Wisconsin State Laboratory of Hygiene
UNIVERSITY OF WISCONSIN–MADISON

UPDATE: 2016 Dane County Roadside Oral Fluid Project: Phase I and Phase II

The Dane County Oral Fluid Project was funded by the Bureau of Transportation Safety (BOTS)

The Scope of the Problem:

Drug impaired driving has been on the rise in Wisconsin over the last several years. From 2014 to 2015, drug testing of suspected impaired drivers at the Wisconsin State Laboratory of Hygiene, Forensic Toxicology Section (WSLH) has increased 20%, while motor vehicle deaths involving drugs has increased 54% during that same time period. Increased law enforcement awareness of drug impaired driving has helped to define the problem, however, drug impaired driving cases are still difficult for law enforcement to identify and articulate. Roadside oral fluid testing for drugs may be a useful tool to support law enforcement's suspicion that an individual is operating under the influence of drugs.

The Project:

Phase I: Law enforcement agencies from all across Dane County participated in ARIDE training as well as hands on training on the Alere DDS2 roadside oral fluid device. The goal of the project was to collect 100 roadside oral fluid tests using the Alere DDS2 instrument during a 3 month period and correlate the device results with the blood samples obtained during the OWI arrest process. All comparison samples were de-identified for this project to prevent any traceability between the oral fluid and blood results to any one individual.

Phase I Results:

- 104 valid oral fluid collections
- 24 arrests between hours 10:00 am-6:00 pm (23%)
- 76 subjects (73%) alcohol detected; 73 had a BAC greater than 0.08 g/100 mL
- 55% of subjects had positive oral fluid for one or more drug or drug category
- 17 subjects (16%) had a positive oral fluid result in 2 or more drug categories
- THC was the most frequently detected drug in both oral fluid and blood
- Positive oral fluid results observed at all time intervals when arrests were made
- Correlation between the roadside device and blood results are consistent

Phase II: The objective was to evaluate the impact of the laboratory drug testing cancellation policy (LCP) when the blood alcohol concentration (BAC) exceeds 0.100 g/100 mL. Specimens from casework, where drug testing was cancelled because of the LCP, were randomly selected and screened for the presence of drugs.

Phase II Results:

- 116 specimens selected
- 17 (15%) arrests between 10:00 am-6:00 pm 83 (72%) arrests between 10:00 pm -6:00 am
- 81 (70%) subjects screened positive for one or more drug or drug categories in addition to alcohol above a 0.100 g/100 mL (Table 1)
- 60 subjects (52%) tested positive for THC in addition to alcohol above a 0.100 g/100 mL
- 10 subjects (9%, 2nd most frequently observed category) tested positive for cocaine in addition to alcohol above a 0.100 g/100 mL

Table 1. Total number of positive drug/drug category results in evidentiary blood specimens collected from 116 Wisconsin drivers arrested for OWI.

Drug/Drug Category	Blood
THC[1]	60
Cocaine[2]	10
Opiates[3]	2
Benzodiazepines[4]	6
Methamphetamine	0
Amphetamine	4
Buprenorphine	1
Barbiturates[5]	0

Targets: [1]carboxy THC; [2]Benzoylecgonine; [3]Morphine; [4]Lorazepam, [5]Secobarbital

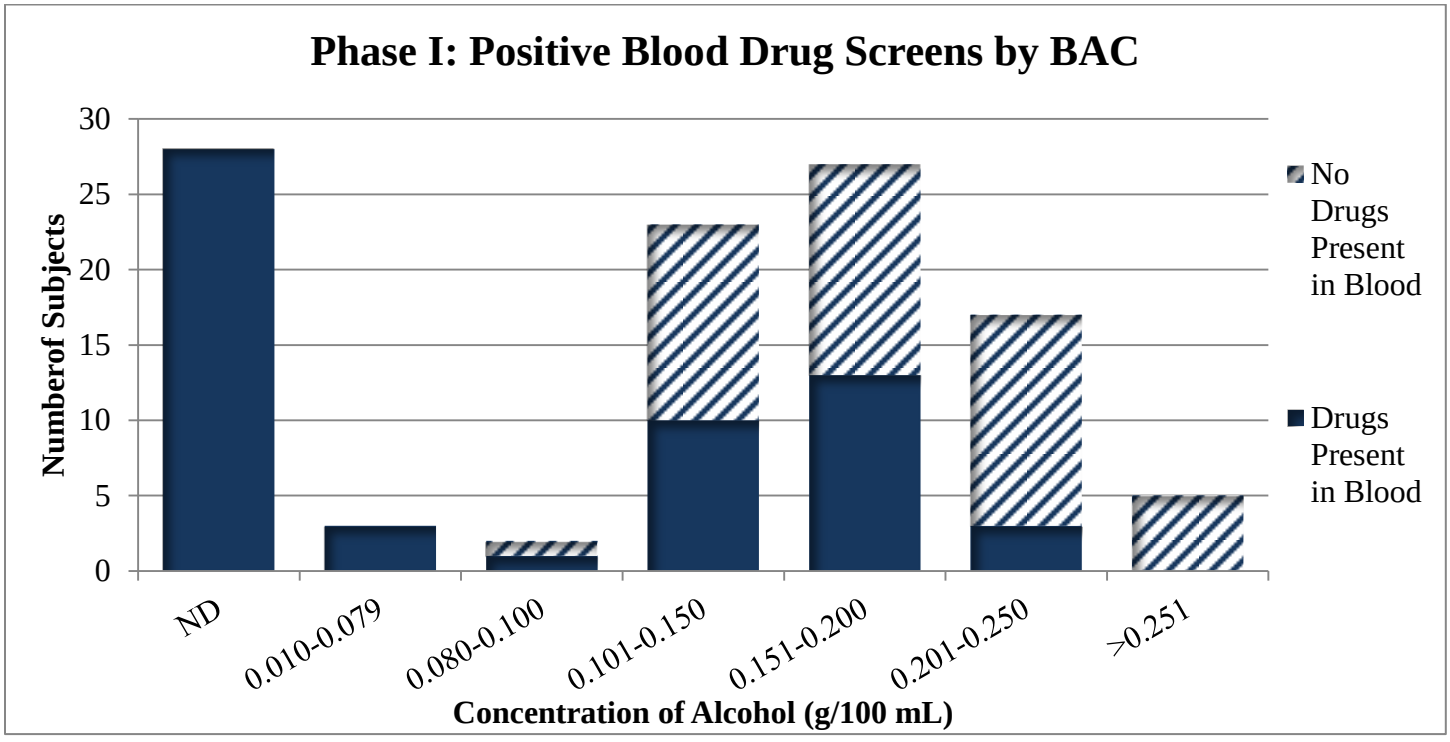
Summary Phase I and II:

- 189 of 220 subjects with BACs greater than 0.080 g/100 mL
- 141 (64%) screened positive for one or more drug/drug categories in blood
- THC was the most frequently detected drug
- Wisconsin drivers frequently drive under the influence of drugs in combination with prohibitive alcohol concentrations

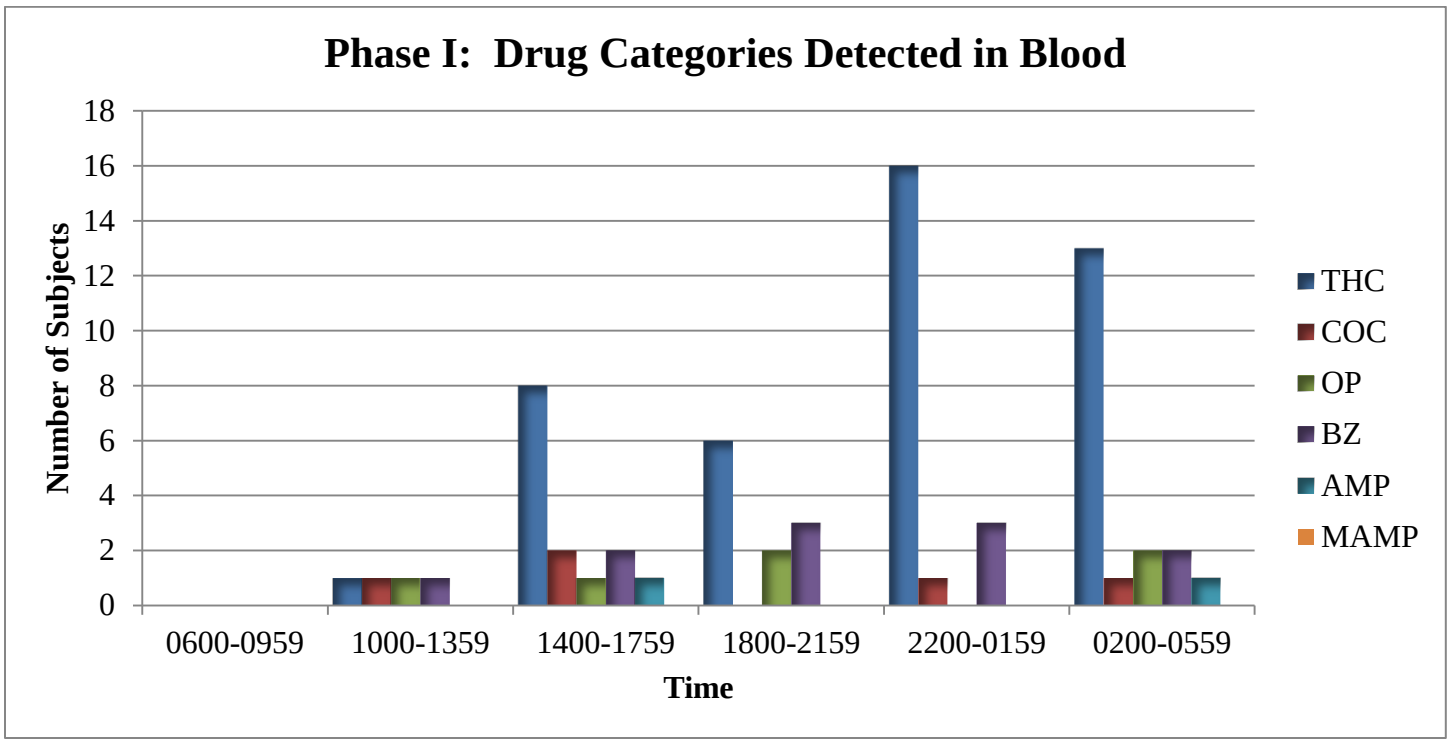
Future Goals:

- Publish results in a peer reviewed scientific journal (Phase I results submitted February, 2017)
- Use the publication, along with others from various projects across the US, to provide information to the legislature and other traffic safety partners to allow for oral fluid collection and the use of the roadside devices during OWI arrests and motor vehicle crashes
- If allowed by the legislature, begin using the roadside oral fluid devices all across the state
- Explore other uses for the oral fluid devices such as Drug Courts, Probation and Parole, schools, etc.

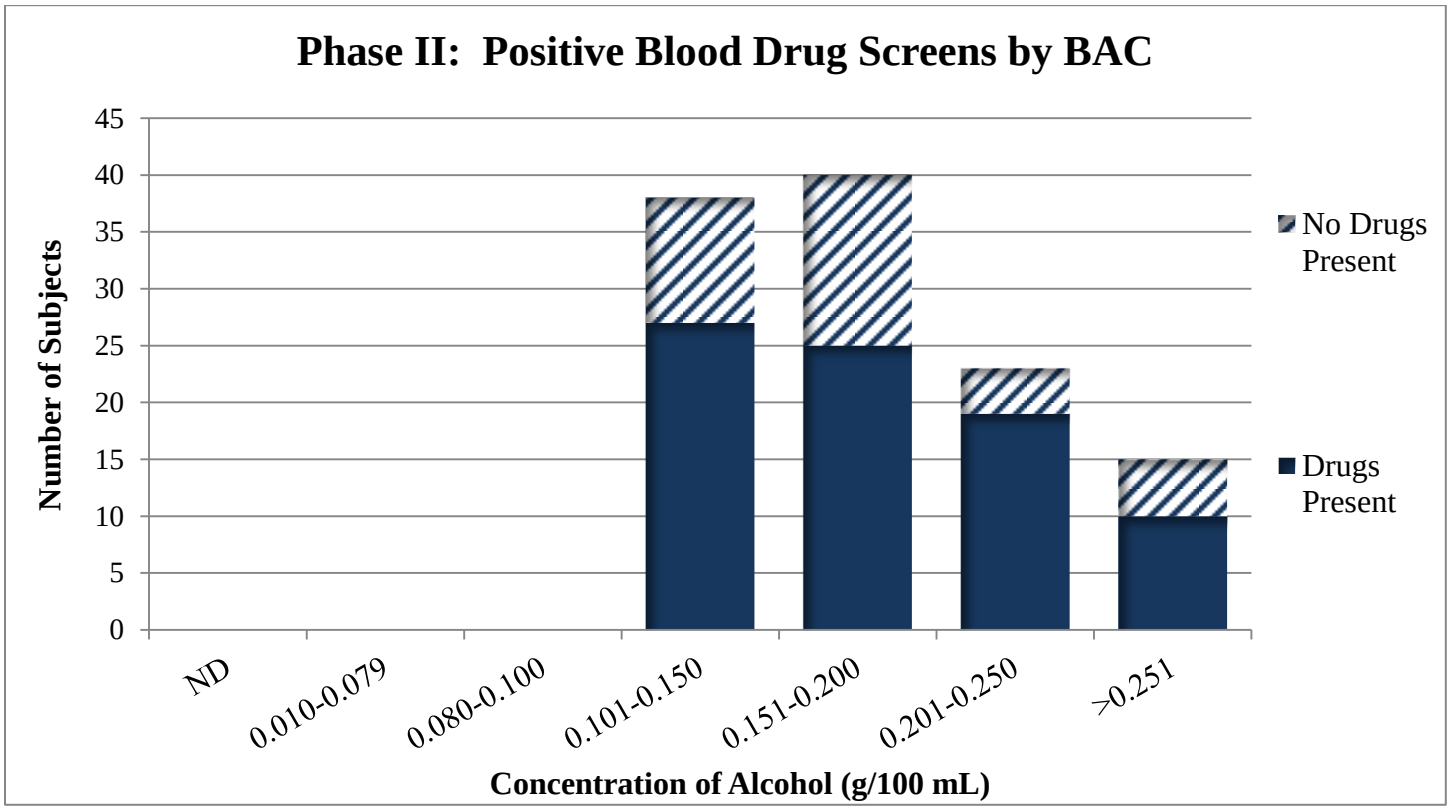
WSLH members of the Dane County Oral Fluid Project: Lorrine Edwards, Ted Savage, Katie Smith



The above figure shows the proportion of individuals testing positive for drugs in blood at varying blood alcohol concentrations (BAC).



The above figure shows the time of day the arrest occurred and the number of drug categories detected during that timeframe.



The above figure shows the proportion of individuals testing positive for drugs in blood when their blood alcohol concentration (BAC) exceeds 0.100 g/100 mL.