

IDAHO STATE POLICE



Toxicology Program Trends 2012

2012 IDAHO STATE POLICE FORENSIC SERVICES: TOXICOLOGY TRENDS

Overview and Background

This report discusses trends in the toxicology program, as well as the number of toxicology cases submitted to the following Idaho State Police Forensics laboratories for the fiscal year 2012 (FY2012): District 1, Coeur d' Alene; District 5, Pocatello; and District 3, Meridian (Blood alcohol only). The phrase "toxicology cases" is defined as those cases which have urine, blood or vitreous humor that are submitted to the laboratory for analysis, qualitatively and/or quantitatively for the presence of drugs and/or alcohol. This analysis falls under three major disciplines: blood alcohol (the level of alcohol in blood), blood toxicology (drugs in blood) and urine toxicology (drugs in urine).

These statistics were compiled from the Idaho Evidence Tracking System (IETS) which is used to log in and track all evidence submitted to the forensic laboratory system. The information in IETS regarding a case is taken directly from the Evidence Submission Form submitted simultaneously with the evidence to the laboratory.

Toxicology Tracking Information

	Blood Toxicology	Blood Alcohol	Urine Toxicology	Total	2011 Percent	2012 Percent
Not analyzed		14		14		
NJDT	0	0	1	1	0.05%	0.02%
DUI						
Adult	635	1827	466	2928	74%	78.5%
Juvenile	67	86	56	209	5.2%	5.6%
Probation & Parole						
Adult	2	4	19	25	0.6%	0.7%
Juvenile	1	1	24	26	0.8%	0.7%
Other Criminal	100	114	80	294	7.2%	7.9%
Auto Accident Fatalities	67	75	07	149	4.8%	4.0%
Accident Victim Kits	0	04	0	04	0.4%	0.1%
Death (non-homicide)	22	37	18	77	2.5%	2.0%
Total:	894	2162	671	3727	100%	100%

Table 1: Statistics were compiled from the Idaho Evidence Tracking System (IETS) which is used to log in and track all evidence submitted to the forensic laboratory system.

Terms and Drug Categories

Central Nervous System Depressants (CNS-D's), Central Nervous System Stimulants (CNS- S's), and Carboxy-THC account for most of the positive toxicology results obtained after analysis. There is an appendix to the report this year to help define terms and describe the drug categories and the drugs included in those categories.

Carboxy-THC is an inactive metabolite of marijuana (MJ). Which means, after ingestion, the MJ is broken down in the body to a form that the body can eliminate as waste. There are many MJ metabolites and Carboxy-THC is one of them. Idaho State Police Forensic Service's (ISPFS) current methods for extracting MJ from the blood and urine will extract this metabolite.

Many prescription drugs are impairing and highly abused, which is why we see so many in DUI cases. Some of the most impairing drugs fall under the CNS-Depressants category of drugs. CNS-Depressant drugs have many sub-categories, such as anti-depressants, anti-anxiety, anti-histamines, barbiturates, narcotic analgesics (NA) and others. *Merriam-Webster Dictionary on-line*, <http://www.merriam-webster.com>, 2012, defines a -"narcotic as a drug that in moderate doses dulls the senses, relieves pain, and induces profound sleep but in excessive doses causes stupor, coma, or convulsions." An analgesic relieves pain. Some of the most commonly confirmed narcotic analgesics in our DUI cases are hydrocodone, methadone and oxycodone. The benzodiazepine class drugs are anti-anxiety or tranquilizers; the most commonly found benzodiazepines in DUI cases are alprazolam, temazepam and lorazepam.

A method for tracking cases that have been positive for inhalants has recently been implemented. We have a few every year and they usually are products of paint or air duster inhalation.

CNS-Stimulant drugs that are highly impairing and not usually in prescription form, include amphetamine, methamphetamine and cocaine. Amphetamine can be obtained as a prescription, but is most commonly seen as an active metabolite of methamphetamine. Methamphetamine will be reduced to amphetamine after ingestion and is excreted partly as amphetamine. Once broken down into amphetamine, the amphetamine acts as its own drug and produces stimulant effects as aside from those produced by methamphetamine; therefore it is an *active* metabolite. We have few cocaine positives, which does not necessarily mean it isn't being used. Cocaine is eliminated from the body very rapidly and if very much time has passed from ingestion to sample collection, it may not be detected.

One reason that drug combinations are listed in each of the drug toxicology categories is because drug combinations can cause *additive* or *synergistic* effects. Additive, for example, means 1+1=2. For example, the additive effects of hydrocodone used in conjunction with meprobamate means the impairing effects can be added to create two times the effects. An anti-depressant taken alone in therapeutic amounts (prescribed quantities) may not have any impairing effects, but taken in

conjunction with other CNS-D's such as alcohol or other anti-depressants may then have additive effects. Synergistic effects is 1+1 may = more than 2.

Please note that a negative result in one discipline (discipline explains type of testing, such as blood alcohol, blood toxicology or controlled substance, for example) only reflects the testing in that discipline; the case may have had a positive result in another discipline. For example, a case may have had a negative result in blood alcohol, but a positive result for drugs in blood. If both blood alcohol and blood toxicology were requested for a case, a blood alcohol cutoff of 0.10g/100cc of blood or above is a flag to scientists that toxicology testing may not be required. In special circumstances, such as felony possession, suicide or possible overdose cases to name a few, the toxicology may still be analyzed even if the blood alcohol is above 0.10g/100cc of blood.

Toxicology results for FY2012

The laboratory system received 3,727 toxicology cases for FY 2012, a 10% increase of 384 cases from last year. ISP Forensic Services has seen a 70% increase in toxicology cases since 2002. Please see **Figure 1** for the comparison between years of submitted toxicology cases, while keeping in mind that some of these samples may be counted twice (a blood alcohol sample maybe sent in for blood toxicology).

Results in each of the three disciplines will be reported out in three categories and will be explained in greater detail in subsequent paragraphs.

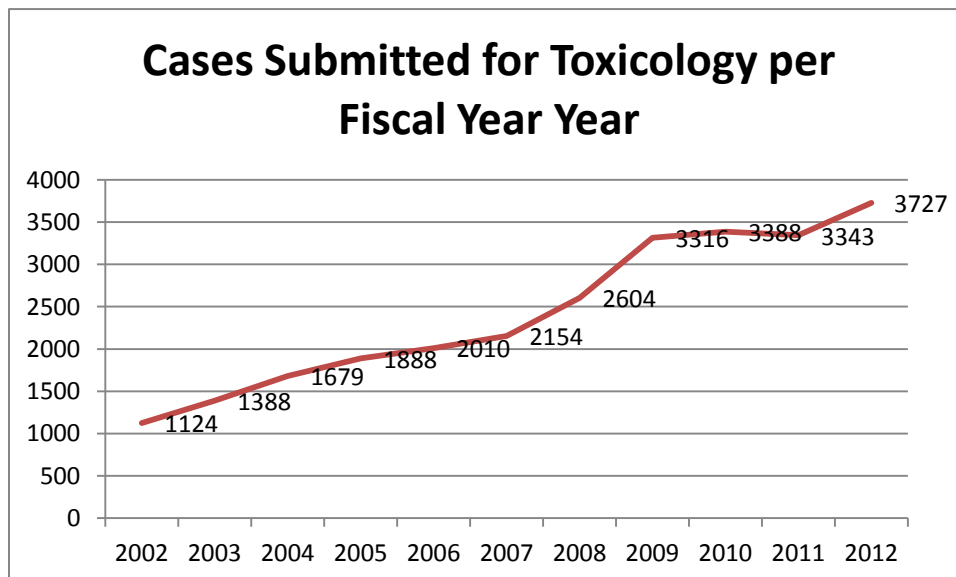


FIGURE 1

Blood Alcohol Concentration (BAC)

ISP Forensic Services (ISPFs) receives many cases that have a Blood Alcohol (BAC) request attached. Some examples of case types are DUI, sexual assault (SA), accident and death investigations. The blood alcohol results for adults will be discussed in this report in three levels: negative, less than 0.08 g/100cc of blood and 0.08 g/100cc of blood and above. The three alcohol levels discussed for juveniles are Negative, less than 0.02 g/100cc of blood, 0.02 g/100cc of blood and above, and inhalants. When Inhalants are present they will also be discussed for both juveniles and adults.

A visual representation of the results of blood alcohol levels in adults can be found in **Figure 2**. 2,047 samples had requests for blood alcohol analysis and/or requests for inhalants analysis. ISPFs discourages the use of urine for alcohol analysis due to the questionable value of results (IDAPA 11.03.01). The 2,047 samples breakdown into the following: 284 samples were negative; that is nearly 30 more negative samples than last year. This accounts for 14% of the samples submitted, the same as last year. The increase of 30 cases didn't affect the percentage because ISPFs received 202 more samples for adult blood alcohol analysis than last year. Sample results that fell below 0.08g/100cc of blood were approximately 4%, (89 samples processed). That result was down by 1% from last year and we had only 1 more case submitted that fell under 0.080g/100cc of blood this year than last. 1,659 samples were analyzed with results of 0.08 g/100cc of blood or above and is the largest percentage – 81% (1,501 samples processed). There were 37 more cases submitted this year for BAC testing than last year. 4 samples tested positive for inhalants, particularly difluoroethane, which is a component of "Air Duster".

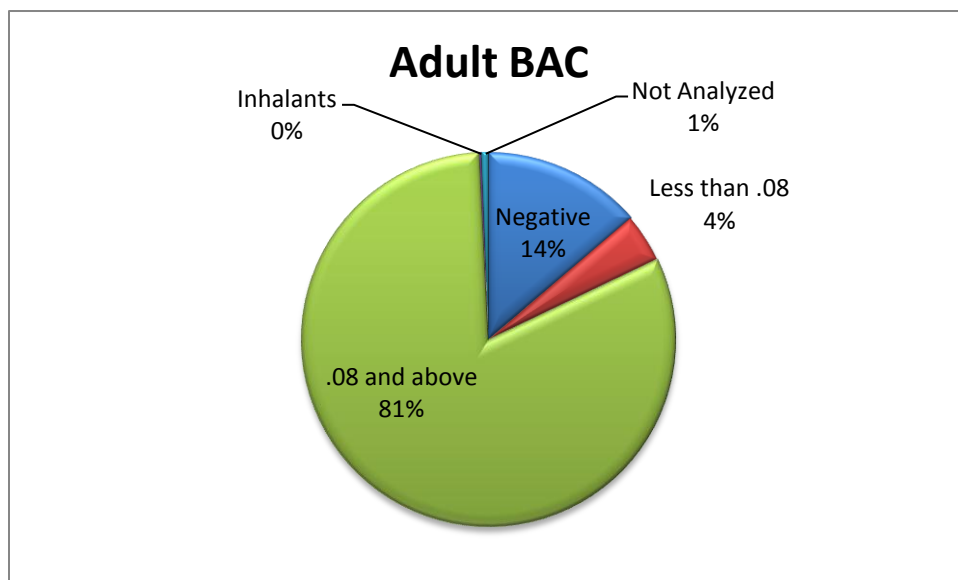


FIGURE 2

Urine alcohol results are of questionable value and are reported out as such. They are of questionable value for several reasons. Examples of those reasons are that bacteria can grow in the urine and if the urine contains yeast (*candida*), alcohol can be produced. Also, for accurate results, the urine needs to be voided and then a 15 minute wait observed before a fresh urine sample is collected for alcohol analysis. Three of the samples received were urine alcohol requests. One of these samples was negative for alcohol and the other two were above 0.08g/67ml of urine.

There was one other sample analyzed for alcohol; that sample was an unknown liquid and contained 3.9% alcohol. These types of samples are submitted in juvenile possession, probation violations and sometimes sexual assault cases.

In FY2012, there were 1,827 cases submitted for adult BAC that were charged as DUI; in comparison, we received 1,653 in FY2011.

Samples are submitted for many reasons; one of the categories with a large sample set is adult BAC fatality accidents. A total of 66 samples submitted in FY2012 was a decrease of 8 from last year. **Figure 3** is a representation of the breakdown of results in the auto accident fatalities.

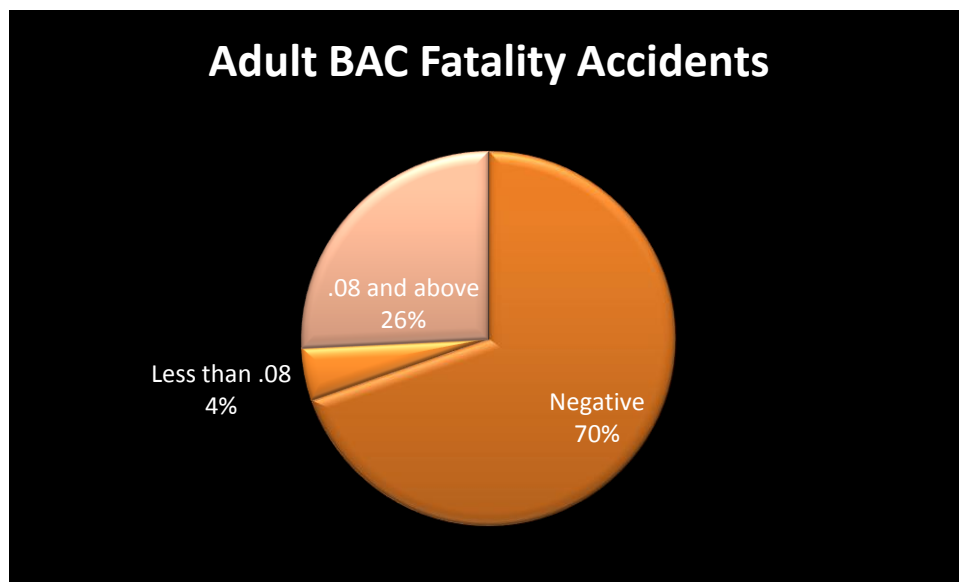


FIGURE 3

Interestingly enough since 2003 when we started tracking these types of cases, the number has gone up and down every year. For instance, in 2003 the number of cases submitted was 74 and as mentioned earlier, this year it is 66. In FY2006 it was highest, at 97 cases submitted for analysis in this category. See **Figure 4** for this trend line.

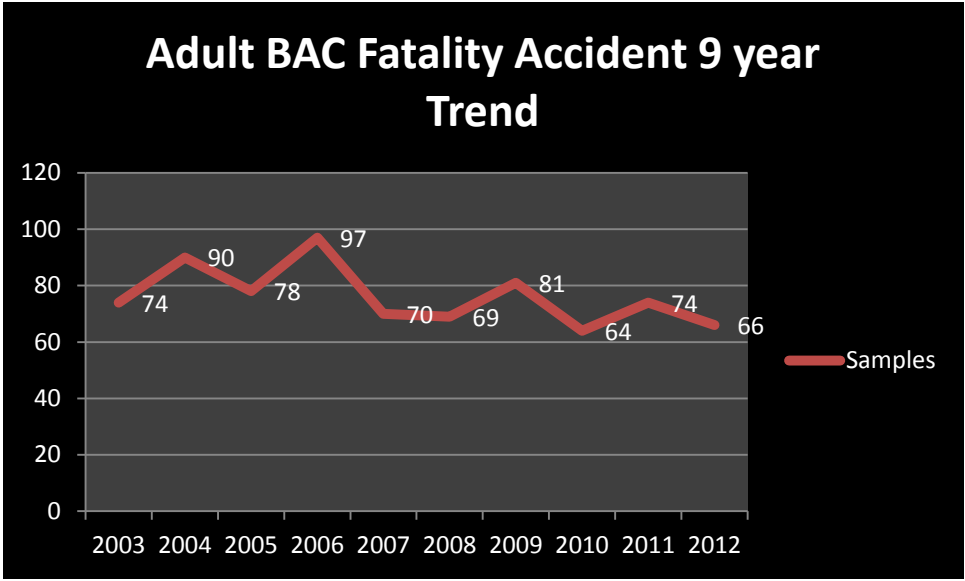


Figure 4

Cases submitted for juvenile BAC decreased from 129 in FY2011 to 114 in FY2012. The number submitted decreased, but the number that tested at or above 0.02 g/100cc of blood increased by 8% from last year. The samples testing negative for BAC decreased by 15 cases since last year. This year there were no positive indications for inhalants in juvenile samples. The legal limit for juveniles is 0.02 g/100cc of blood, which is why our results are based on this amount for juveniles and not the adult 0.08 g/100cc of blood. Once again the three alcohol levels discussed for juveniles are negative, less than 0.02 g/100cc of blood, and 0.02 g/100cc of blood and above; and inhalants are also included. **Figure 5** demonstrates the number of cases submitted.

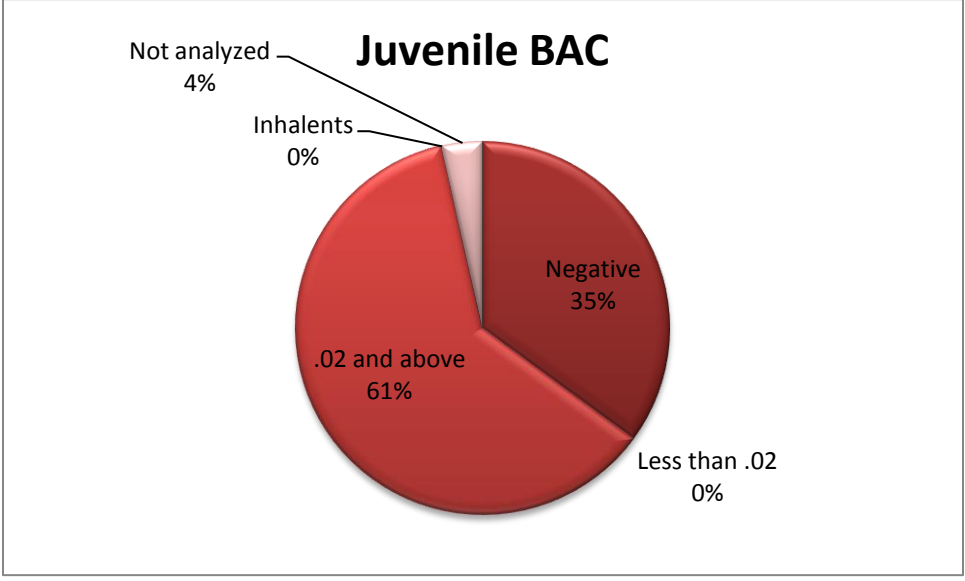


FIGURE 5

The DUI portion of the juvenile blood alcohol results show a total of 86 cases submitted for DUI analysis. The number from last year was 93 cases. Again, although the number of cases submitted decreased, the samples testing at or above 0.02 g/100cc of blood increased. **Figure 6** indicates the trends over the past 9 years.

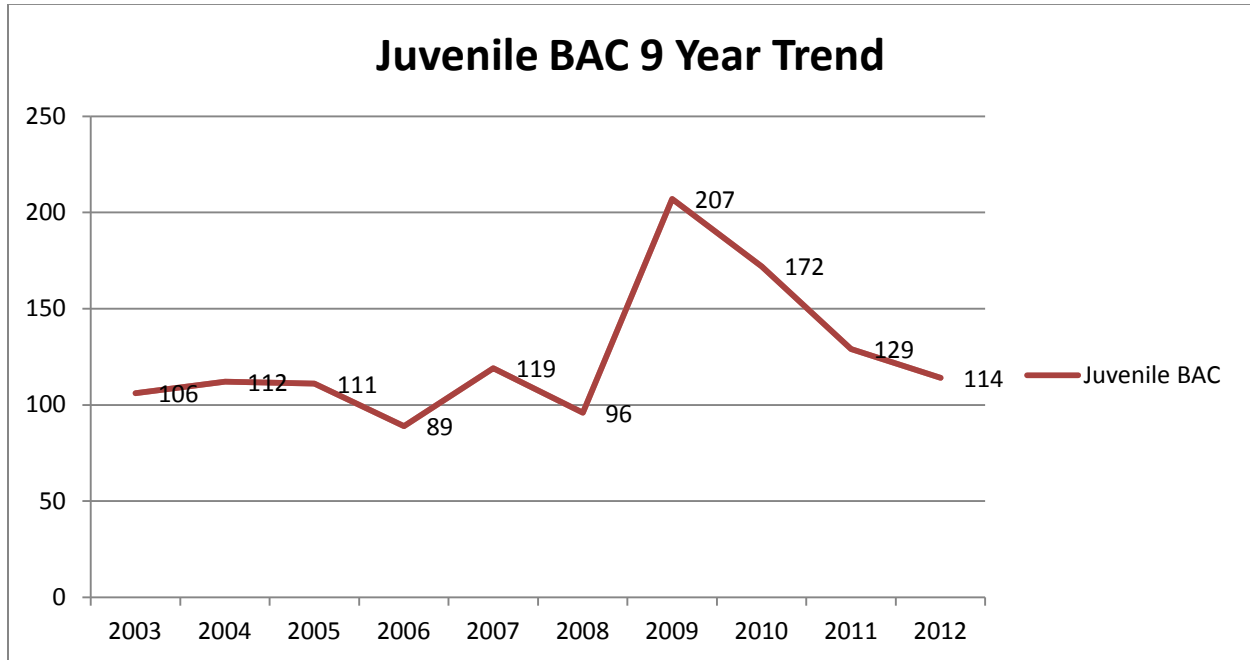


Figure 6

Juvenile BAC cases submitted in fatality cases jumped from 2 to 11 cases in Fy2012. Of the 11 submitted, 6 tested negative, 3 were 0.02 g/100cc of blood or above, and 2 were not analyzed. It was disappointing to see the submissions in these cases take such a leap. **Figure 7** gives a representation of the Juvenile BAC Fatality cases submitted and it is followed by **Figure 8** illustrating the trends in these fatality accidents of the course over the last 5 years.

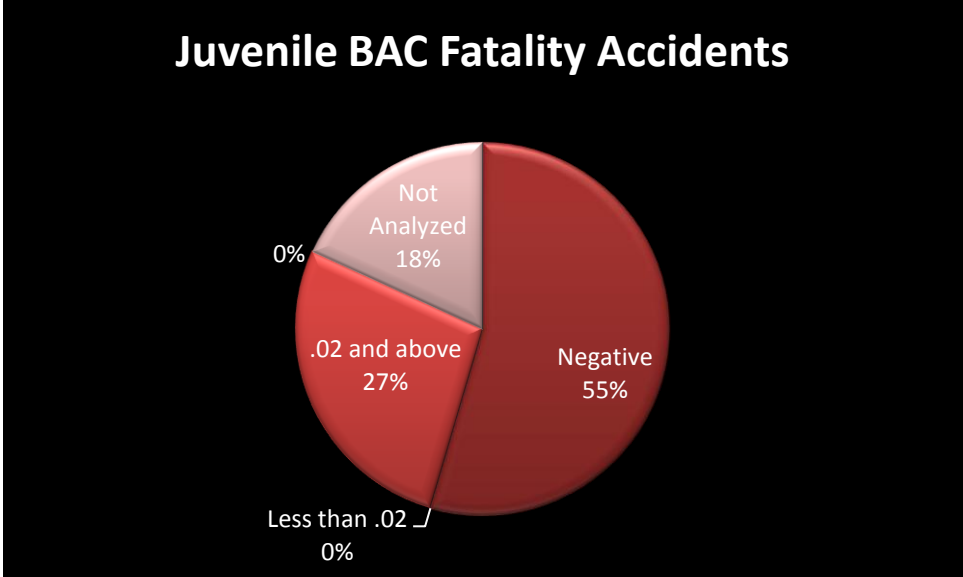


Figure 7

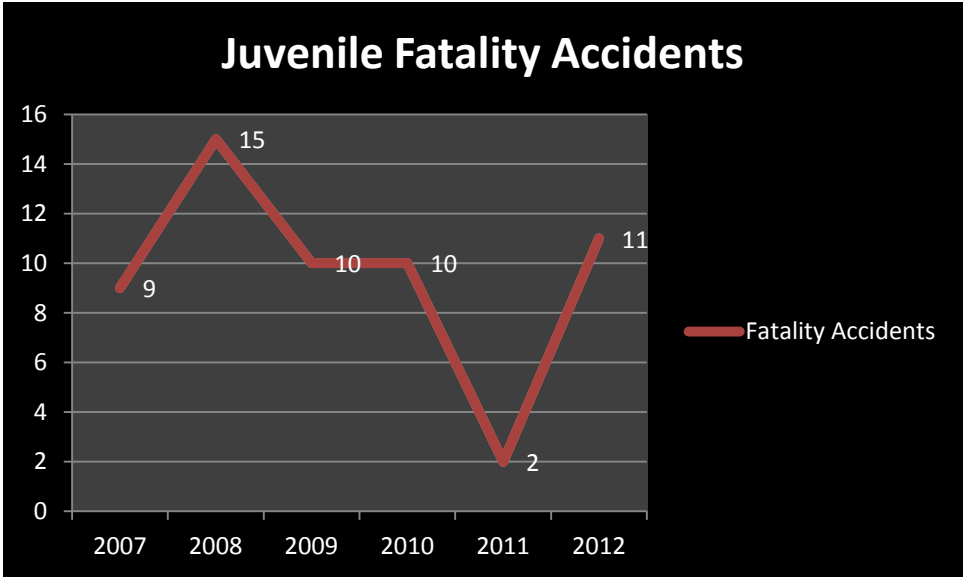


Figure 8

Cases submitted for Blood Alcohol Concentration in FY 2012 also included several other offenses. As a matter of fact 145 cases were of a different nature. We have discussed fatality accidents but we also

test in homicide cases and other death investigation cases. There were 6 homicide cases submitted for BAC and 4 of those were at or above 0.08 g/100cc of blood. Examples of other deaths investigated are unattended deaths, suicides, and workplace fatalities. There were 31 of these types of cases submitted, and of those 9 were at or above 0.08 g/100cc of blood.

Sexual assault cases comprised 19% of cases submitted. In most of these cases it is the victim that has had blood and urine normally makes testing their blood or urine for alcohol or drugs useless. Eight of the cases submitted for sexual assault were at or above 0.08 g/100cc of blood for ethanol (alcohol). There were 5 cases tested that were sexual assaults of juveniles, 2 of those case results were above 0.08 g/100cc of blood for ethanol (alcohol).

There were also 41 drug/narcotic violations tested, 4 accident victim kits (these are anonymous cases and results are for statistical purposes only) and 35 other offenses. Other offenses cover many areas such as possession of firearms while under the influence, eluding, hit and runs, and injury accidents.

As mentioned in the introduction if both blood alcohol and blood toxicology were requested for a case, a blood alcohol cutoff of 0.10g/100cc of blood or above is a flag to scientists that toxicology testing is likely not required. In special circumstances, such as felony possession, suicide or possible overdose cases, the toxicology may still be analyzed even if the blood alcohol is above 0.10g/100cc of blood. In other words many of the cases above that were negative or low BAC, they may have a positive result for other drugs in the blood toxicology results section of this report.

Toxicology (Drugs in Blood and Urine)

As in past years, the ISPFS Toxicology Section policy states that samples with a result over a set amount of blood alcohol, currently 0.10g/100cc of blood, will not be retained to be tested for toxicology unless extenuating circumstances are present.

NJDT's, Non-Random Juvenile Drug Testing, have become almost extinct. These are cases where schools that participate in the program can call on a resource officer to get a urine sample from a student that may be demonstrating impairment. Only one of these types of samples was submitted in FY2012, and it was positive for the narcotic analgesic, methadone.

Adult

The total results for drugs in blood and urine in the adult category in FY2012 are shown in **Figures 9**. Like last year, for urine samples, drug combinations were more prevalent than single drug use. Blood results showed the opposite. There are several possible reasons for this phenomenon year after year. One reason is that not all drugs may be found in samples with currently approved extraction methods, so it

makes sense that there may be only single drugs found. Blood over the last two years has become the majority of our toxicology testing so it follows that the number of positive samples would be greater for single drugs than the urine samples. Urine is a less complex sample and easier to extract; it is therefore unsurprising that although there are fewer samples, we have found more drug combinations. Another reason for this trend may be the ease of subjects using or having access to only one drug rather than many.

The numbers are important for knowing what drugs are most commonly being used. The results cannot be compared against each other however, because testing methods are different and allow for testing in some areas but not others. For example, the benzodiazepines extraction method for urine allows a wider range of compounds to be detected than the current extraction method for blood.

For the second year in a row, both blood and urine results demonstrated CNS-D's as the prominent drug category for single drug use whereas in the years preceding FY2011, carboxy -THC lead the way. As you will see, this is the opposite for juveniles where carboxy -THC is the most prevalently seen single drug used by far.

The category CNS-D's is comprised of many different drugs. For instance, barbiturates, benzodiazepines, muscle relaxers and many others all fall into the CNS-D category. Some of the most prevalent drugs seen in this category for single drug use appear to be: diphenhydramine and methorphan found in common over-the-counter cold (OTC) and seasickness medications, benzodiazepine class compounds such as alprazolam, lorazepam and temazepam to name a few and anti-depressant medications. The benzodiazepines which are prescription medications can be very impairing. Many of the DUI cases where there is a single drug found and little or no alcohol have had one of these benzodiazepines, particularly alprazolam. Carisoprodol, a muscle relaxer is commonly found as well, it is found most often in drug combination circumstances because it is usually prescribed with a narcotic analgesic; which is also considered an impairing prescription drug class.

Carboxy-THC seems to be found in urine and blood samples at about the same rate according to the chart, but keep in mind that we received more than 200 more blood samples than urine samples.

In the CNS-S category, amphetamine and methamphetamine are by far the most common. Some others include cocaine and other phenethylamines like MDMA (Ecstasy) and phentermine (commonly prescribed for weight loss). Amphetamines are not only prescribed as Adderall®, but are also an active metabolite of methamphetamine and can also be found in methamphetamine; it is impossible to determine exactly how the drug entered the body unless it is known that the subject has a prescription.

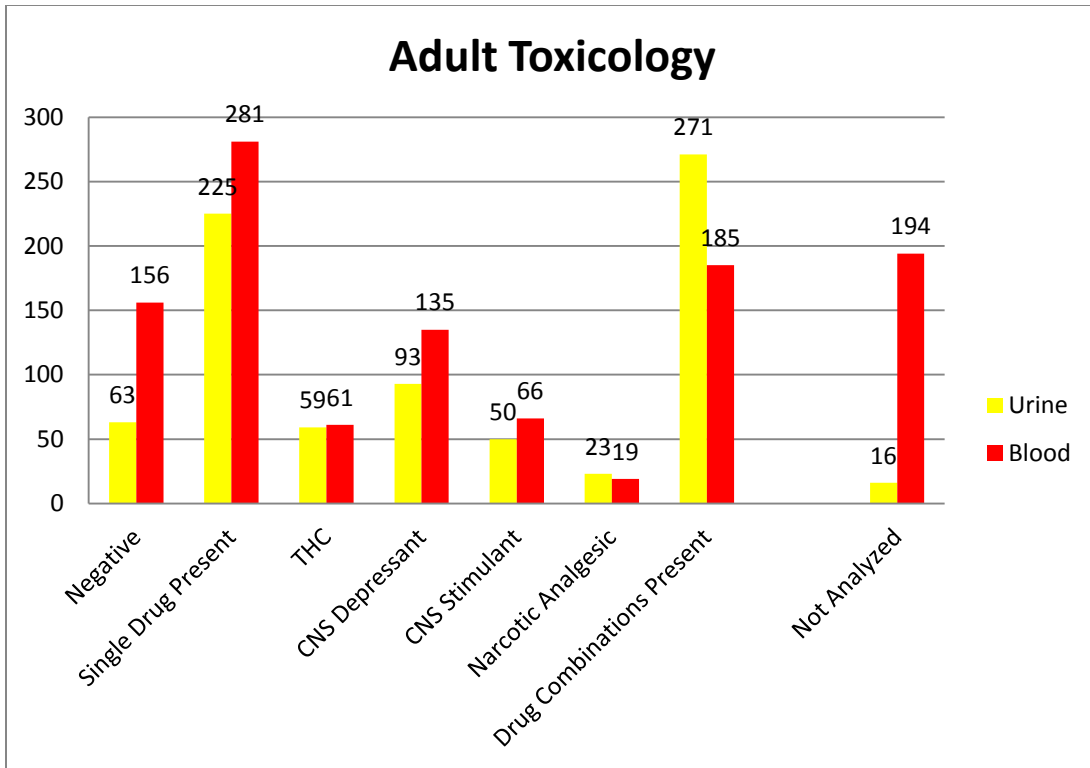


FIGURE 9

The pattern for adults when ingesting drug combinations has been CNS-D with a narcotic analgesic, in both the blood and urine categories, followed by carboxy-THC/CNS-S in urine and CNS-S/CNS-D in blood. The drugs in the anti-depressant class are common and add to the large number of depressants found; some of the depressants include citalopram, sertraline (Zoloft®), and venlafaxine. The most common narcotic analgesics found are hydrocodone, oxycodone and tramadol. Narcotic analgesics and benzodiazepine-class compounds, such as alprazolam, are widely abused and addicting. The final breakdown of the adult drug results is as follows: 1,392 samples submitted for adult toxicology, 219 total for blood and urine were negative. 16 urine samples were not analyzed. Urines might not be analyzed if there was an accompanying blood sample that was analyzed, or the BAC was 0.10g/100cc of blood or above. There also may have not been enough sample volume to do an analysis. In blood toxicology 194 samples were not analyzed; the majority of those would not have been analyzed for drugs because the BAC was 0.10g/100cc of blood or above. There may have been a few that the sample volume was too low or the sample was unsuitable for analysis.

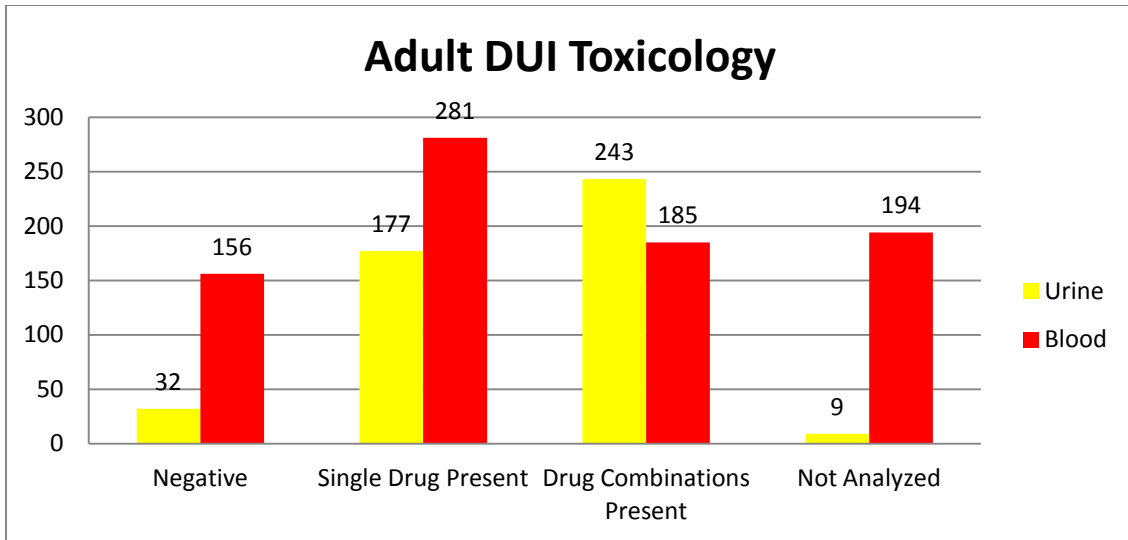


Figure 10

Figure 10 illustrates adult drug results for both blood and urine associated with DUI's followed the same pattern as all adult toxicology (as illustrated in **Figure 9**). This is expected since the majority of cases submitted for toxicology are DUI's. Drug combinations present were also in line with the overall adult toxicology results for all crime categories.

Both blood and urine toxicology cases increased this year; the most dramatic increase being blood toxicology, which increased by 163 cases. Urine cases submitted increased by 33 cases. This is probably just a result of more cases being submitted this year overall. We have been predicting large increases in blood toxicology cases since forced blood draws came into fruition.

There were 74 Adult Toxicology Accident Fatalities submitted for toxicology in FY2012 (one more than last year). Results of testing can be seen in **Figure 11**.

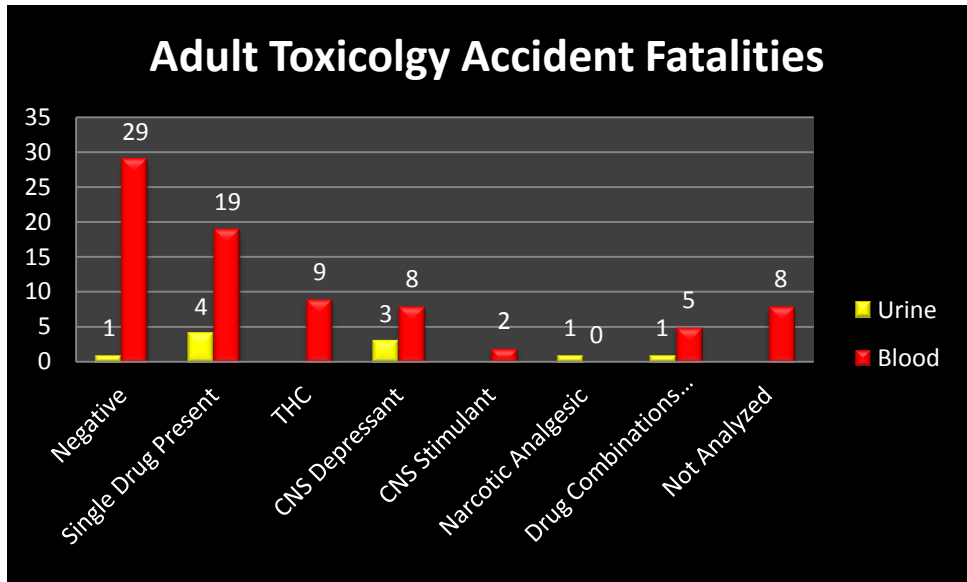


Figure 11

Both urine and blood toxicology had the most positives for carboxy-THC in fatality cases. CNS-D's were the next most prevalent. These included anti-depressants like citalopram, sertraline and fluoxetine; benzodiazepines like alprazolam and diazepam; narcotic analgesics such as hydrocodone and oxycodone. Blood toxicology also had 3 fatalities that included the CNS-S, methamphetamine.

Juvenile

Year after year we continue to see carboxy –THC in the majority of juvenile cases. Blood toxicology increased by 23 cases in this category to 96 samples submitted in FY2012. 77 were positive for a single drug that includes both urine and blood. 60 of those 77 were positive for carboxy-THC, which accounts for 77% of the cases. Again as a reminder, carboxy- THC is an inactive metabolite of MJ. Some of the most commonly seen drug combinations are carboxy-THC with a CNS-D and carboxy-THC with a CNS-S. 53 of the samples were positive for drug combinations, and 29 of those included carboxy-THC. Carboxy-THC was also used in combination with anti- depressants, benzodiazepines and pain killers (NA). Diphenhydramine and dextromethorphan contributed to the results as well. These are OTC medications used most often in cold remedies. These two drugs are commonly taken intentionally for the side effects; in other words, they are taken in higher than recommended doses (abuse), and this seems to be more common in juveniles than adults. **Figure 12** shows the distribution of results in the blood and urine toxicology categories.

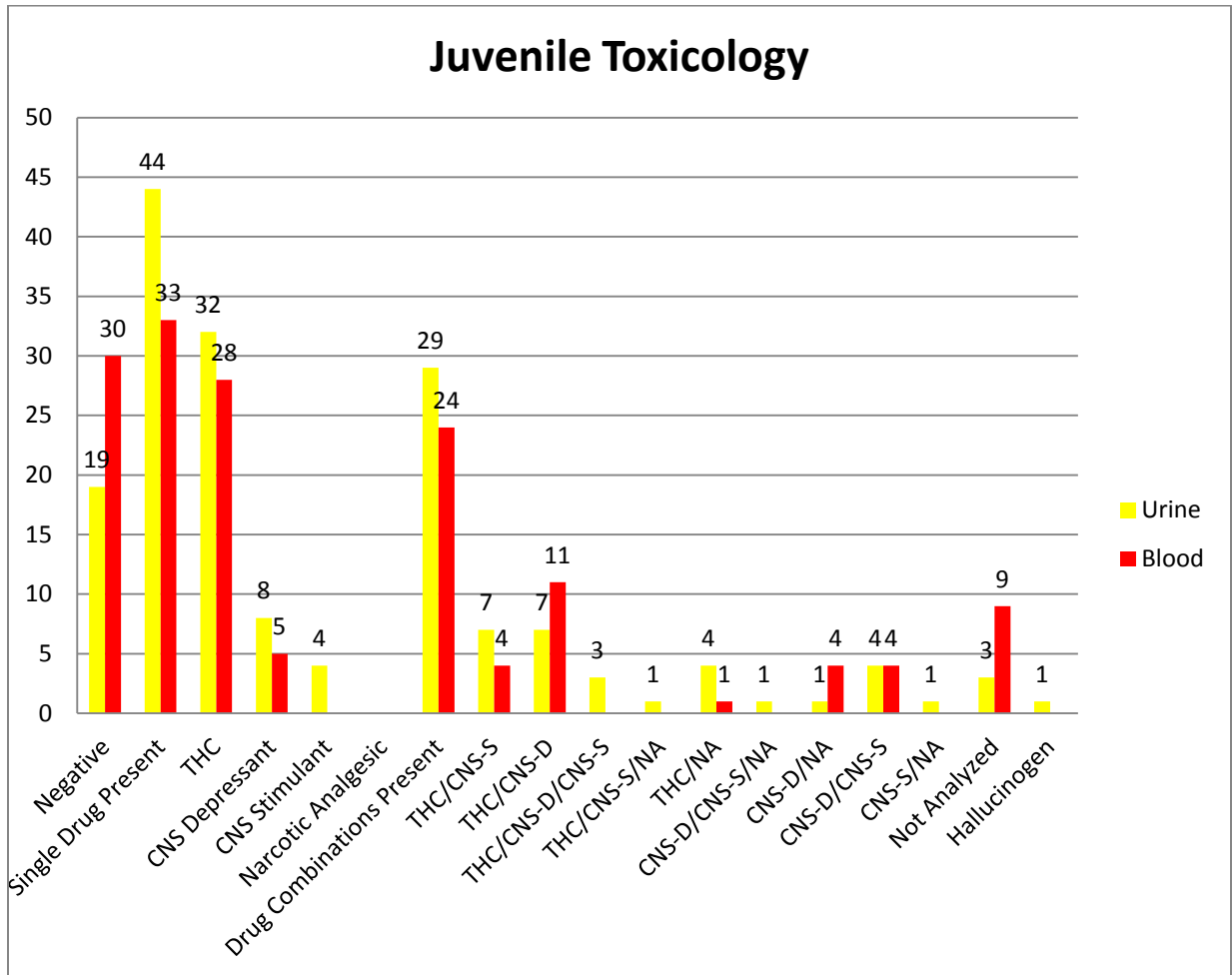


Figure 12

Methamphetamine is the stimulant drug seen in the THC/ CNS-S class. It has almost the same weight as the THC/CNS-D in the juvenile DUI drug category. If one considers this is the only drug that was found in the stimulants category versus numerous different prescription and OTC drugs that comprised the CNS-D category, it is obvious methamphetamine and carboxy-THC continue to lead the way in drug abuse for both adults and juveniles.

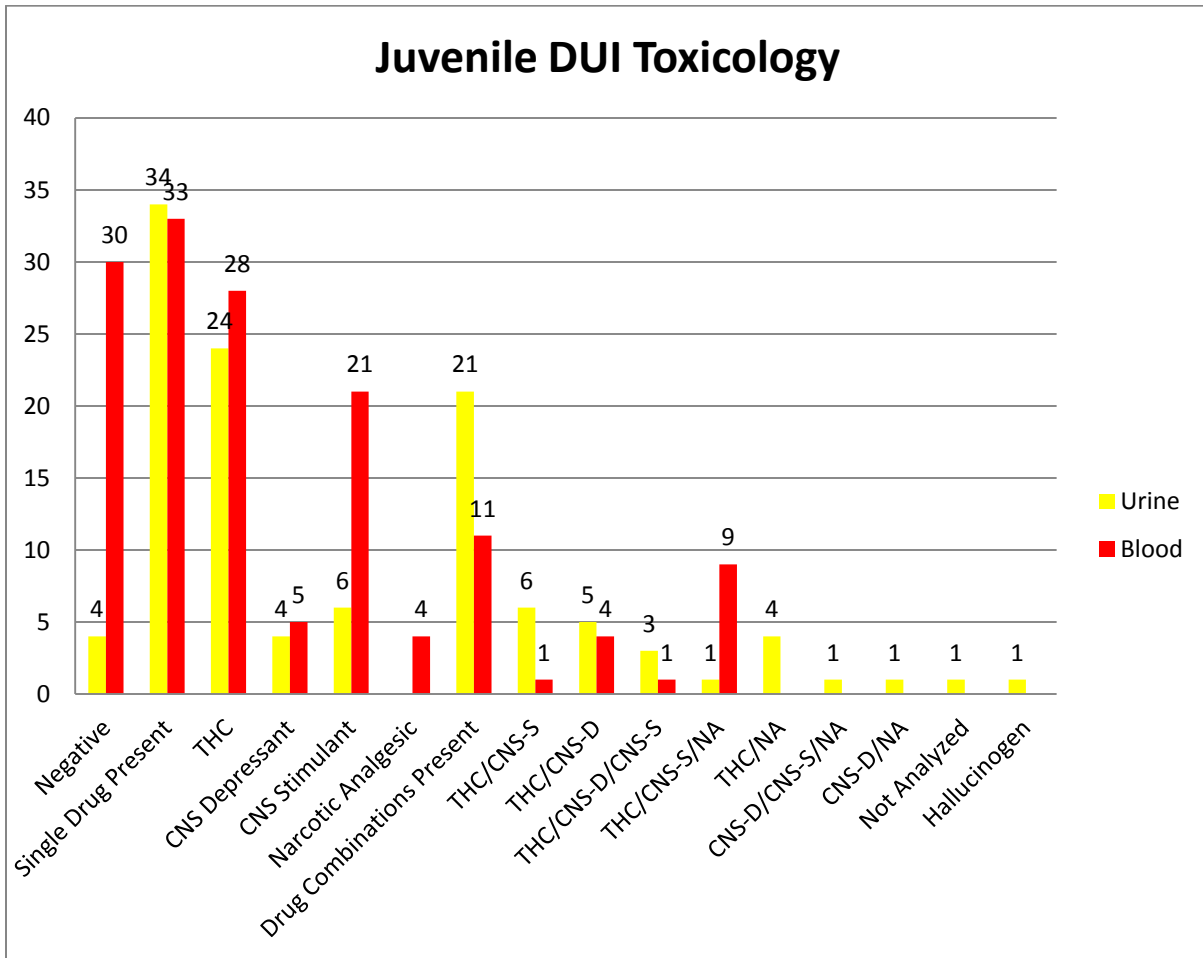


Figure 13

Juvenile DUI results, **Figure 13** are in line with the overall results, outlining the problems with carboxy – THC. CNS-S’s have a high percentage of positives as well, and in that category the result is primarily methamphetamine. Methamphetamine continues to be problematic in both adult and juvenile populations. 154 juvenile DUI toxicology samples were submitted this year compared to last year’s 76. Many were negative sample results (34). Aggressive law enforcement practices may be a contributing factor to the dramatic increase.

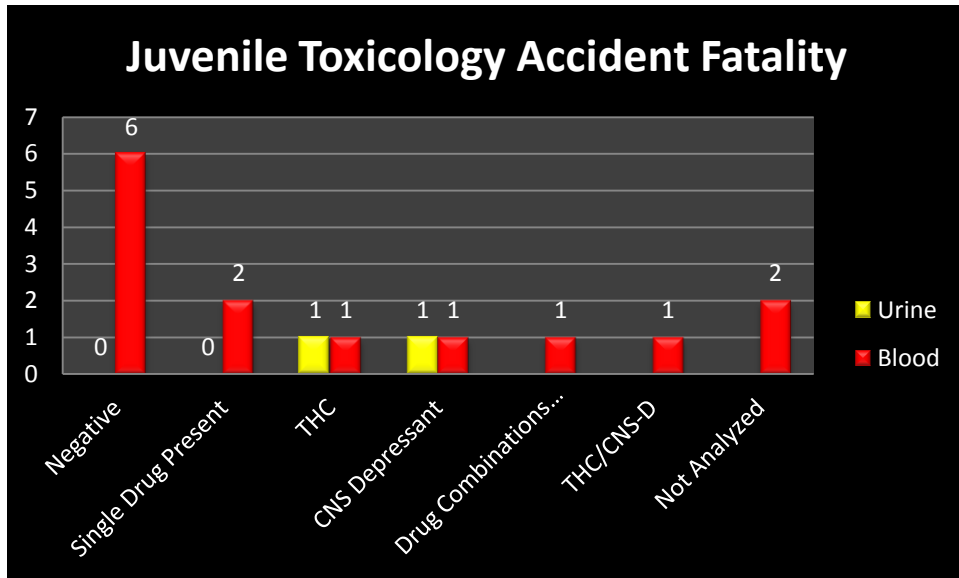


Figure 14

Juvenile accident fatalities numbered 12 in FY 2012, down from 18 in FY2011. Results were positive for 4 of the samples tested. 3 of those included carboxy-THC and 1 contained a CNS-D as a single drug. One of the carboxy-THC positives was in combination with a CNS-D as well.

There was a large increase in juvenile samples submitted this year overall. That includes all crime categories.

Summary

The laboratory system received 3,727 toxicology cases for FY 2012, which are 384 cases more than FY2011. ISPFS has seen a 70% increase in toxicology cases since 2002, 10% of which occurred in the last year. Contributors to the increase may include population growth, aggressive law enforcement practices, more highly trained DRE officers, and other unknown factors. The trend has been large increases in cases submitted for blood alcohol analysis. Urine samples submitted are fewer than last year, as expected.

Greater testing capabilities in blood toxicology will decrease the need for analyzing urine samples, and the toxicology section of ISPFS will be moving toward testing only blood for DUI cases whenever possible.

Turnaround times continue to be an issue for prosecutors and the judicial system. Analysis time for toxicology is long. Training time for new analysts is also long and expensive, and without new analysts or financial resources, backlogs will continue to be problematic.

Samples submitted for blood alcohol analysis have increased in number over the years. This year we also saw a large increase in adult DUI BAC cases, whereas, juvenile DUI cases decreased a small amount.

Juvenile cases did not decrease in the Blood and Urine toxicology cases, however. 154 cases submitted in FY2012 compared to 76 last year.

Year after year, juvenile results increase in prevalence for carboxy-THC. This was true over all the categories discussed: blood and urine toxicology overall crime categories, DUI drug cases and auto accident fatalities.

Adult toxicology results across the board (DUI'S, fatalities, other offenses and so forth) remained consistent from last year. The highest percentage of urine positive results in the single drug category was Central Nervous System Depressants (CNS-D), followed by carboxy-THC (marijuana metabolite). The CNS- Depressant category covers a wide range of drugs and drug classes so the result is expected. The significant drugs in this category that were found were alprazolam, other benzodiazepines, and anti-depressants. Methamphetamine was the most prominent CNS-S found, the result may not be as high with CNS-S as with depressants, but CNS-D covers a wide range of prescription drugs, whereas CNS-S covers a much smaller range. Methamphetamines are overwhelmingly the most commonly found CNS-S. Next to carboxy-THC, it is the next most commonly found drug and continues to be a large problem in our society. Marijuana and methamphetamine continue to appear in all toxicology categories, and perhaps educating our State's teens more aggressively can help reduce these numbers.

We had projected that blood alcohol and toxicology cases would increase in FY2012 more dramatically than in years past. Law enforcement efforts are thought to factor largely into this; another factor may be population. According to *the Crime in Idaho Report for 2011* (<http://www.isp.idaho.gov>) the adjusted population base of 1,583,018 in 2011 was increased from 1,554,255 in 2010. We attribute increases in blood samples and decreases in urine samples to State vs. Diaz and State vs. DeWitt Court of Appeals rulings that have upheld "forcible blood draws".

For FY2013, it is essential that ISPFS personnel get the training, methods and instruments needed to be able to extract synthetic cannabinoids "Spice" and their metabolites from toxicology samples. These drugs have widely impacted our controlled substances section and will do so for the toxicology sections as well. We have constant requests for analysis of synthetic cannabinoids in toxicology samples. We are working hard to reduce backlogs, but see a need for more analysts, more instruments and updated instruments to keep up with the demands of the population growth and law enforcement activities.

APPENDIX

Non Random Juvenile Drug Testing (NJDT) Please see Idaho Statues Title 33. Education, Chapter 2.

Drug Evaluation and Classification (Information below was provided by the NHTSA *Drug Evaluation and Classification Training Manual, January 2006 edition.*) Changes have been made to help the understanding of the reader, such as Benzodiazepines have been added to anti-anxiety column in the chart and Methamphetamine has been added to list of stimulants.

Central Nervous System Depressants

Central Nervous System (CNS) Depressants slow down the operation of the brain. They first affect those areas of the brain that control a person's conscious, voluntary actions. As dosage

increases, depressants begin to affect the parts of the brain controlling the body's automatic, unconscious processes, such as heartbeat and respiration.

Possible Effects of CNS Depressants:

- ✓ Reduced social inhibitions
- ✓ Divided attention impairment
- ✓ Slowed reflexes
- ✓ Impaired judgment and concentration
- ✓ Impaired vision and coordination
- ✓ Slurred, mumbled or incoherent speech
- ✓ A wide variety of emotional effects, such as euphoria, depression, suicidal tendencies, laughing or crying for no apparent reason, etc.

Alcohol is the model for the CNS Depressant category of drugs.

Some major subcategories of CNS Depressants other than alcohol include:

- Barbiturates
- Non-Barbiturates (synthetic compounds with a variety of chemical structures)
- Anti-Anxiety Tranquilizers
- Anti-Depressants (to combat psychological depression)
- Anti-Psychotic Tranquilizers
- Combinations of the above five subcategories

Examples of CNS Depressants

Barbiturates	Other	Anti-Anxiety Tranquilizers Benzodiazepines	Anti- Depressants	Anti-Psychotic Tranquilizers	Combinations
Amobarbital	Carisoprodol Meprobamate-M	Alprazolam	Amitriptyline Hydrochloride	Chlorpromazine	Chlordiazepoxide and Amitriptyline
Pentobarbital	Chloral Hydrate	Chlordiazepoxide	Bupropion	Droperidol	Chlordiazepoxide Hydrochloride and Clidinium Bromide
Phenobarbital	Diphenhydramine Hydrochloride	Clonazepam	Citalopram	Lithium Carbonate	Perphenazine And

					Amitriptyline
			Desipramine Hydrochloride	Lithium Citrate	
Secobarbital	Diphenylhydantoin Sodium	Diazepam	Doxepin Hydrochloride	Haloperidol	
			Escitalopram		
Barbital	Ethchlorvynol	Estazolam			
	Gamma-Hydroxybutyrate (GHB)	Flunitrazepam	Fluoxetine		
		Flurazepam	Impramine		
	Glutethimide	Lorazepam	Paroxetine		
	Methaqualone	Meprobamate	Phenelzine Sulfate		
	Paraldehyde	Oxazepam	Sertaline		
	Zolpidem	Temazepam	Venlafaxine		
		Triazolam			

Central Nervous System Stimulants

Central Nervous System (CNS) Stimulants speed up the operation of the brain and spinal cord. It is important to emphasize that “speed up” does *not* mean “improve” or “enhance”. The CNS Stimulants definitely do not make the brain work better. Rather, they cause the brain and the rest of the nervous system to work *harder*, and often to make more mistakes.

The “speeding up” caused by CNS Stimulants results in significantly increased heartbeat, respiration and blood pressure, all of which can lead to physical harm to the abuser. In addition, the stimulant user experiences nervousness, irritability and an inability to concentrate or think clearly.

Possible Effects of CNS Stimulants

- ✓ Euphoria
- ✓ Anesthetic effect

- ✓ Hyperactive
- ✓ Impaired ability to perceive time and distance
- ✓ Confusion and loss of the ability to concentrate or to think clearly for any length of time

Some major subcategories of CNS Stimulants

- Cocaine
- Amphetamines
- Methamphetamines
- Others such as phentermine, methylphenidate etc...

Hallucinogens

Hallucinogens are drugs or substances that affect a person's perception, sensation thinking, self awareness and emotions. They may also cause hallucinations. A hallucination is a sensory experience of something that does not exist outside the mind. It may involve hearing, seeing, smelling, tasting or feeling something that isn't really there. Or, it may involve distorted sensory perceptions so that things look, sound, smell, taste or feel differently from the way they actually are.

Possible Effects of Hallucinogens

- ✓ Hallucination
- ✓ Perception of reality severely distorted
- ✓ Delusions
- ✓ Illusions

Examples of Hallucinogens

Naturally occurring Hallucinogens

- Peyote
- Psilocybin

Synthetically manufactured Hallucinogens

- LSD
- MDA, MDMA, MMDA, TMA, STP, DET, DMT

Narcotic Analgesics (In the annual toxicology report Narcotic Analgesics are counted as Central Nervous Systems Depressants)

There are two subcategories of Narcotic Analgesics. The first subcategory consists of the Opiates. The second subcategory is the Synthetics.

Possible Effects of Narcotic Analgesics

- ✓ “on the nod” (A semiconscious state of deep relaxation, eyelids will be droopy and the head will slump.)
- ✓ Slowed reflexes
- ✓ Slow and raspy speech
- ✓ Slow, deliberate movement
- ✓ Inability to concentrate
- ✓ Slow breathing
- ✓ Skin cool to touch
- ✓ Possible vomiting
- ✓ Itching of the face, arms, or body

Commonly-Abused Opiates and Their Derivation From Opium

- Morphine
- Codeine
- Heroin
- Dilaudid
- Hydrocodone
- Numorphan
- Oxycodone

Common Synthetic Opiates

- Demerol
- Methadone
- Fentanyls
- MPPP
- Darvon