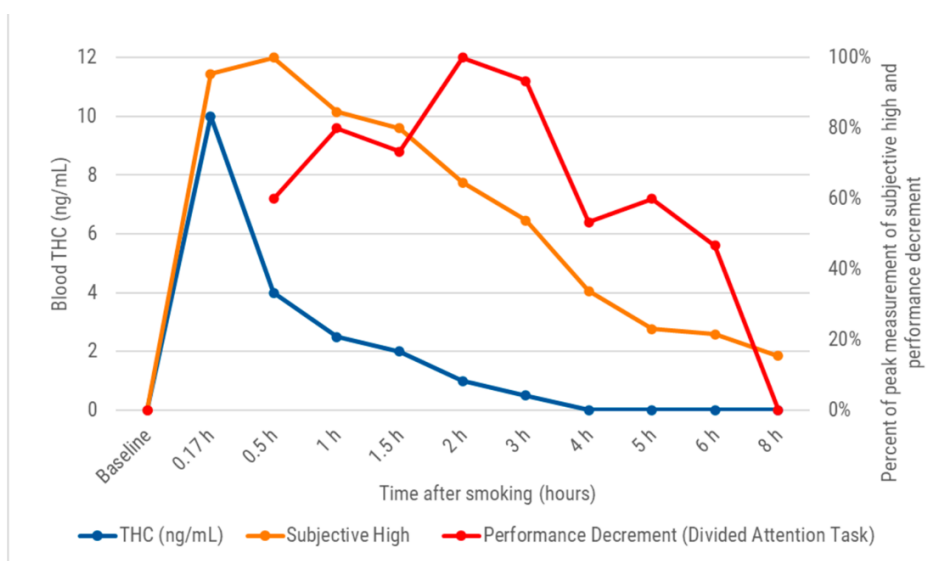


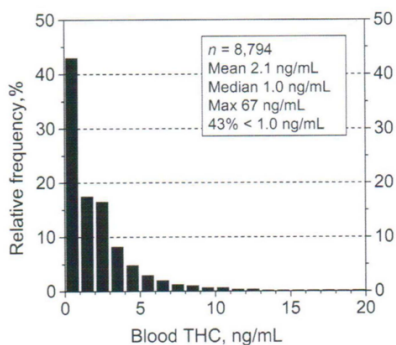
Figure 2. Time course of standardized THC concentration in blood, subjective high, and negative performance on a divided attention task after smoking cannabis (Source data: Spindle and others 2018; Spindle and others 2019).

These are some of the studies that lead scientists to conclude that there is no scientific support for any legislated THC *per se* level.

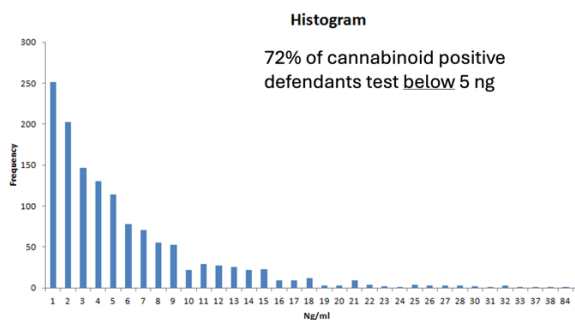
⁸ <https://www.ncbi.nlm.nih.gov/pubmed/28158482>

Most THC-impaired DUI defendants test below 5 ng/mL

Because of the very rapid redistribution of Δ^9 THC from blood to the brain (shown in the first graph), most THC-impaired drivers test below 5 ng/mL. The first to publish this information was Jones⁹ in 2008. He found that 90% of Swedish DUI defendants tested below 5 ng/mL. Colorado and NMS Labs in Pennsylvania found similar results ~70% were below 5 ng/mL.



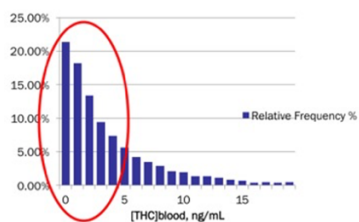
Jones



Colorado

Impact of 5ng/mL THC *per se* Law

10,144 Marijuana DUID /DRE cases testing positive for THC and/or metab.



NMS Labs

These graphs demonstrate that a 5 ng/mL *per se* law would only apply to a small minority of those arrested for impaired driving.

A 5 ng/mL permissible inference level doesn't work: The power of definitions

Here is one more nail in the coffin of THC "legal limits:" a case a study of Colorado's data. Colorado has three unique features of its impaired driving law (42-4-1301):

- Two distinct impaired driving offenses:
 - DUI – Driving Under the Influence
Statutorily defined as "incapable of safe driving"
 - DWAI – Driving While Ability Impaired
Statutorily defined as "impaired to the slightest degree – less safe to drive"
- A 5 ng/mL Δ^9 THC permissible inference for DUI. This is similar to SB55's inference provision. There is no specified THC level for DWAI. Only for DUI.
- Annual reports of the causes and judicial consequences of DUI/DWAI by substance found¹⁰

⁹ <https://www.ncbi.nlm.nih.gov/pubmed/18190663>

¹⁰ https://cdpsdocs.state.co.us/ors/docs/reports/2024_DUI-HB17-1315.pdf

Colorado's Department of Public Safety has published four years of data¹¹ showing that the 5 ng THC permissible inference law is not only scientifically invalid, but it also doesn't work, it is not needed, and it makes matters worse, not better.

Conviction rates by THC level

	DUI	DWAI	Overall
5 ng+	64%	99%	85%
<5ng	8%	94%	35%
Overall	45%	98%	

First, note that the overall conviction rate for DUI is 45%, less than half what it is for DWAI.

Remember, DUI has a 5 ng permissible inference rate. DWAI does not. This suggests that THC-impaired driving conviction rates can be very high and that a 5 ng "legal limit" is not needed.

Note that 5 ng does not determine if a driver is impaired. DWAI conviction rates are nearly identical regardless of the blood THC level. The 5 ng law doesn't work

Conviction rates by THC level

	DUI	DWAI	Overall	
5 ng+	64%	99%	85%	A 5 ng THC limit does not discriminate between impaired and non-impaired drivers.
<5ng	8%	94%	35%	
Overall	45%	98%		

Conviction rates by THC level

	DUI	DWAI	Overall	
5 ng+	64%	99%	85%	Permissible inference prevents convictions based on only toxicology results.
<5ng	8%	94%	35%	It's easier to prove impairment than "incapable of safe driving."
Overall	45%	98%		

Next, look at the DUI vs DWAI conviction rates for drivers above 5 ng. These data prove two points:

1. The permissible inference structure works. It prevents convictions based solely on lab results.
2. It is easier to prove that a driver was impaired that to prove he was incapable of safe driving.

And finally, look at the DUI conviction rates above and below the legal limit:

Conviction rates by THC level

	DUI	DWAI	Overall	
5 ng+	64%	99%	85%	A 5 ng THC level prevents most convictions of impaired drivers below the legal limit.
<5ng	8%	94%	35%	
Overall	45%	98%		

This shows what Ohio would likely see with SB 55 – a pathetically low OVI conviction rate for the vast majority (70-90%?) of drivers impaired by THC. Is that really what you want?

¹¹ *Ibid.*

What does driving under the influence mean?

One of the world's first DUI laws was the 1930 UK law that prohibited driving

“under the influence of drink or drugs to such an extent as to be incapable of having proper control of the vehicle”

Prosecutors found that it was very difficult to prove someone was “incapable” of safe driving. Defense attorneys frequently claimed, “There is no proof that alcohol caused the crash. It could have happened to anyone. It was an accident.” Thus began the improper use of the word “accident” when referring to a “crash.” A crash caused by an impaired driver is a crime, not an accident. A crime is not an accident. An accident is not a crime.

States began experimenting with different definitions of impairment to see if they could improve conviction rates. Definitions today include “Impaired to the slightest degree” and “Diminished ability to drive safely.” See Supplementary Material in “Colorado drugged driving prevalence and impaired driving conviction rates: Effects of impaired driving definitions and a 5-nanogram limit for delta-9 tetrahydrocannabinol¹²” for a more complete listing of current definitions by state.

DUI definitions became moot in 1938 when alcohol *per se* laws began to be adopted.

In today's world of highly pervasive drugged driving without scientifically supported *per se* laws, DUI definitions are no longer moot. But states have not reviewed their definitions with that in mind.

Colorado's data indicates that they should. States' DUI definitions today fall into three groups:

1. Incapable of safe driving. (9 states)
2. Something less than #1 such as “normal facilities impaired,” “to the slightest degree,” “less safe” or “in a way that can be perceived.” (17 states)
3. No definitions provided in statute. (24 states)

Ohio is in the third category.

Ohio recommendations

1. Get your own data. What are your current conviction rates by substance, by test protocol, by district, etc? Follow Colorado's lead¹³.
2. Eliminate urine testing for OVI cases. It's meaningless. Rely on blood or oral fluid instead.
3. Define OVI. Make it something less than “incapable of safe driving.”
4. **Establish a permissible inference level of OVI for a driver with any measurable level of one or more psychoactive drugs other than alcohol in blood or oral fluid.**
5. Avoid all non-zero *per se* limits for drugs other than alcohol. There is a high correlation between alcohol's BAC level and crash risk. There is no proven correlation for any other drug.

Sincerely,



Ed Wood
President, DUID Victim Voices

¹² <https://doi.org/10.1080/15389588.2023.2296865>

¹³ Colorado law mandating DUI data reporting DUI causes and consequences: C.R.S. 24-33.5-520