

The Safe System Approach and Impaired Driving

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Disclosure

I have no conflicts of interest to disclose. Any ideas, opinions, or comments described in these slides and during this presentation are my own and do not represent those of the Arkansas Department of Health or Arkansas State Crime Laboratory.

Principles of a Safe System Approach

Incorporates the following:

- Death and Serious Injuries are Unacceptable
- Humans Make Mistakes
- Humans are Vulnerable
- Responsibility is Shared
- Safety is Proactive
- Redundancy is Crucial



“The Safe System Approach is the guiding paradigm of the National Roadway Safety Strategy (NRSS). It has been adopted to help address the crisis on our roadways.”

“It works by building and reinforcing multiple layers of protection to both prevent crashes from happening in the first place and minimize the hard cause to those when crashes to occur.”

----U.S. Department of Transportation

Safe System

Safer People

Promote safe and responsible driving behaviors to ensure everyone reaches their destination unharmed. The most prevalent factors contributing to fatal crashes are:

- Not wearing seat belts
- Driving under the influence
- Speeding

Safer Roads

Design roads that are proven to lower car accidents, account for impact injuries, encourage safe driving, and protect vulnerable road users.

Safe System

Safer Vehicles

Promote wider adoption of vehicle safety systems and features designed to prevent accidents and reduce the severity of impacts for all involved, including drivers, passengers, and pedestrians.

Seat belts and air bags have both played a major role in reducing injuries and deaths.

With each new generation of vehicle there are more safety features that protect those inside and outside the vehicle.

Safer Speeds

Speeding is a major contributor to vehicle related deaths yet is considered normal by the driving population.

We can improve road safety through enhanced infrastructure, appropriate speed regulations, public awareness campaigns, and effective law enforcement. Implementing sound road design significantly contributes to safer driving habits.

Safe System

Post-Crash Care

The ability to save someone's life does not end when the crash occurs. Getting the injured appropriate medical care is vital to prevent the crash from becoming fatal.

Providing trained emergency service personnel in a timely manner is vital to ensure that the injured person receives the medical care needed to survive.

Coordination between law enforcement, EMS, and other state partners is vital in preventing future fatalities.

Collaborative Effort

The Safe System Approach truly is a team effort.

It requires a concerted, collaborative plan to effect real and lasting change.

Alcohol Testing

Arkansas Code:

- Applies to both driving while intoxicated (DWI) and boating while intoxicated (BWI)
- 5-65-201: The Department of Health may promulgate rules reasonably necessary to carry out the purposes of this subchapter.
 - Applies to evidential breath test instrumentation (EBT), NOT portable or preliminary breath testing (PBT)
- Utilize the Intoximeter EC/IR II and II.t
 - The II.t is a mobile unit that is made to be used roadside by law enforcement
- State stats:
 - 167 certified installations
 - 180 certified Intoximeters
 - 6500 certified operators

What Constitutes A Drink?

Each is equivalent to ~.02 rise in Alcohol Concentration

12 fl oz of **regular beer** = 8-9 fl oz of **malt liquor** = 5 fl oz of **table wine** = 3-4 oz of **fortified wine** (such as sherry or port) = 2-3 oz of **cordial, liqueur, or aperitif** = 1.5 oz of **brandy** (a single jigger or shot) = 1.5 fl oz shot of **80-proof spirits** ("hard liquor")



about 5% alcohol



about 7% alcohol



about 12% alcohol



about 17% alcohol



about 24% alcohol



about 40% alcohol



about 40% alcohol

How Does BrAC Rise or Fall?

Is the popular adage- “1 drink per hour, and I’ll be fine” true?

- Each drink raises your BrAC by $\sim .02$
- Alcohol eliminates from the body between $.010$ - $.020$ (average of $.015$) per hour
- at 1 drink/ hour you are absorbing ($.02$) and eliminating ($.015$) about the same amount
- prevents a fast-rising BAC (net result $.005$)

“Long Island Iced Tea”:

- 5 different alcohols @ $\sim 1/2$ oz each
- This mean that “1” drink is really “2”
- The resulting BrAC $\sim .040$

Breath Alcohol Ignition Interlock Devices

Arkansas Code:

- 5-65-118: The Department shall adopt rules for the certification of the ignition interlock devices (IID) and ignition interlock device installation.
 - DWI I: 6 months
 - DWI II: 24 months
 - DWI III: 30 months
 - DWI IV +: 48 months
- Ordered only for alcohol related offenses.
 - Nothing similar for in-vehicle drug testing yet.
- AR is a mandatory IID state.
 - A driver's license will not be reinstated unless the IID order is fulfilled.
 - Those with a BWI have the IID order on the vehicle.

Compliance-Based Removal (CBR)

- Push nationwide for all states (33 states + DC have CBR)
- Effective 7/1/26
- The IID order may be extended if, during the final 60 days of the original IID order, or during an extension of the original order, a violation occurs.
- Violations include:
 - Attempt to start the vehicle above set-point of .025.
 - Failure to take/pass a random retest.
 - Failure to take get the IID serviced or monitored as required.

In-Vehicle Technology

- Infrastructure Investment and Jobs Act (IIJA)
- Charged NHTSA with drafting a federal safety standard requiring drunk driving detection in new vehicle models.
 - For alcohol only
- NHTSA issued an Advance Notice of Proposed Rulemaking in late 2023, but no rule has been published
- Dependent upon usable, reliable technology
 - Focusing on passive sensors

Surveillance Project Collaboration

Why it Started

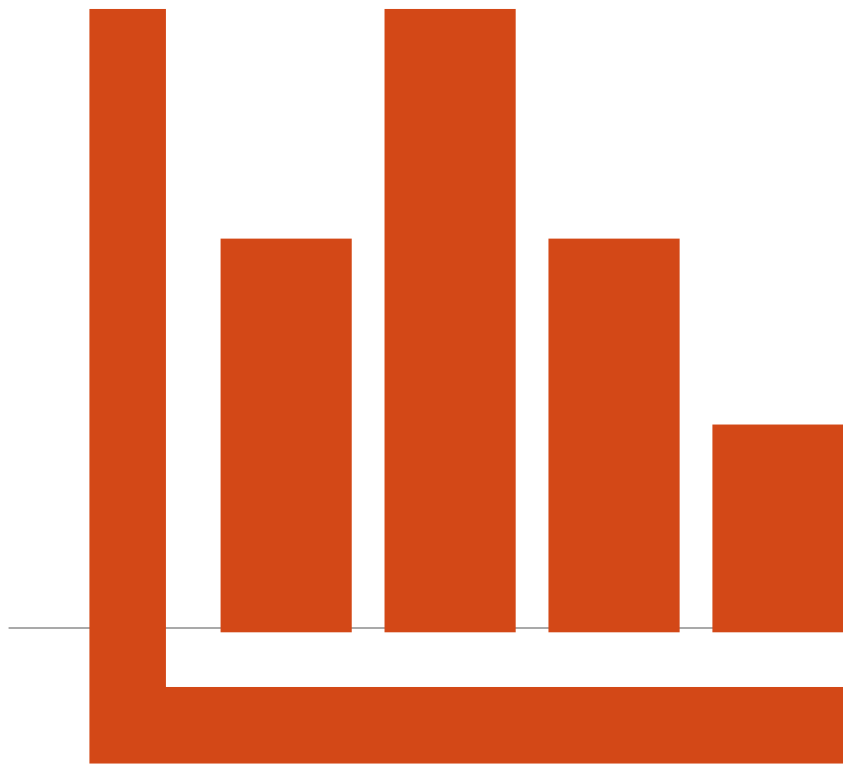
- Data on alcohol and impaired driving is readily available and understood, but what about drugs and combinations thereof?
- There are many contributors to data limitations on drugs:
 - Differences in drug testing policies
 - Differences in laboratory testing methods and equipment
 - Data collection methods
- Arkansas State Crime Laboratory (ASCL) Limitations
 - Stop testing
 - Necessary for many laboratories due to time, staffing, and resource restraints
- By collaborating, we can fill in the data gaps and address drugged driving in the state.

Collaboration Beginnings

- Staff from the public health laboratory and crime laboratory are members of the state's Impaired Driving Task Force.
- Similar surveillance studies had been performed by NHTSA and NTSB – could we apply such studies to Arkansas?
- Held multiple meetings with upper management from the Arkansas State Crime Laboratory and Arkansas Department of Health.
- Agencies drafted and signed a Memorandum of Understanding.
- The first samples were delivered to the public health laboratory in July 2024.

Study Design

- The Arkansas State Crime Laboratory receives a blood sample taken from a suspected impaired driver.
- BAC is tested. For any sample with a BAC of 0.08 g% or greater, an aliquot of that sample is taken and sent to the public health laboratory.
 - *Samples are de-identified and can't be traced back to any individual.
- The public health laboratory performs a drug screen on the sample and reports results to public safety and public health leadership.



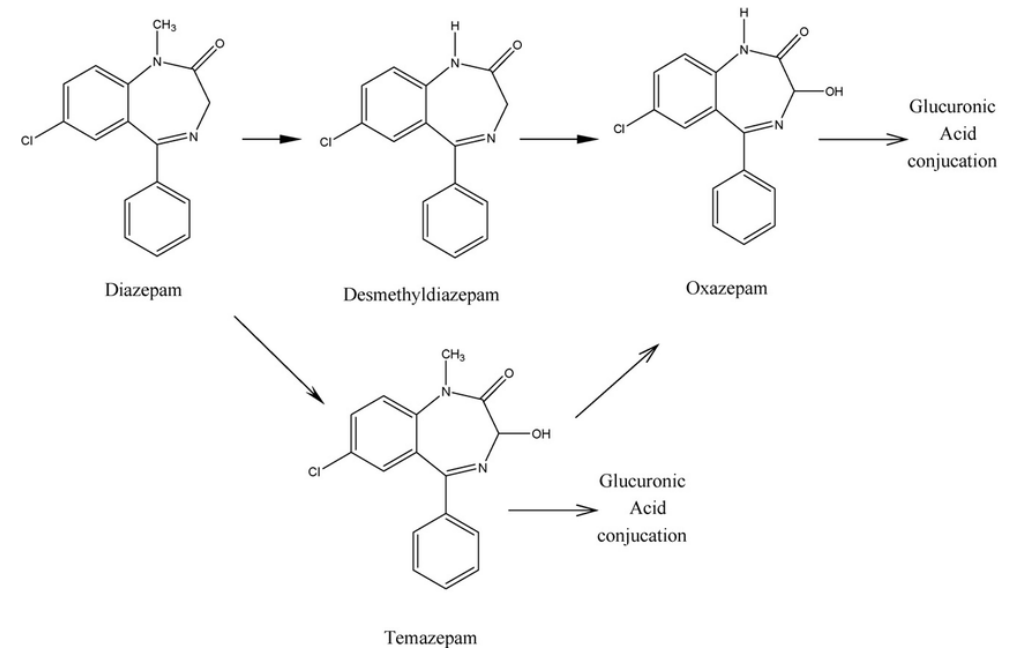
Data Analysis

Data Analysis Approach

NTSB Safety Research Report SRR-22-02

Alcohol, Other Drug, and Multiple Drug Use Among Drivers

- The detection of a parent drug's metabolite was counted as a positive result for parent drug use, even if the parent drug was not detected.
- The presence of multiple metabolites of a drug was not treated as multiple drug usage.



Data Analysis Approach – Drug Categories

Alcohol (EtOH)

Cannabis

Potentially Impairing Neuropsychiatric Medications

- Antidepressants, antipsychotics

Dissociative Anesthetics

Sedatives

- Benzodiazepines, muscle relaxants, sedating antihistamines

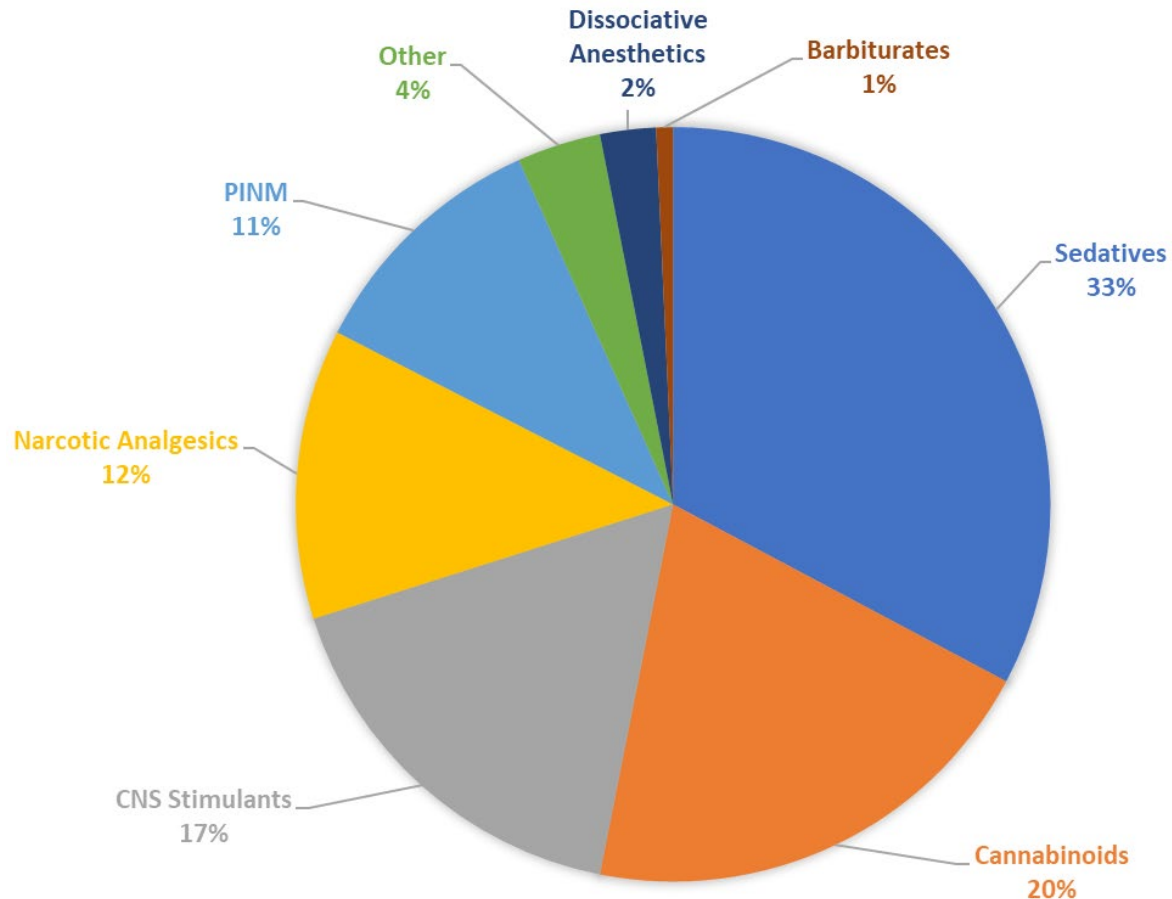
Stimulants

Narcotic Analgesics

Other Potentially Impairing Drugs

- Blood pressure medications, migraine medications, mitragynine

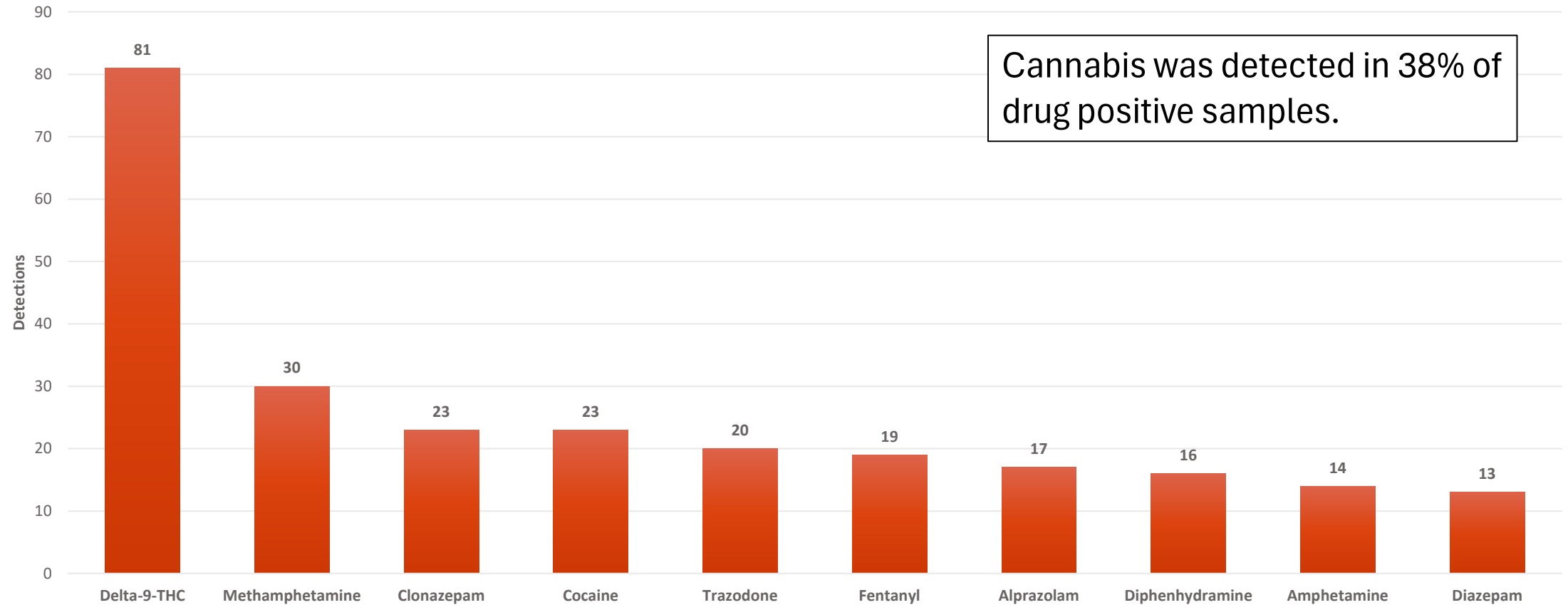
2024-2025 Drug Category Distribution



- 342 blood samples from suspected impaired drivers with BAC > .08 g% have been tested.
- 213 samples tested positive for at least one drug in addition to alcohol (62%).
- There were 421 drug detections among the 213 drug positive samples.

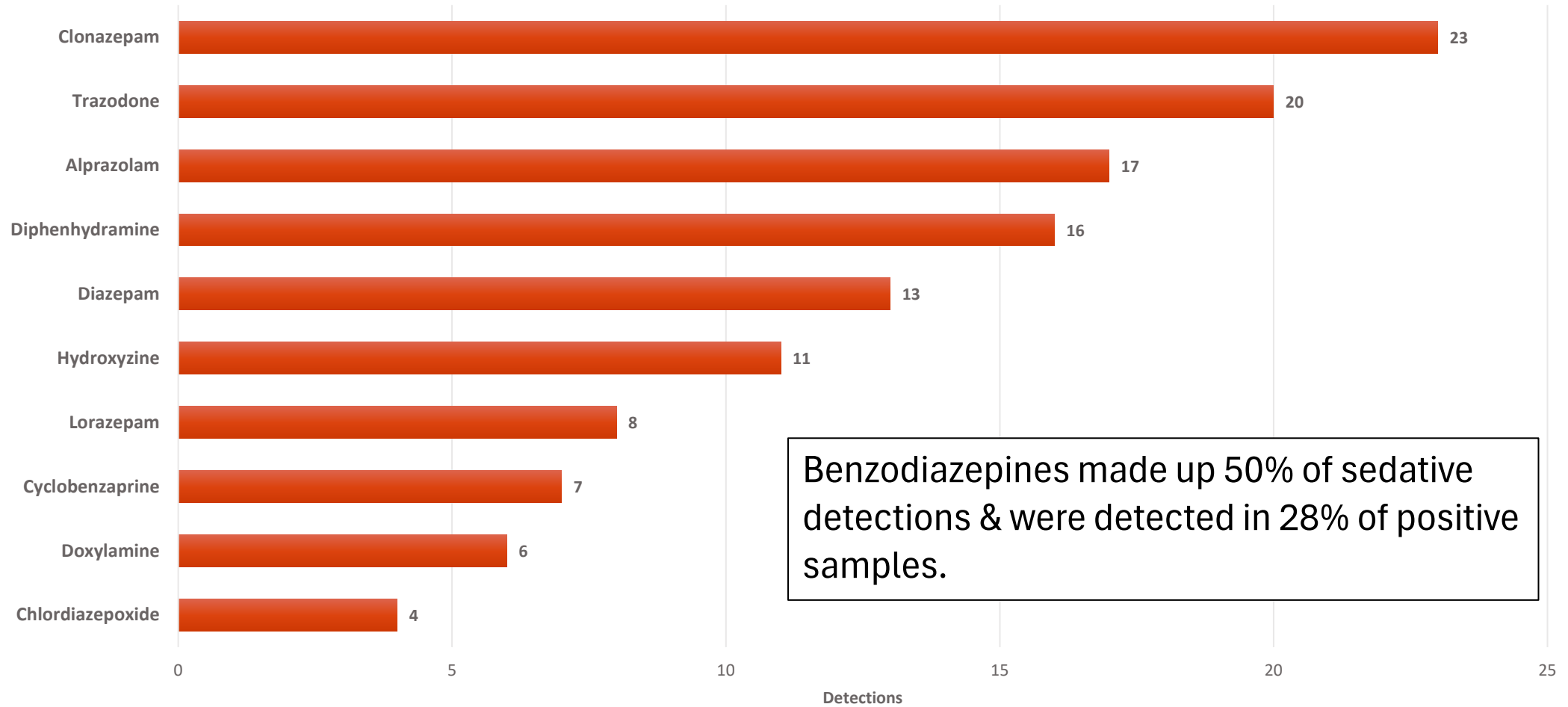
* 62 samples not tested for cannabinoids

Top Drugs Detected

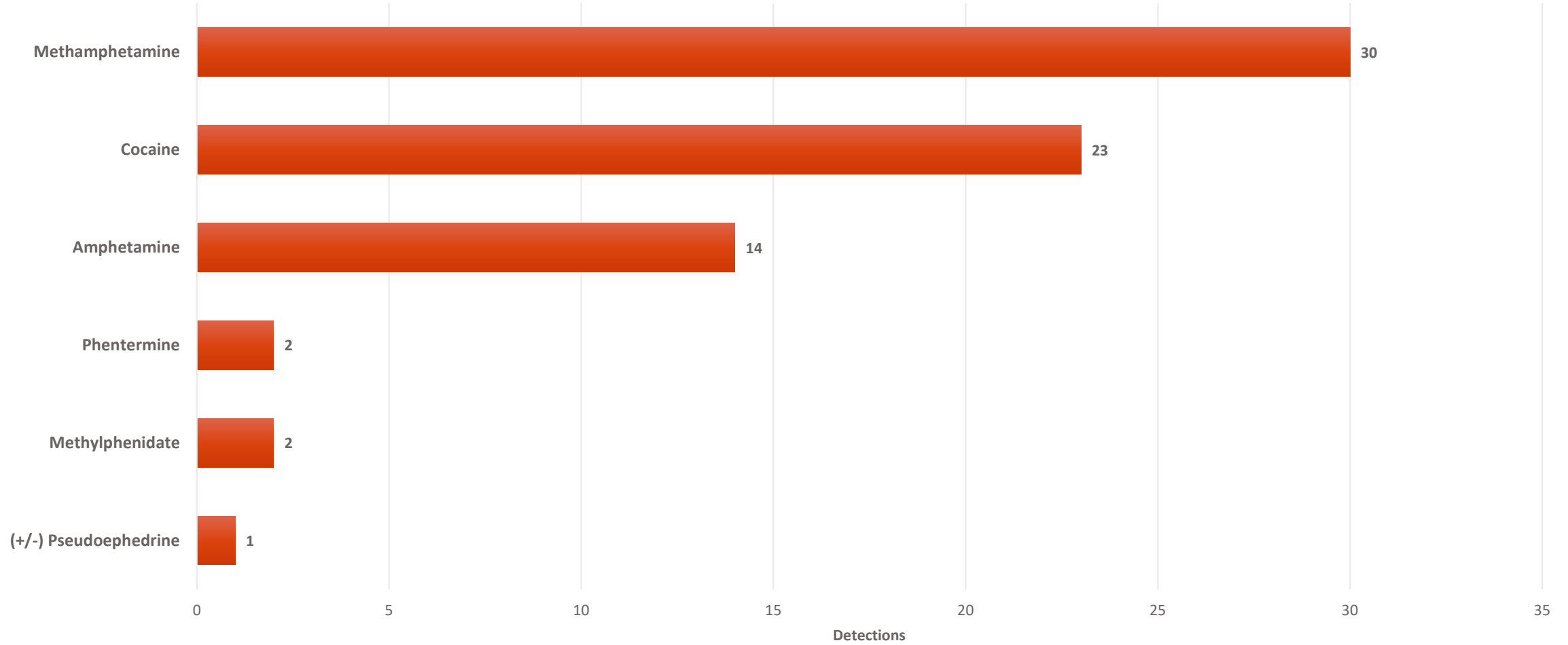


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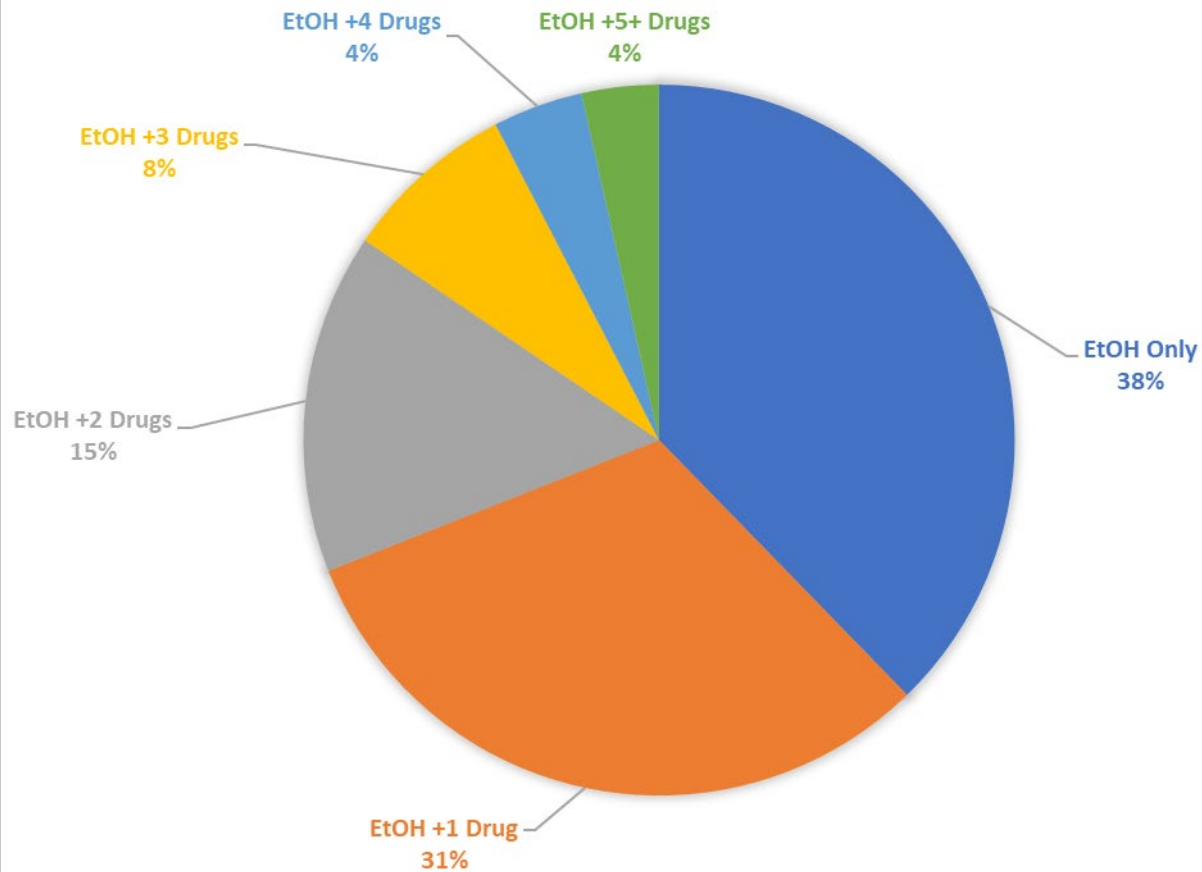
Sedatives



Stimulants



Polysubstance Use



- 129 blood samples (38%) tested from suspected impaired drivers with BAC > .08 g% had no additional drugs detected.
- 213 samples tested positive for at least one drug in addition to alcohol (62%).
- Of the 213 drug-positive samples, 106 samples tested positive for two or more drugs in addition to alcohol (50%)

Drug Category Combinations

Drug Categories and Combinations of Drug Categories	Frequency	Overall Percent
Alcohol and Cannabis	42	20%
Alcohol and Sedatives	31	15%
Alcohol and Stimulants	28	13%
Alcohol, and Narcotic Analgesics	12	6%
Alcohol, Sedatives, and Stimulants	11	5%
Alcohol, Potentially Impairing Neuropsychiatric Medications, and Sedatives	9	4%
Alcohol, Sedatives, and Cannabis	7	3%
Alcohol, Stimulants, and Cannabis	6	3%
Alcohol and Potentially Impairing Neuropsychiatric Medications	6	3%
Alcohol, Narcotic Analgesics, and Cannabis	5	2%
All Other Combinations	51	24%

“Notable” Samples



2024-B29

- Alcohol, Delta-9-THC, Delta-8-THC, Fentanyl, Morphine, Naloxone

2024-B9

- Alcohol, Fentanyl, Ketamine, Lorazepam, Methamphetamine

2024-B11

- Alcohol, Bromazepam, Cocaine, Fentanyl, Hydromorphone, Methamphetamine

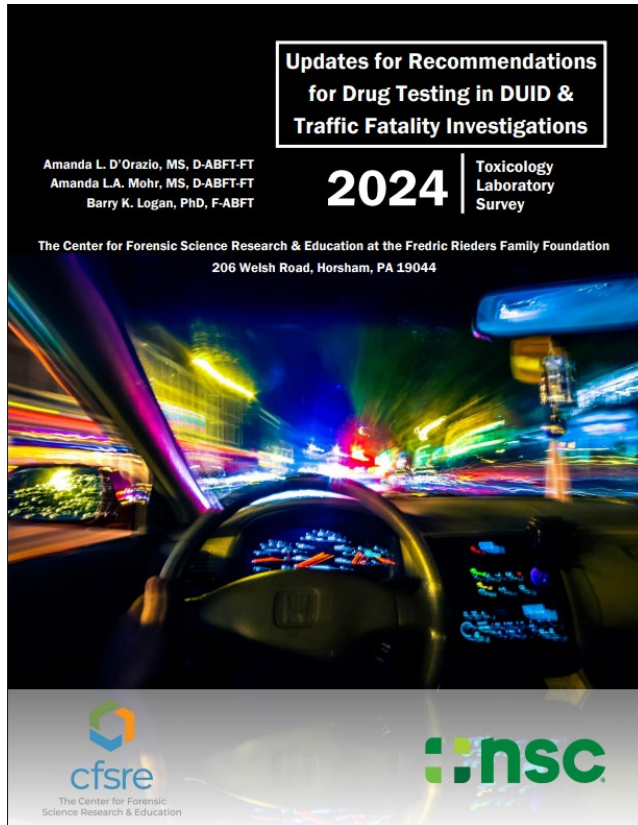
2025-B52

- Alcohol, Clonazepam, Delta-9-THC, Diazepam, Ketamine

2025-B175

- Alcohol, Delta-9-THC, Fluoxetine, Gabapentin, Mirtazapine, Fentanyl, Primidone, Trazodone, Metoprolol

National Data vs. Arkansas Data



Prevalence	*Nationally	Arkansas
1	THC and metabolites	THC and metabolites
2	Amphetamine/Methamphetamine	Amphetamine/Methamphetamine
3	Fentanyl	Clonazepam
4	Cocaine	Cocaine
5	Alprazolam	Trazodone
6	Clonazepam	Fentanyl
7	Diphenhydramine	Alprazolam
8	Oxycodone	Diphenhydramine
9	Diazepam	Diazepam
10	Hydrocodone	Hydroxyzine

National Data vs. Arkansas Data



“Alcohol was the most prevalent drug found among impaired drivers in toxicology data reviewed by the National Transportation Safety Board, and about half of all impaired drivers were positive for other drugs or multiple drugs...”

“Although alcohol and cannabis were both highly prevalent in toxicology data reviewed by the National Transportation Safety Board, alcohol was most often detected alone, whereas cannabis was most often detected in combination with alcohol or other drugs. “

Arkansas

- Cannabis was detected in 38% of drug positive samples.
- Cannabis was most likely to be found alone with alcohol in samples testing positive for 1 additional drug.
- 59% of drug positive samples had just 1 drug in addition to alcohol – 33% was cannabis.

Conclusion

Arkansas drug trends appear to mostly be following national data trends.

Sedatives is the most prevalent drug category detected with alcohol.

Recreational cannabis is illegal in Arkansas, but cannabis is the top detected drug detected with alcohol.

“Policies that limit drug testing, such as those that use stop-testing protocols when a driver’s blood alcohol concentration is over a certain level, result in a loss of valuable information that could otherwise be used to customize policies, treatment, and other countermeasures.” –NTSB

Application to Impaired Driving

The Safe System Approach addresses impaired driving in all five layers:

- Safer People
 - Click It or Ticket, Drive Sober or Get Pulled Over
- Safer Roads
 - Minimize the impact of unsafe driving
- Safer Vehicles
 - Improvements in technology
- Safer Speeds
 - Public awareness, trained law enforcement
- Post-Crash Care
 - Provide training and adequate resources needed to prevent fatalities

Collaborations

- The best way to ensure the success of the Safe System Approach is through collaboration.
- There is not one agency that can do this alone. We all play a vital role in the success of our state.
- The Arkansas State Crime Lab and the Office of Alcohol Testing work with law enforcement and the courts to combat impaired driving.
- The Arkansas Highway Safety Office provides grant money to ASCL and OAT for various projects and training opportunities.
- Data gathered in impaired driving can inform the state legislature to expand or create new laws.
- The Arkansas Impaired Driving Prevention Task Force
 - **Our mission: “The State of Arkansas will work collaboratively to maximize its resources to eliminate impaired driving”.**



Questions?