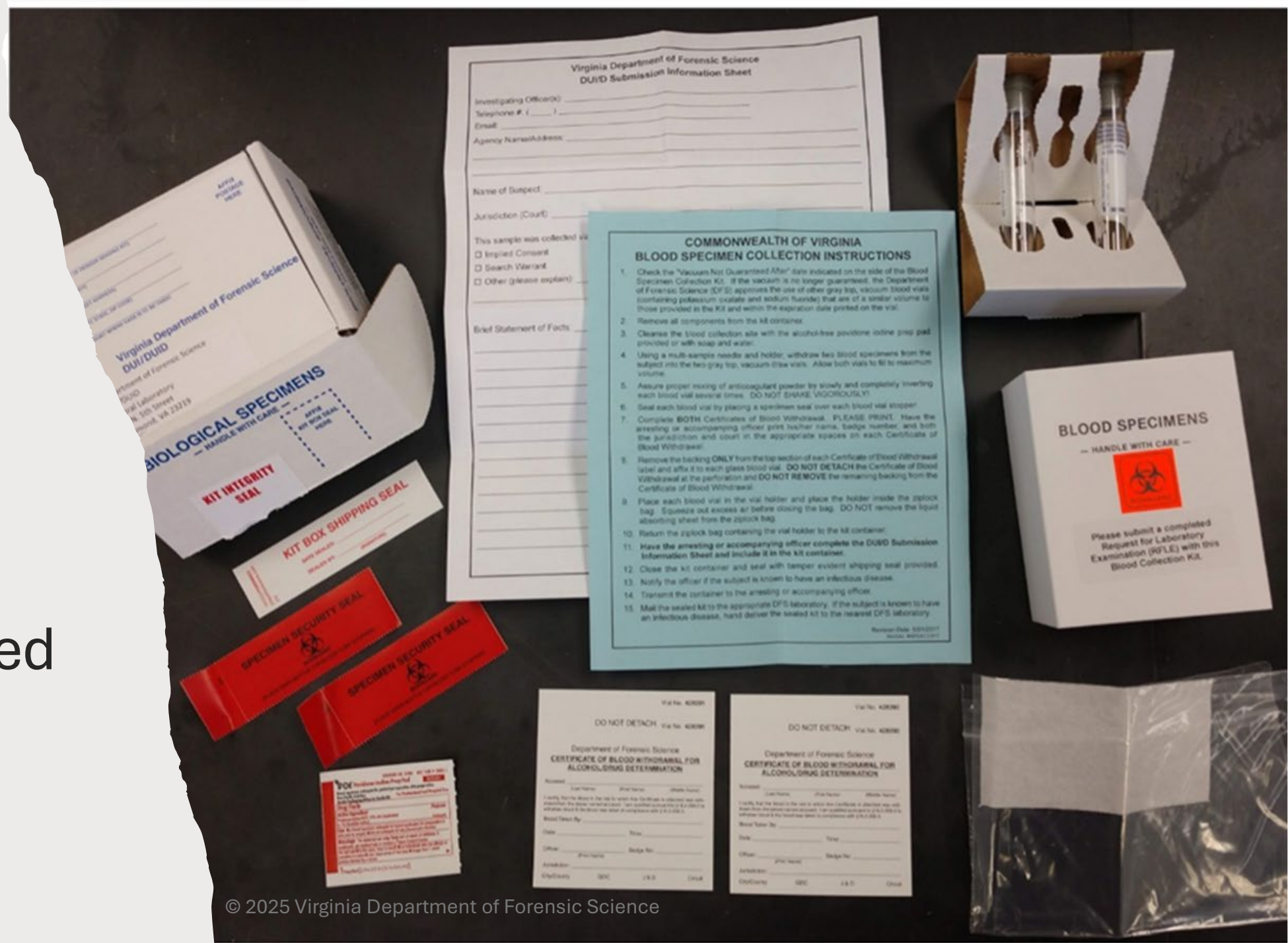


Impaired Driving Trends in Virginia

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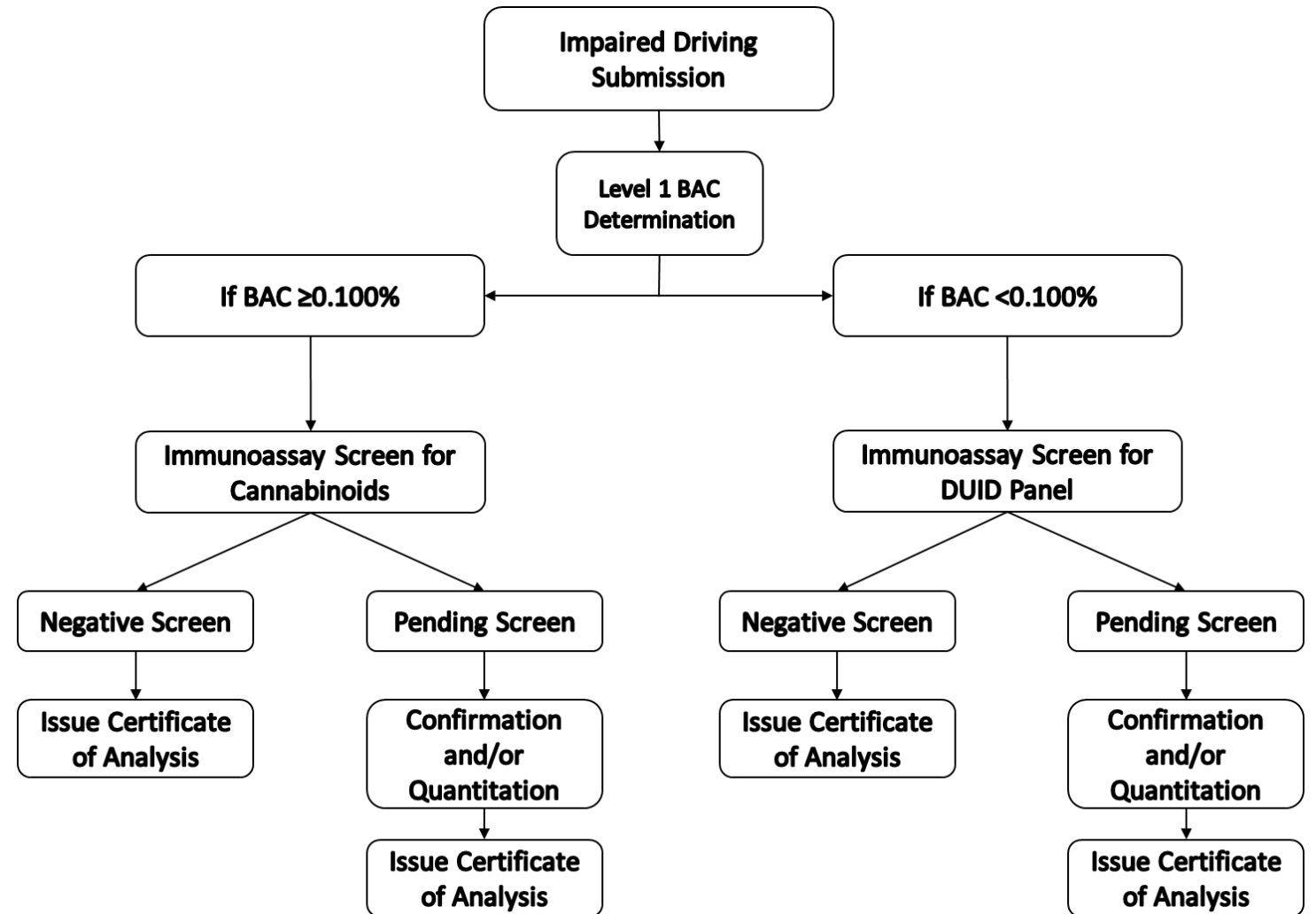


DFS-Provided Blood Kit



Impaired Driving Laboratory Testing

- Blood Alcohol Content (BAC)
- Enzyme Linked Immunosorbent Assay (ELISA) Drug Screen
- Confirmatory testing



DUID Panel Drug Screen

Presumptive positive results sent to confirmation/quantitation analysis

Cocaine/Benzoylecgonine (BE)	Methadone	Marijuana (THC)
Opiates	Barbiturates	Diphenhydramine/Cyclobenzaprine
Oxymorphone/Oxycodone	Benzodiazepines	Dextromethorphan
Methamphetamine/MDMA	Carisoprodol/Meprobamate	Tramadol
Phencyclidine (PCP)	Zolpidem (Ambien)	Tricyclic Antidepressants
Fentanyl	Buprenorphine/Norbuprenorphine	Amphetamine

What drugs are commonly detected in VA drivers?

* THC screening expanded to all impaired driving cases in 2023

Year	2020	2021	2022	2023*	2024
1	THC (1205)	THC (1221)	THC (1135)	THC (1718)	THC (1838)
2	Fentanyl (879)	Fentanyl (848)	Fentanyl (633)	Fentanyl (627)	Methamphetamine (554)
3	Methamphetamine	Methamphetamine	Methamphetamine	Methamphetamine (619)	Fentanyl (482)
4	Cocaine	Cocaine	Cocaine	Cocaine	Cocaine (327)
5	Alprazolam	Alprazolam	Alprazolam	Alprazolam	Alprazolam (167)
6	Morphine	Etizolam	Methadone	Bromazolam	Bromazolam (133)
7	Methadone	Morphine	Buprenorphine	Methadone	Methadone (123)
8	Buprenorphine	Methadone	p/m-fluorofentanyl	Buprenorphine	Buprenorphine (117)
9	PCP	Buprenorphine	Morphine	Clonazepam	Clonazepam (85)
10	Diazepam	PCP	Clonazepam	Diazepam	Diazepam (85)
Total Impaired Driving Cases	4995	4977	4910	4598	4566

Closer look at THC concentrations...

* THC screening expanded to all impaired driving cases in 2023

THC Values (mg/L)				
Year	Median	Average	Max	Cases
2020	0.0040	0.0061	0.0940	1205
2021	0.0040	0.0067	0.1000	1221
2022	0.0047	0.0071	0.0890	1135
2023*	0.0041	0.0069	0.1000	1718
2024	0.0043	0.0072	0.0730	1655

An even closer look at THC concentrations...

More specifically 2024

- Blood alcohol concentration is **greater than or equal** to 0.100 %w/v
 - THC positive = 530; ~24% of “high” alcohol cases
 - Average THC concentration = 0.0057 mg/L (median = 0.0035 mg/L)
- Blood alcohol concentration is **less than** 0.100 %w/v
 - THC positive = 1011; ~43% of “low” or no alcohol cases
 - Average THC concentration = 0.0081 mg/L (median = 0.0049 mg/L)
- For THC positive cases, other drugs are commonly detected:
 - Ethanol
 - Methamphetamine
 - Fentanyl
 - Cocaine
 - Alprazolam
 - Bromazepam
 - Buprenorphine
 - Methadone
 - Clonazepam
 - Oxycodone

Elements of Safe Driving

Coordination

Reaction Time

Tracking

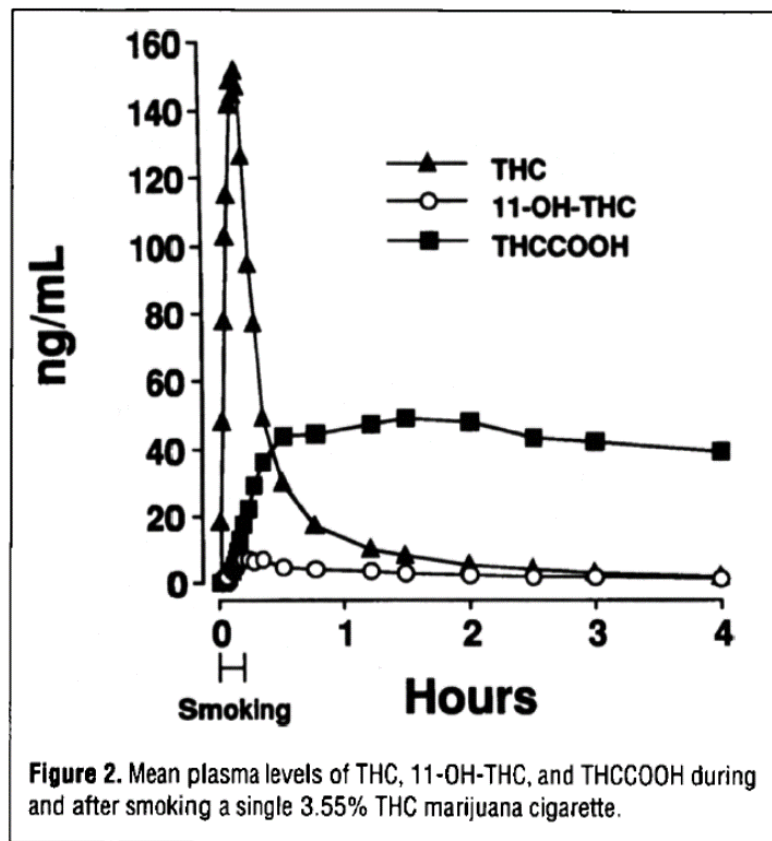
Judgement

Attention

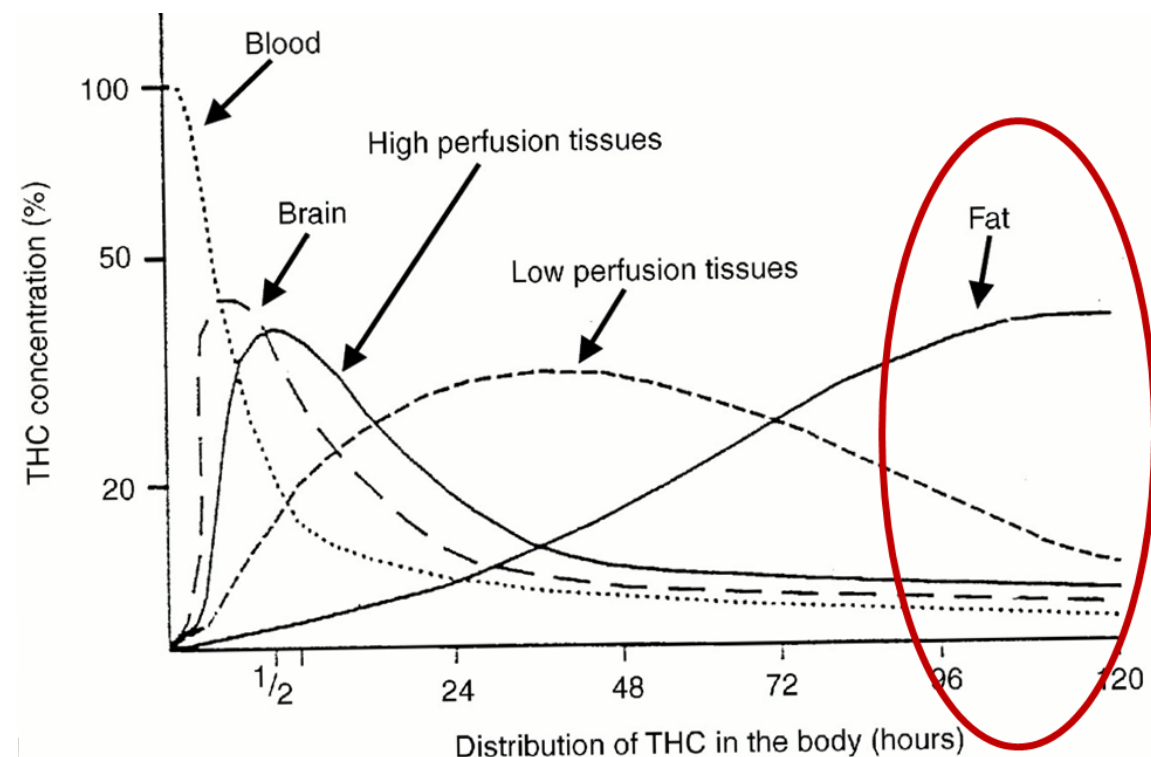
Perception

THC and Safe Driving Elements

- Short-term memory disruption
 - Relaxation and euphoria
 - Lack of concentration/focus
 - Poor decision-making
 - Altered time and space perception
 - Hallucinations (at high concentrations)
- Coordination
 - Reaction Time
 - Judgement
 - Tracking
 - Attention
 - Perception

[illegible]

Huestis MA, Henningfield JE, Cone EJ: J Anal Tox (1992) 16:276-282



Ashton CH: British J of Psychiatry (2001) 178:101-106

Oral Ingestion

- Pharmacology – Oral Ingestion
 - [Vandrey, et al. \(2017\) Journal of Analytical Toxicology, 41: 83-99.](#)
 - Cannabis brownies

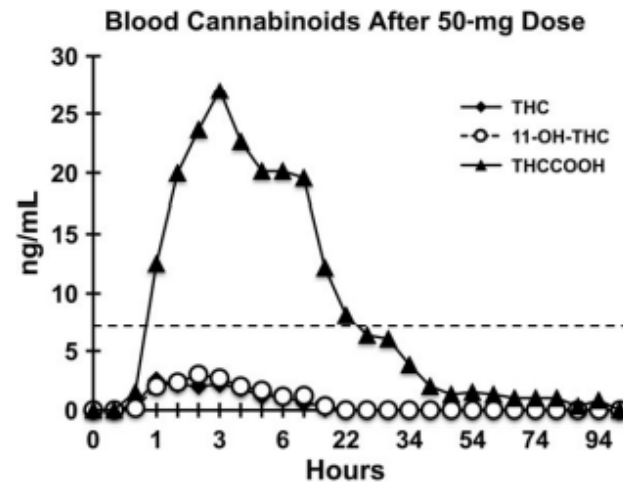


Figure 2. Cannabinoid profile in whole blood after oral administration of 50 mg THC.

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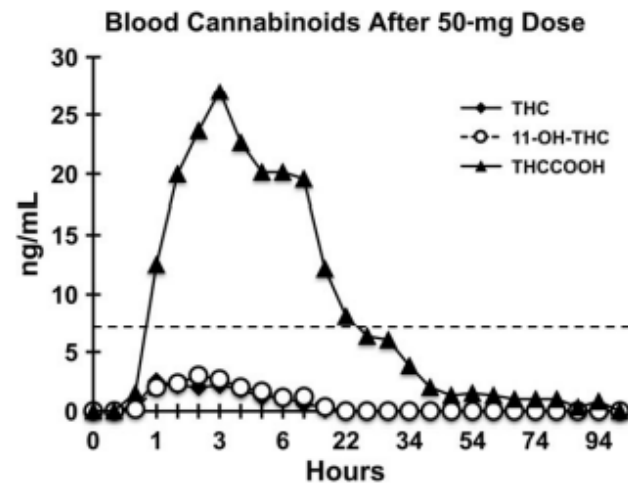


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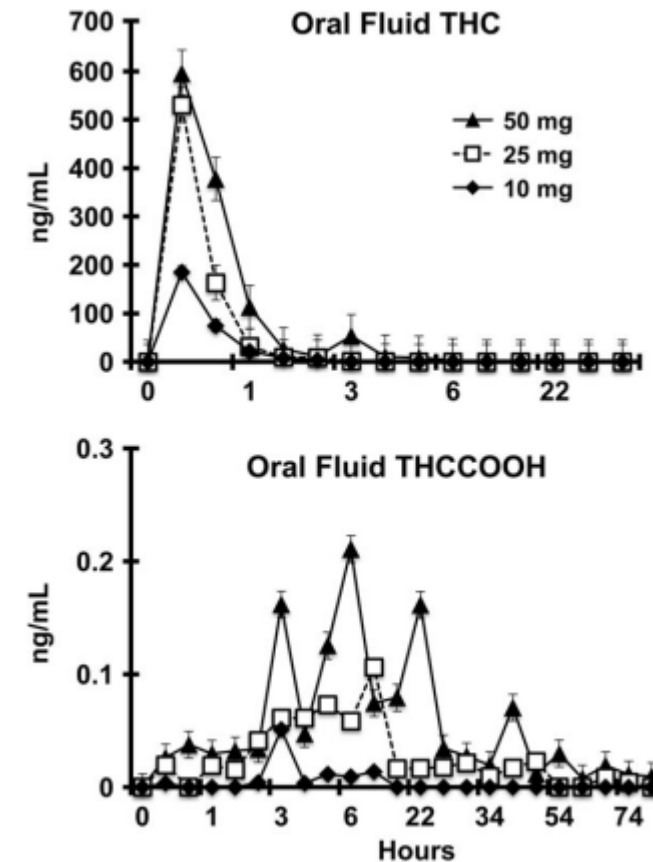


Figure 3. Quantitative THC and THCCOOH in oral fluid.

Oral Fluid Testing

- Roadside Oral Fluid Testing
 - Qualitative – Yes/No
 - Recent Usage
 - Less invasive
- Targets include:
 - THC
 - Methamphetamine
 - Benzodiazepines
 - Cocaine
Metabolite
 - Opioids (does not include fentanyl)

Oral Fluid Testing

- Roadside Oral Fluid Testing
 - Qualitative – Yes/No
 - Recent Usage
 - Less invasive
 - Simple process
- Targets include:
 - THC
 - Methamphetamine
 - Benzodiazepines
 - Cocaine Metabolite
 - Opioids (does not include fentanyl)
- Limitations:
 - Expensive: can be upwards of \$5,000 per unit
 - More complex units require power source
 - Targets are limited
 - Does not include fentanyl
 - Positive does NOT EQUAL impaired

Roadside Oral Fluid Testing

- Where does this fit into the impaired driving investigation?
 - Utilized similarly to Preliminary Breath Test (PBT)
 - Used for probable cause
- If the officer arrests, still needs to obtain an evidentiary sample of breath or blood

Thank you for your time and attention.

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