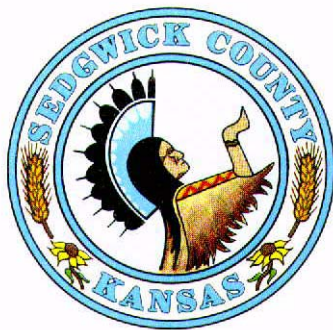


SEDGWICK COUNTY, KANSAS



REGIONAL FORENSIC SCIENCE CENTER

Mary H. Dudley, M.D. - District Coroner-Medical Examiner
Jaime L. Oeberst, M.D. - Deputy Coroner-Medical Examiner
Timothy P. Rohrig, Ph.D. - Director, Forensic Science
Laboratories
Mary Knopick Orr - Forensic Administrator

FORENSIC SCIENCE LABORATORIES 2001 ANNUAL REPORT

HISTORY

The Regional Forensic Science Center officially opened on December 21st, 1995. The Center houses the Office of the District Coroner and the Forensic Science Laboratories [FSL]. The Forensic Science Laboratories are composed of three major sections: Criminalistics, Forensic Biology/DNA and Forensic Toxicology. The staff currently consists of 16 FTE.

The FSL is staffed with highly trained and experienced forensic scientists, many who have advanced scientific degrees [MS, MSFS, Ph.D.]. The technical staff has well over a century's worth of combined professional experience.

In April of 1996, the Forensic Science Laboratories began accepting cases for Firearms examination. Three months later, the Biology Section provided forensic examinations for the identification of biological fluids. After mandatory accreditation by the State of Kansas, the Toxicology Laboratory began producing comprehensive examinations in post-mortem toxicology to support the District Coroner in September of 1996. This was followed by the FSL providing forensic drug identification for local and regional law enforcement agencies. In November of 1996, Arson/Fire Debris analysis was added to the Criminalistics Section. January 1997, marked the beginning of the first STR DNA Laboratory in the State of Kansas at the Center. The Trace unit was expanded in 1998 to provide forensic analysis of paint and fibers.

The FSL of the Center continues to grow providing timely and comprehensive forensic science services to local and regional law enforcement. The Center is the only forensic laboratory in the STATE which provides open container (alcoholic beverage) analysis. This type of analysis supports the enforcement of the state's driving and liquor laws.

LABORATORY LEADERSHIP

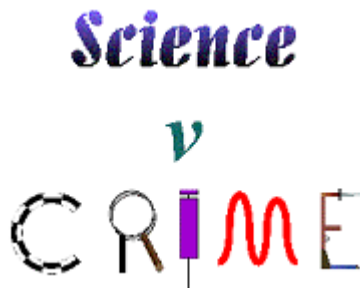
The laboratory management staff are all case working scientists.

Director and Chief Toxicologist
Timothy P. Rohrig, Ph.D., DABFT

Chief of Criminalistics
Gary L. Miller

Forensic Biology/DNA Manager
Shelly A. Steadman, M.S.

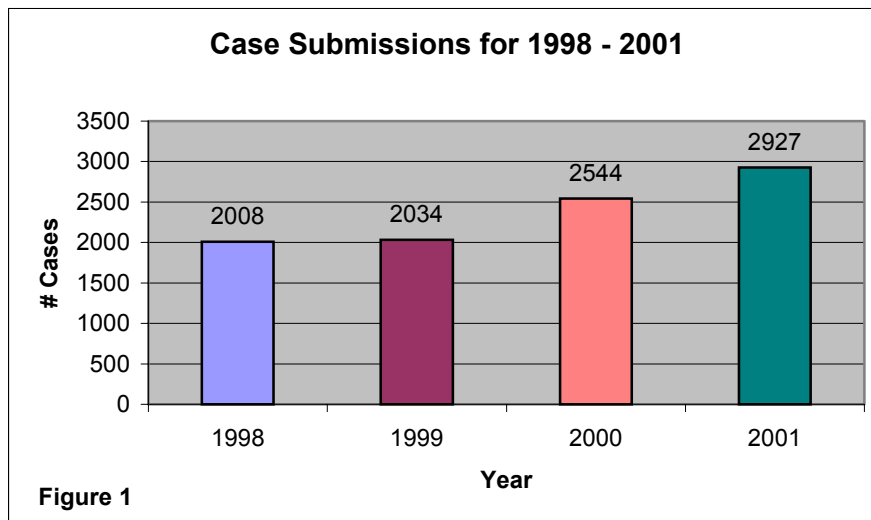
Toxicology Lab Supervisor
Connie L. Huber



SIGNIFICANT ACHIEVEMENTS

- The Biology Section was part of a multi-center National Institute of Standards and Technology [NIST] mixed stain study and the results of this study were presented at the 2001 International Symposium on Human Identification.
- The Biology Section received the SG Co Innovation award for “Innovative Changes in Forensic Science Lab Methodology” in October 2001.
- The Laboratory Criminalistics Section was invited to participate in the National Forensic Laboratory Information System [NFLIS] program. NFLIS is a Drug Enforcement Administration [DEA] sponsored project that systematically collects results from solid dosage drug analyses conducted by state and local forensic laboratories across the country.
- During 2001 the Biology Section employed PowerPlex 1.1, a system that allows for typing of eight STR loci and determination of sex. The end of the year marked near completion of validating PowerPlex 2.1, which will allow typing across six additional loci. The use of these two typing systems enables forensic typing across the 13 core CODIS loci and makes the section well positioned for participation in the National database.
- The Laboratory received funding from the 2001 Law Enforcement Block Grant for technological enhancement of the Laboratories.

FORENSIC SCIENCE LABORATORIES



The FSL has experienced a significant growth in the number of cases submitted [Figure 1]. The number of cases submitted for forensic analysis has dramatically increased over the last few years. There was a **46%** increase from Y1998 as compared to Y2001.

Figure 1 illustrates the number of forensic laboratory cases submitted for examination .

Requests For Expert Testimony

The professional staff is frequently called upon to present expert testimony in the courts. This year the FSL received 1209 subpoenas for court appearances.

AGENCIES SERVED

The Forensic Science Laboratories provides expert testing services and consultation for a variety of law enforcement agencies within and outside of Sedgwick County. In Y2001 the FSL provided expert testing services to over 80 Law Enforcement Agencies. Figure 2 indicates [yellow highlight] the counties within the state in which forensic laboratory services were provided. Figure 3 illustrates the In-County (IC) and Out-of-County (OC) breakdown. Table 1 is a list of agencies served in 2001.

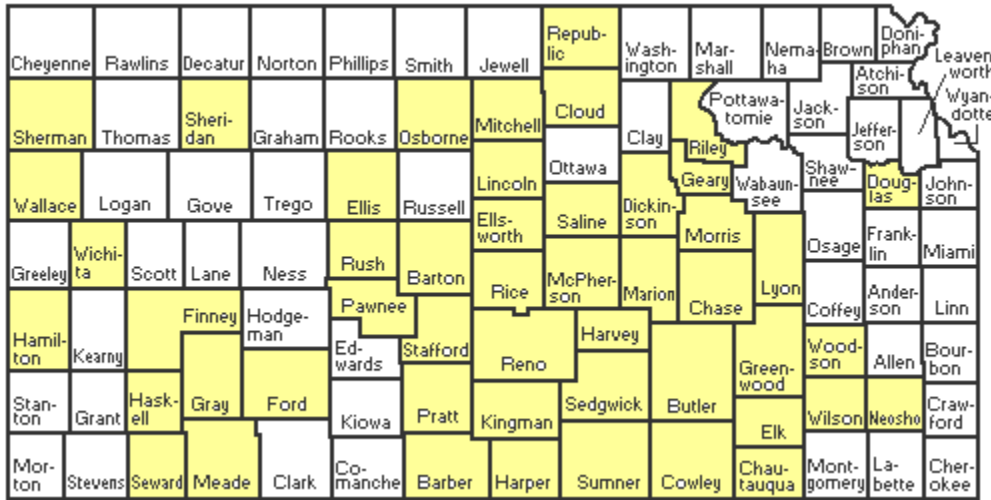
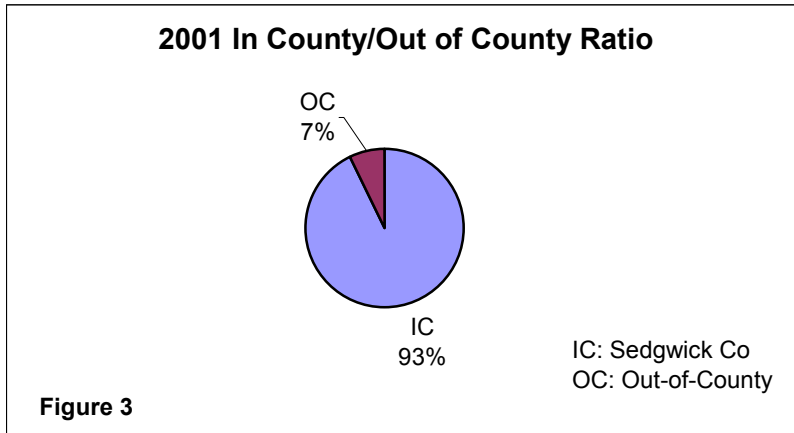


Figure 2

Sedgwick County vs. Out-of-County Cases



The vast majority of forensic laboratory services were provided for Sedgwick County Law Enforcement agencies. A significant portion of the out-of-county cases were in support of the Coroner’s out-of-county autopsies.

Agencies Served (Table 1)

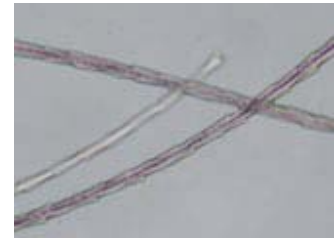
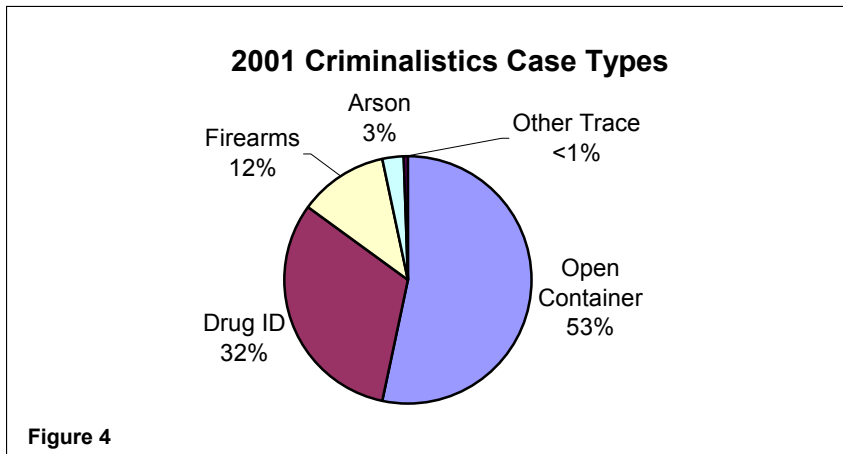
Alcoholic Beverage Control Unit	El Dorado Correctional Facility	KS Dept. of Corrections	Riley Co. PD
Andover PD	El Dorado PD	KS Dept. of Revenue - ABC	Salina PD
Argonia PD	Emporia FD	KS Dept. of Wildlife & Parks	Saline Co. Sheriff
Arkansas City FD	Federal Bureau of Investigations	KS State Fire Marshall	Sedgwick Co. FD
ATF Task Force	Garden City PD	Leavenworth Co. Coroner	Sedgwick Co. Sheriff
Augusta Dept. of Safety	Garden Plain PD	Liberal PD	Sedgwick PD
Barber Co. Sheriff	Goddard PD	Lyon Co. Sheriff	South Hutchinson PD
Barton Co. Sheriff	Grandview Plaza PD	Maize PD	State Parole
Bel Aire PD	Greenwood Co. Sheriff	Marion Co. Sheriff	Sumner Co. Sheriff
Butler Co. Fire District #1	Halstead PD	Marion PD	USD 265 PD
Butler Co. Sheriff	Harvey Co. Sheriff	McConnell AFB	USD 266 PD
Cheney PD	Haven PD	Meade Co. Sheriff	Valley Center PD
Clearwater PD	Haysville PD	Merriam PD	Wallace Co. Sheriff
Colwich PD	Hesston PD	Mt. Hope PD	Wellington FD
Cowley Co. Fire #4	Hutchinson Correctional Facility	Mulvane PD	Wellington PD
Derby PD	Hutchinson FD	Newton FD	Wichita FD
District Court SG	Kansas Bureau of Investigations	Newton PD	Wichita PD
Dodge City PD	Kansas Highway Patrol	Nickerson PD	Wichita State University PD
Douglas Co. FD & Medical	Kechi PD	Park City PD	Winfield FD
Drug Enforcement Administration	Kingman Co. Sheriff	Peabody PD	Winfield PD
Eastborough PD	Kinsley PD	Reno Co. Sheriff	



CRIMINALISTICS SECTION

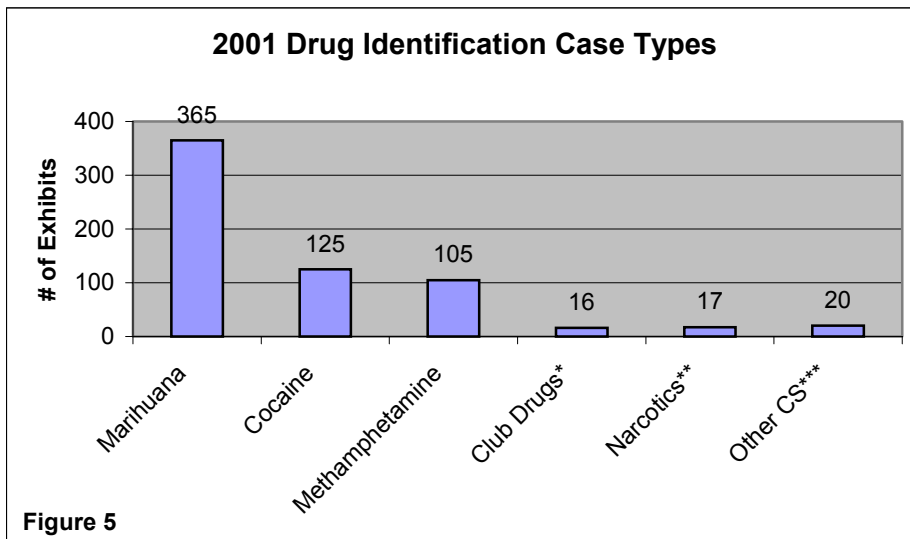
The Criminalistics section provides forensic examinations in the following disciplines; Drug Identification, Open Container [Beverage Alcohol] Analysis, Firearms & Toolmarks, Serial Number [Firearms] Restoration and Trace Evidence – including subdisciplines of Ignitable Liquids [Arson], Fiber and Paint Analysis. The section also provides Physical Match Analyses. The examiner in the Arson/Trace Evidence Unit is a member of the South-Central Kansas Arson Task Force. Figure 4 illustrates the breakdown of Criminalistics cases by evidence type.

The Criminalistics Section accounts for the majority of casework submitted to the Forensic Laboratories.



Drug ID Unit

The majority of drug exhibits are marijuana (~50%). Cocaine and methamphetamine are equal accounting for ~35% of the total exhibits examined. Figure 5 illustrates the number of exhibits in which various types of drugs were positively identified.



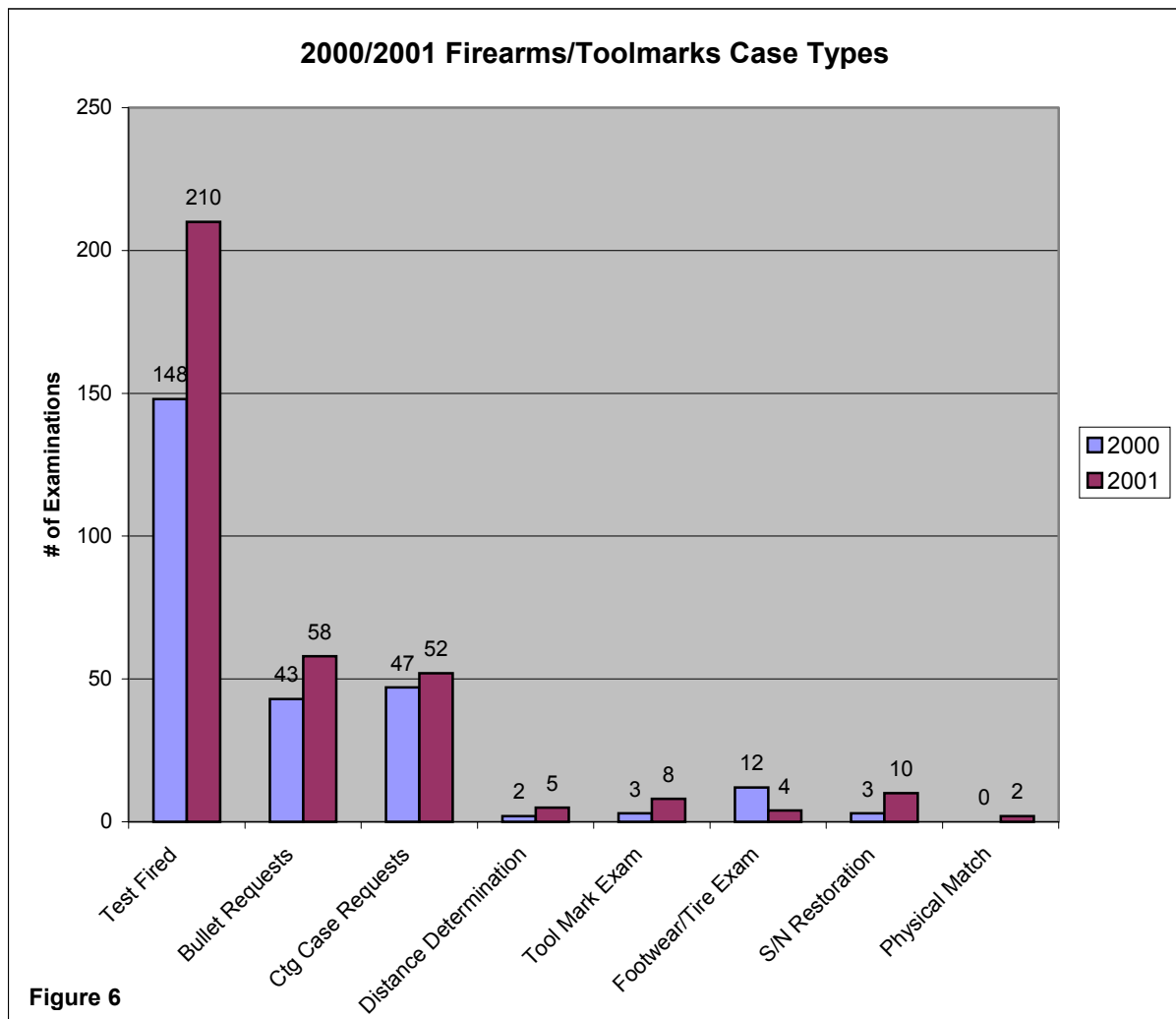
*Heroin, Morphine, Hydrocodone, Codeine, Oxycodone.

**MDMA, GHB, LSD, and Psilocybin

***CS: Controlled Substances

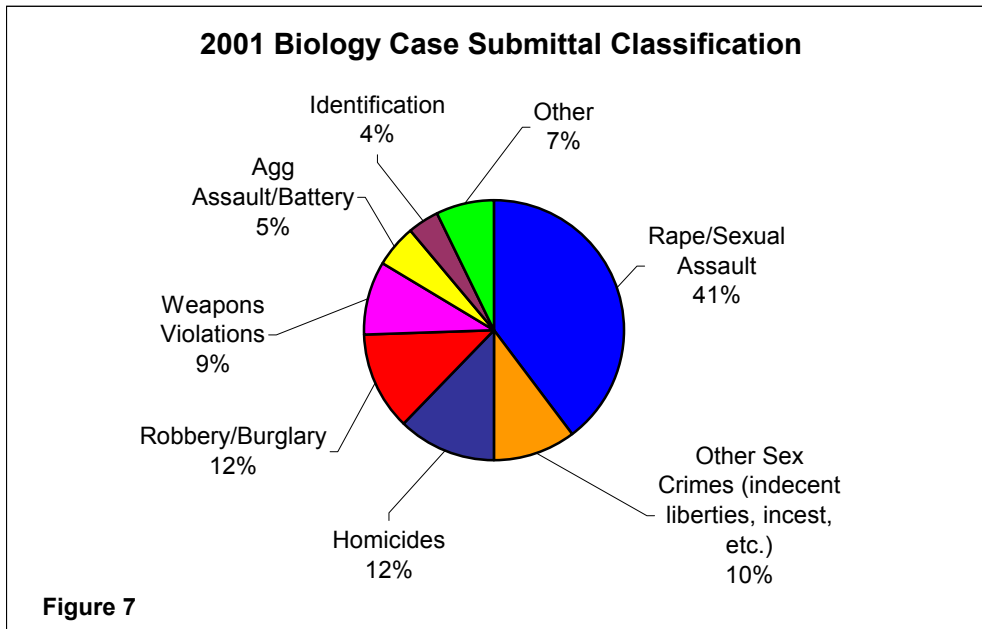
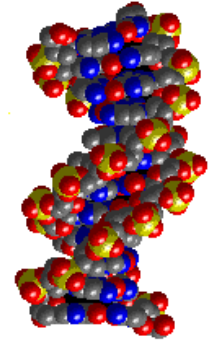
Firearms/Toolmarks Unit

The Firearms/Toolmarks Unit conducts many types of forensic examinations. Figure 6 shows the significant increase in many of case types submitted to the unit.



FORENSIC BIOLOGY/DNA SECTION

The Forensic Biology Section provides forensic examination in the identification of body fluids and STR DNA analysis. As depicted by Figure 7, the majority of cases submitted for biological examination are violent in nature, with over 50% of submittals being classified as either homicide or sexual assaults. The section continues to work all case types, including other sex crimes (indecent liberties, incest, etc.), property crimes, weapon violations, assaults, and identifications.



Combined DNA Index System (CODIS)

The laboratory has in place the software and hardware to interact with this database. The CODIS system, projected to be up and running in 2002, will allow the laboratory to search state and national databases of convicted offenders, unsolved crime scenes and missing persons. CODIS also allows participating forensic laboratories to exchange and compare DNA profiles electronically, thereby linking serial violent crimes (especially sexual assaults) to each other and to identify suspects by matching DNA from crime scenes to convicted offenders.

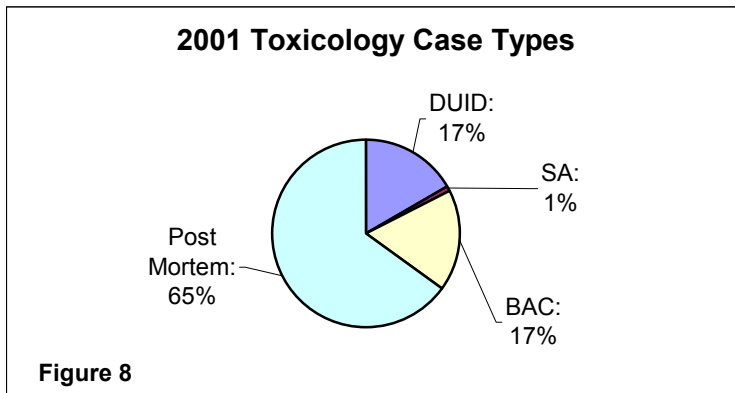


FORENSIC TOXICOLOGY SECTION

The Forensic Toxicology section provides comprehensive examination of post-mortem [autopsy] samples. Specimens collected during the investigation of driving while under the influence of drugs/ alcohol and drug-facilitated sexual assault are also examined by this section. The Forensic Toxicology Laboratory is accredited by the Kansas Department of Health & Environment.

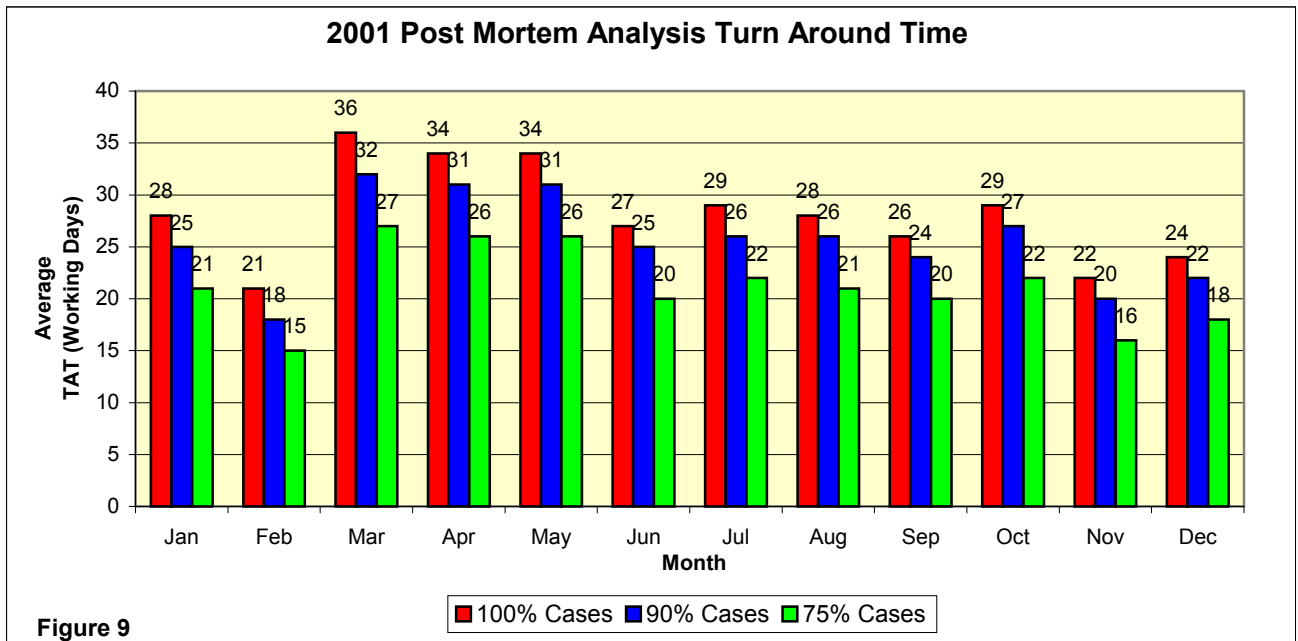


Figure 8 depicts the percentage of Toxicology cases submitted by Case Type.

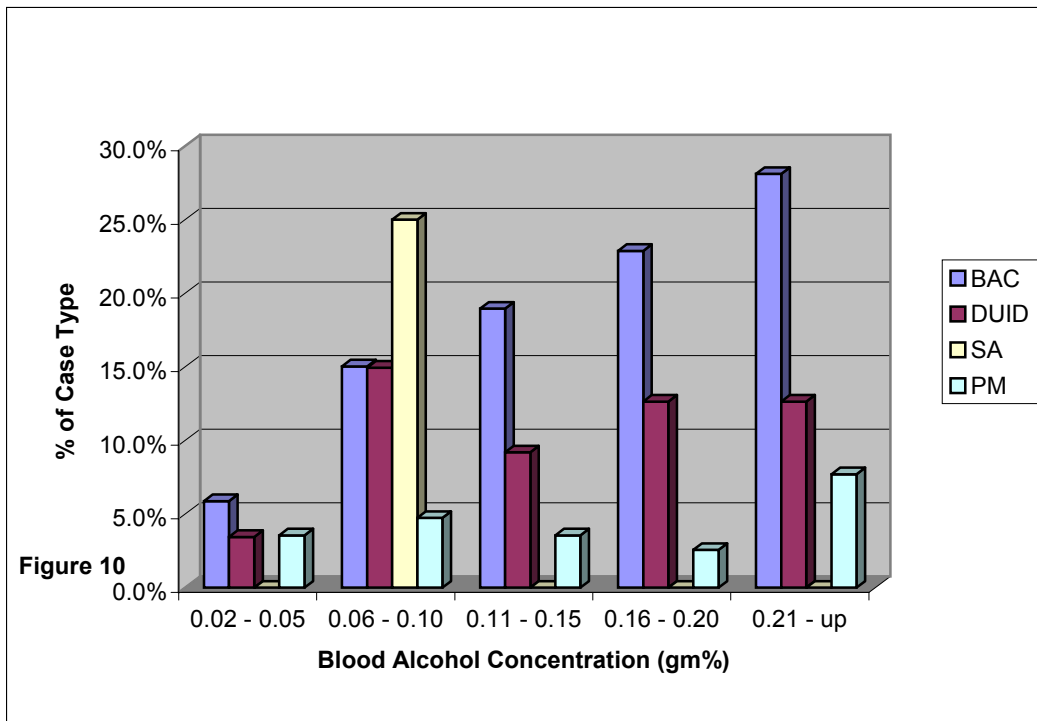


DUID: Driving-under-the-influence of drugs
 BAC: Driving-under-the-influence of alcohol
 SA: Drug-facilitated sexual assault

The Toxicology Laboratory has been able to maintain a reasonable turn around time for its post mortem cases as shown in Figure 9.

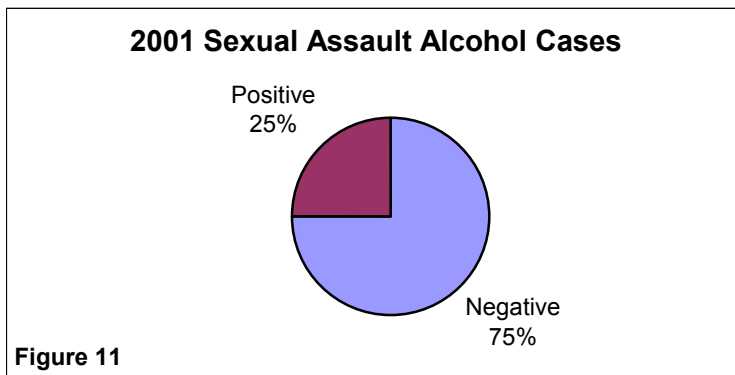


Alcohol continues to play a significant role in all of our Tox case types [Figure 10]. In more than 25% of our drunk driving cases, the driver was greater than 3 times the legal limit (0.08 gm%). Table 2 depicts the 20 most common drug findings in Toxicology cases [excluding ethyl alcohol].



Drugs Most Commonly Found in Tox Cases (Table 2)

Tetrahydrocannabinol (Marihuana)	Methadone
Cocaine/Benzoylecgonine	Amitriptyline
Heroin/Morphine	Trazodone
Hydrocodone	Methamphetamine
Alprazolam	Chlorpheniramine
Propoxyphene	Codeine
Oxycodone	Citalopram
Hydromorphone	Fentanyl
Diphenhydramine	Butalbital
Diazepam	Dextromethorphan



The most common drug found in Drug Facilitated Sexual Assault (DFSA) cases was alcohol. Figure 11 shows that alcohol was detected in 25% of the cases submitted.