

REGIONAL TOXICOLOGY LIAISON

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NHTSA | Region 5

DTI

Gratitude

- Darrin Grondel, Vice President ,
Government Relations and Traffic
 - Responsibility.Org
- Annie Kitch, Senior Policy Specialist
 - National Conference of State
Legislatures
- Amy Miles (PM), Chris Heartsill (7),
and Kristen Burke (9)
 - Regional Toxicology Liaison
Demonstration Project



Overview

Toxicological Testing

- "What is a Drug"
- **Polysubstance-impaired driving**
- Testing/Standards
- Blood/Oral Fluid
- Stop Testing

Challenges

- Legislation
- Resources

Data

US Department of Transportation

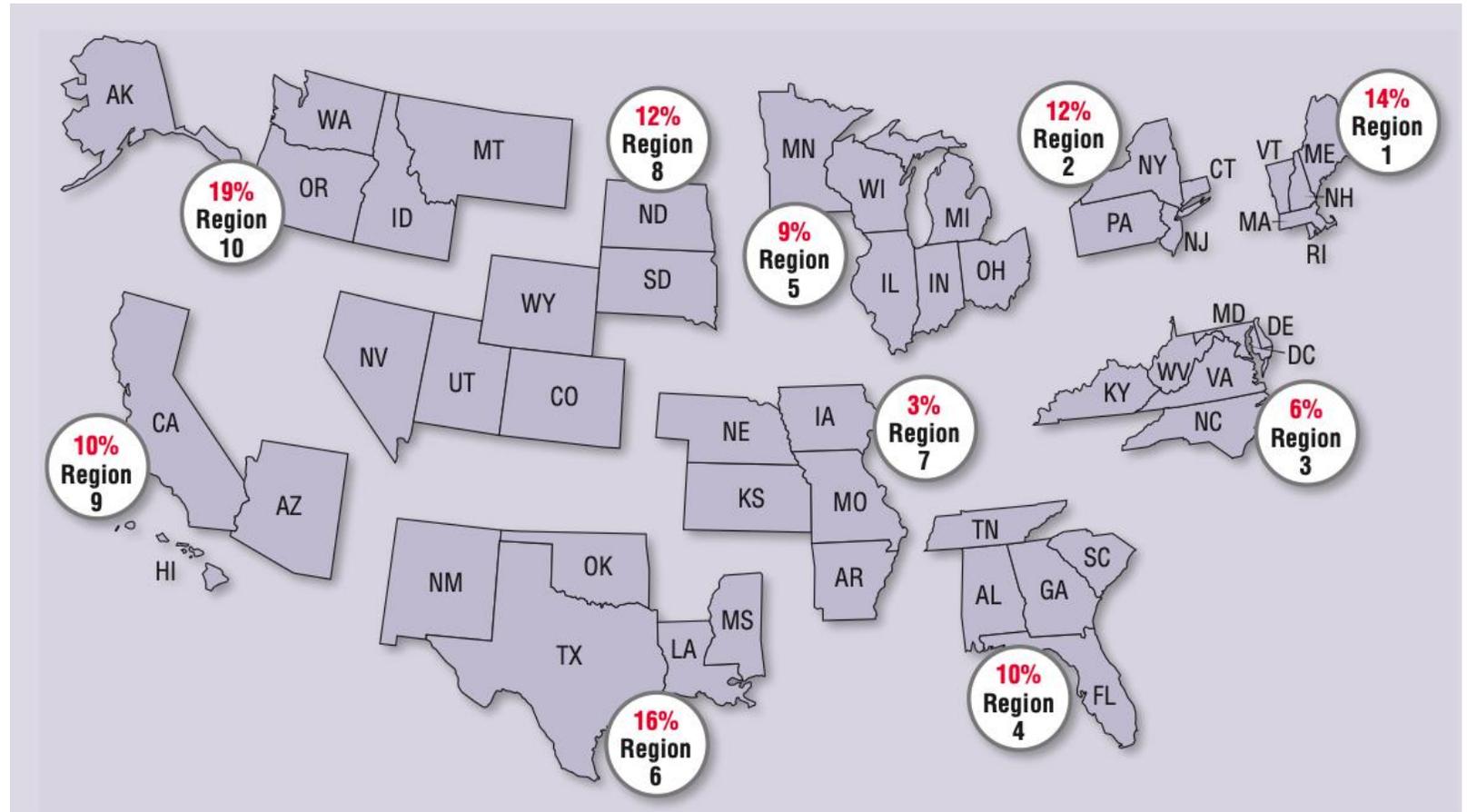
2020 Traffic Fatality Data

- 38,824 people died on the roadways (with an 11% decline in vehicle miles traveled)
- 45% of fatal crashes involved speeding, driving impaired by alcohol or not wearing a seat belts
 - Alcohol-impaired fatalities were up 14%
 - Speed-related fatalities were up 17%
 - Unrestrained vehicle occupants were up 14%
 - Hit and run fatalities were up 26%
 - Motorcyclist fatalities were up 11% (highest since 1975)



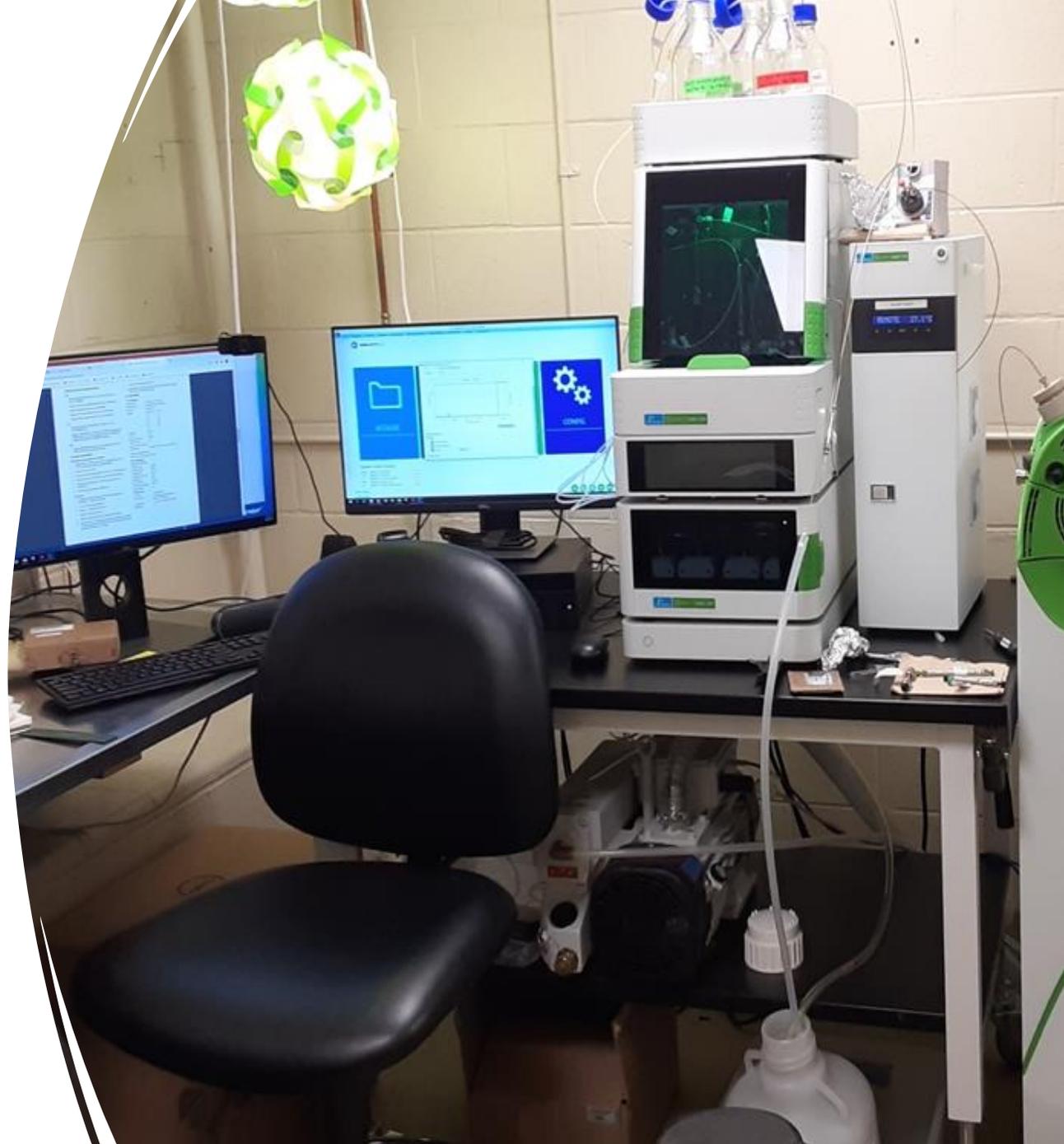
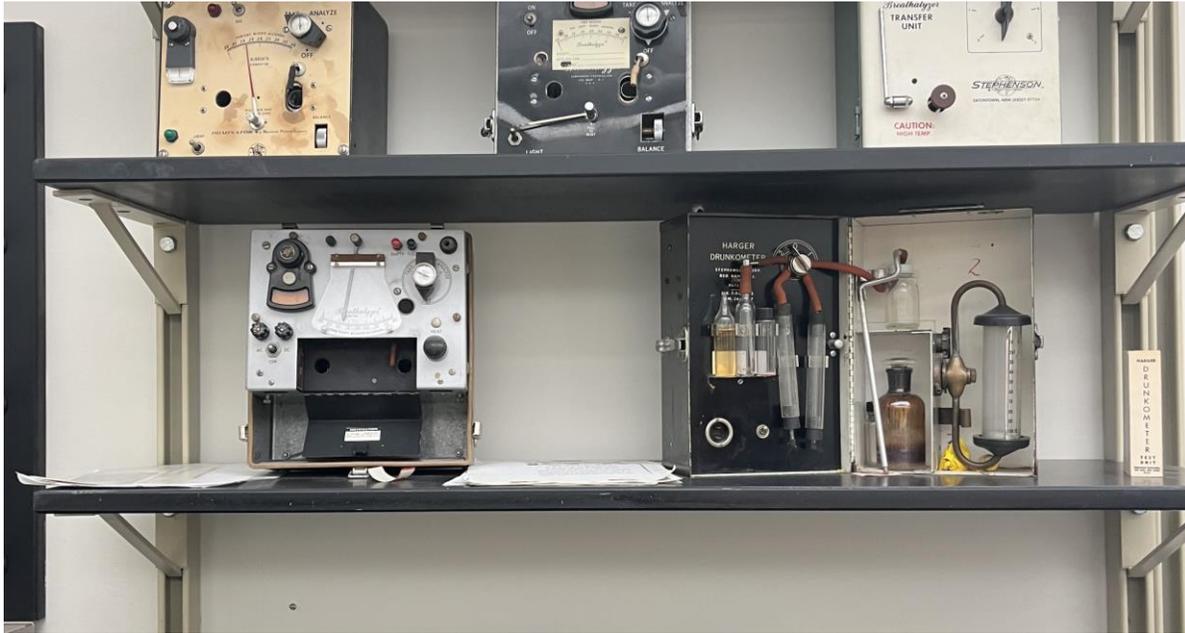
Traffic Fatalities 2021

- Traffic Fatalities Reached a 16-Year High in 2021
- 42,915 people died on the roadways
- 10.5% increase from 2020



Percentage Change in Estimated Fatalities in 2021 From Reported Fatalities in 2020, by NHTSA Region
Sources: 2020 FARS annual report file, 2021 statistical projections. Puerto Rico is not included in Region 2.

*Does not include under 21 fatality data or drug impaired driving data



Indiana State Department of Toxicology, April 26, 2022

FORENSIC TOXICOLOGY

Analyzing bodily fluids for the presence of drugs *including* alcohol for legal purposes

Drug - Any substance when taken into the human body impairs the ability to operate a motor vehicle safely



CNS Depressants



Alcohol



Inhalants



CNS Stimulants



Dissociative Anesthetic



Hallucinogens



Cannabinoids



Narcotic Analgesics

INTERPRETING TOXICOLOGY RESULTS

Unlike 0.08% for alcohol, per se limits for drugs do not universally represent the impact of the drugs on individuals at particular level.

	Alcohol	Drug
Predict impairment based on blood level	Yes	No
Per se law	0.08%	No
Predict dose based on blood level	Yes	No
Back extrapolation	Yes	No

Recommendations for Toxicological Investigation of Drug-Impaired Driving and Motor Vehicle Fatalities—2021 Update

Table II. 2021 Recommended Scope and Cutoffs for Tier I Drugs/Drug Classes (ng/mL) for Screening and Confirmation in Blood, Urine and Oral Fluid

Drug	Blood		Urine		Oral fluid	
	Screen	Confirm	Screen	Confirm	Screen	Confirm
DRE category; cannabinoids						
Δ ⁹ -THC	—	1	—	—	4	1
Carboxy-THC	10	5	20	5	—	—
11-hydroxy-THC	—	1	—	—	—	—
DRE category; CNS stimulants						
Methamphetamine	20	20	200	50	20	20
Amphetamine	20	20	200	50	20	20
MDMA ^a	—	20	—	50	20	20
MDA ^a	—	20	—	50	20	20
Cocaine	—	10	—	20	15 ^b	8
Benzoyllecgonine	50	50	150	50	15 ^b	8
Cocaethylene	—	10	—	20	—	8
DRE category; CNS depressants						
Carisoprodol	1,000	1,000	1,000	1,000	500	500
Meprobamate ^a	—	500	—	500	—	500
Zolpidem	10	10	20	20	10	10
Low-dose benzodiazepines	10	—	50	—	5	—
Alprazolam	—	10	—	50	—	1
Alpha-hydroxyalprazolam	—	—	—	50	—	—
Clonazepam	—	10	—	50	—	1
7-Aminoclonazepam	—	10	—	50	—	1
Lorazepam	—	10	—	50	—	1
High-dose benzodiazepines	50	—	100	—	5	—
Diazepam	—	20	—	50	—	1
Nordiazepam	—	20	—	50	—	1
Oxazepam	—	20	—	50	—	1
Temazepam	—	20	—	50	—	1
DRE category; narcotic analgesics						
Codeine ^a	—	10	—	50	30	5
6-Acetylmorphine	—	5	—	10	—	1
Buprenorphine	1	0.5	5	1	1	2
Norbuprenorphine	—	1	—	1	—	—
Fentanyl	1	0.5	1	1	1	0.5
Hydrocodone ^a	—	10	—	50	30	5
Hydromorphone ^a	—	5	—	50	30	5
Methadone	50	20	300	50	20	10
Morphine	10	10	200	50	30	5
Oxycodone ^a	10	10	100	50	30	5
Oxymorphone ^a	—	5	—	50	30	5
Tramadol	100	50	100	50	50	10
O-Desmethyltramadol	—	50	—	50	—	—

^aMust have ≥ 80% cross-reactivity if using immunoassay for blood and urine.

^bScreening for either benzoyllecgonine or cocaine in oral fluid is acceptable.

Drugs in Impaired Driving Cases

Table 1—Required Minimum Analytical Scope and Sensitivity for Testing of Blood in Impaired Driving Investigations

Compound	Blood Screen ^a	Blood Confirmation
Ethanol (g/dL)		
Ethanol	0.01	0.01
Cannabinoids (ng/mL)		
THC	N/A	1
Carboxy-THC	10	5
11-OH-THC	N/A	1
CNS Stimulants (ng/mL)		
Amphetamine	20	20
Methamphetamine	20	20
MDA	25	20
MDMA	25	20
Cocaine	N/A	10
Cocaethylene	N/A	10
Benzoyllecgonine	50	50
CNS Depressants (ng/mL)		
Carisoprodol	1000	1000
Meprobamate	N/A	1000
Zolpidem	10	10
<i>Low Dose Benzodiazepines</i>		
Alprazolam	10	10
Clonazepam	15	10
7-aminoclonazepam	N/A	10
Lorazepam	15	10
<i>High Dose Benzodiazepines</i>		
Diazepam	50	20
Nordiazepam	50	20
Oxazepam	50	20
Temazepam	50	20
Narcotic Analgesics (ng/mL)		
Morphine	10	10
Codeine	10	10
6-acetylmorphine	N/A	5
Hydrocodone	10	10
Oxycodone	10	10
Methadone	50	20
Fentanyl	1	0.5
Buprenorphine	1	0.5
Norbuprenorphine	N/A	0.5
Tramadol	100	50
o-desmethyiltramadol	N/A	50

^a Screen concentrations are based on immunoassay technology. When using non-immunoassay targeted analysis for screening (e.g., chromatography based), the concentrations listed under confirmation shall be utilized. N/A applies to all screening techniques.



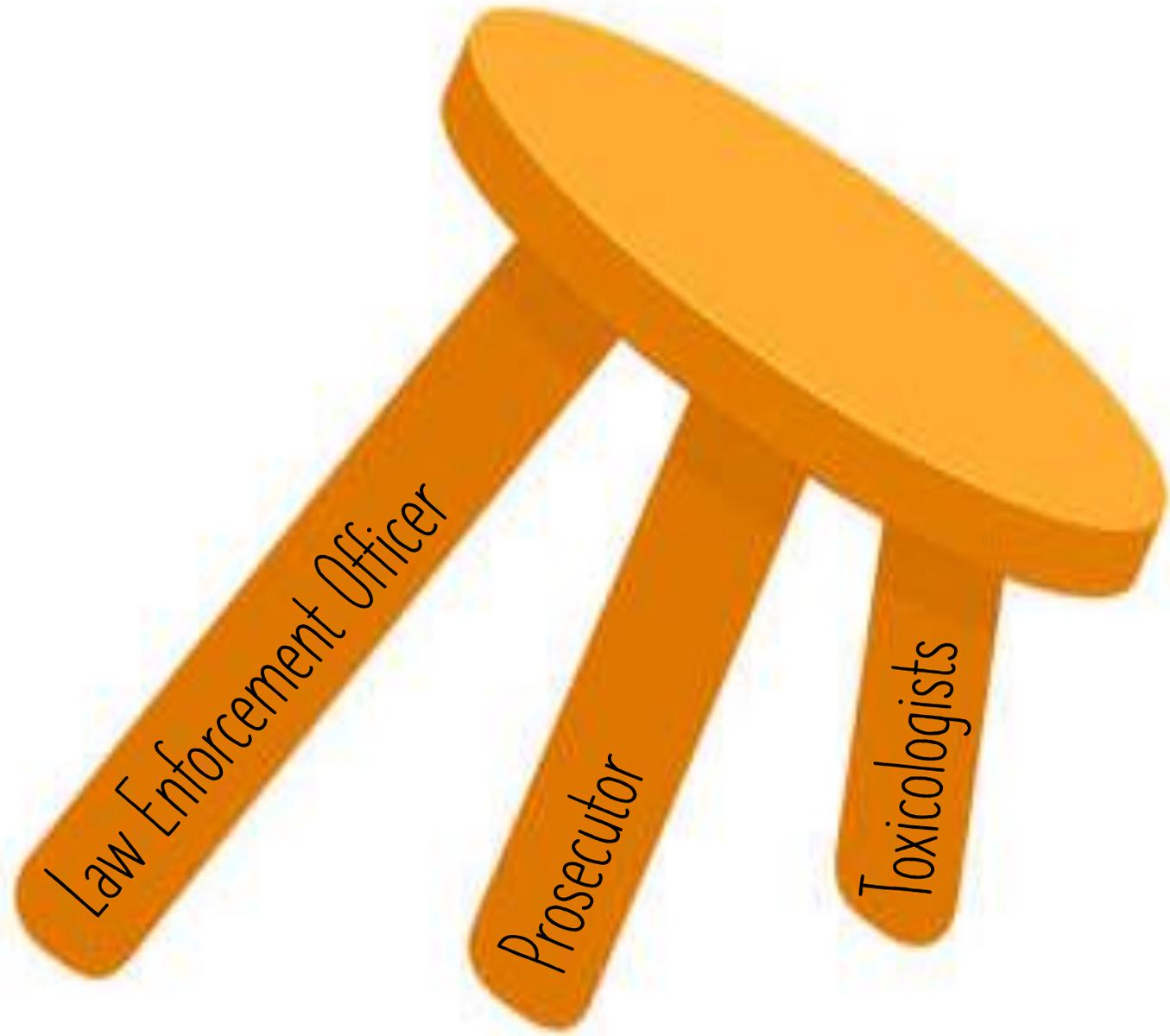
The Problem: Drug Landscape

- Ever changing landscape of drugs makes it difficult for toxicology laboratories to test for all the drugs that may be present
 - Laboratories generally cover the routine drugs (THC, Methamphetamine, benzodiazepines, opioids)
 - Some novel or short-lived drugs may not be detected
- Laboratories have different capabilities
 - Instrumentation, staffing, method validations, etc.

The Problem: Data Variability

- Due to the different capabilities, data may be inconsistent from lab to lab
- Instrumentation
- Scope of testing
- Extraction techniques
- Workflow or policy
- Stop Testing
- Creates gaps in databases such as the Fatality Analysis Reporting System (FARS), National Forensic Laboratory Information System (NFLIS-TOX, DEA)





Law Enforcement Officer

Prosecutor

Toxicologists



Regional Toxicology Liaison Demonstration Project

Society of Forensic Toxicologists (SOFT)

National Highway Traffic Safety Administration (NHTSA)

Overview of Goals

- Provide technical support for the toxicology laboratories in their region
- SOFT Toxicology Resource Committee - Survey
- Identify accreditation needs
- Promote and support method validation and NSC laboratory testing guidelines
- Assist states/jurisdictions with legislation that is more effective in impairment.



DON'T MIX 'EM



Integrate labs with local, state, regional, national partners and stakeholders

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- State Highway Safety Offices
 - Traffic Safety Resource Prosecutors
 - Drug Recognition Experts
 - State Department Public Health
 - NHTSA Region Offices



REGIONAL TOXICOLOGY LIAISONS

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Questions?

