



# Idaho State Police

Service since 1939



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TO: Ralph Powell, Major

FROM: Shannon Larson, Acting Lab Manager  
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DATE: August 13, 2007

SUBJECT: Toxicology Program Trends

### Overview

Total number of cases submitted for all three laboratories the past fiscal year was 7,581. A total of 2,154 of the cases were toxicology (consisting of blood toxicology, urine toxicology, or blood alcohol), or approximately 28% of the total cases received in all three laboratories. Broken down further, 39% of those were urine toxicology, 14% blood toxicology, and 47% blood alcohol. Submissions consist of blood, urine, or vitreous humor that are analyzed qualitatively and/or quantitatively on site. For the purposes of this report, blood alcohol results have been broken down into three categories: negative, less than .08 and .08 and above. Urine and blood toxicology have been broken down into three categories as well: negative, single drugs present, and drug combinations present. Please note a negative result only reflects the testing done in one category, the sample may have been positive elsewhere.

	Blood Toxicology	Blood Alcohol	Urine Toxicology	Total	Percent
DRE					
Adult	1	3	119	123	5.7%
Juvenile	3	1	9	13	0.6%
NJDT	0	0	11	11	0.5%
DUI					
Adult	183	687	362	1232	57%
Juvenile	9	82	18	109	5%
Probation & Parole					
Adult	2	4	47	53	2.5%
Juvenile	0	0	42	42	2%
Other Criminal	57	82	176	315	15%
Accident Victims	17	74	10	101	4.7%
Death (non-homicide)	36	82	37	155	7%
<b>Total:</b>	<b>308</b>	<b>1015</b>	<b>831</b>	<b>2154</b>	<b>100%</b>

Table 1: Breakdown of Toxicology and Alcohol Samples, FY 2007

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Toxicology submissions overall continue to increase this year, continuing a trend begun in 2002. In fact, two out of the three categories (those for blood alcohol and blood toxicology) increased. Despite the decrease in urine toxicology submissions, the increase shown in blood toxicology and blood alcohol was significant enough to continue the upward trend for toxicology in general. Reference Figure 1 for the trend in toxicology submissions.

Samples from the DUI adult category made up the majority of cases submitted for urine toxicology cases, and was one of only two categories within the urine submissions that did show an increase (the other being NJDTs) all other categories showed a decrease. The majority of results obtained from the urine submissions are those with a single drug present, also maintaining a trend established in previous years.

The category with the largest increase over FY 2007 for blood toxicology was also the DUI adult result, followed by other criminal cases (defined as child endangerment, rape, homicide, etc). The category for non-homicide death investigations also increased this year, while DRE held fairly steady. Negative results for blood toxicology decreased this year, but was still the result obtained most, with single drugs present second, and multiple drugs third.

Blood alcohol submissions increased as well this year, with more cases turned in than fiscal year of 2006. Once again, Adult DUI is the category comprising the largest portion of the samples; the category representing 69% of the total blood alcohol submitted this year. The category showing the highest percent increase of cases submitted from the previous year was non-homicide death investigations, with the number of cases nearly doubling.

### **NJDT Samples**

Eleven NJDT samples were received during the 2007 fiscal year, an increase of three cases over last year. As was the case last year, none of the submissions arose directly from school districts. The submitting agencies for NJDT samples were Twin Falls Police Department (1), Bear Lake County Probation (5), Ada County Sheriff's Office (4) and Boise Police Department (1). The subjects ranged in age from fourteen to seventeen years old, with the average age being fifteen.

Figure 2 shows the results obtained for NJDT samples. Fifty-five percent above samples had no drugs detected; forty-five percent showed only a single drug present, and again this year there were no samples that showed drug combinations. Of the samples with single drugs detected, four contained marijuana, and one contained a narcotic analgesic. The toxicology program discipline leader will be making contacts at meetings held this coming fiscal year, and it is anticipated NJDT sample submissions will rise as a result.

## **DRE Samples**

DRE samples held fairly steady this year, with only a slight drop (usually by only one or two cases) in blood toxicology, urine toxicology and blood alcohol. Adult DRE samples held the majority of cases submitted for blood alcohol and urine toxicology, but not in blood toxicology. Negative results are less frequent this year for blood toxicology and urine toxicology, which is to be expected as DRE officers continue with training designed to look for specific behaviors brought on by drug abuse.

All blood alcohol results were negative in this category, but results for blood toxicology showed CNS-Depressant as the highest single drug result detected (at 75% of the total samples). No negative samples were detected, and CNS-Depressant, CNS-Stimulant, and narcotic analgesic was the only drug combination found. See Figure 3.

Figure 4 shows the single drug category as the most prevalent result in urine, continuing the upward trend began in 2005. The most common single drug found was Carboxy-THC, echoing the trend established in previous years, followed by CNS-Stimulant, CNS-Depressant, and narcotic analgesic. These categories have retained their rankings established in years past as well, showing no marked change in sample results.

## **Juvenile Samples**

Juvenile urine samples were down this year, with a total of ninety-five cases submitted compared to 203 last year. Juvenile DRE samples, juvenile probation and parole, and juvenile DUI samples all show a decrease this year, with probation and parole the most decreased. As seen in Figure 5, the majority of samples (66%) were found with a single drug present. The most common of which was Carboxy-THC, followed by those with CNS-Stimulant and narcotic analgesic, and lastly with a CNS-Depressant. The next most common sample result was negative, followed by those with drug combinations present. Interestingly, those with drug combinations all contained marijuana as well. There were two samples submitted this year with requests to check for compounds used to facilitate sexual assault, no drugs were detected for either of these samples.

Fourteen blood toxicology samples were submitted for juveniles, 43% of which were negative (see Figure 6). For this sample set, Carboxy-THC was only found in drug combinations (in conjunction with CNS-Depressant and narcotic analgesic). The only other drug combination found contained CNS-Depressant, CNS-Stimulant, and narcotic analgesic. Those with a single drug present contained a CNS-Depressant and or a CNS-Stimulant.

Juvenile blood alcohol submissions increased by thirty cases this year, giving a total of 119 cases for the current fiscal year. Each result category shows an increase in cases submitted, with the .08 category comprising a larger percentage of the total cases submitted this year than before (see Figure 7). Those with no alcohol detected comprise 29% of the total cases submitted, and that of less than .08 making up 15%.

## **Adult Samples**

Urine samples submitted for adults showed single drugs as the highest result category, followed by drug combinations, and negative results, see Figure 8. Echoing the trend found with juvenile urine sample, Carboxy-THC was again the highest single drug present, and the highest drug used in combination with another. There were thirteen samples submitted this year with requests to search for impairing compounds used to facilitate sexual assault, nine of which had no drugs detected. One sample contained Carboxy-THC and citalopram, another only Carboxy-THC, a third only hydrocodone, and the fourth amphetamine and methamphetamine.

Blood toxicology showed the reverse when it came to drug combinations, with those containing Carboxy-THC combined with another drug occurring less than those without Carboxy-THC combined in it. The category for single drugs detected was the highest result obtained for this sample set, with negative coming in second, reference Figure 9. The most common single drug found was Carboxy-THC.

Like the juvenile blood alcohol, adult blood alcohol samples have also showed an increase this year. A total of 893 cases were submitted, up 58 cases from last year. The two categories that reflect this increase are those with less than .08 and those with .08 and above. Samples with .08 and above comprise the highest percentage of the total adult blood alcohol samples submitted, at 66%, as shown in Figure 10.

## **Accident Victim Samples**

Urine samples with negative results comprised the majority of the adult samples submitted for accident victims, see Figure 11. The category of single drug present comprises the rest of the sample set. CNS-Stimulants being the single drug found most often. Juvenile urine samples also showed negative to be the most often reported result; in fact, the only results found for that sample set.

Blood toxicology had results similar to those found in urine samples, see Figure 12. The negative category being the highest result in adults at 64%, followed by CNS-stimulants at 27%, and juveniles seeing only negative results.

Of the total number of blood alcohol cases submitted, only 79 were from auto accident fatalities compared to 97 from the last fiscal year. Seventy of those were samples taken from adult subjects, and nine from juveniles. The juvenile samples, while up just slightly from last year, is still less than previous years (2003, 2004 and 2005), and still reflects a decreasing trend in this sample set. See Figure 13 for the category reflecting the largest percentage of the blood samples for auto accident juveniles, .08 and above, at 67%.

The majority of the samples taken from adult subjects, see Figure 14, show 55% have no alcohol detected. This is also the category that has decreased the most from last year, when it comprised 65% of the total samples submitted. The category containing results of .08 and above increased by only one case, and those with less than .08 decreased by half.

## Summary

Overall, the number of toxicology cases continues to climb with each year. This can only be expected to continue as the population of Idaho also continues to increase. According to the 2006 Crime In Idaho Report, there were a total of 11,090 adult DUI arrests statewide, and 291 juvenile arrests. This represents ~0.7% of the population of Idaho, and is an increase from the 2005 Crime in Idaho (which listed 8,864 adult arrests, and 210 juvenile arrests). Again, as the arrests increase, we can expect to see our workload increase as well.

In all but the accident victim sample set, Carboxy-THC was the most common drug found in urine toxicology submissions. Carboxy-THC was also the most common drug found in combination with other drugs, leading to the conclusion that marijuana use is on the rise in both the adult and juvenile populations. The majority of juvenile, adult, and accident victim blood alcohol samples show as being at or above the legal limit, also a rising trend.

Figure 1: Trend in Toxicology Cases

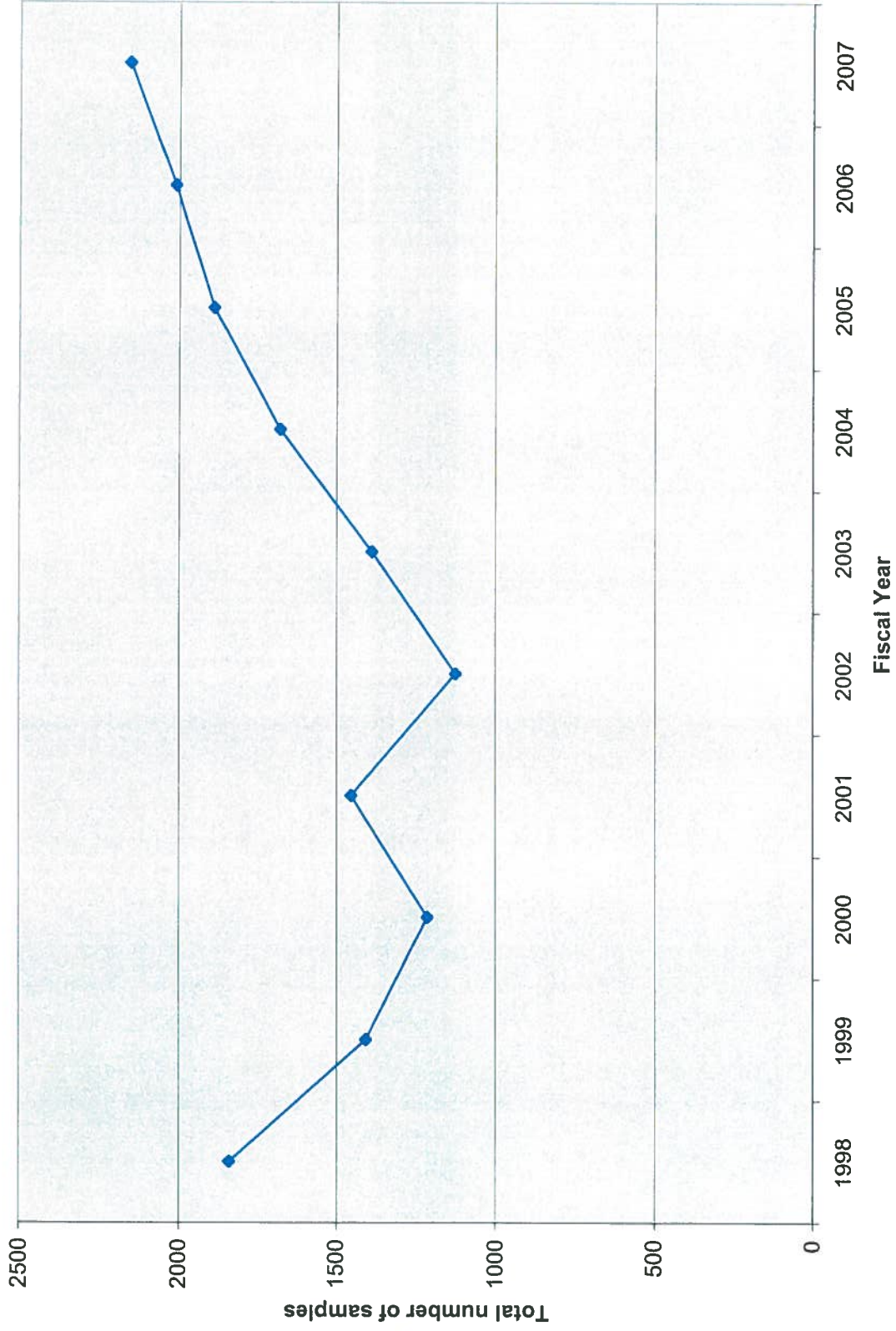


Figure 2: Urine Toxicology NJDT Results, FY 2007

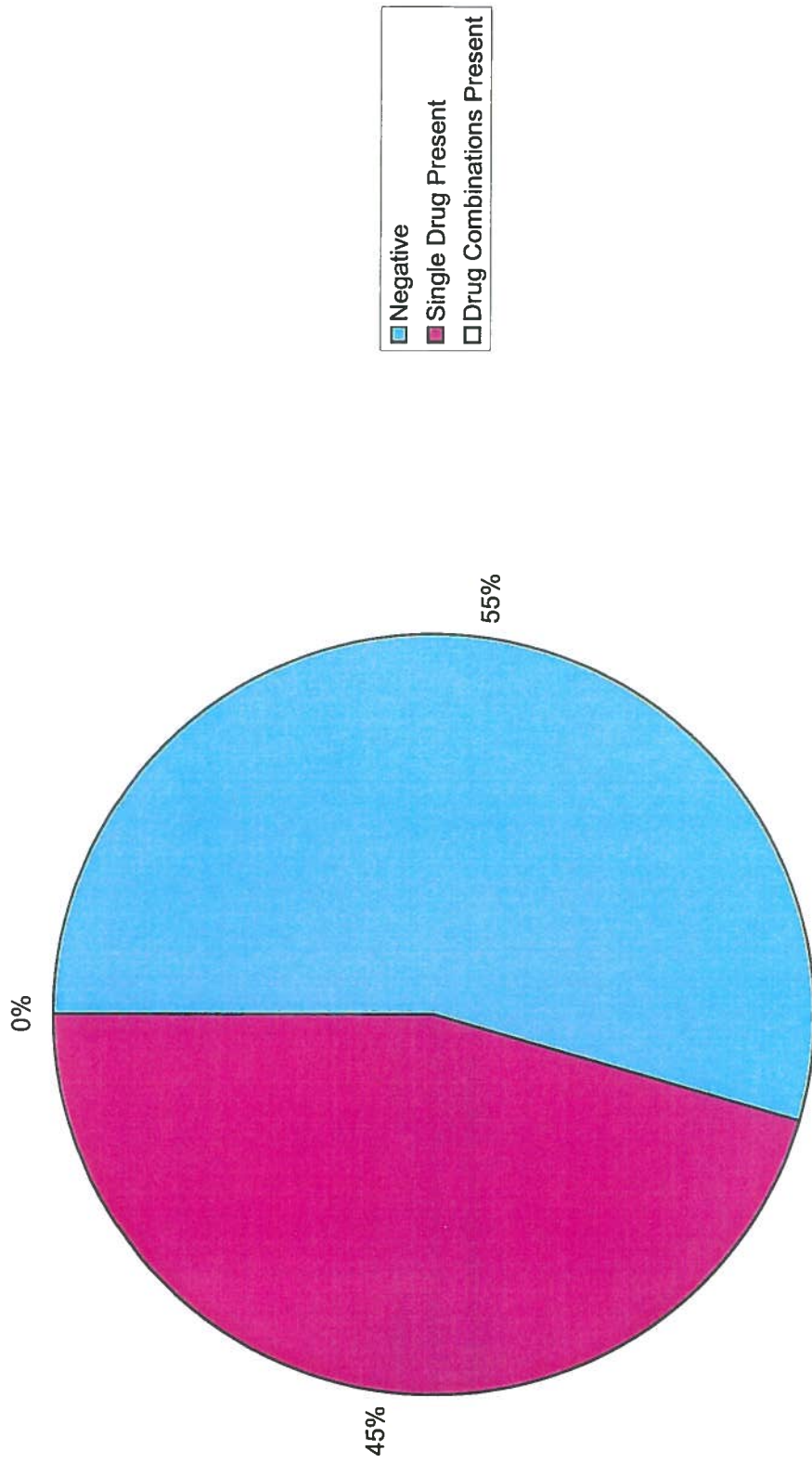


Figure 3: Blood Toxicology DRE Results, FY 2007

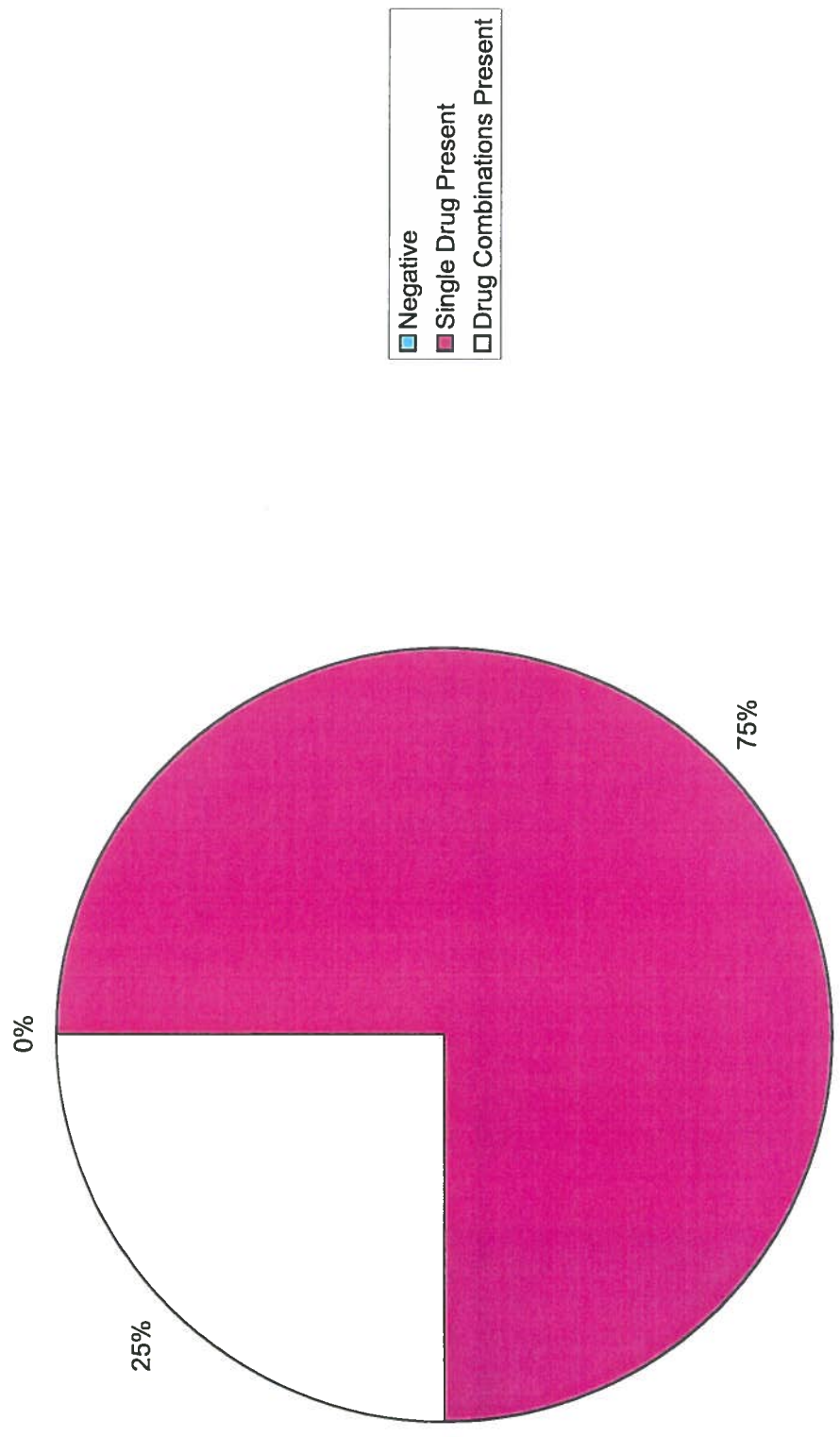




Figure 4: Urine Toxicology DRE Results, FY 2007

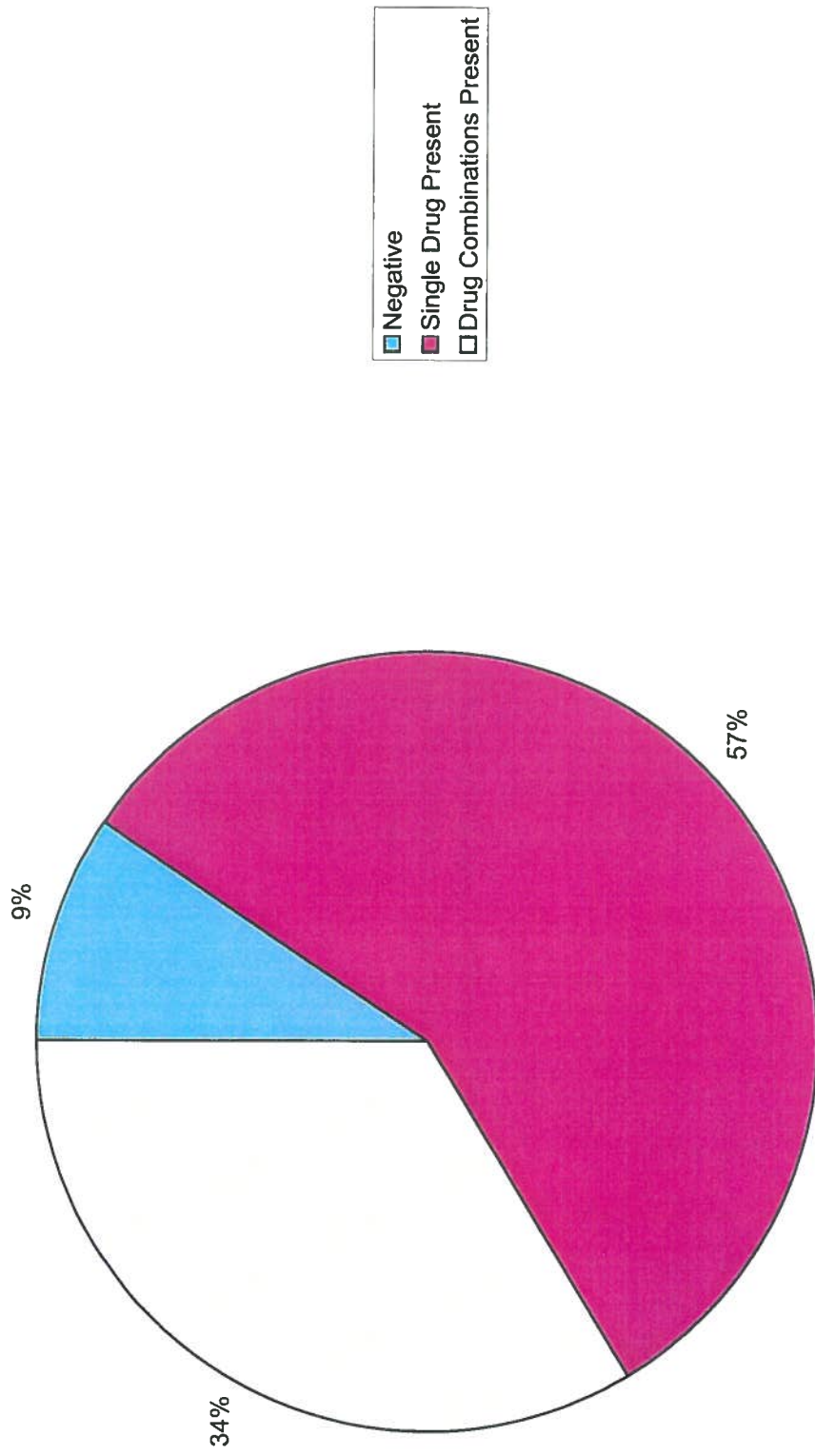


Figure 5: Juvenile Urine Results, FY 2007

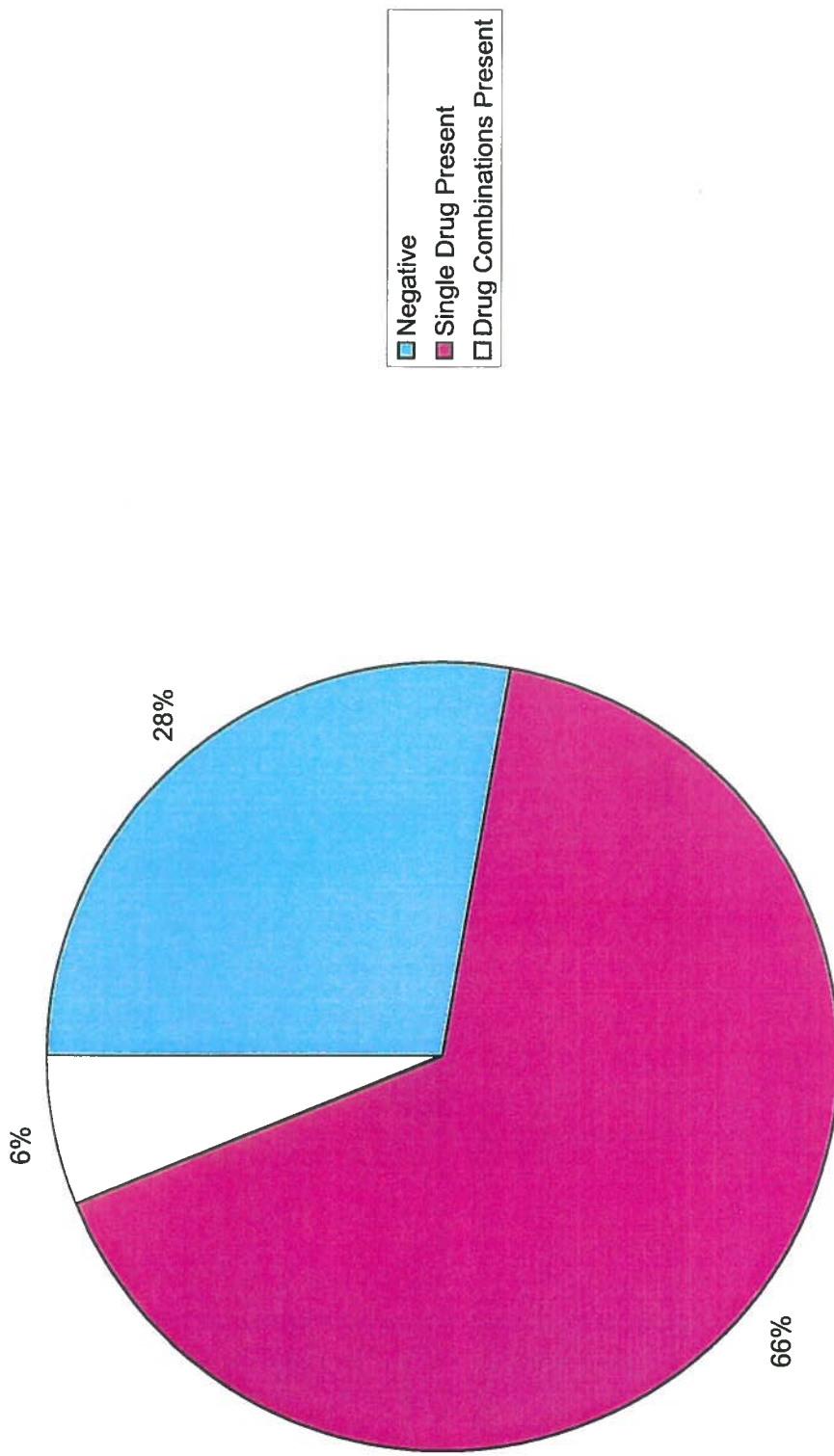


Figure 6: Juvenile Blood Toxicology Results, FY 2007

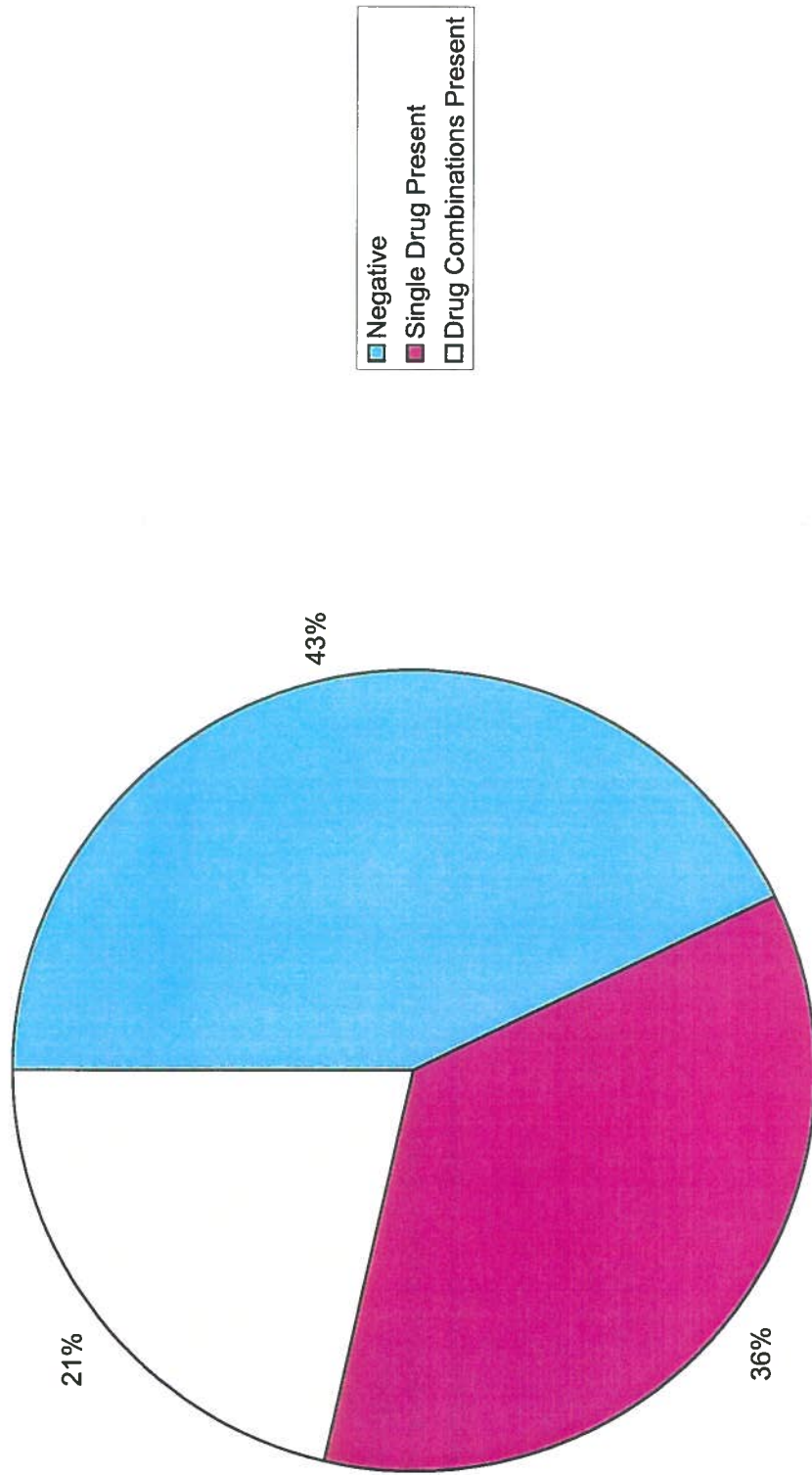


Figure 7: Juvenile Blood Alcohol Results, FY 2007

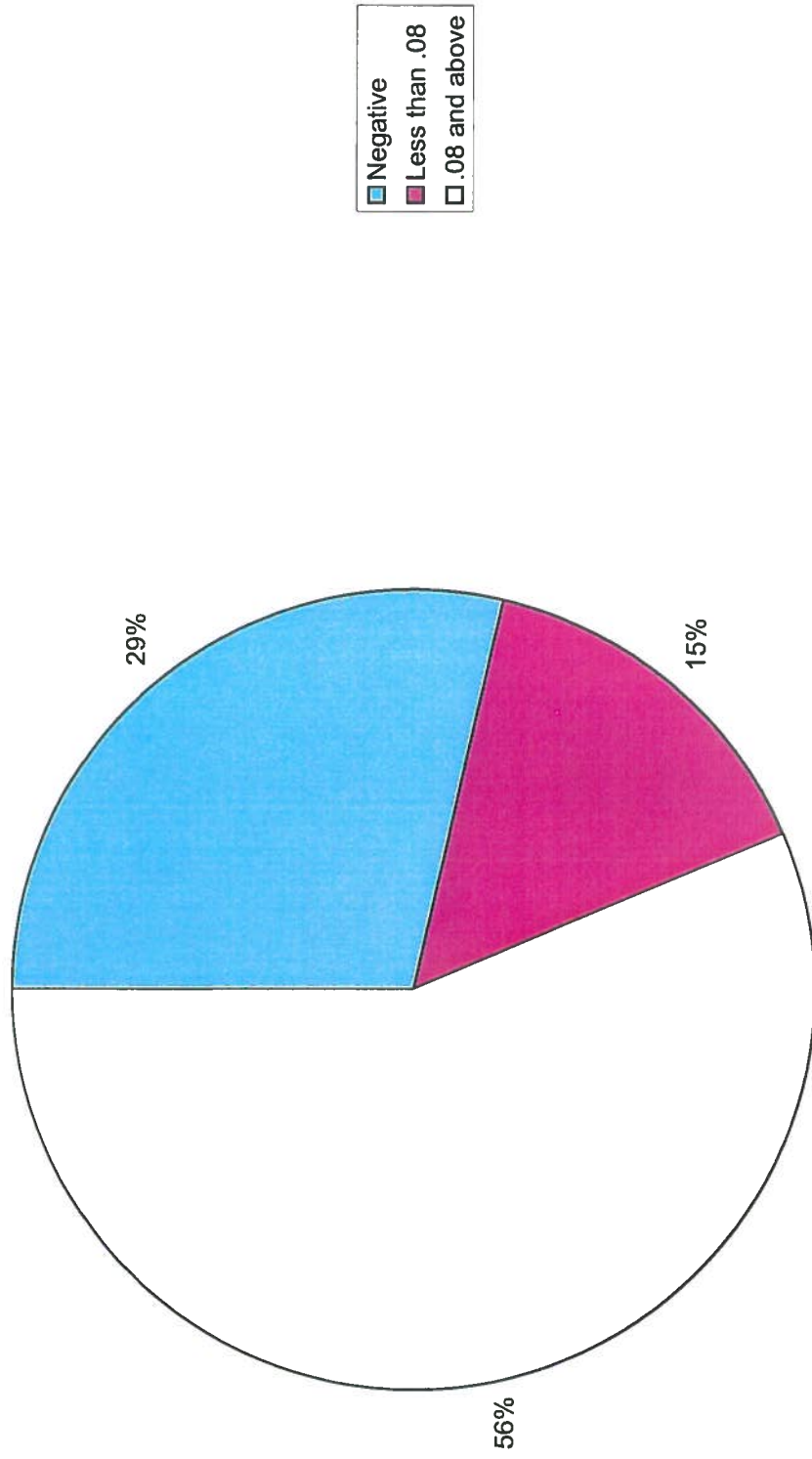


Figure 8: Adult Urine Toxicology Results, FY 2007

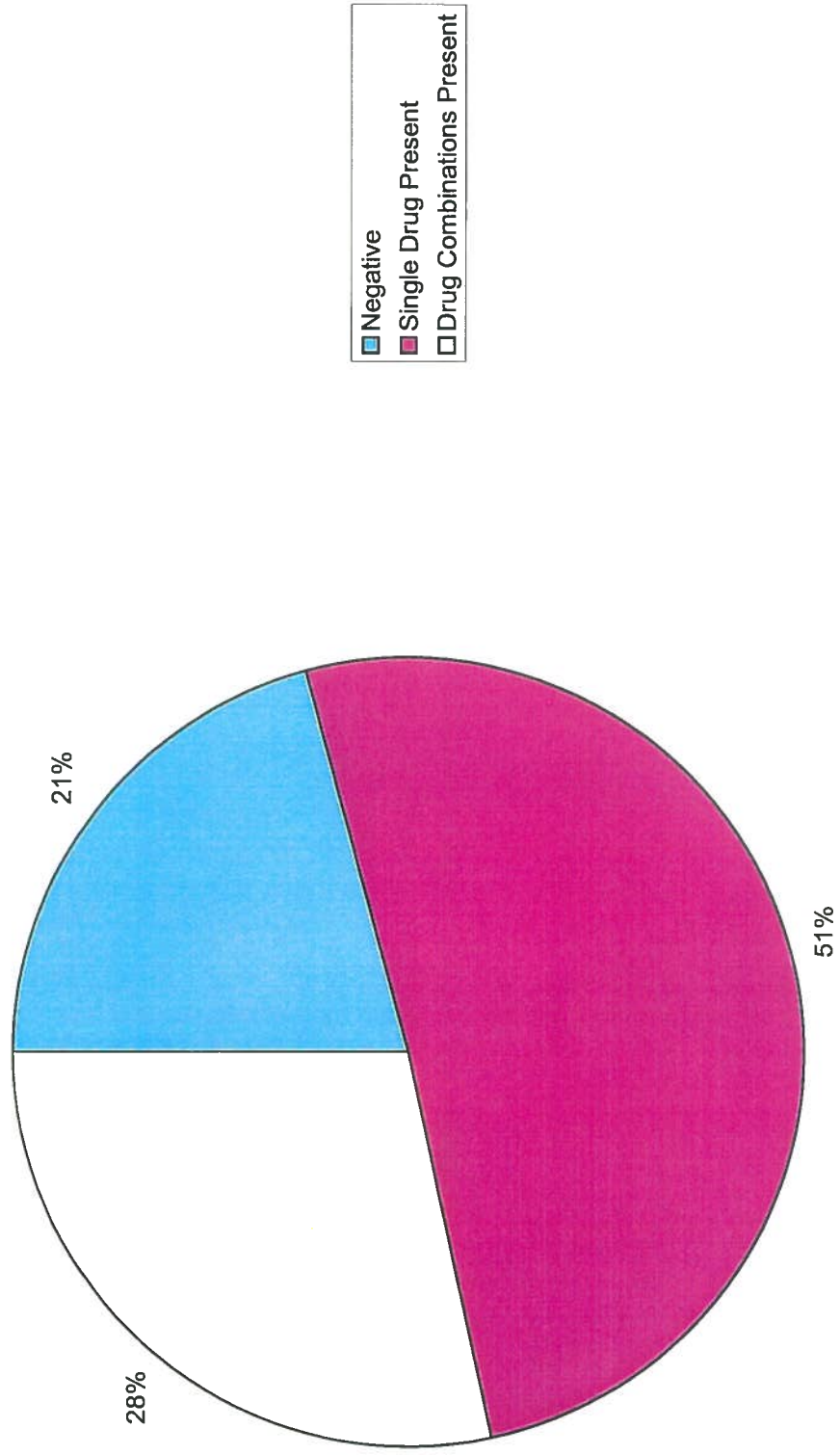


Figure 9: Adult Blood Toxicology Results, FY 2007

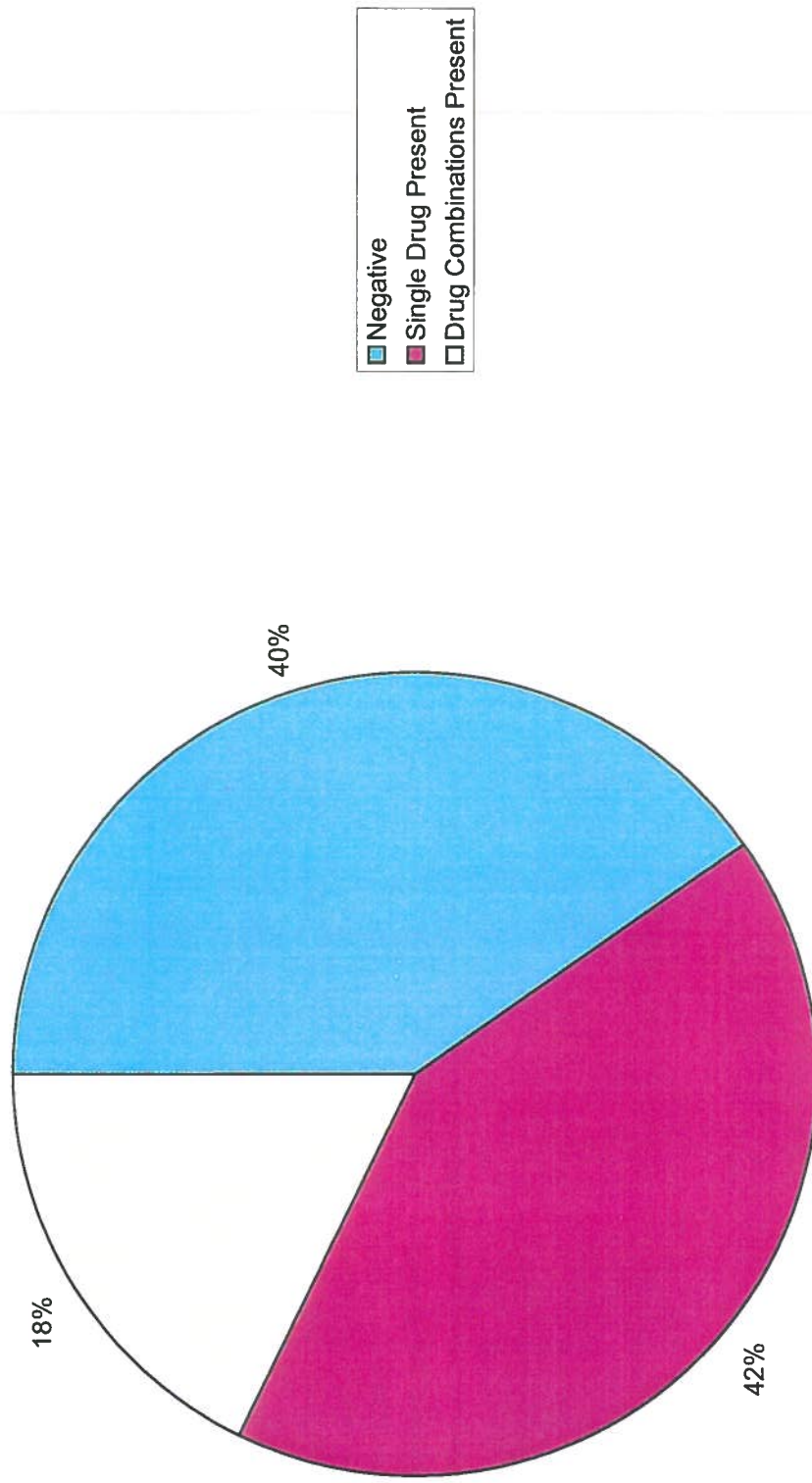


Figure 10: Adult Blood Alcohol Results, FY 2007

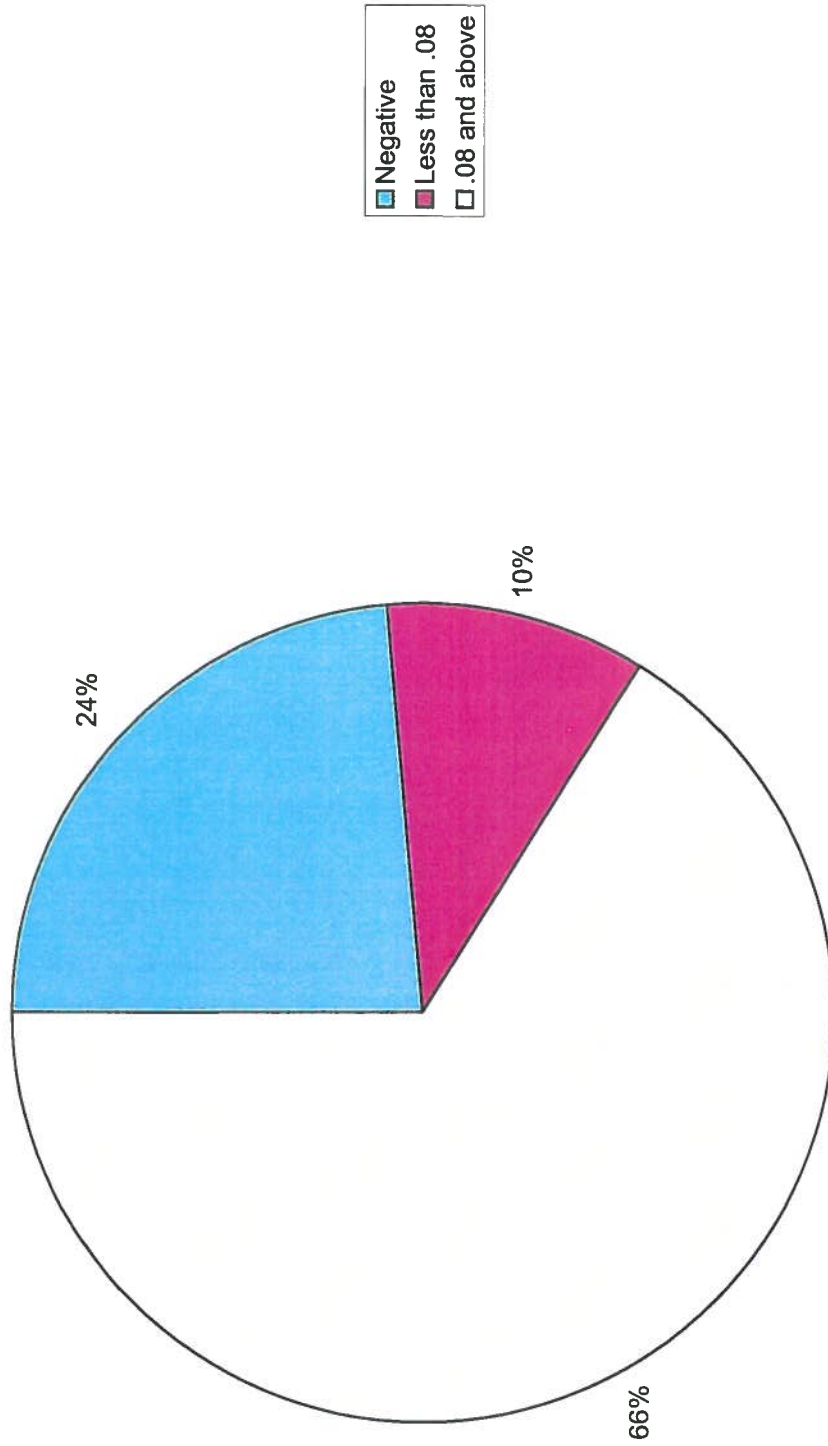
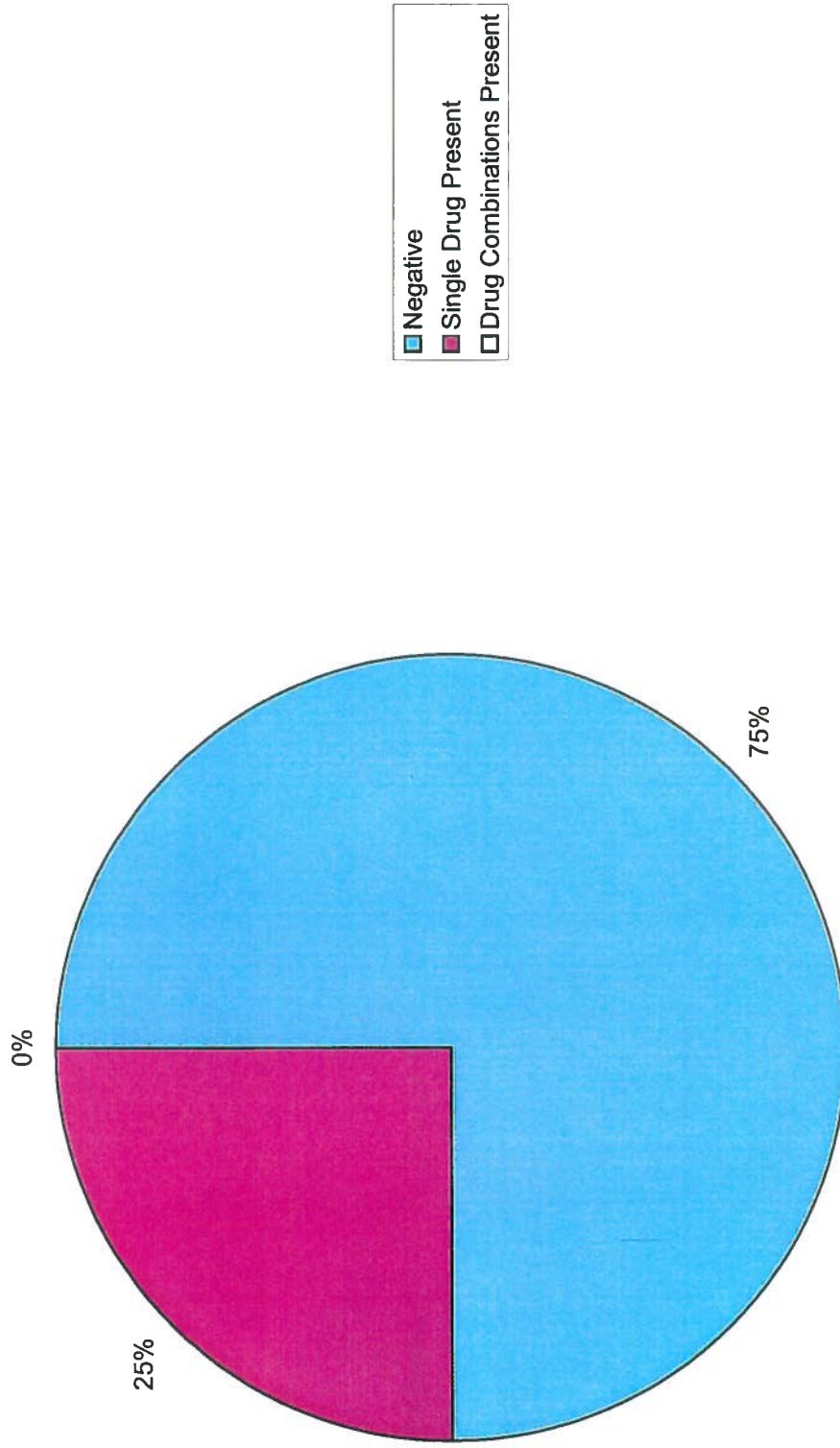


Figure 11: Adult Urine Auto Accident Fatality Results, FY 2007





**Figure 13: Juvenile Blood Alcohol Auto Accident Fatality, FY 2007**

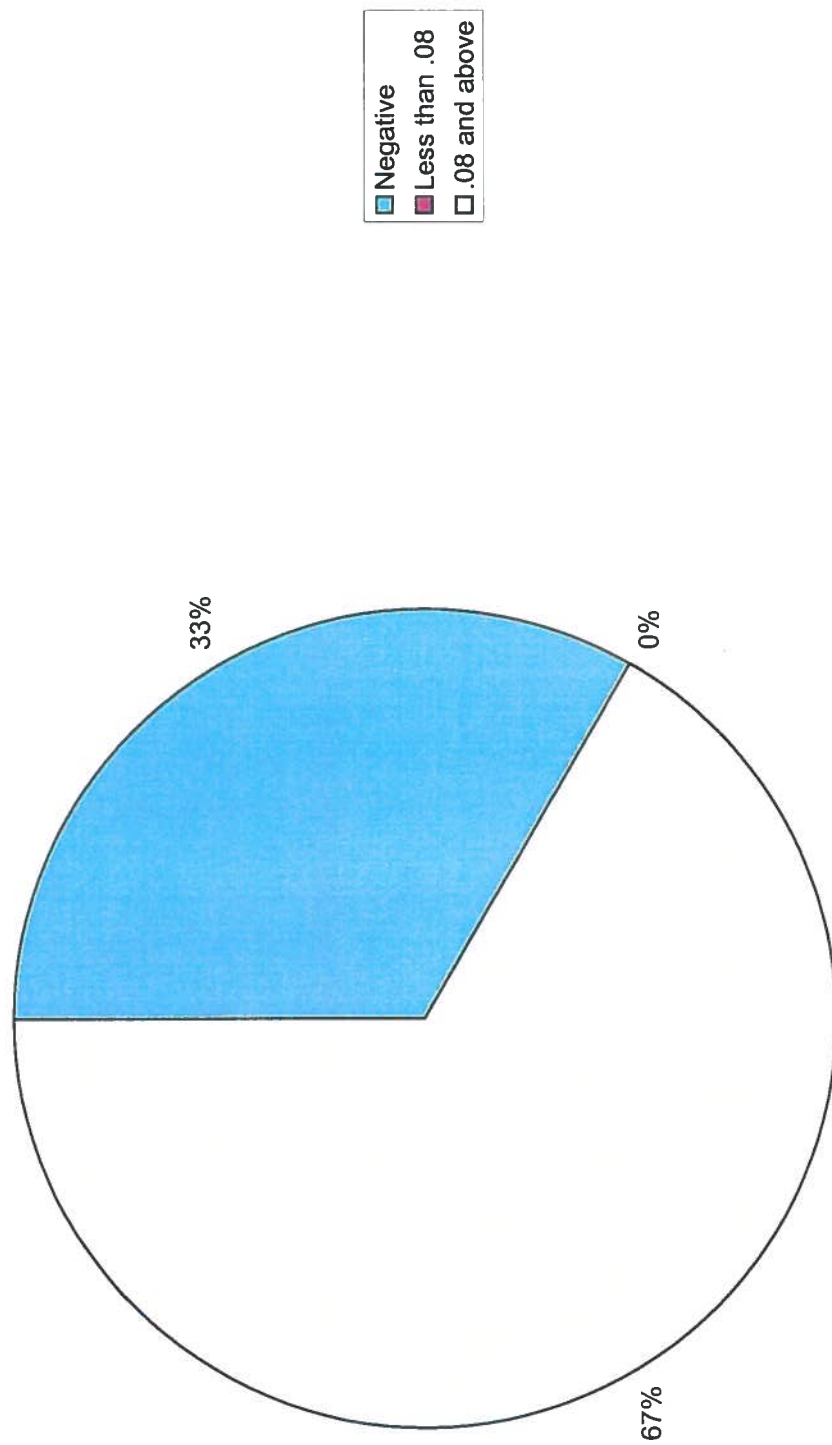


Figure 14: Adult Blood Alcohol Auto Accident Fatality, FY 2007

