REGIONAL FORENSIC SCIENCE CENTER
SEDGWICK COUNTY, KANSAS

Timothy P. Rohrig, Ph.D. — Director
Jaime L. Oeberst, M.D. — District Coroner-Chief Medical Examiner
Shari L. Beck — Forensic Administrator/Chief Medical Investigator

FORENSIC SCIENCE LABORATORIES
2009 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 21 scientific and support personnel.

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 150 years worth of combined professional experience.

In April of 1996, the Forensic Science Laboratories began accepting cases for firearms examinations. 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 in support of 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. In January of 1997, The Center opened the first STR DNA Laboratory in the State of Kansas. The Trace Evidence Unit was expanded in 1998 to provide forensic analysis of paint and fibers.

The Forensic Science Laboratories are accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board [ASCLD/LAB].

The FSL of the Center continues to grow, providing timely and comprehensive forensic science services to local and regional law enforcement.

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

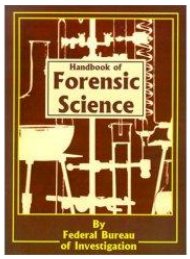
Toxicology Lab Manager
Travis Curtis, M.S.F.S.

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

Quality Assurance Manager
Robert Hansen, M.S.F.S.

SIGNIFICANT ACHIEVEMENTS

- The laboratory presented 4 papers at various professional meetings:
  - S. Steadman, "Evaluation of commercially available products marketed for enhancement of low copy number exhibits", Presented at The Promega Forensic DNA Workshop, Promega Corporation, March 10, 2009, Edmond, Oklahoma.
  - S. Steadman, "Performance verification of the Quantifiler Duo DNA Quantification Kit and implementation of YSTR Typing: A Streamlined Approach to Co-Validation.", Presented at The MidAmerica 2009 Forensic DNA Conference, April 8, 2009, Columbia, Missouri.
  - S. Steadman, "Evaluation of commercially available products marketed for enhancement of low copy number exhibits", Presented at The MidAmerica Forensic DNA Conference, April 9, 2009, Columbia, Missouri.
  - S. Steadman, Poster Presentation "Performance Verification of the Spex 6770 Freezer Mill", Presented at The NIJ Conference 2009, US Department of Justice, Marriott Crystal Gateway Hotel, June 16-18, 2009, Washington D.C.
  - S, Geering, "Interesting Case: What is the Standard in Sedgwick County", Presented at the Promega Forensic DNA Workshop, Promega Corporation, March 10, 2009, Edmund, Oklahoma.
- Peer-reviewed Scientific Publications:
  - Steadman, S. and S. Geering. (2009) Performance Verification of the Quantifiler Duo DNA Quantification Kit and implementation of Y-STR Typing: A Streamlined Approach to Co-Validation. Forensic News. April 2009.



- 2009 Grant Funding:
  - Justice Assistance Grant
  - National Forensic Science Improvement Grant
  - NIJ DNA Capacity Enhancement Grant
- 2009 Awards:
  - American Academy of Forensic Sciences
    Rolla N. Harger Award
    Presented to Dr. Timothy P. Rohrig, for outstanding contributions to the Field and Profession of Forensic Toxicology

FORENSIC SCIENCE LABORATORIES SERVICE OVERVIEW

Case Submissions

The Forensic Science Laboratory continues to experience a significant demand for its expert services. This year the Laboratory Division worked several high-profile cases, each case involving hundreds of exhibits requiring forensic analysis. While the total number of case submissions slightly decreased compared to last year, the number of items of evidence examined increased dramatically. Compared to 2001, case submissions increased approximately two-fold. The apparent drop in case submissions for Y2004 and Y2005 compared to Y2003 is partly due to the temporary suspension of Fire Debris Analysis and a change in counting of illicit drug case submissions. Fire Debris Analysis was discontinued in the 3rd quarter of 2004 to September 2005 and in October 2007 to August 2008. Figure 1 illustrates the number of forensic laboratory cases submitted for examination for the past decade.

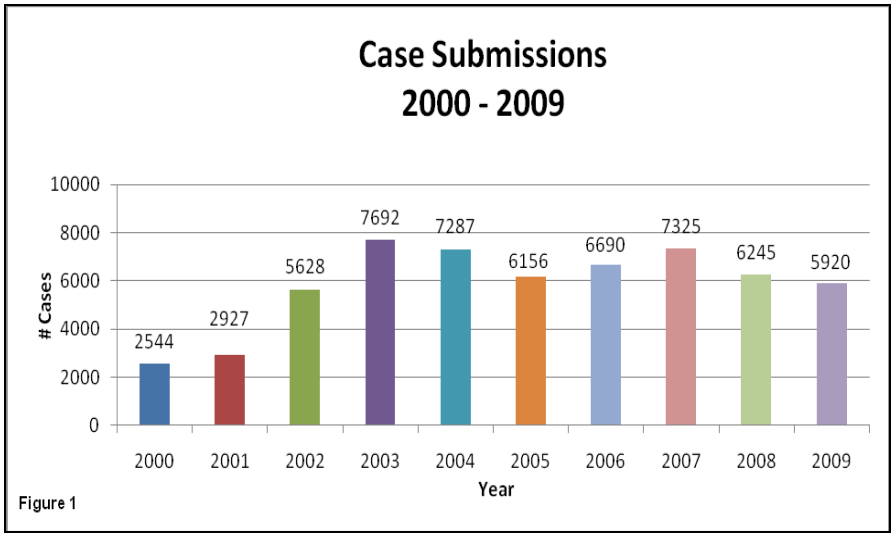


Figure 1

2009 Case Submissions

Figure 2 illustrates the breakdown of case submissions by Laboratory section. The Criminalistics section continues to receive the majority of evidence submitted.

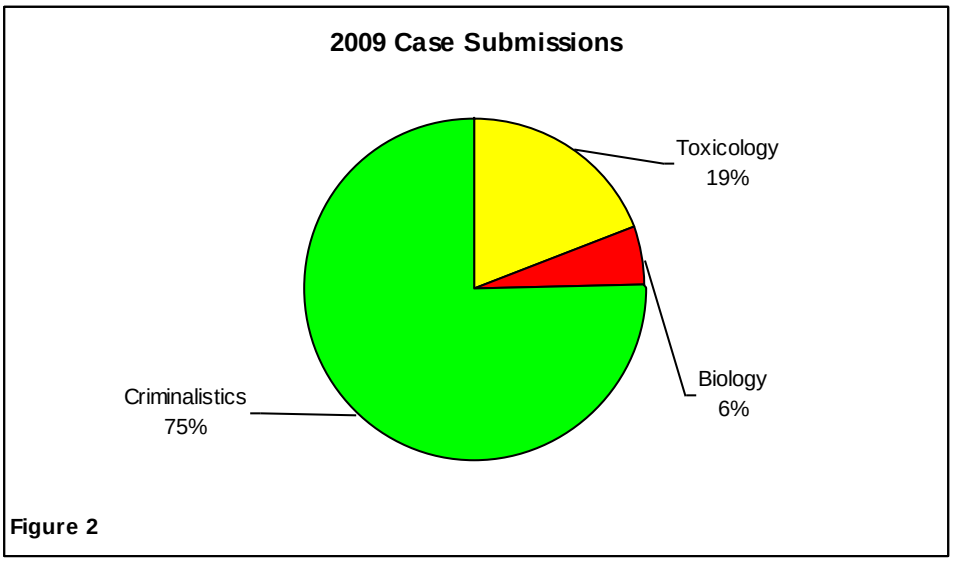


Figure 2

Although Biology accounts for a small percentage of the overall caseload – a significant portion of the casework required analysis of "hundreds" of exhibits. Also the increasing number of CODIS entries, associated hits generated, and oversight of this database, entails a large amount of analyst time. Samples compared as a function of database management are not reflected in the percent breakdown of cases.

Requests For Expert Testimony

The professional staff is frequently called upon to present expert testimony in the courts [Figure 3]. In Y2009, the FSL received 4,426 subpoenas for court appearances, an approximate 31% increase over the last year.

Figure 3

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 2009, the FSL provided expert testing services and consultations to 68 Law Enforcement Agencies, Fire Departments, and District Coroners. Figure 4 indicates [yellow highlight] the counties within the state in which forensic laboratory services were provided.

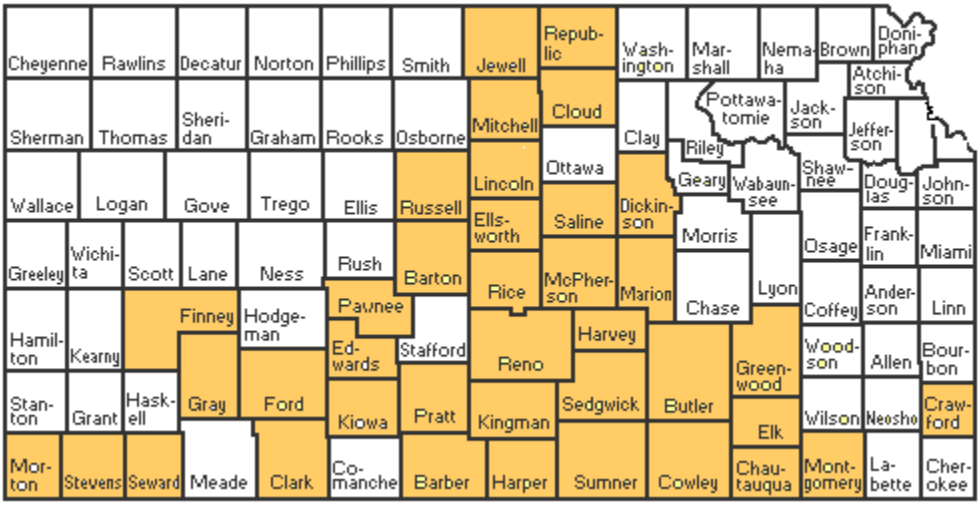


Figure 4

Sedgwick County vs. Out-of-County Cases

The Sedgwick County Regional Forensic Science Center serves as the principle Forensic [Crime] Laboratory for all of Sedgwick County Law Enforcement Agencies and provides forensic services to many other counties and municipalities within the state of Kansas. However, the vast majority of forensic laboratory services were provided for Sedgwick County Law Enforcement agencies. Figure 5 illustrates the relative percentages of In-County [Sedgwick] and Out-of-County cases submitted to the Forensic Science Laboratories. A significant portion of the out-of-county cases was in support of the Sedgwick County Coroner's out-of-county autopsies.

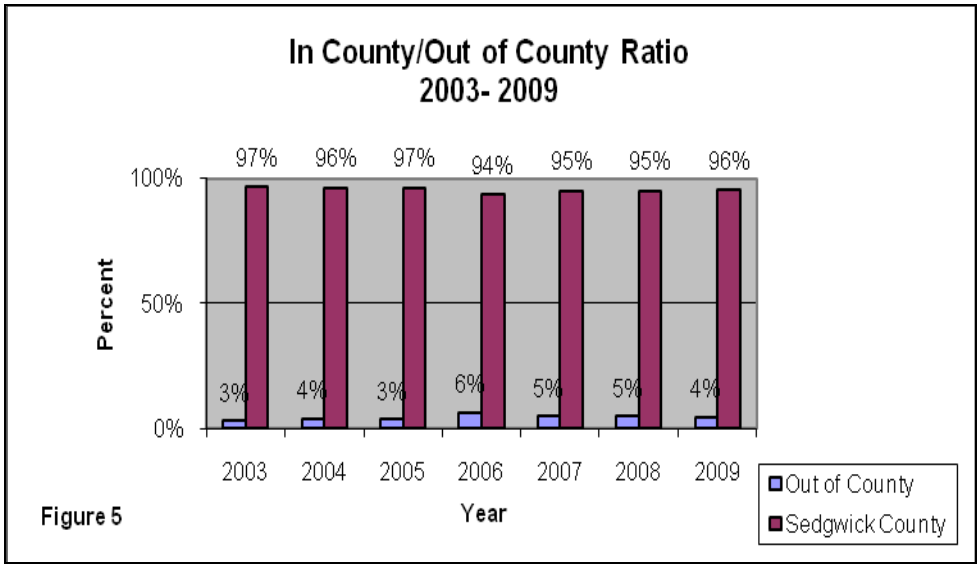


Figure 5

Table 1 is a list of Law Enforcement Agencies and Fire Departments that forensic laboratory services were provided for in Y2009.

Table 1: Agencies Served

Air Force /OSI	Harvey Co. Coroner	Saline Co. Coroner
ATF Task Force	Haysville PD	Saline Co. Sheriff
Arkansas City Fire	Hutchinson Correctional Facility	Sedgwick Co. Coroner
Barber Co. Coroner	Hutchinson Police	Sedgwick Co. FD
Barton Co. Sheriff	Immigration & Customs Enforcement	Sedgwick Co. Sheriff
Bel Aire PD	Jewell Co. Coroner	Seward Co. Coroner
Butler Co. Coroner	Kansas Dept. of Corrections	Stevens Co. Coroner
Chautauqua Co. Coroner	Kansas Highway Patrol	Sumner Co. Coroner
Clark Co. Coroner	Kingman Co. Coroner	USD 266 Police (Maize)
Clearwater PD	Kiowa Co. Coroner	Valley Center PD
Cloud Co. Coroner	Lincoln Co. Coroner	Wichita FD
Cowley Co. Coroner	Maize Pd	Wichita PD
Derby PD	Marion Co. Coroner	Wichita State University PD
Dickinson Co. Coroner	McPherson Co. Coroner	
EastBorough Police	Mitchell Co. Coroner	
Edwards Co. Coroner	Montgomery Co. Coroner	
Eldorado Correction Facility	Morton Co. Coroner	
El Dorado FD	Mt. Hope Police	
Elk Co. Coroner	Mulvane PD	
Ellsworth Co. Coroner	Newton FD	
Ford Co. Coroner	Park City PD	
Garden Plain PD	Pawnee Co. Coroner	
Goddard PD	Pratt Co. Coroner	
Greenwood Co. Coroner	Reno Co. Coroner	
Grey Co. Coroner	Republic Co. Coroner	
Harper Co. Coroner	Rice Co. Coroner	
Haysville PD	Russell Co. Coroner	

CRIMINALISTICS SECTION

The Criminalistics Section accounts for the majority of the cases [75%] submitted to the Forensic Laboratories. Figure 6 illustrates the trend in forensic case volume submitted to the Criminalistics Section. The apparent drop in case submissions for Y2004 and Y2005 compared to Y2003 is partly due to the temporary suspension of Fire Debris Analysis and a change in counting of illicit drug case submissions. Fire Debris Analysis was discontinued from October 2004 until September 2005. Fire Debris Analysis was again discontinued due to the loss of the sole examiner in October 2007. In August 2008, Fire Debris Analysis was reinstated.

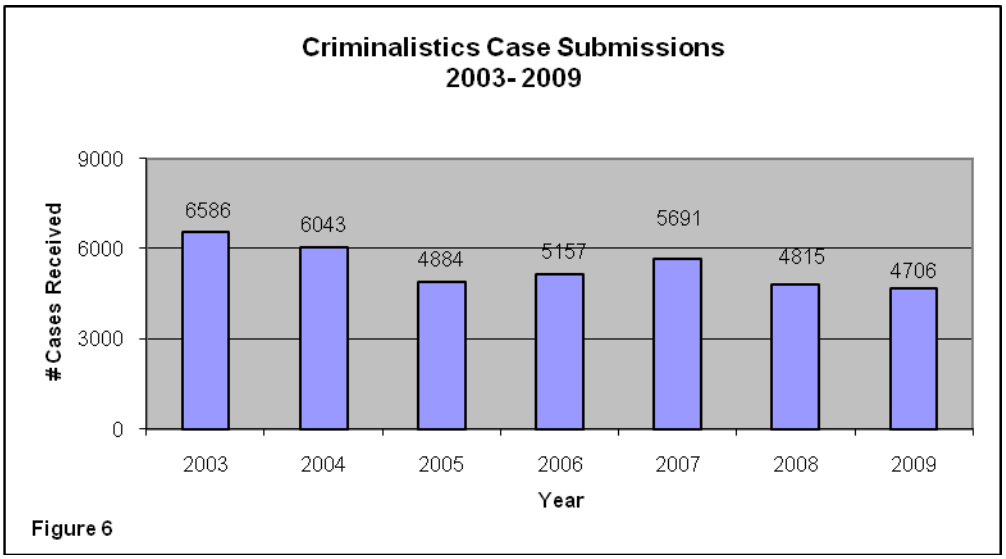


Figure 6

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 sub-disciplines of Ignitable Liquids [Arson], and Fiber and Paint Analysis. The section also provides Physical Match Analyses and Identification of Unknown Materials. In Y2005, the Trace Unit suspended analysis of paint and fibers. This was due to the loss of the sole qualified scientist. While Fire Debris Analysis was again suspended in Fall of 2007, another scientist has undergone training and the service was reestablished on August 1, 2008.

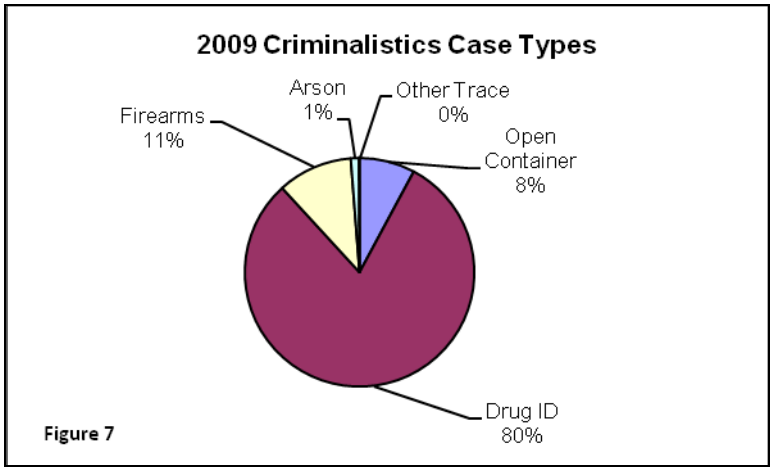


Figure 7

The majority of cases submitted to the Criminalistics Section [Figure 7] are for illicit drug identification. This accounts for approximately 80% of the cases received. Firearms are the second most abundant case type, accounting for approximately 11% of the cases submitted for analysis to the section.

Drug ID Unit

The agency that submits the greatest volume of drug evidence is the Wichita Police Department [WPD]. This is apparent in Figure 8 as nearly 90% of cases received are from the Wichita Police Department. Agencies other than the Wichita Police Department and the Sedgwick County Sheriff's Department [SCSD] comprise less than 5% of the total cases submitted ; this includes Kansas Highway Patrol [KHP] and Park City Police Department.

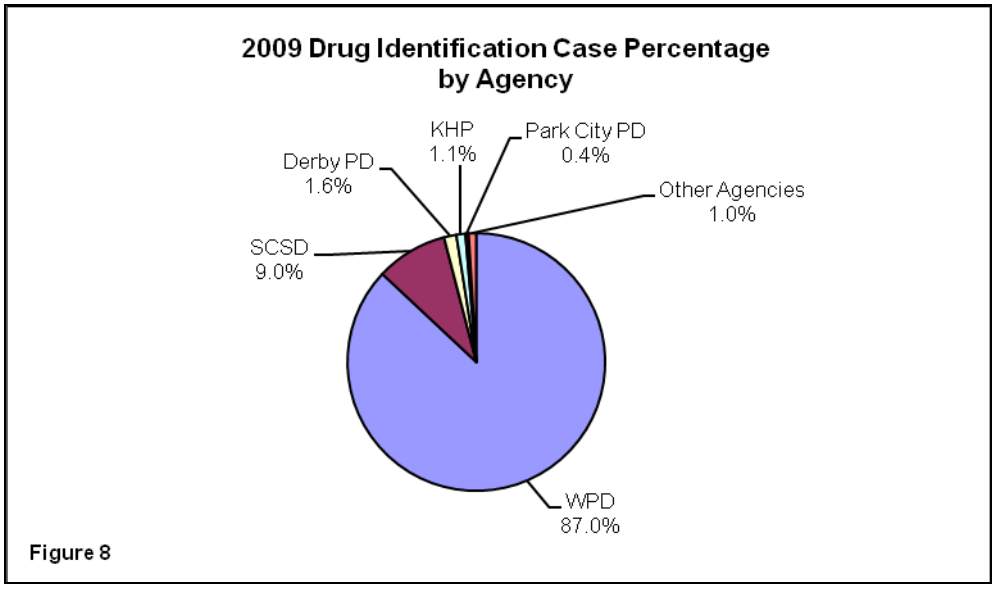


Figure 8

In 2009, the Drug Identification Unit examined over 9,283 exhibits for the presence of controlled substances. The majority of drug exhibits were Marihuana (45.6%). Cocaine and Methamphetamine account for 33.0% of the total exhibits examined. The number of other controlled substances represents 9.8% of the exhibits examined. Figure 9 illustrates the number of exhibits in which various types of drugs were positively identified.

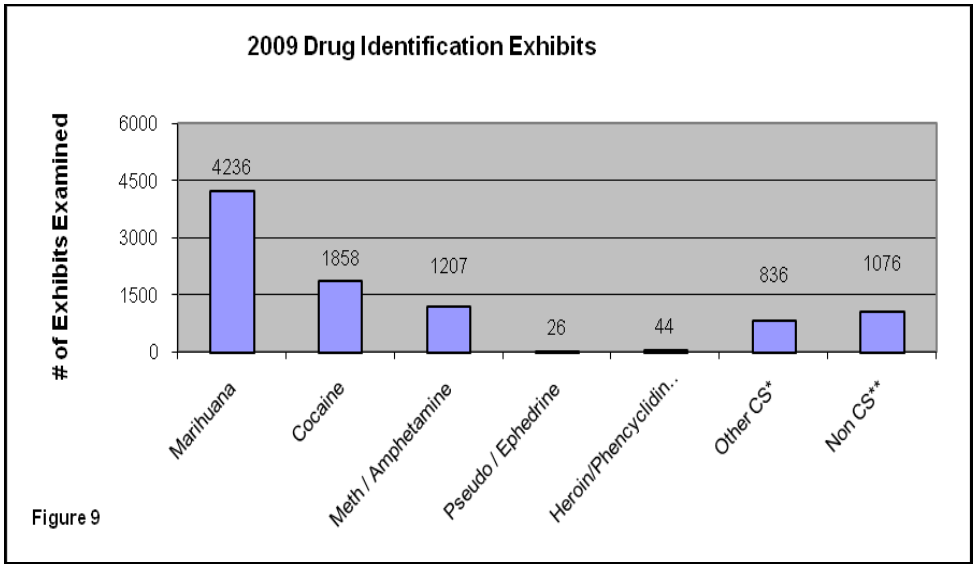


Figure 9

*CS: Controlled Substances
**Non CS: Non Controlled Substances

Open Container [Alcohol] Unit

Open Container/Beverage Alcohol Analysis is conducted in support of the state and local DUI laws and prohibition of minors to possess alcohol. As shown in Figure 10, the number of cases submitted remained somewhat constant from Y2002 to Y2003; however, in 2004 the unit experienced a 68% increase in submissions. In Y2005 and Y2006, the number of case submissions dropped back to submission volumes similar to Y2002 and Y2003. In Y2007, submittals were down by 24.5%, and remained in this range throughout 2008 and 2009.

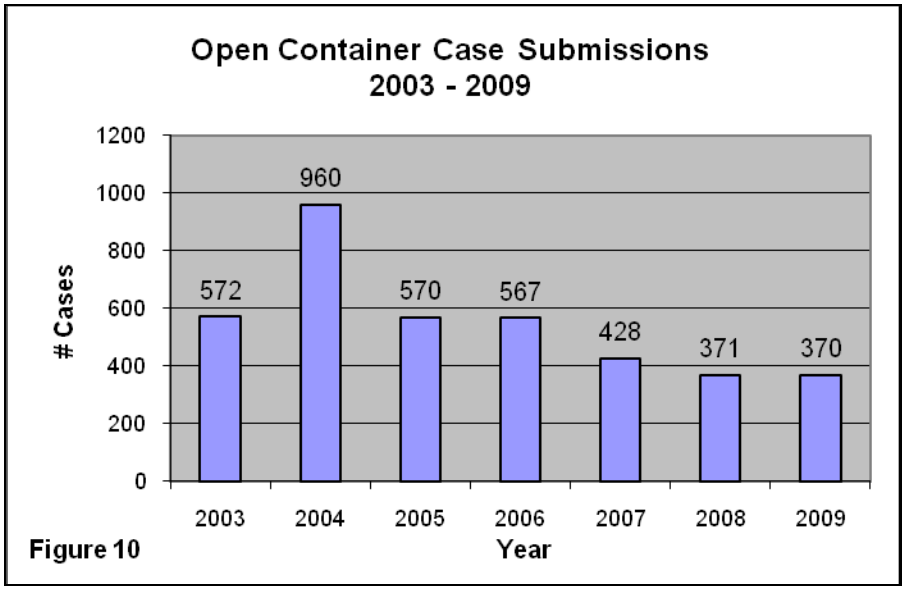


Figure 10

Firearms/Toolmarks Unit

The Firearms/Toolmarks Unit conducts many types of forensic examinations. The majority of examinations involve operability (function) tests on the submitted firearms. As shown in Figure 11, the unit experienced approximately a 19.3% decrease in Firearms Case Submissions from Y2008 to Y2009.

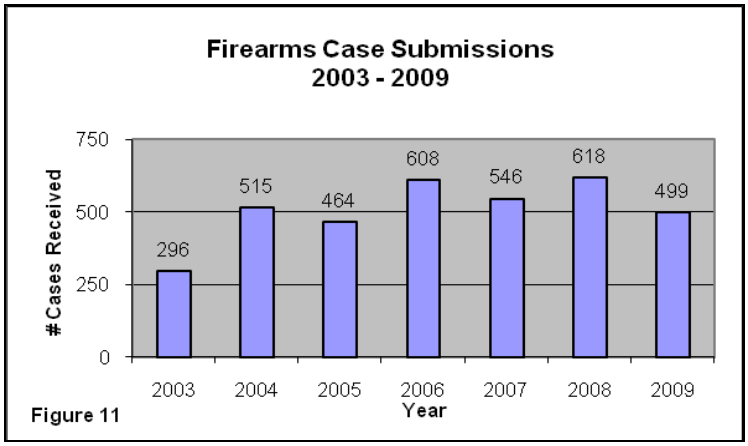


Figure 11

In 2009, bullet comparison examinations decreased 34.9% and cartridge case comparisons decreased 21.2% from the previous year. Figure 12 illustrates the case types submitted to the unit; classified as test fires, bullet comparisons, cartridge case comparisons, distance determinations, tool mark exams, and serial number restorations. In June of 2009, the Unit hired a second, fully trained Firearm and Tool Mark Examiner.

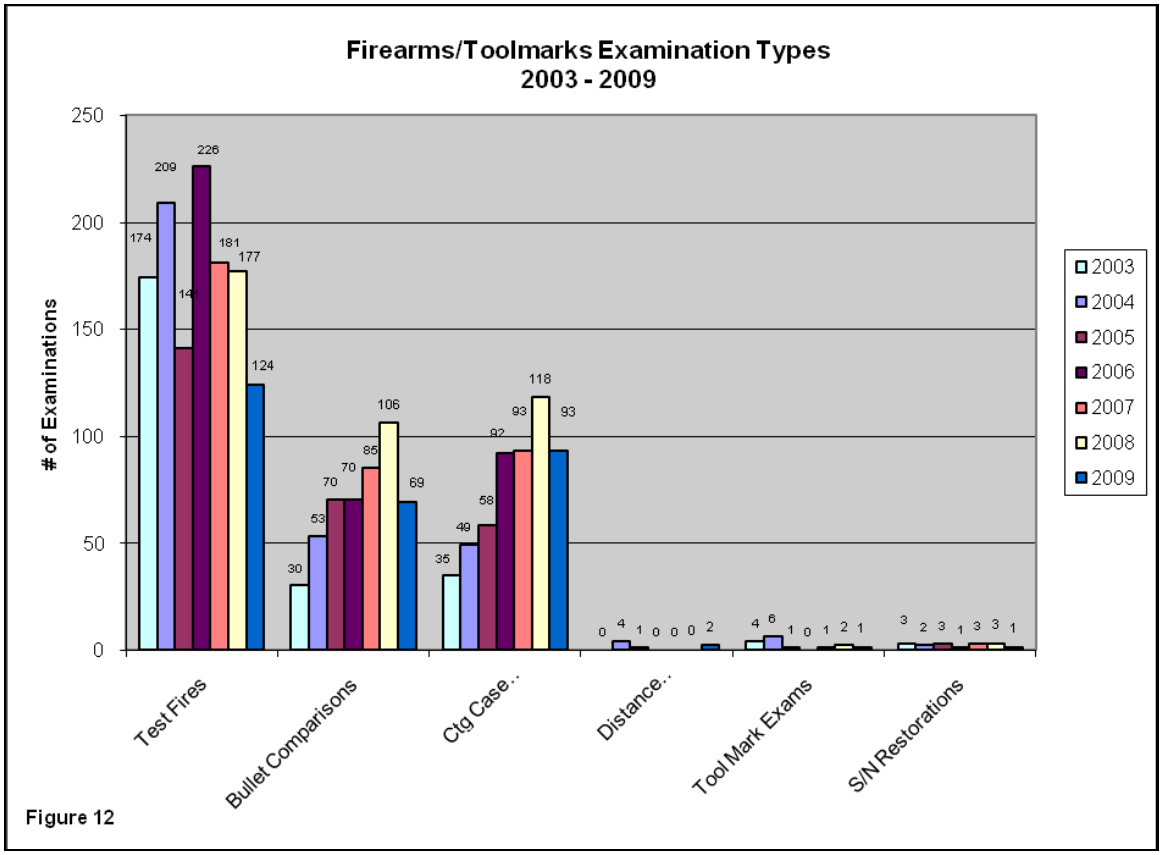


Figure 12

National Integrated Ballistic Information Network [NIBIN]

NIBIN is a national program, in partnership with the Bureau of Alcohol, Tobacco, Firearms, and Explosives [ATF] that provides a database of fired bullets and cartridge casings. Images of test-fired bullets and test-fired cartridge casings from submitted firearms, as well as images of bullets and cartridge cases from crime scenes where no firearms were recovered, are inputted into NIBIN. Searches are then conducted attempting to link serial-type crimes where the same firearm is used. This may result in linking crimes that may have occurred at an earlier date, locally and/or nationally. This system was used successfully in the Washington D.C. Sniper serial killings and linked the various crimes from multiple jurisdictions to one firearm.

Since the acquisition of the NIBIN system in late 2002, the laboratory has made 1,396 NIBIN entries [Figure 13]. In Y2005 there were two hits in NIBIN, resulting in one investigation aided. In Y2006, there were no hits in NIBIN. In Y2007 there were 2 hits in NIBIN, resulting in 2 investigations aided. In Y2008 there were 3 hits in NIBIN, resulting in three investigations aided. In Y2009 there were 3 hits in NIBIN, resulting in 12 investigations aided.

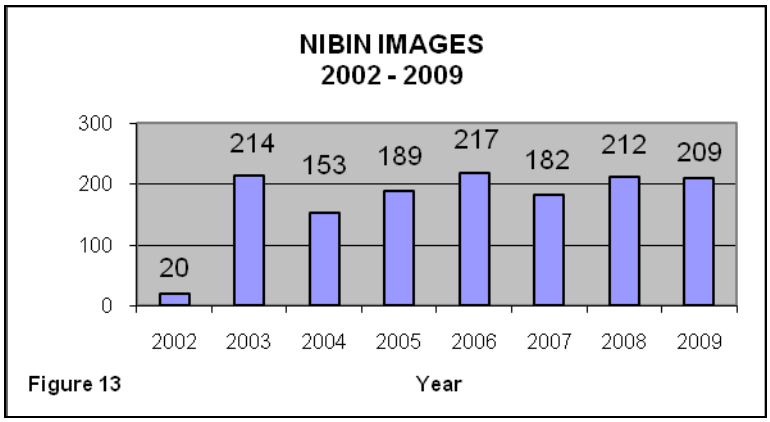


Figure 13

Trace Evidence Unit

Trace Analysis is the forensic identification of unknown compounds and fire debris evidence in casework ranging from product tampering to assault and homicide. Figure 14 reflects the casework submitted to the unit. The majority of the cases submitted to the Trace Evidence Unit in Y2009 consist of fire debris evidence. The Unit continues to see a high demand for arson investigation.

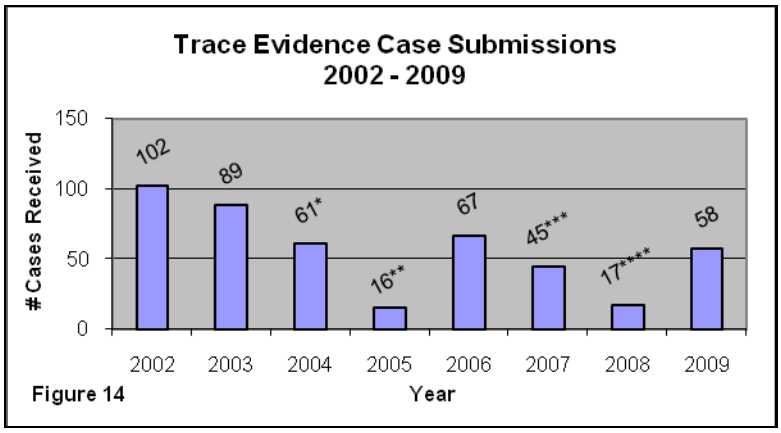


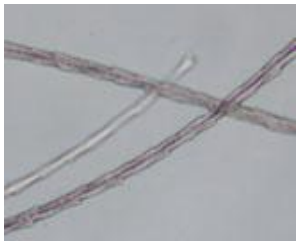
Figure 14

*The Arson/Trace Evidence Unit lost its sole examiner in October 2004.
**The Arson/Trace Unit resumed arson analysis in September 2005.
*** The Arson/Trace Unit lost its sole examiner in October 2007.
****The Arson/Trace Unit resumed arson analysis in August 2008.

In addition to assisting arson investigations, the Arson/Trace Evidence Unit provides microscopic/physical/chemical analyses for a variety of evidence submissions associated with criminal investigations. Table 2 lists the different types of trace evidence [non-arson] examination requests. Currently, the Trace Unit supports identification of unknown materials, fracture analysis, bank-dye identification and tear gas/pepper spray analysis.

Table 2: Non-Arson Trace Evidence Examinations

Paint Characterization
Fiber Characterization
Identification of Unknown Liquids & Solids
Fracture Analysis
Bank-Dye Analysis
Tear Gas/Pepper Spray Analysis
Adulterated Drinks (non-drug)



FORENSIC BIOLOGY/DNA SECTION

In Y2009, the Biology/DNA section received 326 cases for forensic DNA examination, approximately 30 cases less than Y2008. This constitutes a 19.4% increase from 2006 and a doubling of case volume as compared to Y2003 [Figure 15]. While there has been a slight decline in the number of reports issued, the number of exhibits for each case has increased. Furthermore, the number of DNA profiles generated increased per case upon implementation of Y-STR analysis in 2009.

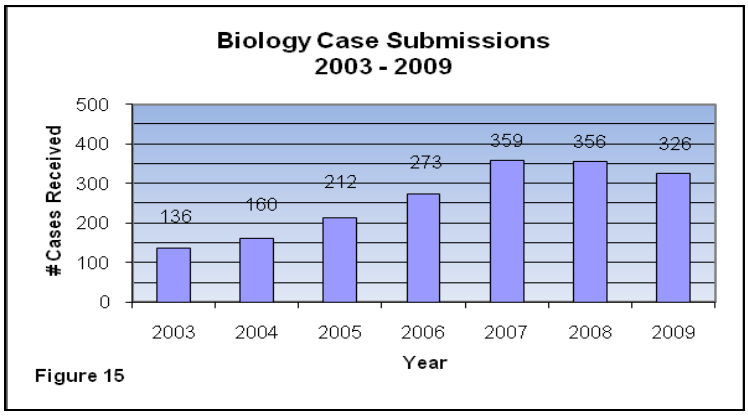
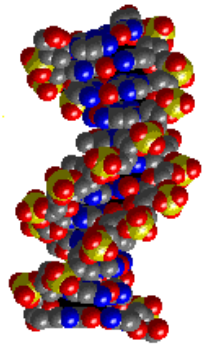


Figure 15



The Forensic Biology Section provides forensic examinations in the identification of body fluids and STR DNA [profile] analysis. As depicted by Figure 16, over half the cases submitted for biological examination are Robbery/Burglary. The section continues to work a variety of case types, including other sex crimes (indecent liberties, incest, etc.), homicides, property crimes, assaults, and forensic identifications [unidentified bodies].

While property crimes constitute the majority of the cases worked, it should be noted that these generally are single exhibit cases that are processed only if the evidence submitted has a high likelihood of resulting in a profile suitable for CODIS entry. Given that these crimes have a high recidivism rate, they have an exceptional solvability factor when crime scene profiles are searched against the database. This is exemplified by the fact that property crimes constitute 82% of the total 2009 investigations aided by CODIS hits.

Four percent of the cases indicated in Figure 16 are categorized as other. The majority of these are felony possession (weapons) cases, however the category may also include arson, narcotics, and vandalism.

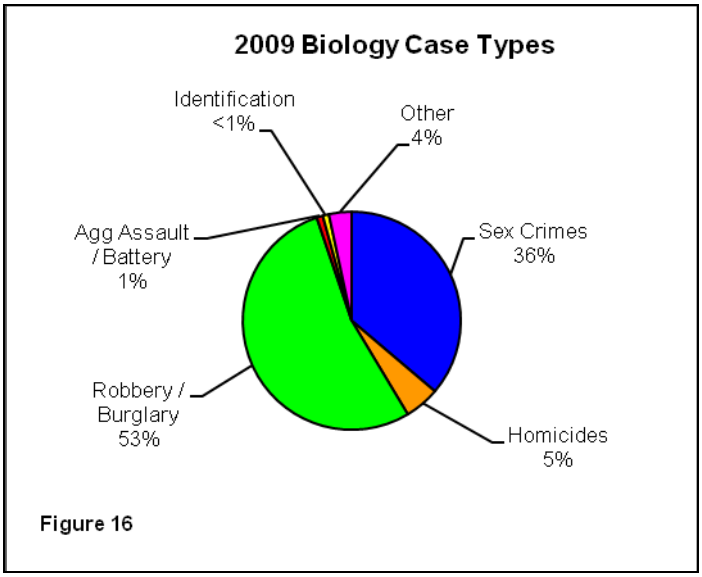


Figure 16

Combined DNA Index System (CODIS)

The FBI Laboratory's Combined DNA Index System (CODIS) blends forensic science and computer technology into an effective tool for solving violent crimes. CODIS enables federal, state, and local crime labs to exchange and compare DNA profiles electronically, thereby linking crimes to each other and to convicted offenders.

CODIS began as a pilot project in 1990, serving 14 state and local laboratories. The DNA Identification Act of 1994 (Public Law 103 322) formalized the FBI's authority to establish a national DNA index for law enforcement purposes. In October 1998, the FBI's National DNA Index System (NDIS) became operational. CODIS functions with three hierarchical levels (or tiers) – local, state, and national. NDIS is the highest level in the CODIS hierarchy, and enables the laboratories participating in the CODIS Program to exchange and compare DNA profiles on a national level. All DNA profiles originate at the local level (LDIS); then flow to the state (SDIS) and national (NDIS) levels. SDIS allows laboratories within states to exchange DNA profiles. The tiered approach allows state and local agencies to operate databases according to their specific legislative or legal requirements.

The success of the CODIS program is measured by the crimes it helps solve. With a CODIS hit, there is no prior physical evidence indicating that the matching DNA profiles are related. Hits add value by linking cases that were previously unlinked, by providing investigators with the identity of a known convicted offender, or by saving the investigative resources required to link cases without DNA. While tracking the number of hits is important, a better measure of the value of CODIS to our community is the number of criminal investigations it assists. To date investigations such as homicides, sexual assaults, and burglaries have been routinely aided by the use of CODIS.

As the number of forensic profiles entered into the CODIS database increases, there has been an increase in the number of hits and investigations aided [Figure 17]. This coincides with an increase in the number of convicted offenders and arrestees entered at the State level.

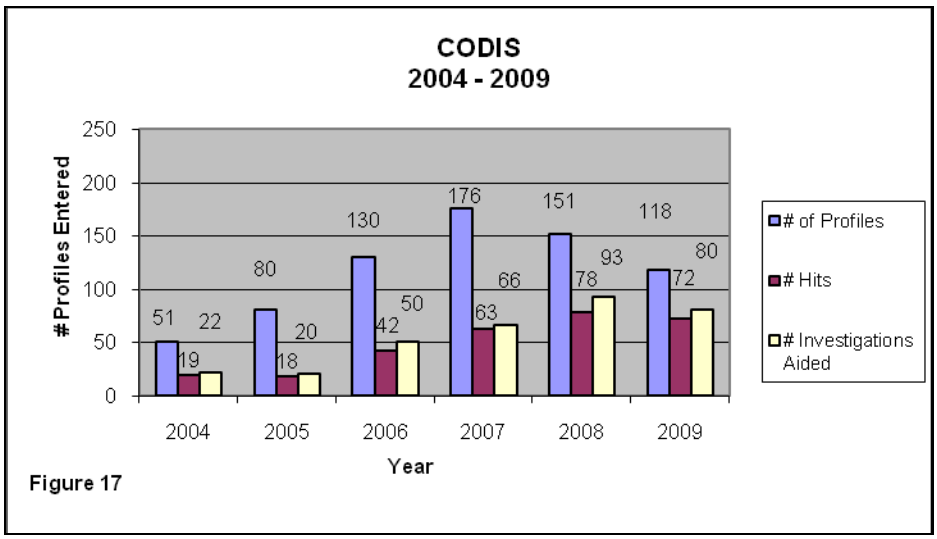
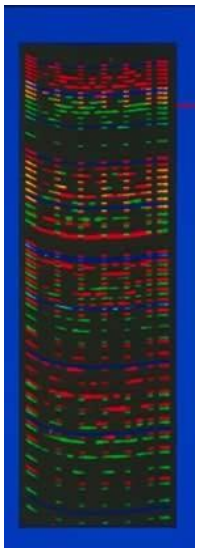


Figure 17



In Y2009, there were an additional 118 profiles entered into CODIS. Of those entered, 9 hits were made at LDIS, 48 hits were made at SDIS, and 15 hits were made at NDIS, resulting in a total of 80 investigations aided this year. By the end of 2009 nearly 800 forensic profiles had been entered locally since the inception of the program at the Center.

FORENSIC TOXICOLOGY SECTION

The Forensic Toxicology Section has experienced a steady increase in casework over the last few years. The number of cases submitted in Y2009 was slightly less than the year Y2008 [Figure 18]. The section continues to expand the number of drugs and poisons it can detect and quantitate. The Forensic Toxicology Section provides comprehensive examinations of post-mortem [autopsy] samples to assist in the determination of cause and manner of death. Specimens collected during the investigation of driving-under-the-influence-of-drugs/alcohol cases and drug-facilitated sexual assault cases are also examined by this section. The Toxicology Laboratory also provides drug testing on children removed from clandestine methamphetamine laboratories.

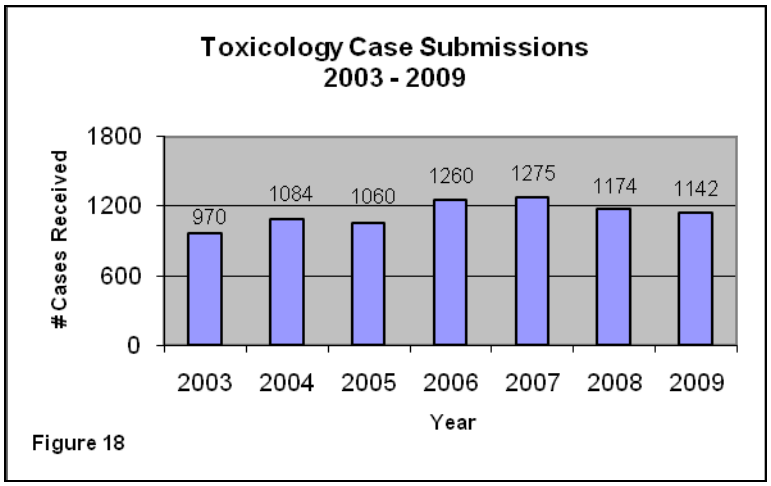


Figure 18

Figure 19 depicts the percentage of toxicology cases submitted by case type. Toxicological examinations in support of the District Coroner accounts for approximately two-thirds of the forensic case work performed by the section.

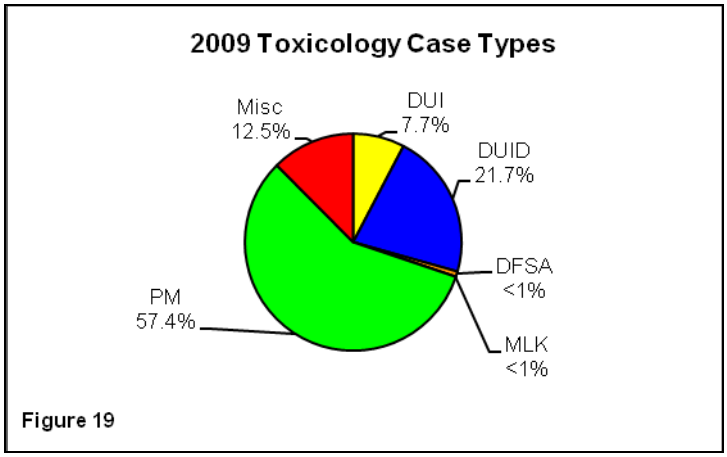


Figure 19

DUI:	Driving-under-the-influence of alcohol
DUID:	Driving-under-the-influence of drugs
DFSA:	Drug-facilitated sexual assault
MLK:	Meth Lab Kids
PM:	Post Mortem
Misc:	Proficiency Tests and Untested Cases

Children Removed from METH LABS

The RFSC is a partner in the Sedgwick County "Meth Kids Initiative Task Force" and the Kansas Alliance for Drug Endangered Children [DEC]. The DEC program is a multidisciplinary approach to protecting children found in clandestine methamphetamine laboratories. Children in these laboratories are at a great risk for physical, emotional, and developmental harm.

As shown in Figure 20, the Toxicology Laboratory evaluated 6 children [6 cases] removed from clandestine methamphetamine laboratories for exposure to methamphetamine in Y2009. Overall, 37.9% of all children tested had detectable amounts of methamphetamine in their systems from 2004 through 2009.

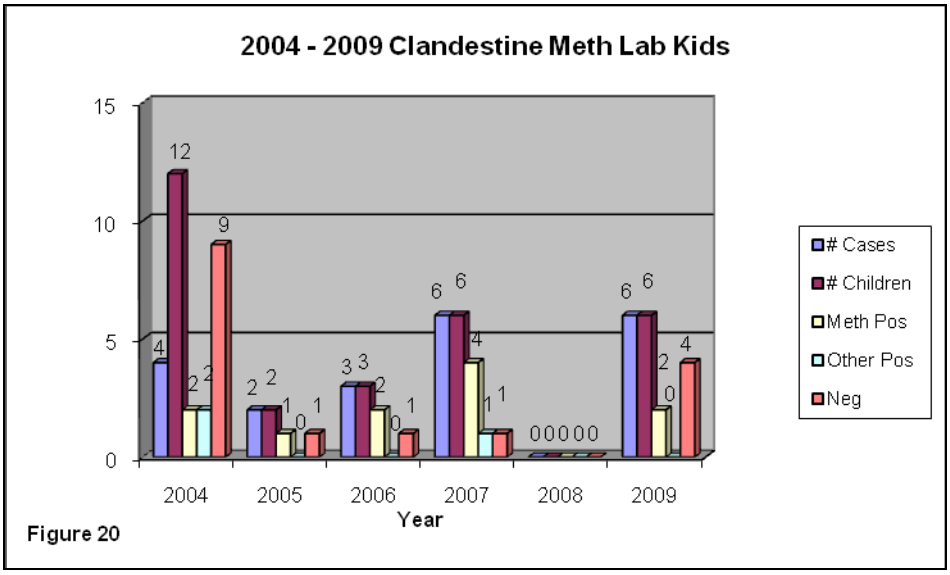


Figure 20

Alcohol and Drugs

Alcohol continues to play a significant role in all of the FSL toxicology case types [Figure 21]. In the toxicology alcohol positive cases 17.3% were greater than twice the legal limit (0.08 gm%).

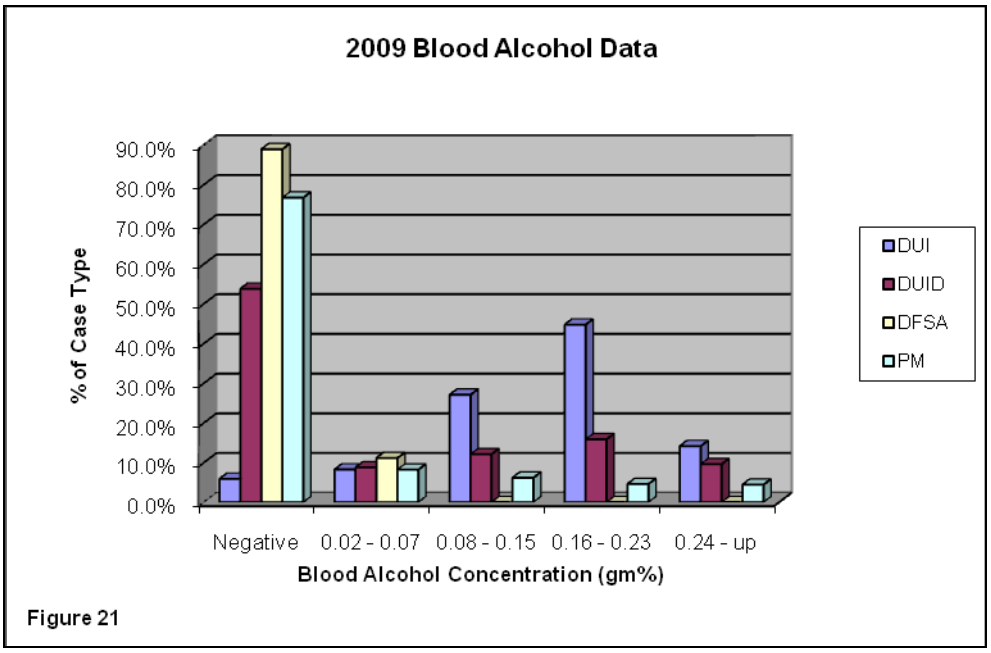


Figure 21

DUI = Driving-under-the-influence (Alcohol exclusively tested)
DUID = Driving-under-the-influence (Alcohol and/or drugs tested)
DFSA = Drug-Facilitated Sexual Assault
PM = Post-Mortem

The vast majority of samples submitted in Driving-Under-the-Influence [DUI] cases were found to have alcohol concentrations at or above the legal limit of 0.08 g% [Figure 22].

In approximately 23% of the postmortem (PM) case investigation there was a positive finding of alcohol [Figure 23].

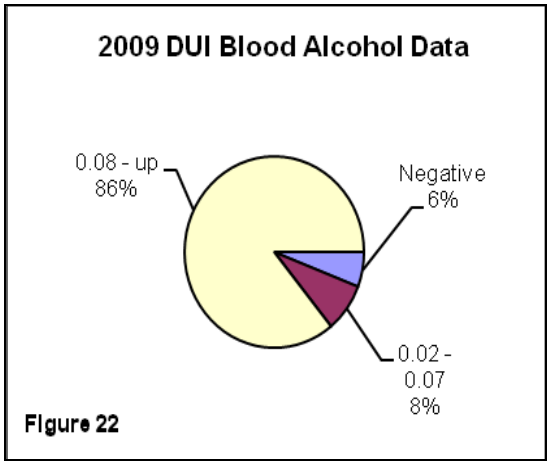


Figure 22

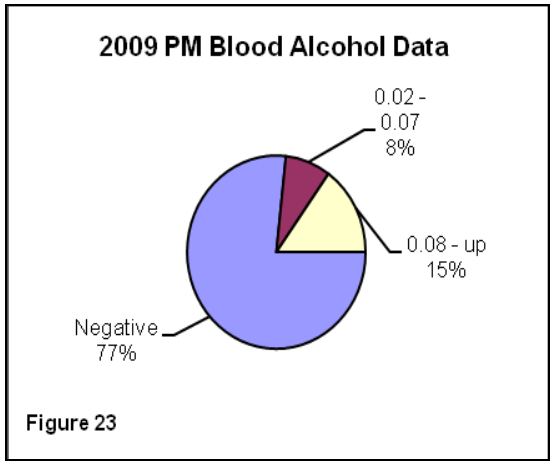


Figure 23

Drug-Related Deaths

Aside from alcohol, cocaine is the most commonly found drug in post-mortem cases. Table 3 depicts the 50 most common drug findings in post-mortem Toxicology cases [excluding ethyl alcohol] for Y2009.

Table 3: 2009 Most Commonly-Found Drugs (Post-Mortem)

6-Monoacetylmorphine/6-Acetylecodeine (Heroin)	Lorazepam
Acetaminophen	Methadone/Normethadone/EDDP/EMDP
Alprazolam/a-Hydroxyalprazolam	Metoprolol
Amitriptyline/Nortriptyline	Midazolam
Amphetamine/Methamphetamine	Mirtazapine
Atropine	Morphine
Bupropion/Metabolites	Nordiazepam
Carisoprodol/Meprobamate	Olanzapine
Chlorpheniramine	Oxazepam
Citalopram/Desmethylcitalopram	Oxycodone
Clonazepam/7-Aminoclonazepam	Oxymorphone
Cocaine/Benzoylecgonine/Cocaethylene	Pentobarbital
Codeine	Phenobarbital
Cyclobenzaprine/Norcyclobenzaprine	Phenytoin
Dextromethorphan	Promethazine/Norpromethazine
Diazepam	Propoxyphene/Norpropoxyphene
Diphenhydramine/Nordiphenhydramine	Quetiapine
Doxepin/Nordoxepin	Sertraline/Norsertraline/Desmethylsertraline
Doxylamine	Temazepam
Fentanyl	Tetrahydrocannabinol/Carboxytetrahydrocannabinol
Fluoxetine/Norfluoxetine	Tramadol/n-Desmethyltramadol/o-Desmethyltramadol
Hydrocodone/Hydromorphone/Dihydrocodeine	Trazodone/m-Chlorophenylpiperazine
Hydroxyzine	Valproic Acid
Lamotrigine	Venlafaxine/o-Desmethylvenlafaxine
Lidocaine	Zolpidem

Alcohol Positive Drivers

Alcohol plays a significant role in driving under the influence cases. In 2009, approximately 59% of drivers [DUI and DUID] tested had some detectable alcohol in their blood, [Figure 24]. Fifty percent of alcohol positive drivers were at or above "per se" limit of 0.08 gm%.

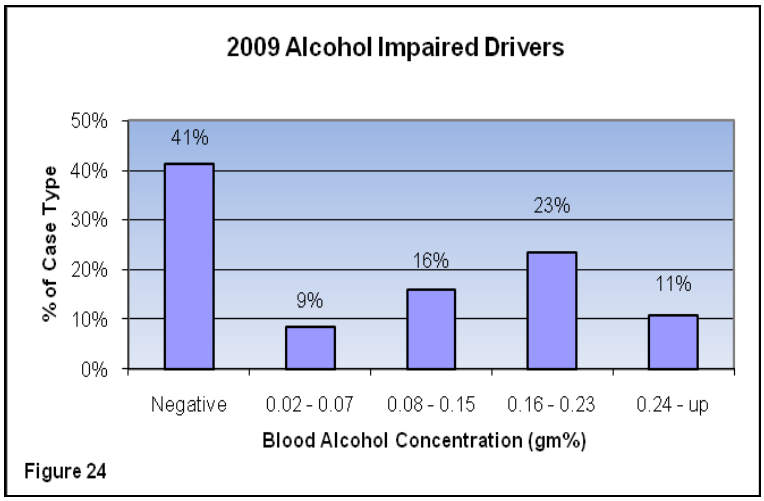
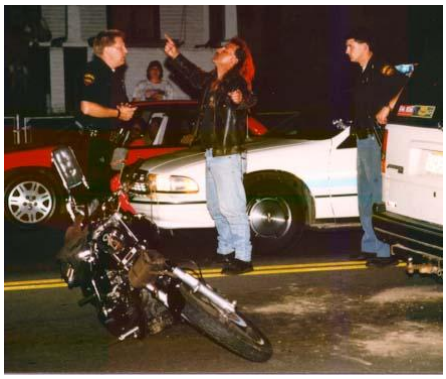


Figure 24



Alcohol Positive Drivers – Under the Age of 21

The legal age for possession of alcohol is 21 years old. In 2009, a significant portion [13%] of all motor vehicle drivers testing positive for alcohol were under the age of 21 [Figure 25].

Figure 25

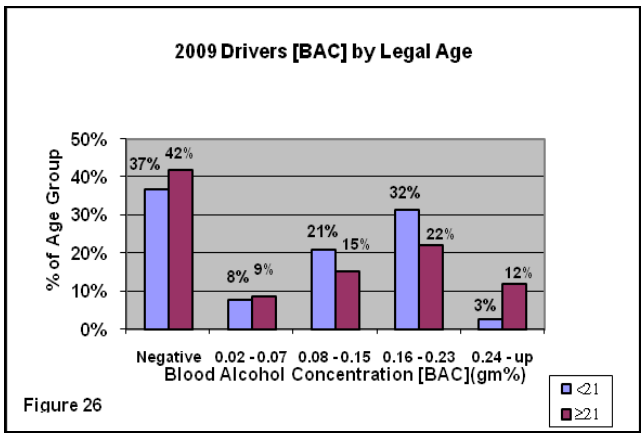


Figure 26

Figure 26 illustrates the percentages of suspected alcohol impaired drivers by age. For drivers tested that were under 21, 56% had alcohol concentrations $\geq$0.08%.

Drugs and Driving

Figure 27 illustrates alcohol concentrations in drivers suspected of driving under the influence of drugs. More than half the cases [54%] were found to be negative for alcohol [pre-screened for alcohol], 9% of the cases had blood alcohol levels at or below the legal limit and 37% of the cases were at or above 0.08% and up. Greater than 90% of the drivers suspected of driving under the influence of drugs, had one or more drugs detected [Figure 28].

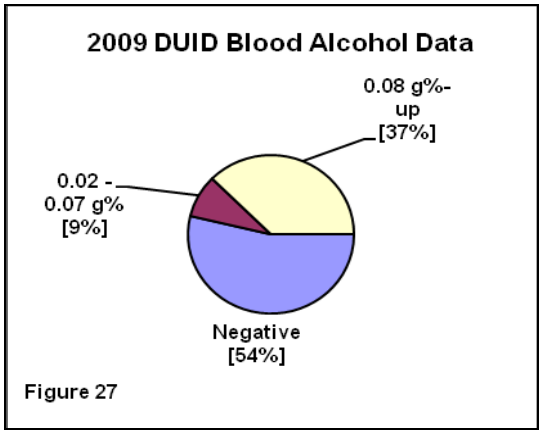


Figure 27

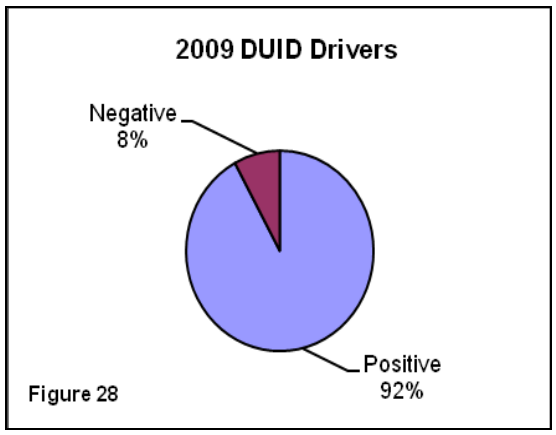


Figure 28

Drivers Drug Usage: Licit and Illicit Drugs

In those cases where drugs were detected, greater than 27% were illicit drugs or a mixture of illicit and licit [Figure 29].

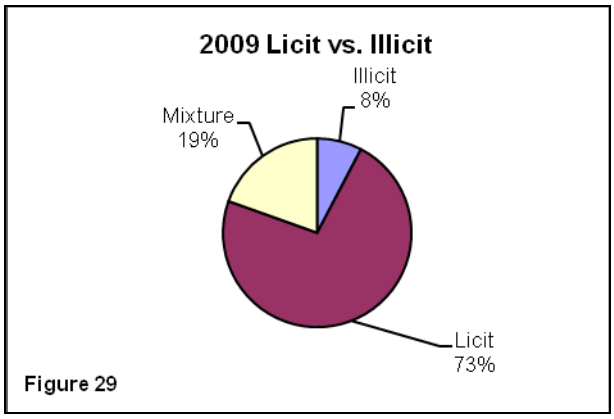


Figure 29

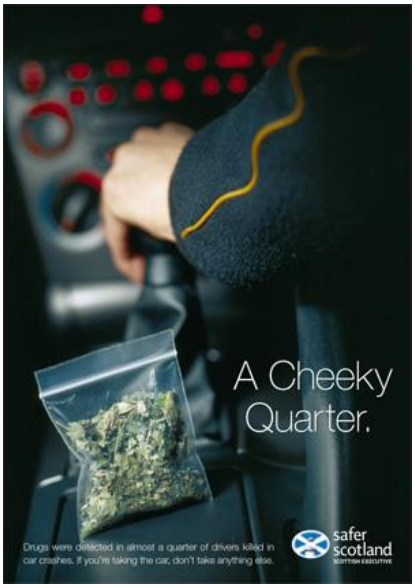


Table 4 depicts the 42 most common drug findings in Driving-Under-the-Influence-of-Drugs [DUID] toxicology cases [excluding ethyl alcohol] for Y2009.

Table 4: 2009 Most Commonly-Found Drugs (DUID)

Tetrahydrocannabinol/Carboxytetrahydrocannabinol	Venlafaxine/o-Desmethylvenlafaxine
Alprazolam/a-Hydroxyalprazolam	Butalbital
Hydrocodone/Hydromorphone/Dihydrocodeine	Codeine
Cocaine/Benzoylecgonine/Cocaethylene	Diazepam
Amphetamine/Methamphetamine	Doxylamine
Methadone/Normethadone/EDDP/EMDP	Quetiapine
Zolpidem	Tramadol/n-Desmethyltramadol/o-Desmethyltramadol
Carisoprodol/Meprobamate	Valproic Acid
Oxycodone	Cetirizine
Citalopram/Desmethylcitalopram	Chlorcyclizine
Nordiazepam	Difluoroethane
Clonazepam/7-Aminoclonazepam	Estazolam
Diphenhydramine/Nordiphenhydramine	Fluoxetine/Norfluoxetine
Trazodone/m-Chlorophenylpiperazine	Lamotrigine
Oxazepam	Lidocaine
Lorazepam	Mephentermine
Temazepam	Metoclopramide
Amitriptyline/Nortriptyline	Mirtazapine
Bupropion/Metabolites	Morphine
Cyclobenzaprine/Norcyclobenzaprine	Sertraline/Norsertraline/Desmethylsertraline
Phencyclidine	
Propoxyphene/Norpropoxyphene	

Drug-Facilitated Sexual Assaults

Drug-Facilitated Sexual Assaults [DFSA] continue to be difficult forensic investigations. In Y2007 alcohol was detected in 13% of the cases, where as in Y2008 alcohol was not detected in any of the DFSA cases. In 2009 alcohol was detected in11% of the DFSA cases [Fig 30]. The cases often involve a perpetrator who will surreptitiously administer a drug to a victim to render them unconscious and sexually assault them. In Y2009, the Toxicology Laboratory investigated 9 suspected DFSA cases.

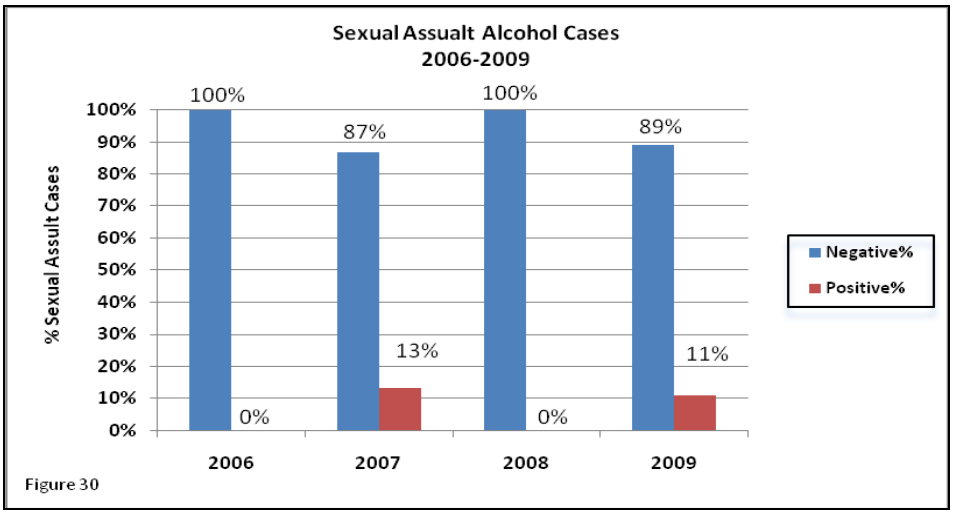


Figure 30

Figure 31 depict the most common drug findings in Drug-Facilitated Sexual Assault [DFSA] toxicology cases [excluding ethyl alcohol] for Y2007 through Y2009. Carisoprodol/Meprobamate was a common drug finding in DFSA cases.

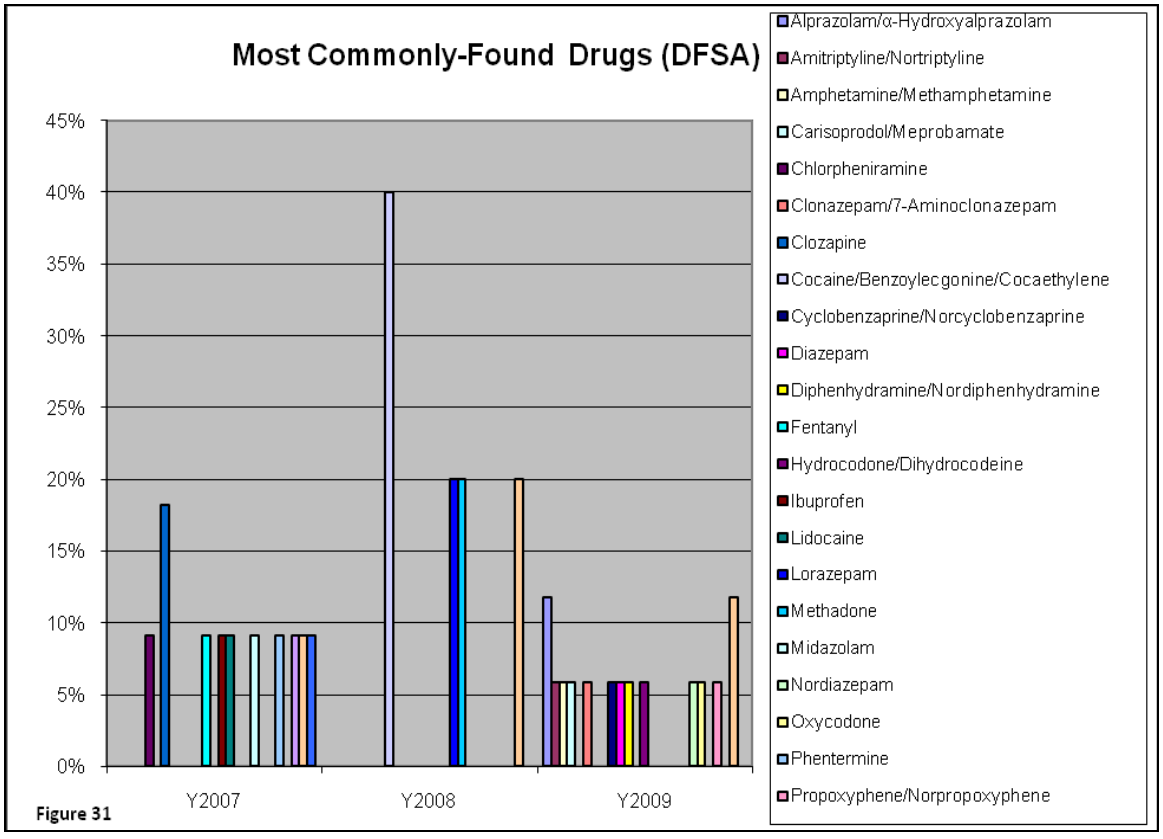


Figure 31