

Impaired Driving in Colorado: First Results from a Data Integration Initiative

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Terms

DUI - driving under the influence.

The criminal offense of driving while impaired by alcohol or other drugs.

THC - tetrahydrocannabinol (also, “Delta-9, THC”).

The primary intoxicant in marijuana. One of 113 cannabinoids identified in cannabis or marijuana.

CBD - cannabidiol.

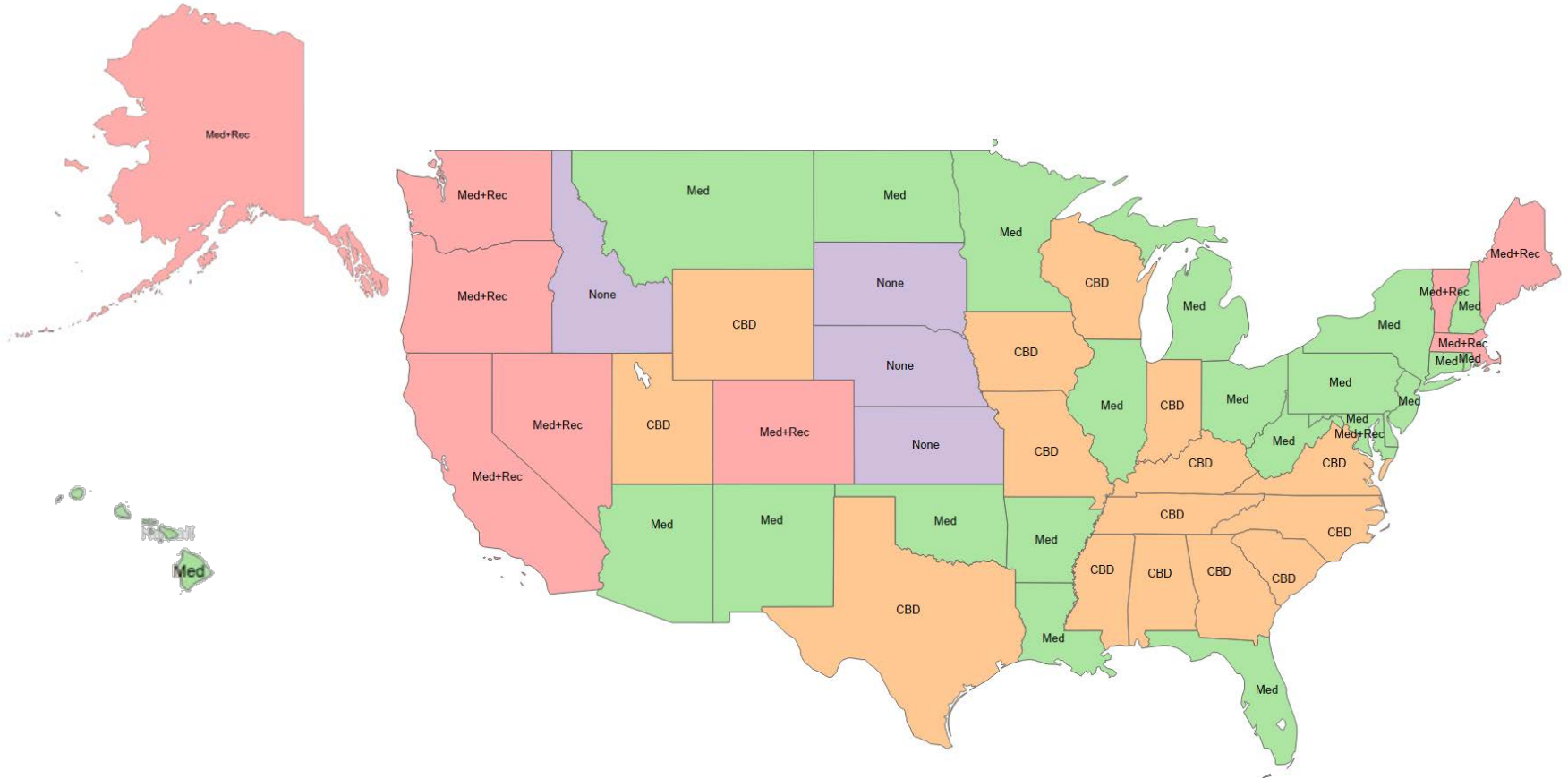
Extracted from the marijuana plant for medicinal purposes and has no psychoactive properties.

BAC – blood alcohol content or concentration.

A metric of intoxication for legal or medical purposes. For example, a BAC of 0.1 (one-tenth of 1%) indicates 0.10 grams of alcohol for every 100 mL (milliliters) of blood.



National Landscape of Marijuana Laws



Medical & Recreational: 9 States & DC
Medical only: 22 States

CBD only: 15 States
None: 4 States



Varieties of Cannabis and Ingestion

The mode of use affects the duration and concentration as THC is metabolized.

Flower/Bud: Smoke/Vape

Concentrates: Wax/Shatter/Oil

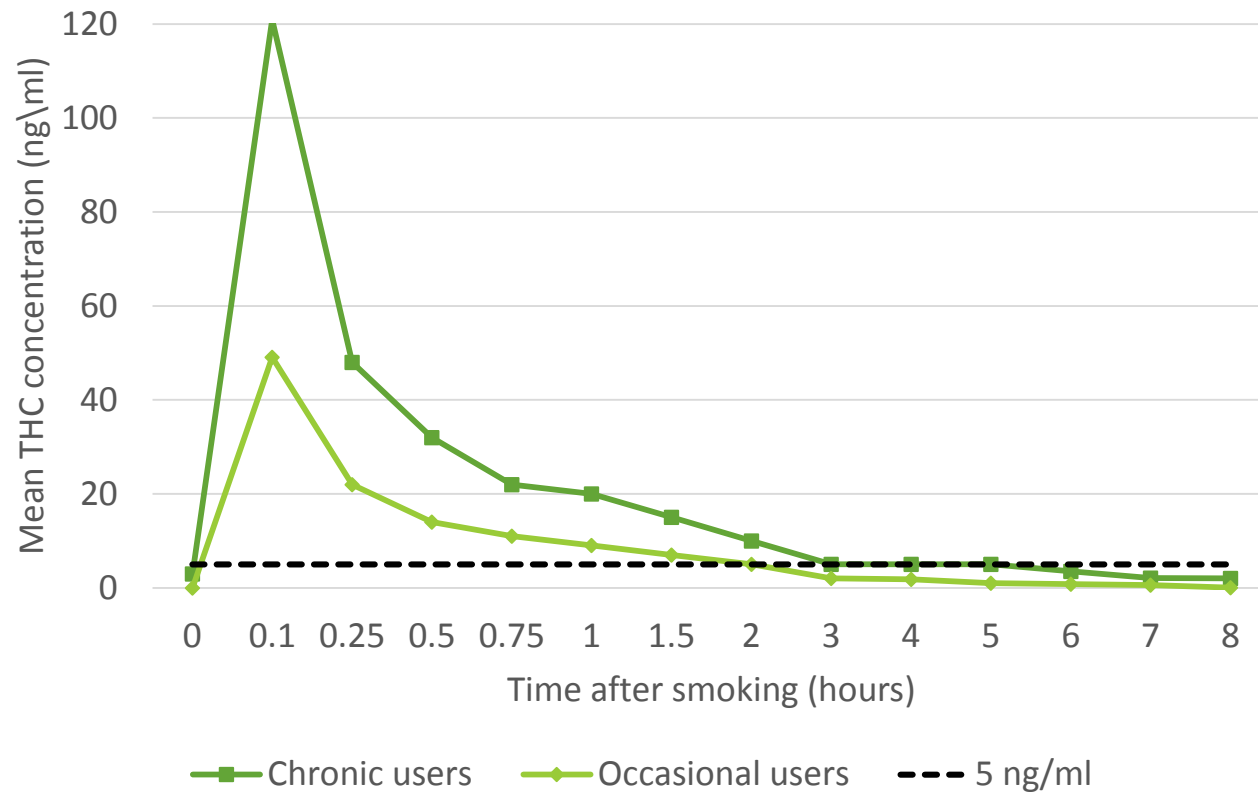
Ingestibles





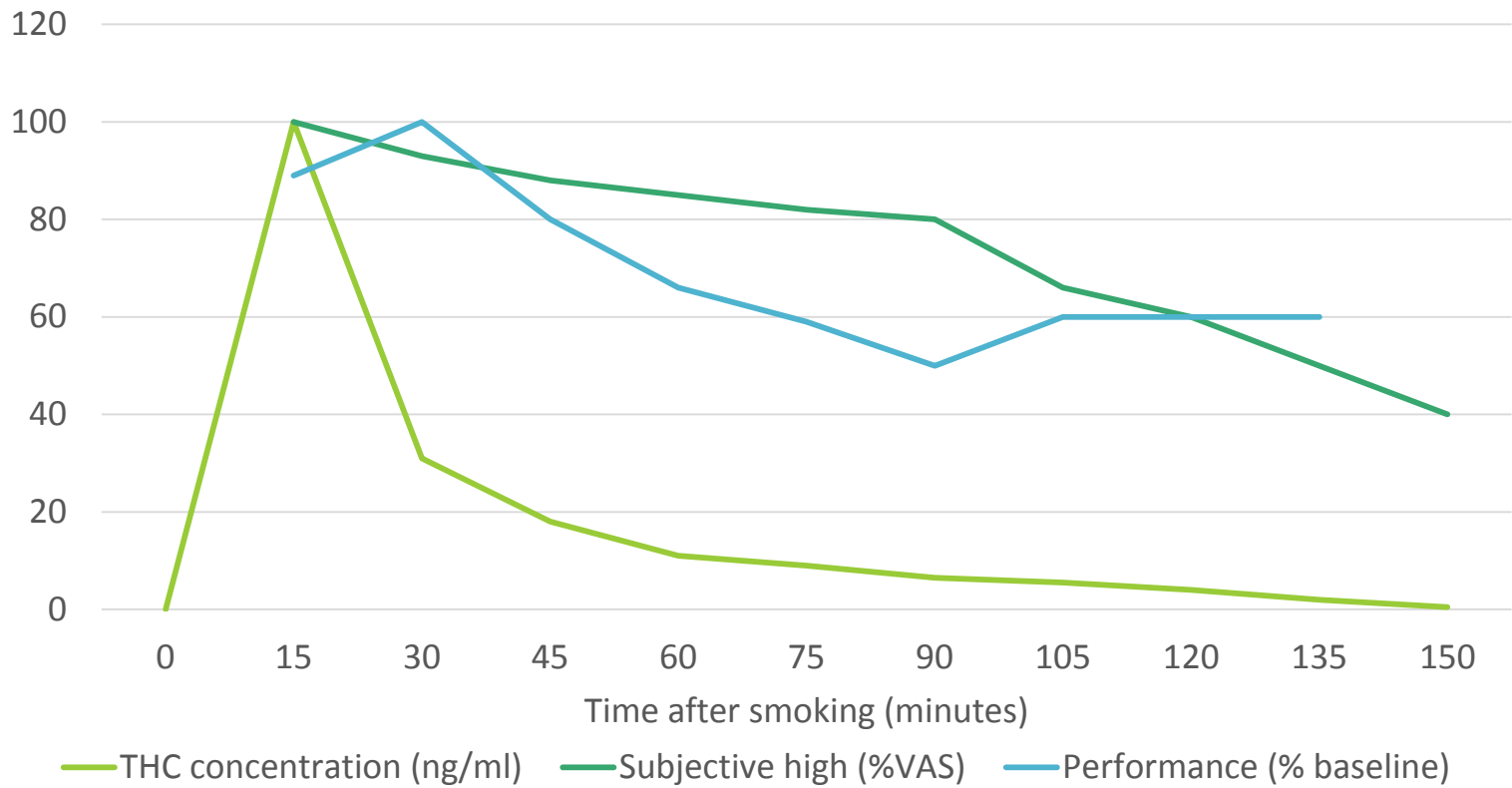
Delta-9 THC Over Time

S. Toennes graph





Delta-9 THC, Subjective High, and Performance Over Time





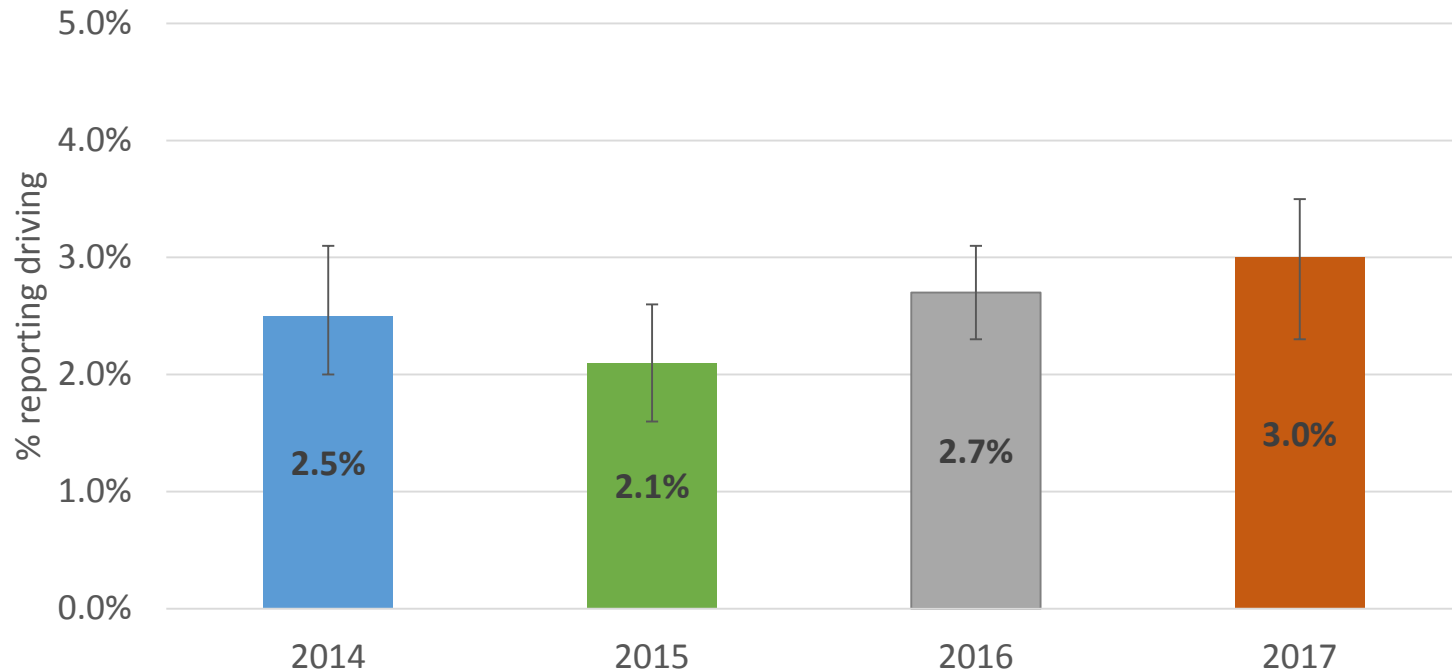
Previous Drug-Impaired Driving Data in Colorado

- Behavioral Risk Factor Surveillance System
- Fatality Analysis Reporting System
- Study completed by private lab, ChemaTox
- Total DUI case filing counts
- Total DUI arrests



Adults Reporting Driving within 2-3 hours after Marijuana Use

Reported driving within 2-3 hours of using marijuana



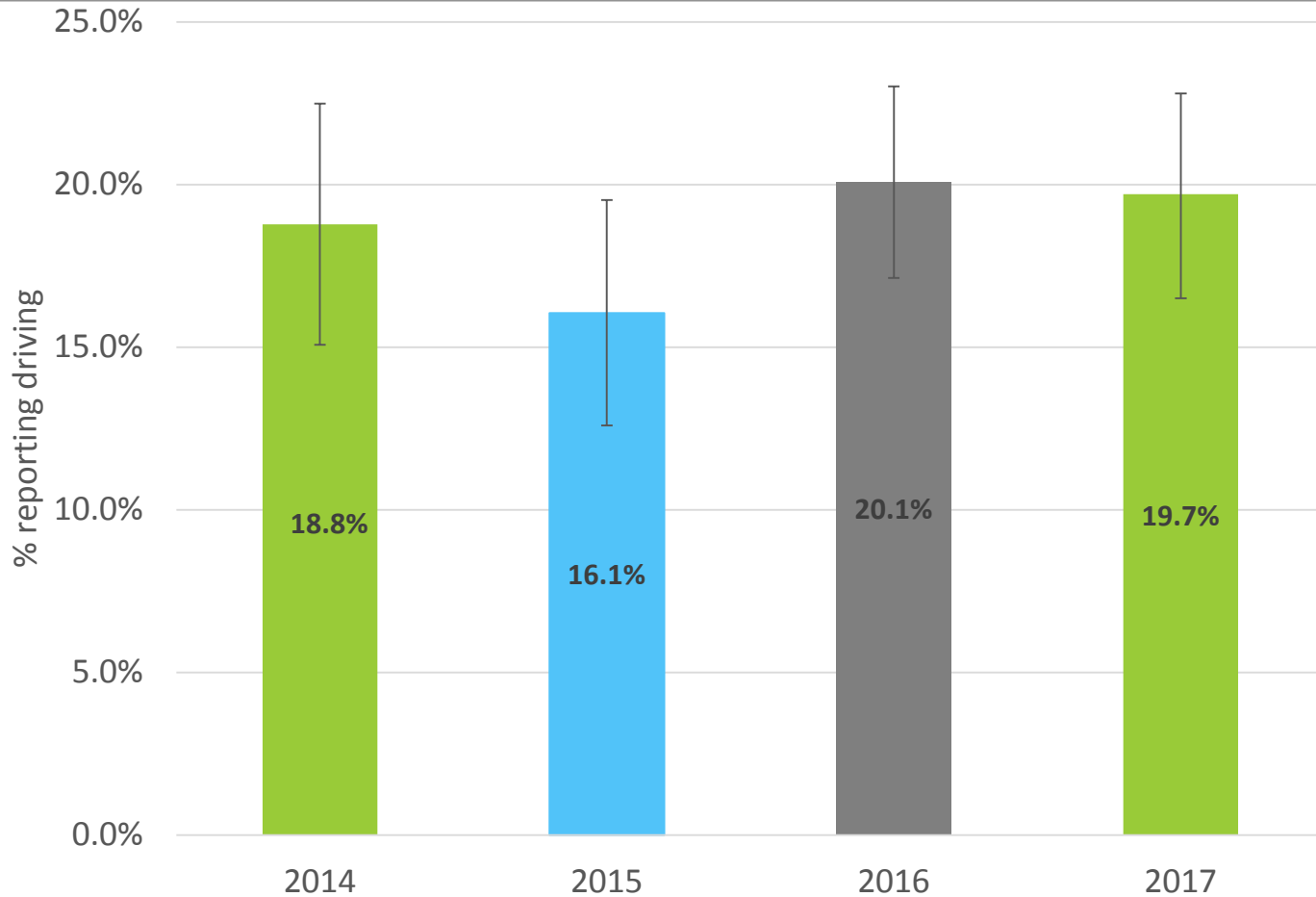
Note: Comparing across years within each age category, there were no statistical differences from 2014 to 2017.

Source: Colorado Department of Public Health and Environment. Behavioral Risk Factor Surveillance System.

URL: <https://www.colorado.gov/pacific/cdphe/adult-marijuana-use-trends>



Adult Marijuana Users Reporting Driving within 2-3 hours after Marijuana Use

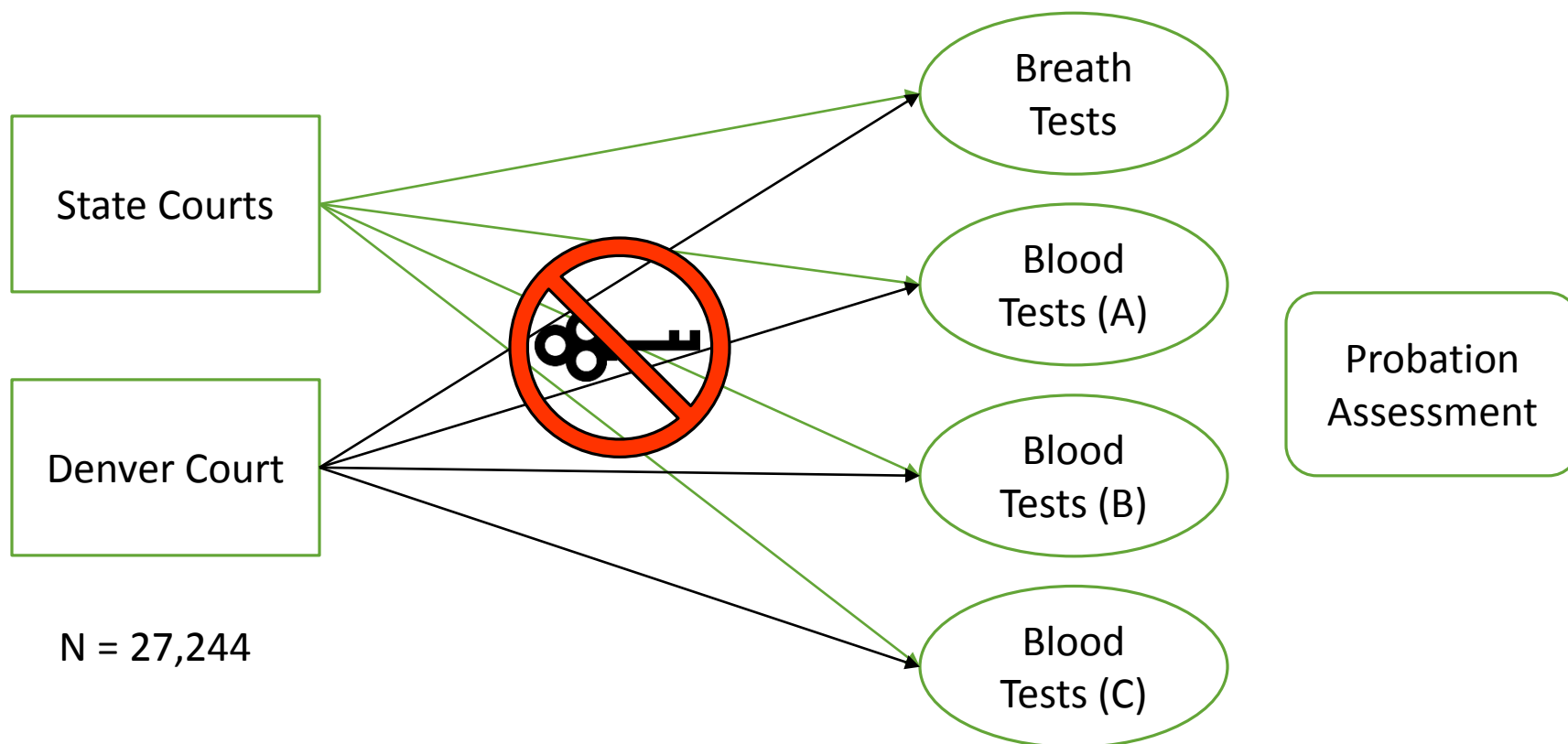




Colorado DUI Summary



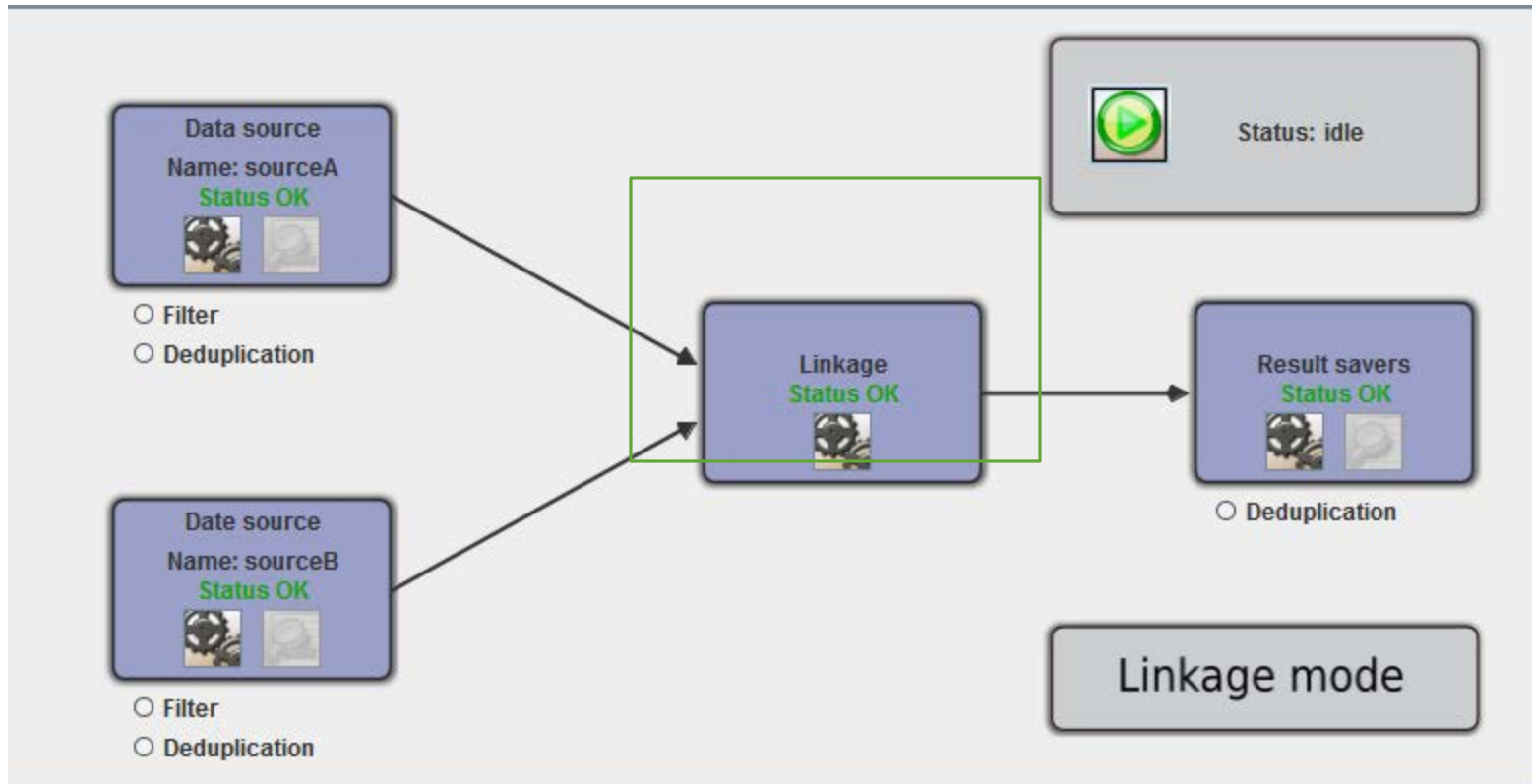
Current Data... 2016 Data



No common “key” to connect these sources of data to meet the statutorily required analyses.



Fine-Grained Records Integration and Linkage Tool (FRIL)



The method to connect the sources of data to meet the statutorily required analyses.



Fine-Grained Records Integration and Linkage Tool (FRIL)

Join condition

Join condition type: **Weighted join condition**

Comparison ...	Left column	Right column	Weight	Empty value s...
Jaro-Winkler {...	FirstName@...	FName@sou...	20	0.0
Jaro-Winkler {...	LastName@...	LName@sou...	20	0.0
Soundex dist...	ArrestingAge...	agency@sour...	20	0.0
Date distance...	DOB@sourceA	dob@sourceB	20	0.0
Date distance...	OffenseDate...	OffenseDte@...	10	0.0
Date distance...	OffenseDate...	draw@sourceB	10	0.0

Current sum of weights: **100**

Acceptance level:

Manual review

Output columns



























Selected columns

- FirstName@sourceA
- LastName@sourceA
- CourtCaseNo@sourceA
- DOB@sourceA
- DPDCaseno@sourceA
- ArrestingAgency@sourceA
- OffenseDate@sourceA

< Back Next > Cancel

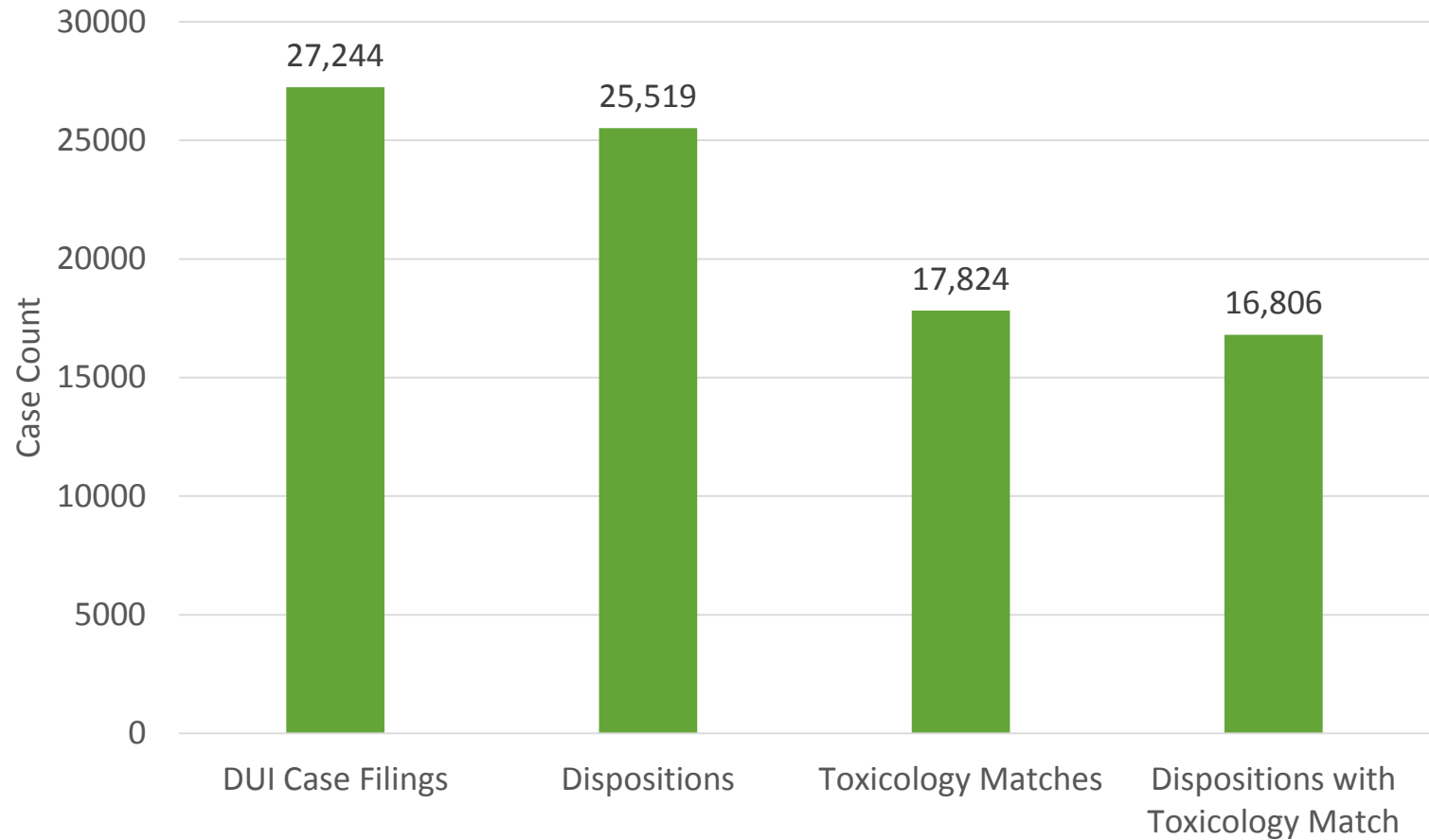


Fine-Grained Records Integration and Linkage Tool (FRIL)

	Decision	Confidence	FirstName@sourceA /...	LastName@sourceA /...	ArrestingAgency@sou...	DOB@sourceA / dob...	OffenseDate@source...	OffenseDate@source...
1	 	70						
2	 	67						
3	 	71						
4	 	70						
5	 	68						
6	 	67						
7	 	71						
8	 	65						
9	 	69						
10	 	73						
11	 	67						
12	 	68						
13	 	68						

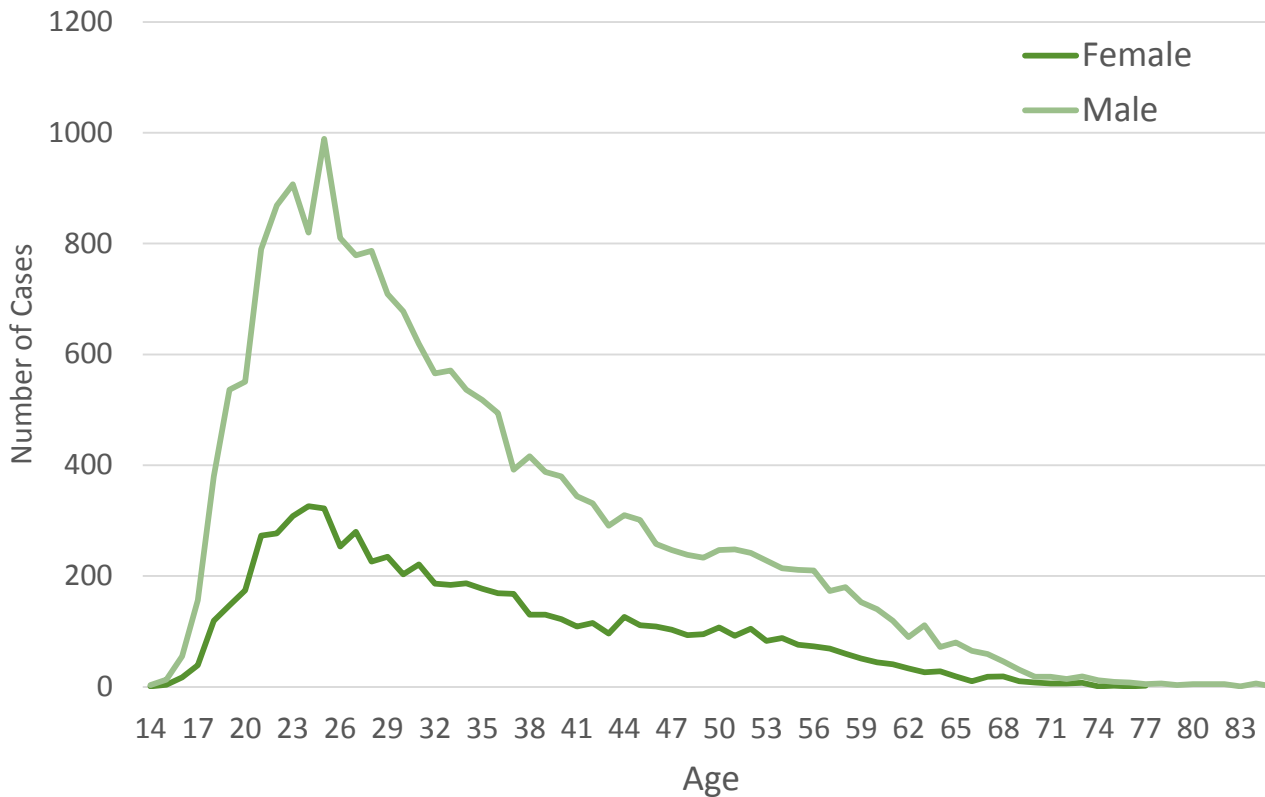


2016 Case Counts





Gender and Age Associated with Case Filings



75% of case filings were males

Male peak age: 25
Female peak age: 24

1/3 are males in their 20s

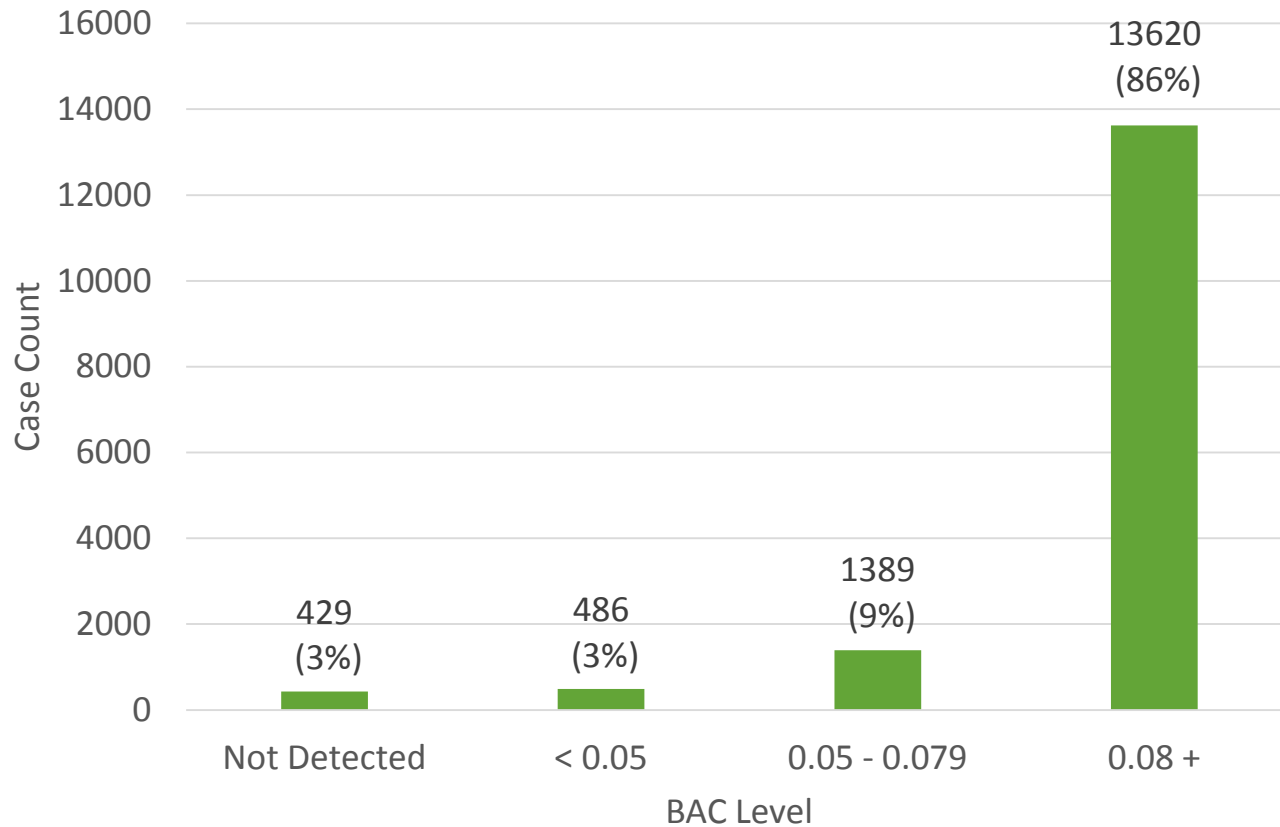
Highest rate of DUIs per active licenses seen for 23 year olds



Toxicology



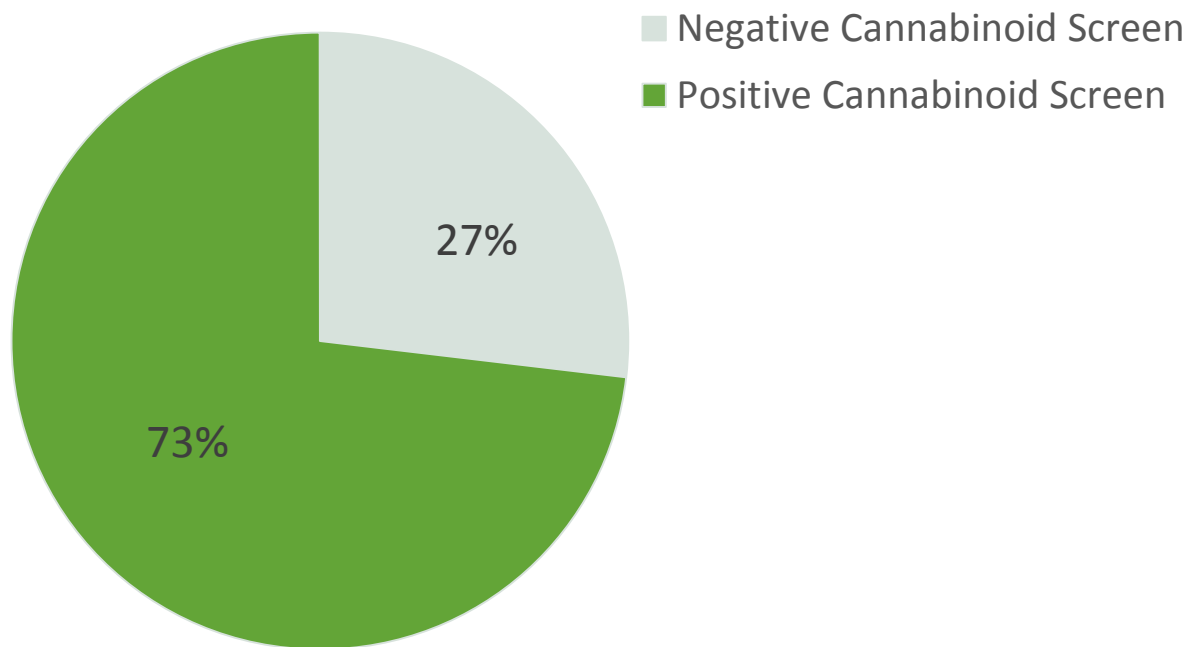
Alcohol Level





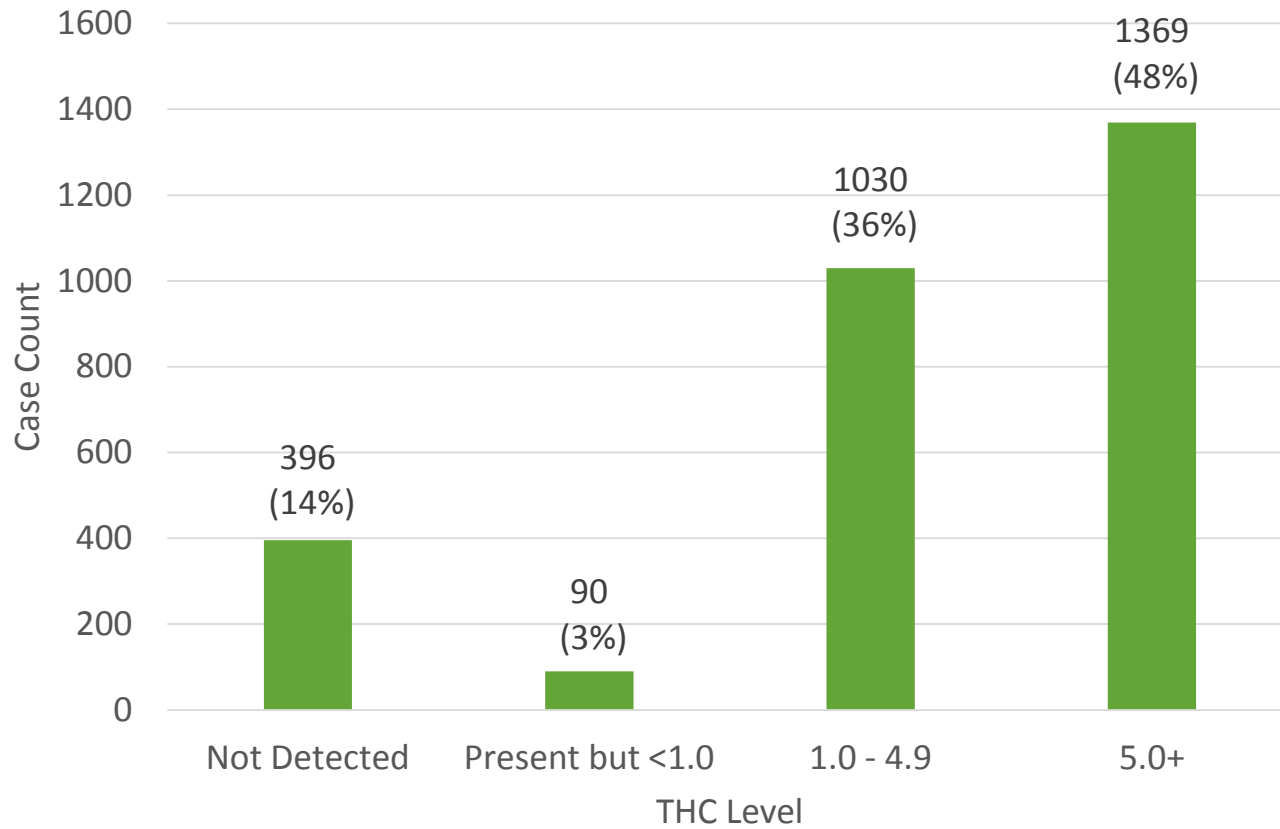
Delta-9 THC Level

3,946 cannabinoid screens



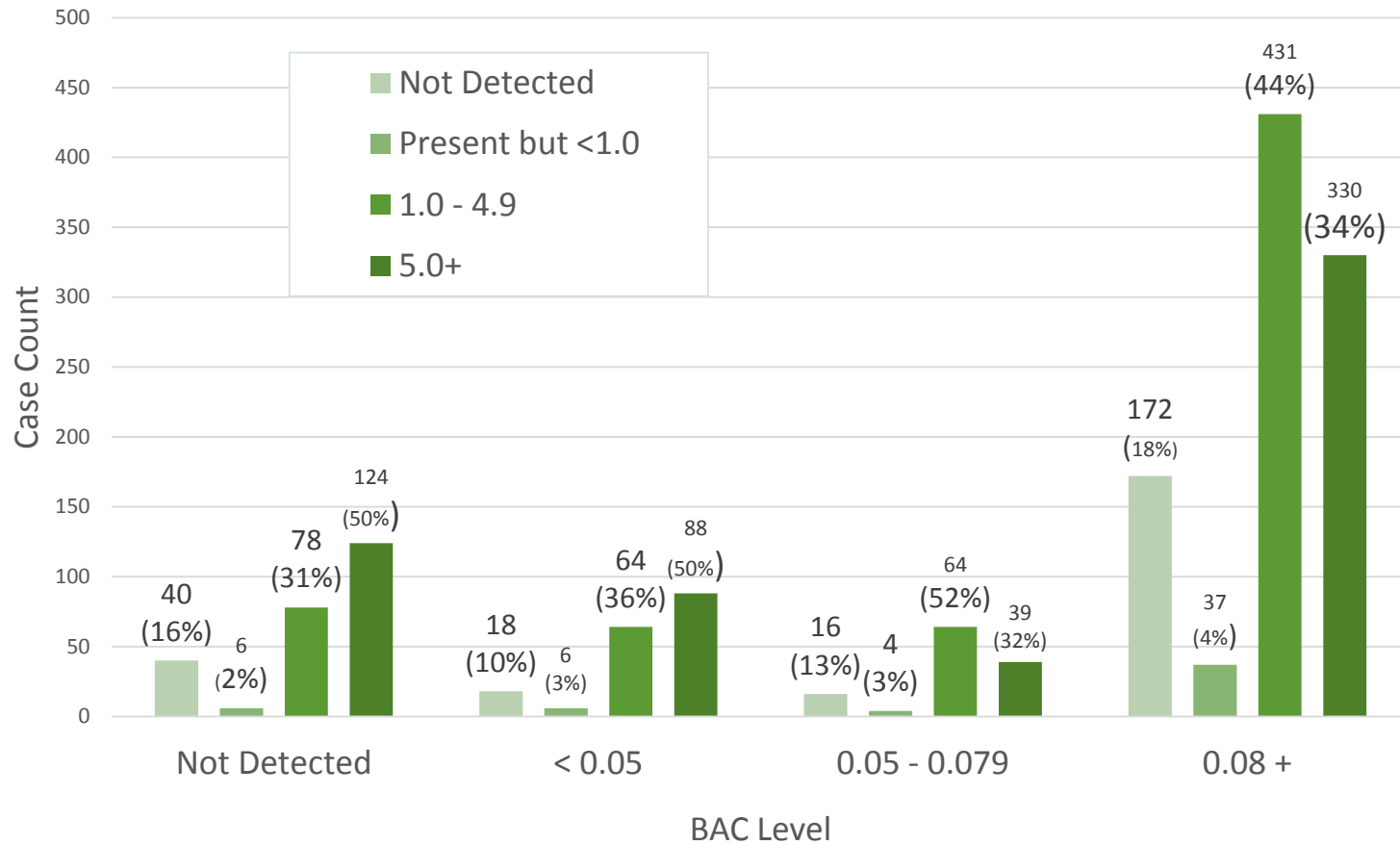


Delta-9 THC Level



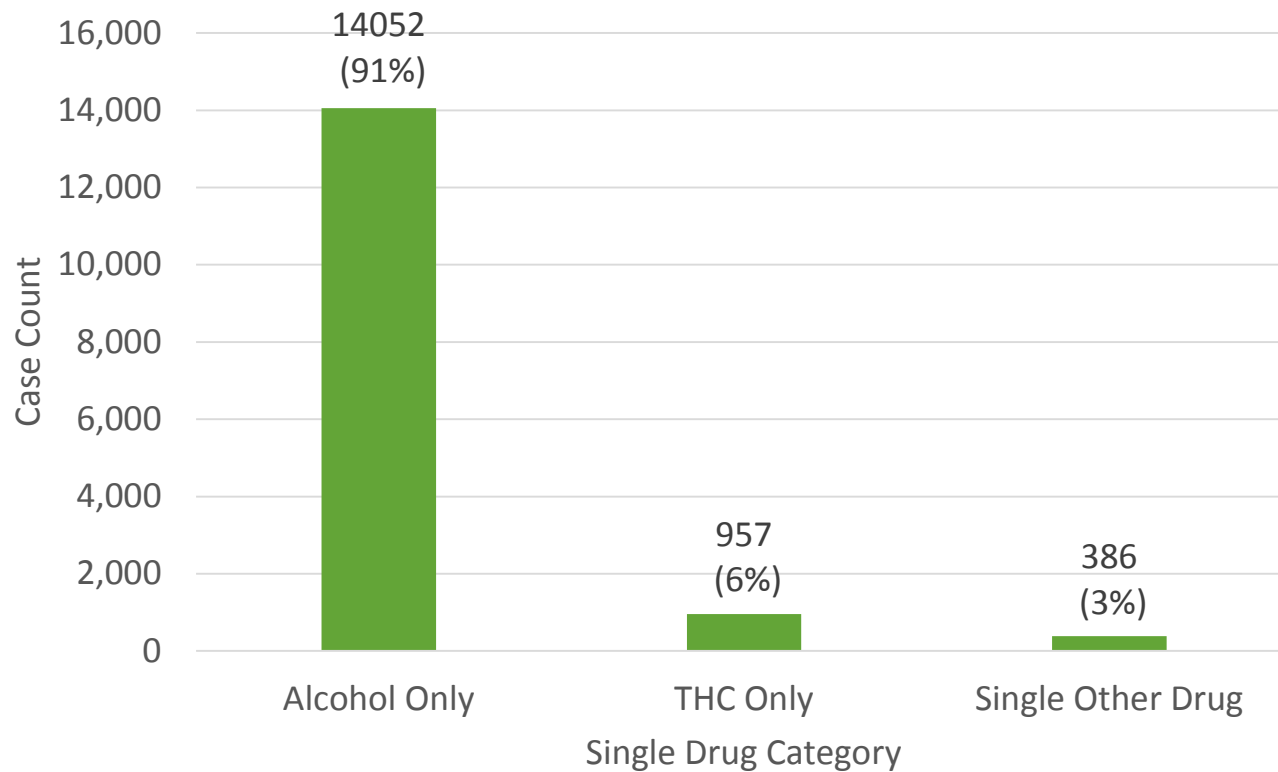


Alcohol x THC Level



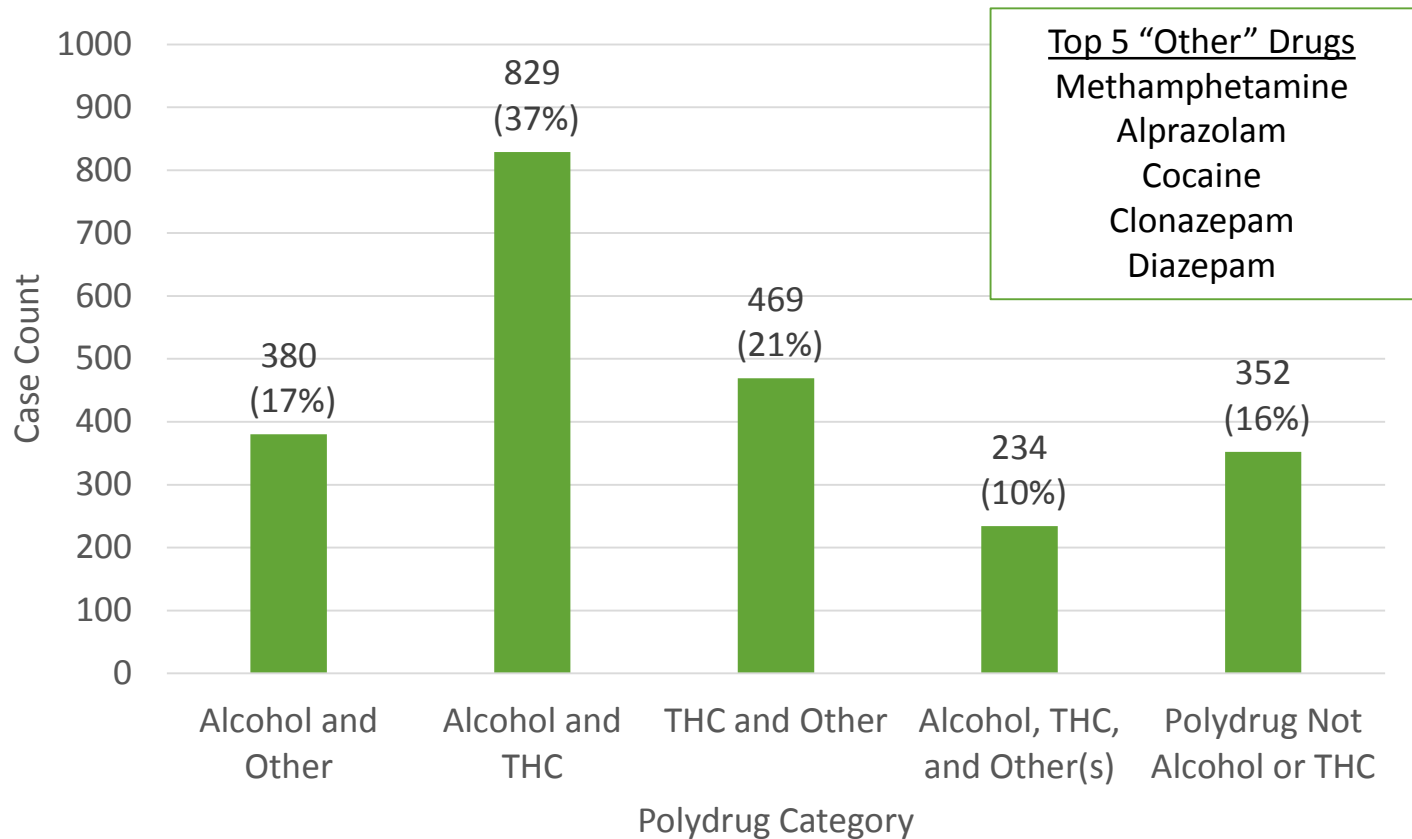


Overall Drug Use, Single Drug





Overall Drug Use, Polydrug

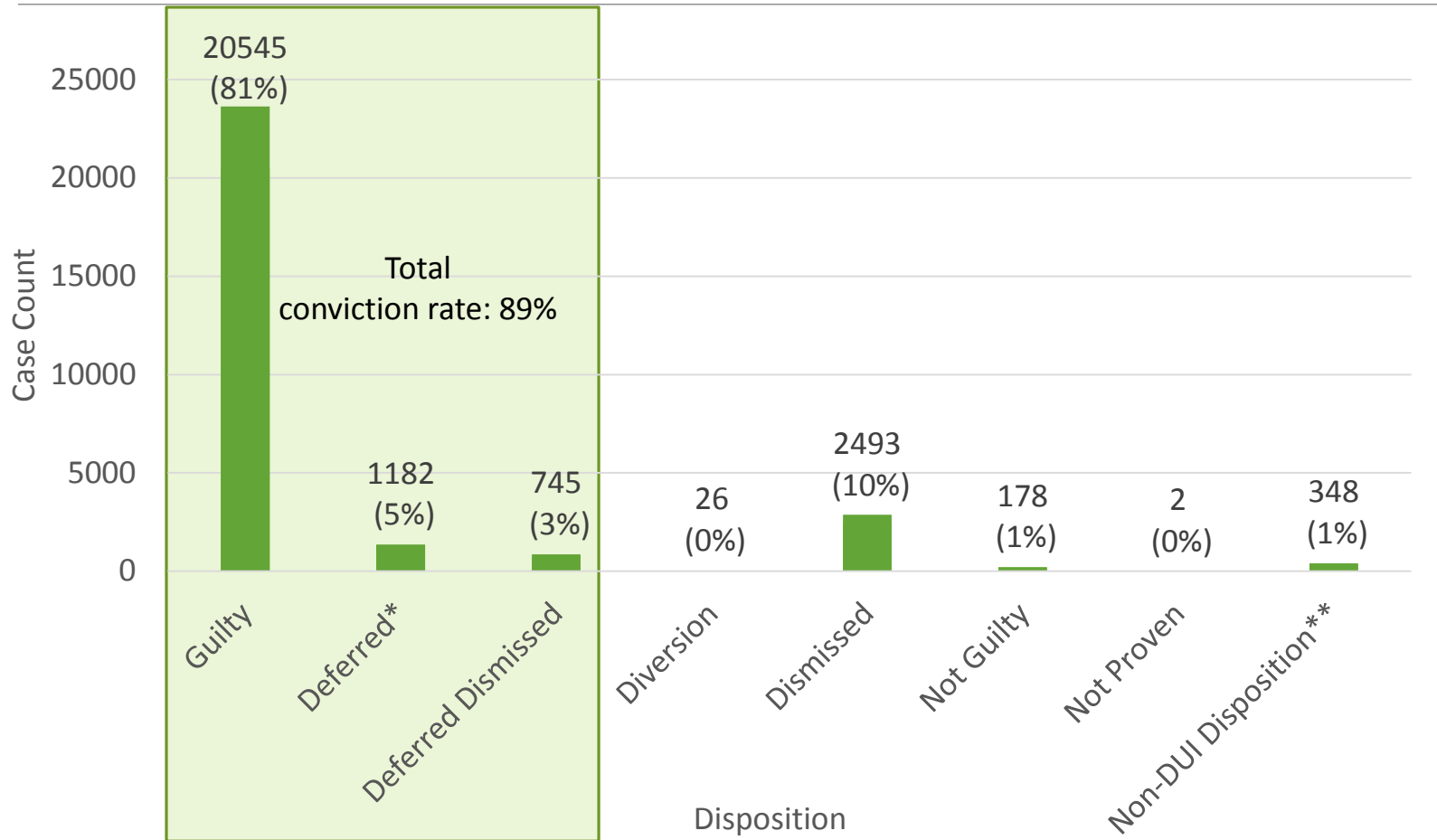




Dispositions

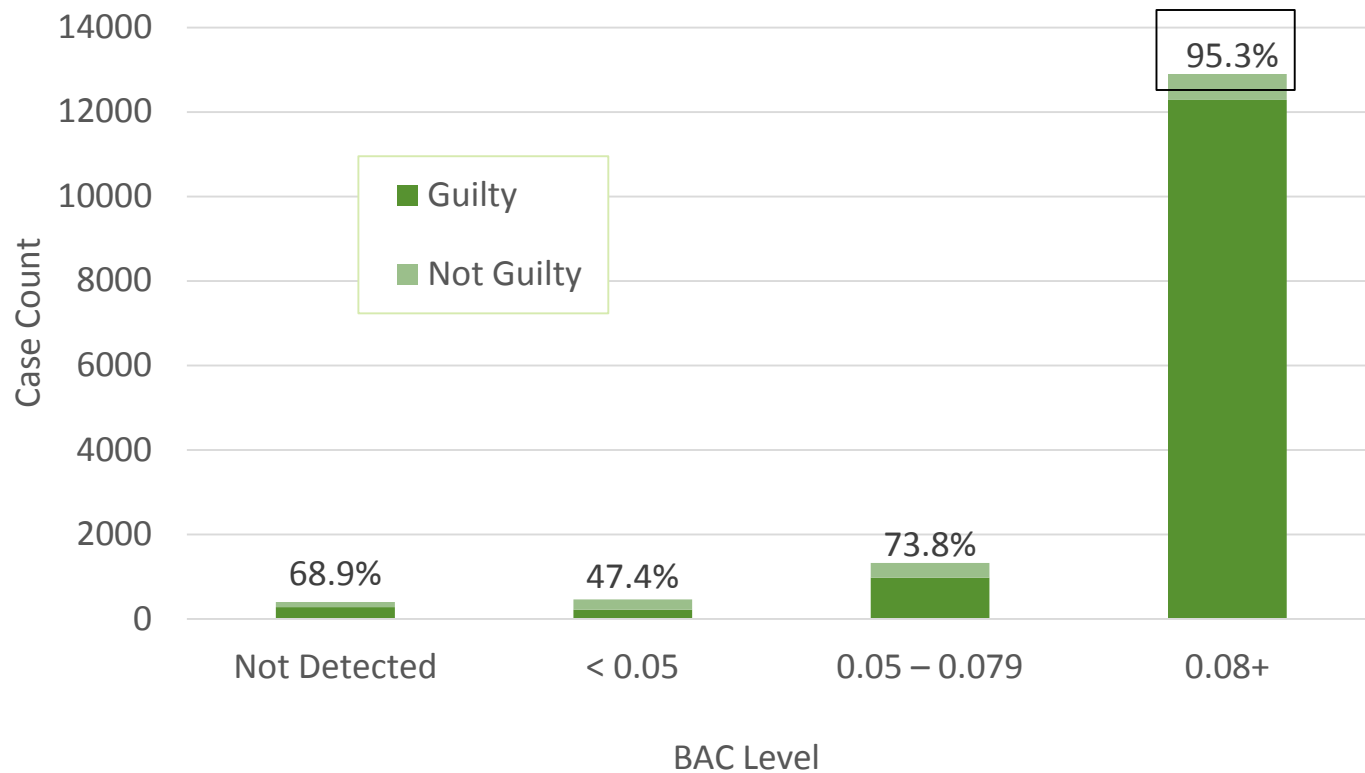


DUI Dispositions



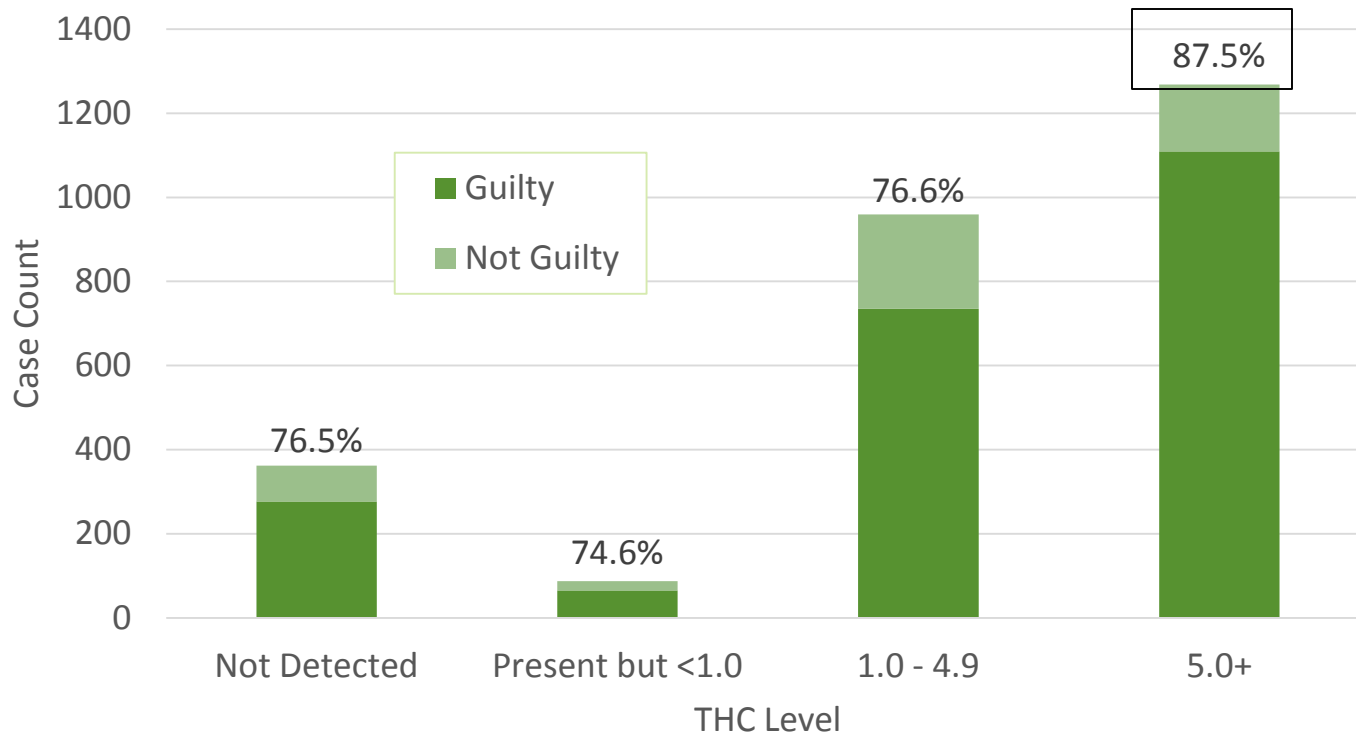


BAC Level and DUI Conviction Rate



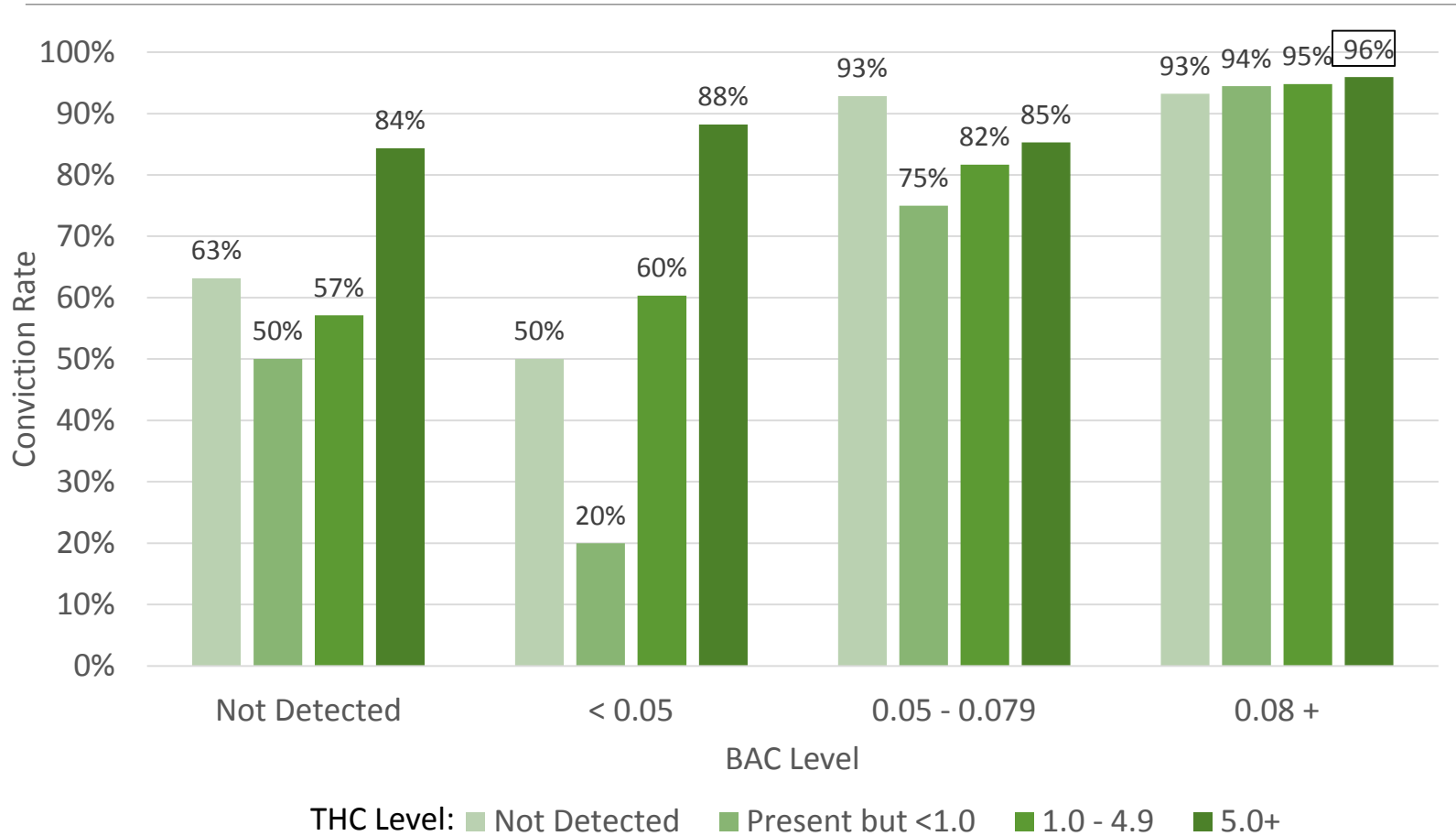


THC Level and DUI Conviction Rate



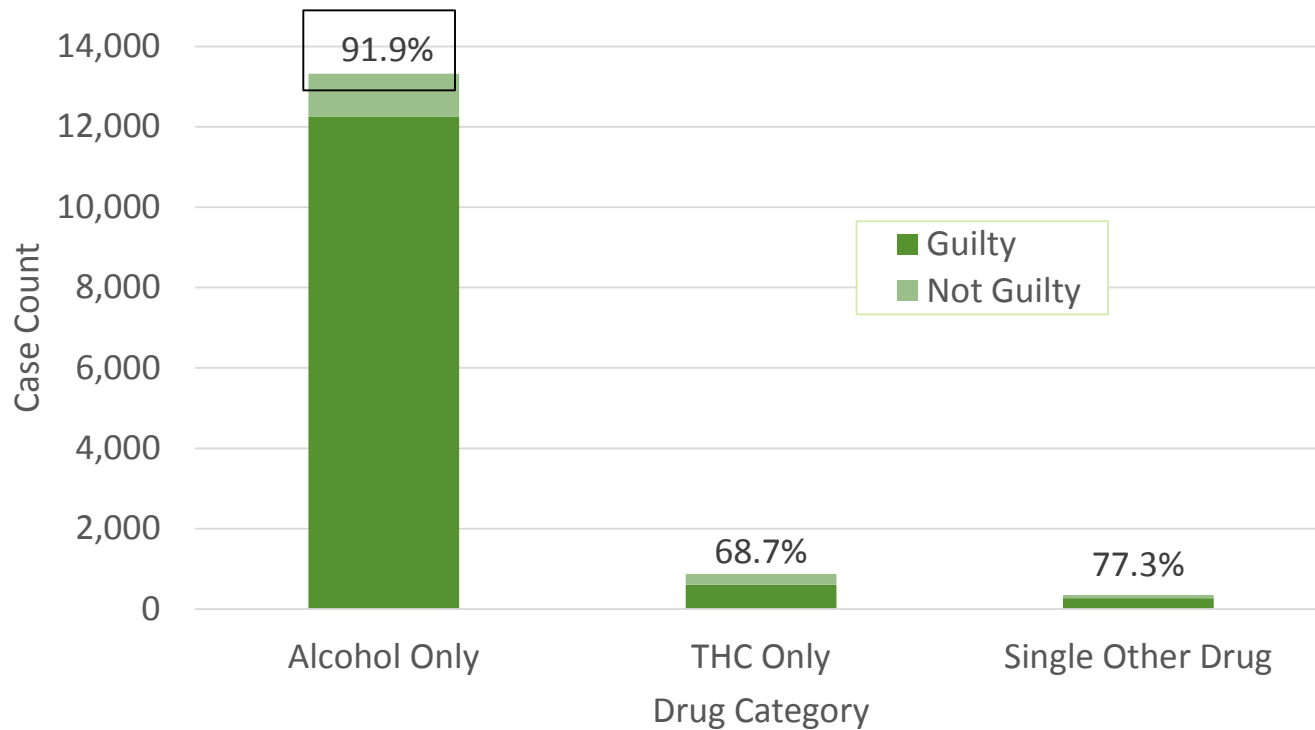


BAC Level x THC Level and DUI Conviction Rate



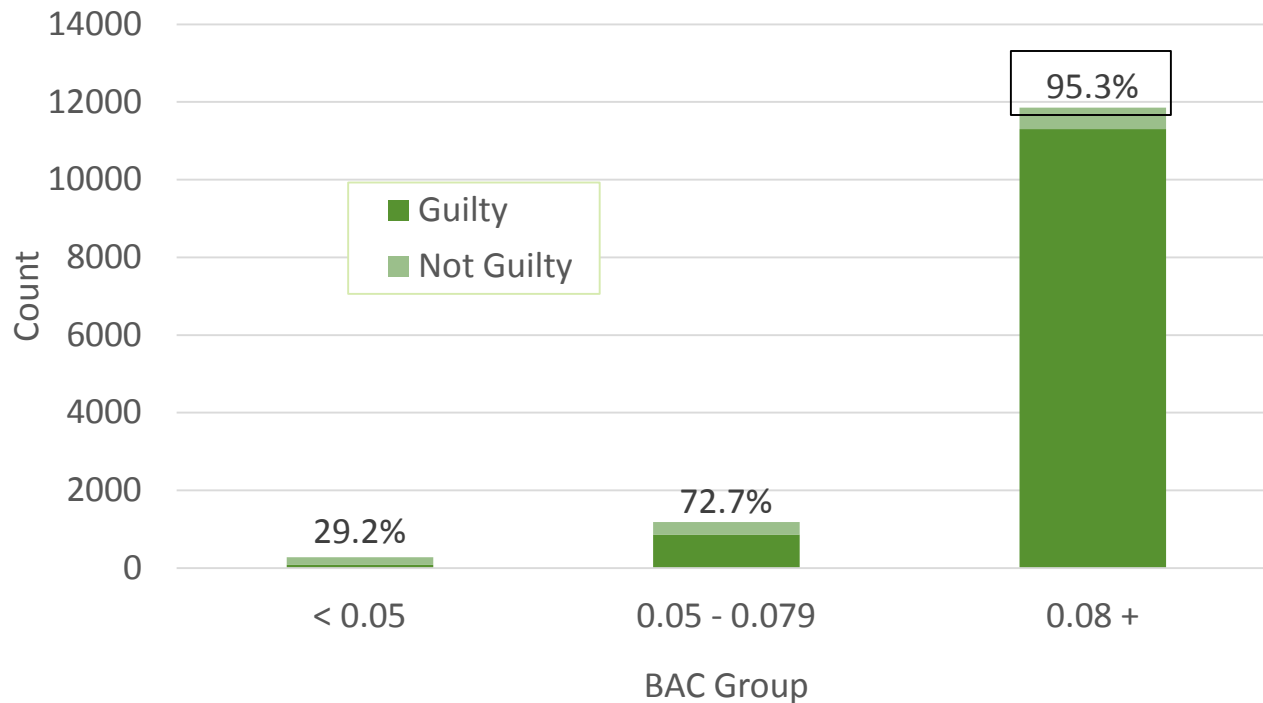


Single Drug Categories and DUI Conviction Rate



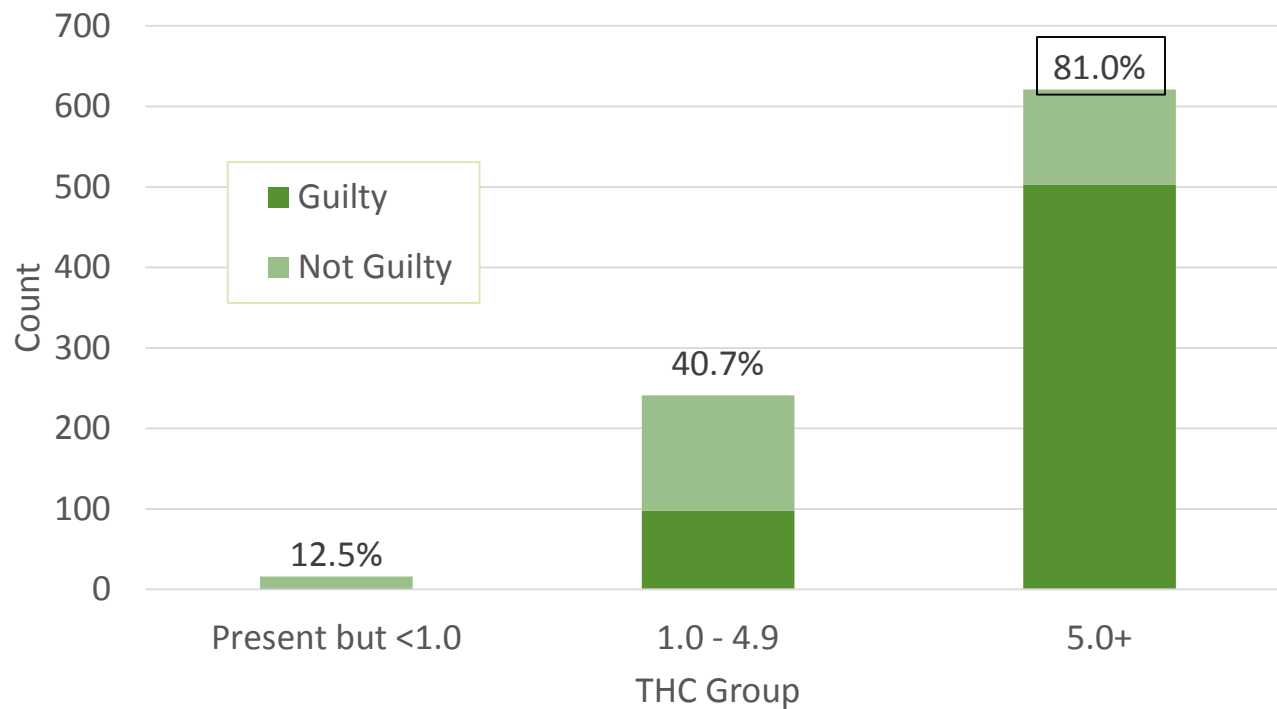


Alcohol Only Conviction Rate



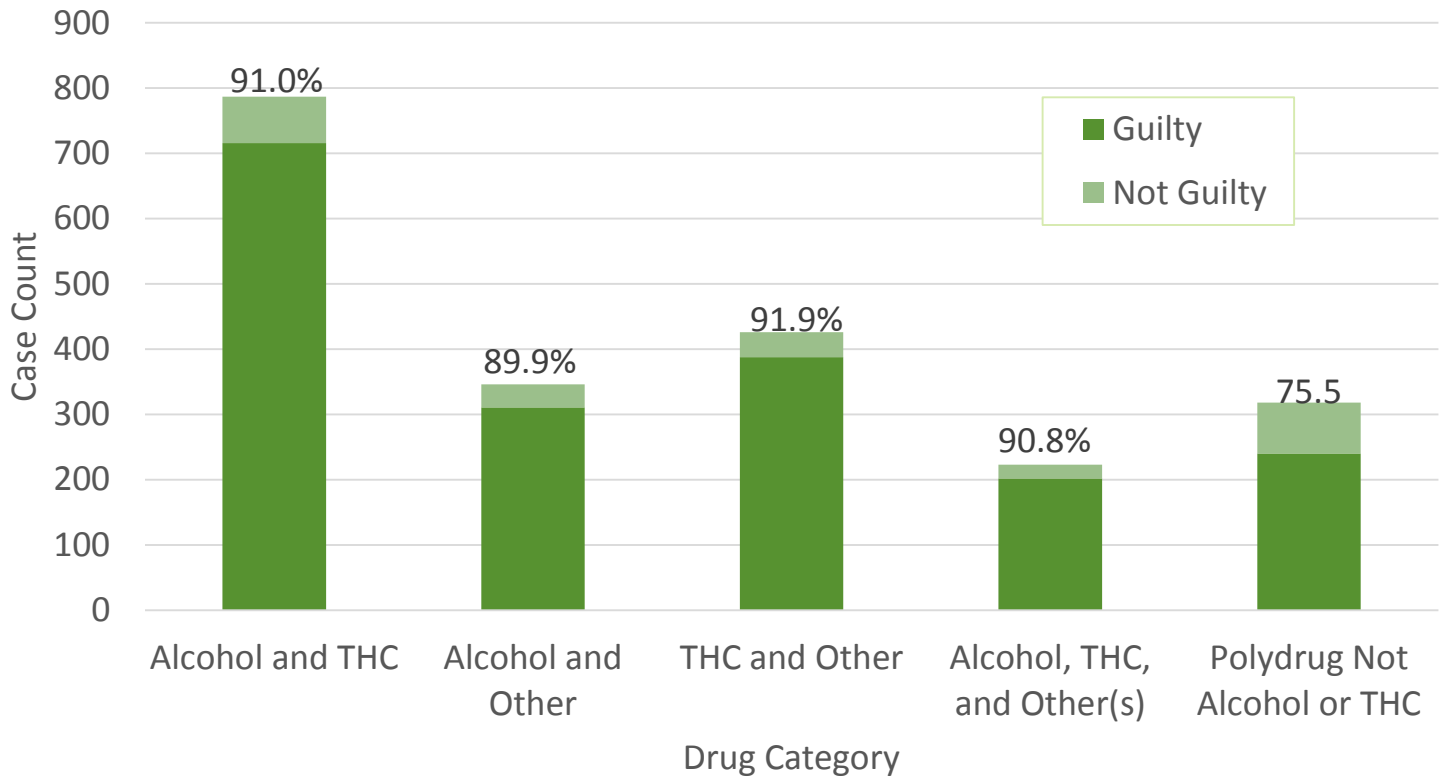


THC Only Conviction Rate





Polydrug Categories and DUI Conviction Rate





Contact Information

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