



2009

ANNUAL REPORT

MARYLAND STATE POLICE

FORENSIC SCIENCES DIVISION

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FORENSIC SCIENCES DIVISION DESCRIPTION



“The goal of the Maryland State Police Forensic Sciences Division is to provide the Law Enforcement Community and the citizenry of Maryland with the highest quality and integrity in forensic laboratory analysis and expert testimony.”

The Maryland State Police Forensic Sciences Division (MSP-FSD) is comprised of the Office of the Director, the Operational Services Branch and the Scientific Analysis Branch.

The Office of the Director consists of the Director, Deputy Director, Assistant Commander, and Quality Assurance / Safety Manager. This administrative unit is responsible for the overall management of the division. The Director oversees the management of the entire division while the Assistant Commander oversees the Operational Services Branch and the Deputy Director oversees the Scientific Analysis Branch. The Operational Services Branch consists of four Units. The Scientific Analysis Branch consists of four Sections comprised of nine Units.

The civilian and sworn personnel within the Operational Services Branch and the Scientific Analysis Branch provide scientific support services to the law enforcement community. Some services include, but are not limited to, the collection and preservation of physical evidence, examination of evidence, issuance of scientific reports, and providing expert courtroom testimony.

DIRECTOR'S SUMMARY

The year 2009 was one of continued expansion and success for the Forensic Sciences Division. The laboratory was fortunate to be able to fill most of its vacancies as well as being able to reclassify several positions. In comparison to the previous year, 2009 has shown a decrease in the casework backlog of CDS, DNA, Trace Evidence, and Latent Print analyses.

Expansions were seen with 1) the Biology Section accommodating the new DNA database law, 2) the Toxicology Unit offering a new forensic service to analyze blood samples for drugs of impairment, 3) the Latent Prints/Impressions Unit using new matching software, 4) the Berlin Laboratory operating at full capacity, and 5) the Top Management team being reestablished.

As of January 1, 2009, the Statewide DNA database included not only those convicted of felony offenses and certain misdemeanors but also those individuals charged with qualifying crimes of violence, burglary and attempts of those crimes. The success of this program is directly related to the cooperative efforts of practically the entire criminal justice system in Maryland including the Maryland State Police, the Department of Public Safety & Correctional Services, the Governor's Office of Crime Control and Prevention, the State's Attorney's Offices, as well as Allied Law Enforcement Agencies and Detention Centers. This new portion of the law has resulted in 40 hits for its first year, with 4,213 samples entered into CODIS (Combined DNA Index System). The already existing convicted offender program saw a total of 286 hits for the year, with 7,955 samples entered into CODIS. The total number of samples in CODIS had grown to 84,065 by the end of 2009. The FSD Biology Section continues to manage the Statewide DNA database and receives/uploads the casework DNA profiles from the local DNA typing laboratories to the National DNA database. To add to the searching success of the database, the FSD-Biology Section decreased its casework backlog by approximately 15% by the end of the year.

A second new service was put on-line late in 2009. The Toxicology Unit expanded its testing to include the analysis of blood samples for drugs of impairment. This was a cooperative effort involving the financial support of the State Highway Administration, technical support from the State Toxicologist and joint work between FSD and the Chemical Alcohol Testing Unit. The Department supported this goal with the hiring of a new Forensic Scientist Supervisor and two Forensic Scientist I positions.

The new *Cogent* software utilized within MAFIS has resulted in over twice the number of matches which have been further examined by the Latent Prints/Impressions Unit. Several hits have been made to cold cases. This new software allows for the capturing and searching of palm prints and allows for the automatic uploading of information into the FBI database. This type of entry previously required a dual entry process, uploading into MAFIS, followed by a separate entry into IAFIS.

Earlier in the year, the CDS-Berlin Unit was severely under-staffed, and most of the Division's CDS work needed to be handled by the CDS-Pikesville and CDS-Hagerstown Units. This resulted in longer turn around times and an increased amount of time spent traveling to court. Thanks to the teamwork shown by the CDS scientists from the CDS-Pikesville and CDS-Hagerstown Units taking on more work, the CDS-Berlin Unit was able to hire and train three

new scientists so that they are now in a position to handle future submissions. The Berlin Laboratory is now fully staffed.

The FSD Management Team was completed with the promotion of Mr. Dan Katz to Deputy Director and the hiring of a full time Quality Assurance/Safety Manager. They joined the Director and Assistant Commander Dave Hopp in overseeing the operations of the Division. Mr. Katz brought to our laboratory his experiences from the Armed Forces DNA Identification Laboratory and the Delaware Office of the Chief Medical Examiner. He was instrumental in moving forward the FSD-Biology Section into the age of automation and will be using his expertise to bring about more efficient, state of the art technologies to the other laboratory disciplines. Dr. Wanda Kuperus joined the laboratory as the Quality Assurance/Safety Manager in late summer bringing with her job experiences from the Royal Canadian Mounted Police and a commercial DNA typing laboratory. The filling of this new position is vital to the successful accreditation of the Division at the higher standards of ASCLD/LAB International. The assessment for this new level of accreditation is scheduled to occur in 2010. With Dr. Kuperus' oversight, FSD hopes to be the first ISO accredited forensic laboratory within our State.

Other notable achievements in 2009 include the initial implementations of the Laboratory Information Management System (LIMS) and the departmental wide conversion to digital photography; the restructuring that occurred within the Trace Evidence Section in an effort to allow for cross training, more efficient handling of some of the lesser volume types of analyses, and future expansions of new types of analyses; the reclassification of several job classifications to allow for the earning of overtime to support the Division's goal of decreasing the existing backlogs; the restructuring of the Crime Scene Unit to have three supervisors in an effort to improve response time; and the improved capture of laboratory statistics through the creation of advanced spreadsheets generated by the Division's Research Statistician. Furthermore, the success of the FSD would not be possible without the dedicated effort of the Administrative staff as well as the support received from the other Divisions.

In 2009, state employees were saddled with furlough and salary reduction days and the Department was forced to operate within significant fiscal restrictions. However, FSD continues to actively pursue and obtain federal grants in an effort to ensure that the Maryland State Police is able to provide the highest level of forensic analysis possible. These grants provide for the payment of overtime, the funding of external continuing education training, the outsourcing of casework, as well as the hiring of contractual staff. A summary of these grants follows.

In conclusion, the management of FSD is proud of all of the work accomplished by the Division's staff and is grateful for the Department's support of the laboratory's goals and needs.

CASEWORK SUMMARY

Unit	Total Cases Received	MSP Cases Received	Allied Agency Cases Received	Cases Completed	Backlog
Latent Prints/Impressions	1,992	27%	73%	2,032	269
Firearms/Toolmarks	623	39%	61%	562	694
CDS-Pikesville	10,490	24%	76%	9,328	1,938
CDS-Berlin	1,960	28%	72%	2,242	266
CDS-Hagerstown	2,717	40%	60%	2,697	422
Toxicology	973	31%	69%	865	150
Biology	498	20%	80%	572	347
Trace Evidence	302	45%	55%	325	14
TOTALS	19,555	28%	72%	18,623	

GRANT FUNDING SUMMARY

Coverdell FY08 Formula Grant: CFSI-2008-1702/PCA#26659

Start date: 11/01/08

End date: 09/30/09 Extended to: 10/31/09

Amount: \$49,868

This grant was entitled Forensic Sciences Division Staff Training and the majority of the funds were slated to be used for Travel/Training as well as Other/Registrations/workshop fees. In addition to the training expenses the funds were also used for a new computer workstation for SICAR (Shoeprint Image Capture and Retrieval), analytical balances & lab stools for the new CDS chemists, and manual shades for the digital imaging room in the Latent Prints/Impressions Unit. Remaining funds will be used to purchase a down draft hood for the Crime Scene Unit, magnifying loops to be used for the analysis of bloodstain pattern analysis, and standards manuals for arson analysis and questioned document examinations.

Coverdell FY09 Formula Grant: CFSI-2009-1802/PCA#27049

Start date: 10/01/2009

End date: 09/30/2010

Amount: \$65,037

This grant was entitled Forensic Sciences Staff Training and Overtime. The majority of the funds were slated to be used for Travel/Training as well as Other/Registrations/workshop fees. A portion was also slated for overtime wages for chemists to analyze CDS cases. Several scheduled training activities have been attended, membership dues to professional organizations have been paid and the CDS chemists have started working overtime.

Coverdell FY09 Competitive Grant: CFSI-2009-1008/PCA#27059

Start date: 10/01/2009

End date: 09/30/2010

Amount: \$54,000

This grant was entitled Gas Chromatograph/Mass Spectrometer. The entire grant amount will be used on the purchase of a GC/MS instrument for the CDS-Berlin Unit. Approval was obtained for General Funds to provide the balance of the cost of the instrument (\$73,292.10). The bid for this instrument has been awarded to Agilent and delivery is expected in February 2010.

Byrne-Justice Assistance Grant – ARRA of 2009: BJRA-2009-1083/PCA#27079

Start date: 12/01/2009

End date: 12/31/2010

Amount: \$374,871

This grant was entitled Backlog Reduction – DBRA. This grant is broken down between outsourcing of casework, testimony for outsourced casework, overtime for forensic scientists, and a contractual Paralegal II position. No expenses have yet posted to this grant, but the Paralegal II position has been posted.

NIJ FY08 Solving Cold Cases with DNA: 2008-DN-BX-K208/PCA#46225

Start date: 12/01/2008

End date: 05/31/2010

Amount: \$497,923

This grant was entitled MSP 2008 Solving Cold Cases with DNA. This grant encompasses the MSP Cold Case Unit, the Anne Arundel State's Attorney's Office, and the MSP Forensic Sciences Division. This grant is broken down into outsourcing of casework, overtime for investigators and forensic scientists, travel for investigators, equipment, supplies, two contractual positions for the Cold Case Unit, and various other items to support the Cold Case Unit and Forensic Sciences Division staff. Of the \$263,500 budgeted for outsourcing, \$143,000 has been spent on 61 cases.

NIJ FY08 Forensic DNA Backlog Reduction Program: 2008-DN-BX-K065/PCA#46245

Start date: 10/01/2008

End date: 3/31/2010

Amount: \$214,990

This grant was entitled MSP 2008 Forensic DNA Backlog Reduction Program. This grant is broken down into outsourcing of casework, travel, equipment, and various other items to support the Forensic Sciences Division staff. All of the \$202,887 budgeted for outsourcing has been spent accounting for 63 cases. The grant will be complete upon the receipt of one last item that has been ordered.

NIJ FY09 Forensic DNA Backlog Reduction Program: 2009-DN-BX-K060/PCA#46315

Start date: 10/01/2009

End date: 03/31/2011

Amount: \$351,908

This grant was entitled FY2009 Forensic DNA Backlog Reduction Program – Maryland State Police. This grant is broken down into outsourcing, travel, equipment, texts, and indirect costs. Of the \$250,000 budgeted for outsourcing, \$87,000 has been spent on 27 cases.

NIJ FY09 Appropriations Funding: 2009-D1-BX-K003/PCA#46325

Start date: 10/01/2009

Stop date: 03/31/2011

Amount: \$250,000

This grant was entitled FY2009 Appropriations Funding – State of Maryland DNA Casework Reduction. This grant is broken down into outsourcing, testimony for outsourced casework, overtime for forensic scientists, a contractual Inventory Control Specialist position, and indirect costs. Of the \$125,000 budgeted for outsourcing, \$1,000 has been spent on 1 case. The Inventory Control Specialist position has been posted.

OPERATIONAL SERVICES BRANCH

The Operational Services Branch is comprised of the Crime Scene, Central Receiving, Photography and Administrative Support Units and is managed by the Assistant Commander. The Crime Scene Unit (CSU) is divided into four regions, North, East, West and Central. The Unit is staffed by three Crime Scene Technician Supervisors and sixteen Crime Scene Technicians. Four technicians are assigned to each region. The Photography Unit is located at the Forensic Sciences Division (FSD) Pikesville Laboratory and is supervised by one Forensic Photographer Supervisor and is staffed by one Forensic Photographer. Also located at the Pikesville Laboratory are the Central Receiving and Administrative Support Units. The Central Receiving Unit is supervised by one Administrative Officer and is staffed by two Inventory Control Specialists. The Administrative Support Unit is supervised by one Administrative Specialist III and is staffed by one Administrative Specialist II, one Office Secretary III, and one Office Secretary II (currently vacant).

CRIME SCENE UNIT

The Crime Scene Unit is responsible for processing crime scene evidence to include identification, collection, preservation, photographing, sketching, storage and transportation of evidence into the laboratory facilities. Bloodstain pattern analysis, facial composite generation and bullet trajectory determination are also available. Along with processing of crime scenes, the technicians work closely with criminal investigators, providing technical assistance thereby allowing investigators the opportunity to conduct a thorough investigation. The technicians are available to Maryland's Law Enforcement Community twenty-four hours a day. The CSU has also provided assistance to neighboring states upon request.

The majority of the evidence examined by the FSD is transported by CSU technicians. They not only transport evidence for the majority of State Police installations, but also for many of the local police and sheriff's departments. The CSU also transports CDS for analysis to the Pikesville Laboratory and the two satellite labs located in Hagerstown and Berlin.

Their technical abilities and expertise are often utilized for activities other than criminal investigations. The CSU technicians provide instruction at the Maryland State Police Academy, Natural Resources Police Academy, various in-service school programs, and provide lectures during training and seminars hosted by allied police departments. They routinely participate in special photographic missions, recruitment, and public relations activities.

In addition to these duties, the CSU Technicians are responsible for the conduct and training of Crime Scene Search Teams (CSST) around the state. These teams are comprised of volunteers who respond to crime scenes and conduct thorough searches of large areas or smaller scale grid searches to recover possible evidence. There are two operational Crime Scene Search Teams managed by crime scene personnel. The Central Maryland Crime Scene Search Team is based in Frederick and the Northern Search Team is located in North East.

CSU Geographical Areas of Responsibility

REGION I (West): Allegany, Frederick, Washington and Garrett Counties

REGION II (Central): Howard, Carroll, Montgomery, Anne Arundel, Prince George's, Calvert, Charles and St. Mary's Counties

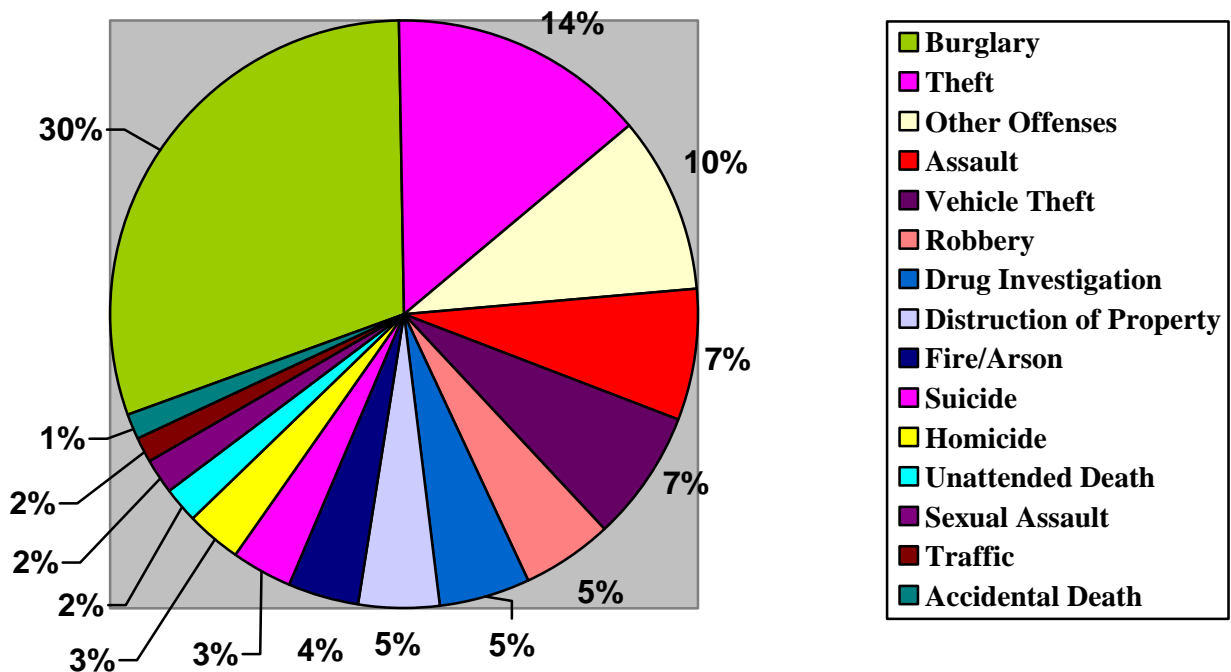
REGION III (North): Harford, Cecil, Baltimore and Kent Counties and all DOC facilities located in Baltimore City

REGION IV (East): Queen Anne's, Talbot, Caroline, Dorchester, Wicomico, Somerset and Worcester Counties

Total Number of Cases Handled in 2009 per Office/Installation

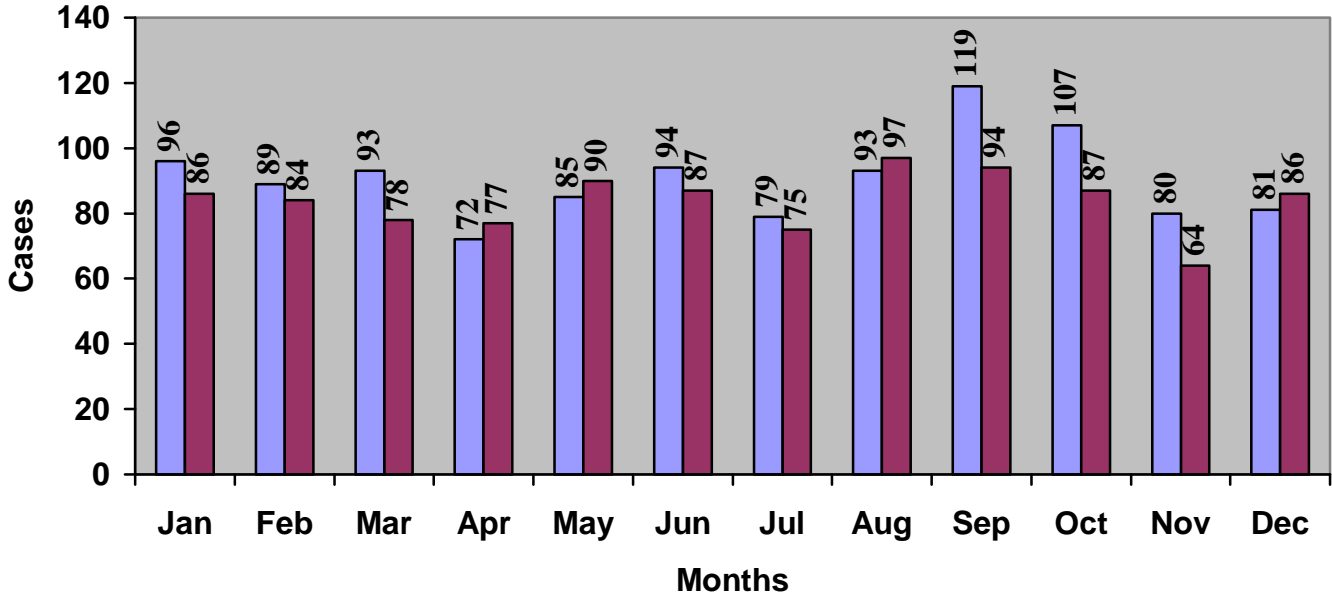
Crime Scene Office	Total Number of Cases
Westminster	140
Northeast	125
Easton	108
Centreville	88
Cumberland (C3I)	82
Glen Burnie	76
McHenry	69
Princess Anne	57
Hagerstown	55
Salisbury	51
Frederick	45
Prince Frederick	43
Belair	41
Golden Ring	25
TOTAL	1,005

Total Number of CSU Cases in 2009 per Crime Type



Total Number of CSU Cases Per Month

2008 = 1,088 2009 = 1,005



PHOTOGRAPHY UNIT

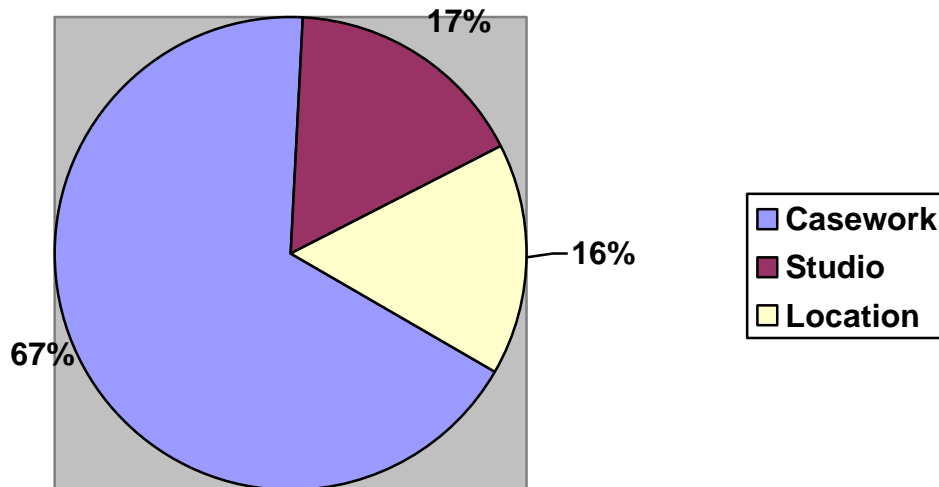
The Photography Unit provides services in forensic photography to include processing of crime scene photos in color and black & white, vehicular accident scenes, aerial photography, public relations photos for the Department and Department ID cards. They also provide assistance in digital enhancement. This Unit is the Department's Veripic digital processing program administrator.

In carrying out its responsibilities, the Unit's staff develops and prints film for this and other agencies regarding criminal and motor vehicle accidents. In addition, the Unit provides prints to external customers through requests received by the Department's Central Records Division. Other duties include, maintaining the digital Barrack Identification Photo System, special projects and providing photographic support for the other FSD units. Photo Unit personnel serve as members of the Disaster Identification and Mass Arrest Teams and provide technical training in photography.

Photography Requests 2009

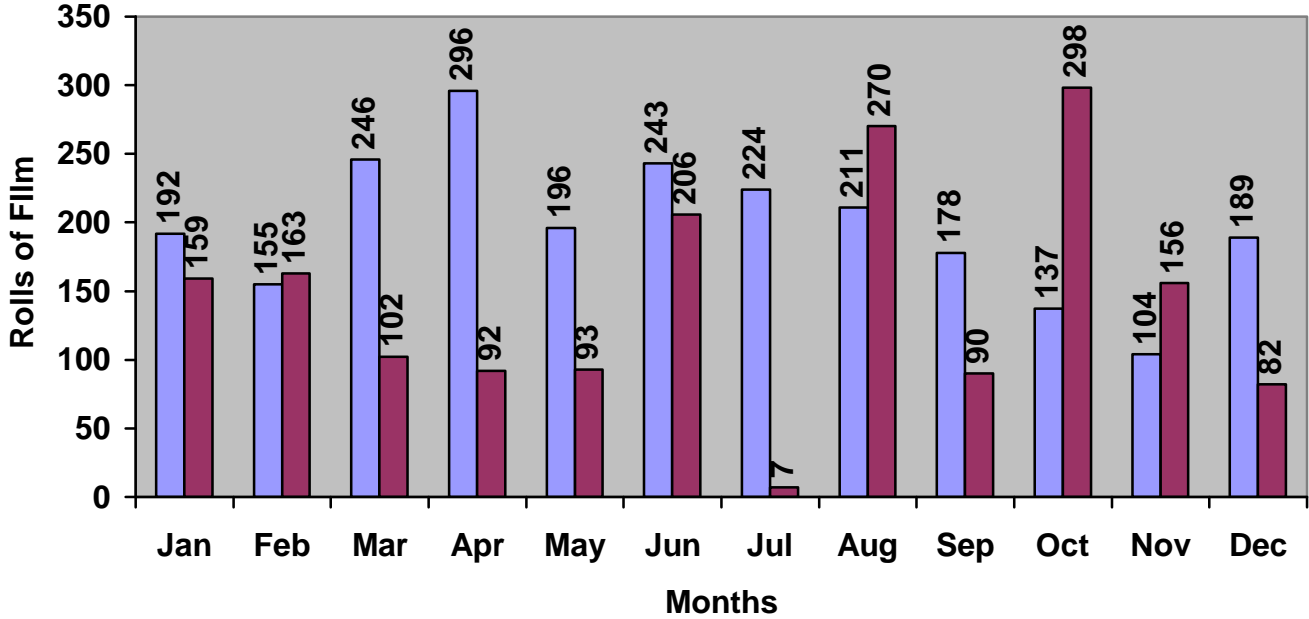
MSP Requestors	Requests
Forensic Science Division	113
Barracks	29
Headquarters	10
Special Operations Division	5
Training	4
Aviation	1
Medical	1
TOTAL	163

2009 Total Photo Requests per Request Type



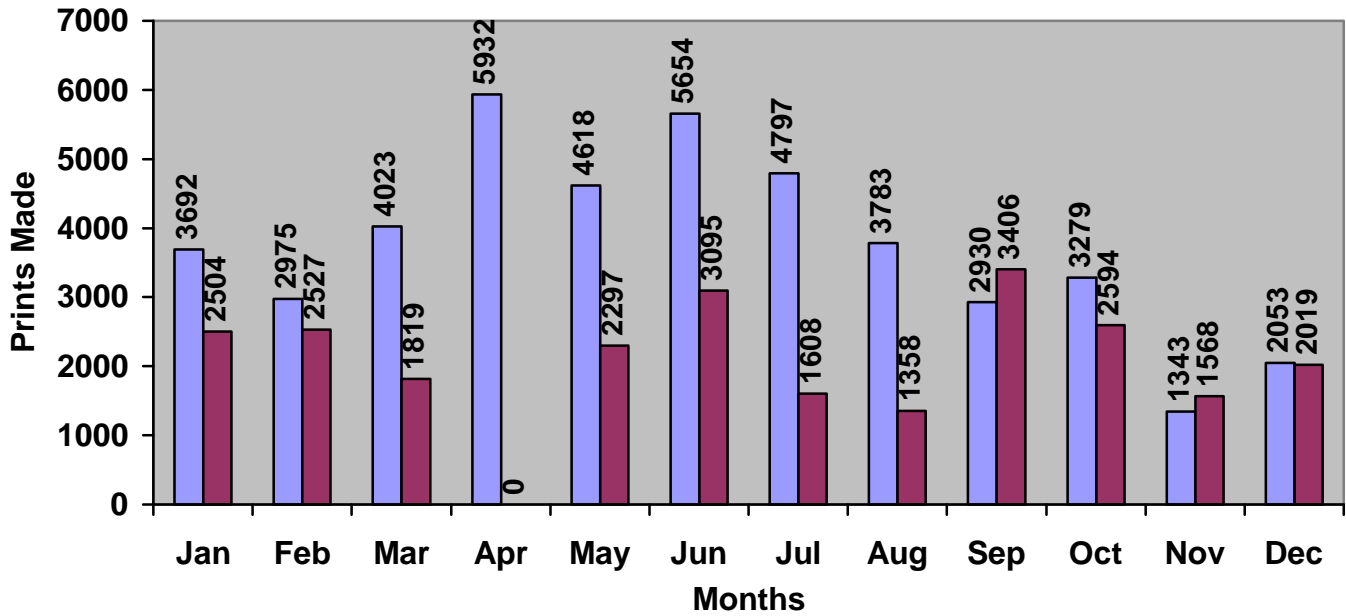
Total Film Processed

■ 2008 = 2,371 ■ 2009 = 1,718



Total Prints Made

■ 2008 = 45,079 ■ 2009 = 24,795



CENTRAL RECEIVING UNIT

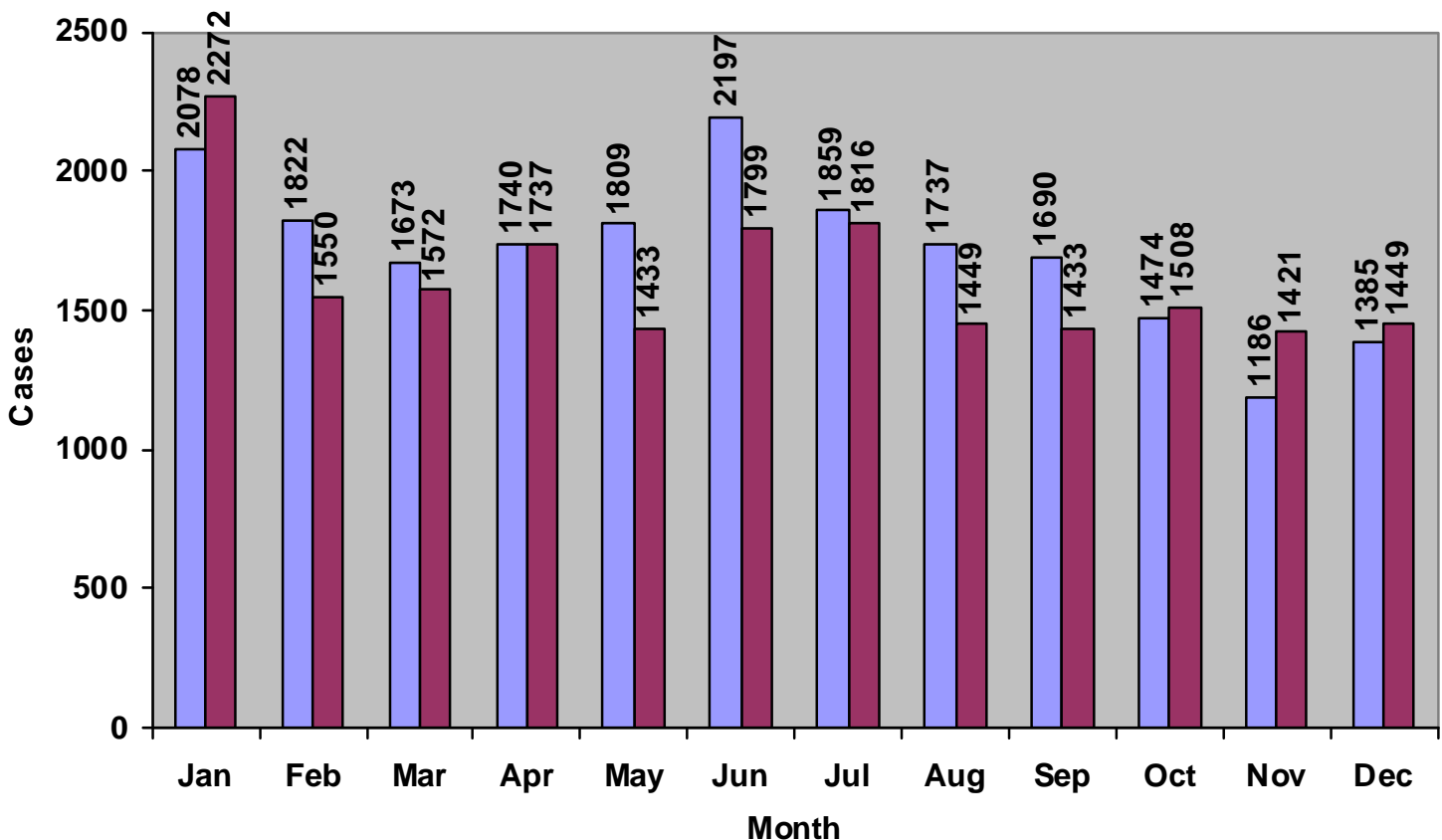
The Central Receiving Unit (CRU) functions as a liaison between the FSD and agencies submitting evidence for scientific analysis and CDS destruction. The CRU is responsible for the acceptance and storage of evidence and the security of evidence between submission, analysis, and return to the originating agency.

Employees of the CRU act as case coordinators for CDS evidence submitted to the Pikeville laboratory for chemical analysis. During destruction of CDS, cases are randomly chosen from those submitted to evaluate the integrity of the original analysis.

The CRU is also responsible for archiving case files for all sections of the FSD and for coordinating organized transports of these files to the State Records Management Center.

Total Cases Received at FSD

■ 2008 = 20,650 ■ 2009 = 19,439



ADMINISTRATIVE SUPPORT UNIT

The Administrative Support Unit provides support throughout the FSD including command staff. These functions include processing working fund expenditures, ordering laboratory supplies, capital inventory, various administrative duties in reference to the laboratory budget, personnel inquiries, etc., maintaining service agreement contracts, processing invoices, back-up processing of ID cards, logging and maintaining all submitted court summons, logging and processing training requests, processing work and leave reports, typing various technical manuals, and maintaining the Departmental filing system.

This Unit also provides the security/receptionist coverage for the FSD front lobby security desk. Here, staff screen and log all visitors, including personnel delivering evidence, and also monitor laboratory security cameras and correspond with Headquarters and the Baltimore County Police Department regarding security issues.

OPERATIONAL SERVICES BRANCH ACCOMPLISHMENTS IN 2009

1. The process to convert the Department from film based to digital based photography has begun. To accomplish this goal, the Operational Services Branch procured and had installed the Veripic software program, that allows for the upload and storage of all digital photos taken for investigations, and replaced its non-functioning film printer with a new Noritsu digital printer. The Veripic program through its unique and patented security system authenticates whether an image has been uploaded directly from a camera without editing. In conjunction with this procurement, the OSB secured digital cameras for all Field Operations Bureau barrack personnel (Corporal and below) and purchased enhanced digital SLR cameras for the FSD Crime Scene Unit and the Crash Team.
2. The Crime Scene, Photography, and Central Receiving Units became the first units in the FSD to become functional in the StarLims program. StarLims is an evidence tracking and scientific analysis software program that also allows outside users, such as States Attorneys and investigators, to have access to real time case data. The efforts of each unit helped identify critical problems with the program and personnel worked closely with the StarLims Corporation and Department IT resources to correct and update this program. The StarLims program will allow the FSD to become a paperless laboratory in the near future.
3. The Administrative Services Unit has played a critical role in keeping the FSD fully staffed during 2009. With several vacancies occurring during 2009, the Unit had efficiently conducted hiring processes to maintain vacancy levels down to as low as four positions compared to twenty-four during the later part of 2008. Similarly, the Unit prepared reclassification packets to restructure positions in several areas of the FSD, especially Biology, in order to provide for a more efficient organizational structure.

OPERATIONAL SERVICES BRANCH GOALS FOR 2010

1. The OSB strives to fully implement the Veripic system by providing user training and guidance to allow for a smooth and successful statewide launch during the early part of 2010. Beginning in February 2010, the Crime Scene Unit will begin a one month test pilot of this program and will become fully digital in March. The OSB will work closely with both Department and Veripic IT support personnel to accomplish this goal.
2. The OSB, through the use of StarLims, seeks to become 100% paperless in carrying out its duties. The OSB will continue to work closely with its FSD colleagues to ensure a cohesive effort towards this goal.
3. The OSB hopes to obtain a full-time Receptionist to ensure proper coverage of the front desk and to enforce the required security of the access points to the building. Currently, this duty requires a combined effort amongst administrative staff which hinders their ability to address the numerous administrative duties for which they are responsible.

PATTERN IDENTIFICATION SECTION

The Pattern Identification Section is responsible for performing latent print, footwear, tire track, firearms and toolmark analysis associated with criminal casework as well as operating and maintaining the state's latent print, firearms and footwear databases. The overall operations of the Pattern Identification Section are overseen by one Forensic Scientist Manager.

The Latent Prints/Impressions Unit is currently staffed with one Acting Supervisor (Pattern Identification Manager), two Forensic Scientists Advanced, three Forensic Scientists III, and one Forensic Scientist II. The Firearms/Toolmarks Unit is staffed with one Forensic Scientist Supervisor, three Forensic Scientists III (one currently vacant), and one Lab Technician I.

During the past year total case identifications were increased in the Latent Prints Sub-Unit from 251 in 2008 to 443 in 2009, representing a 76% increase in total cases identified. This is a direct result of the increased matching capabilities in the new Maryland Automated Fingerprint Identification System (MAFIS) database by Cogent. The automated case identifications resulted through hard work and dedication by staff members reviewing and comparing side by side unsolved latent candidates at a rate of 250-275 per day. In addition to the increased demands from the unsolved latent case candidates, MAFIS was used to verify fingerprints from 2019 duplicate DNA Database cards.

The Impressions Sub-Unit, received 84 case requests during 2009 and completed 77 cases during this period. These case requests consisted of 79 footwear case requests and 5 tire track case requests. The Impression Sub-Unit received a new Shoeprint Image Capture and Retrieval (SICAR) terminal workstation and all of the required SOLE MATE updates to perform footwear database searches.

The Latent Prints/Impressions Unit switched from conventional silver based photography to the use of digital capture photography as the primary method for capturing images. There was additional digital equipment purchased in order to operate two new digital set ups and training was given on these workstations. The evidence submission guidelines were revised to accommodate the method of capture and the digital requirements necessary for submission of digital photography into the Latent Prints/Impressions Unit.

An ongoing program called Operation Test Shot was implemented in the Firearms/Toolmarks Unit using "Forensic Buddies". These small portable snail trap devices are used to shoot firearms at the agency level; specifically to determine gun operability in handgun possession cases. Training was provided by members of the Firearms/Toolmarks Unit for this program to allied agency participants.

In 2009, the Firearms/Toolmarks Unit had one forensic scientist vacancy for eight months and a second forensic scientist vacancy for four months. Despite these two vacancies, the unit's backlog increased by only 18 cases over this period. The two remaining firearms examiners displayed an outstanding amount of dedication and hard work to keep this unit functioning during these difficult times.

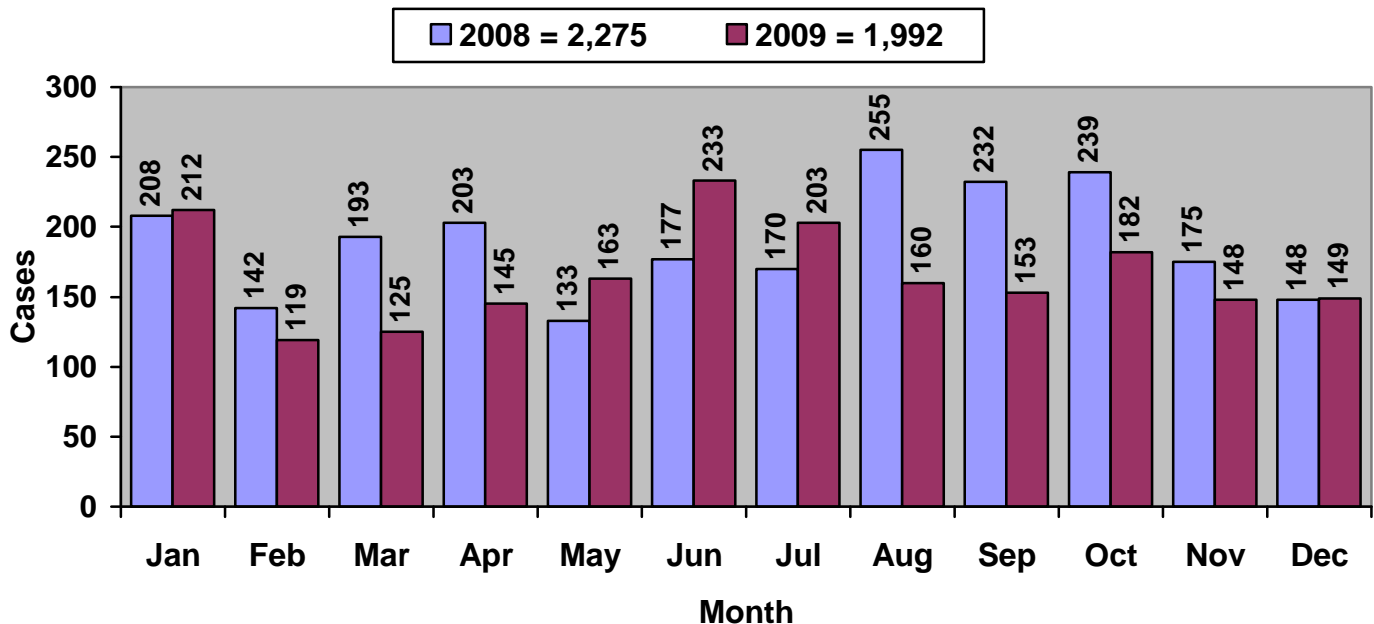
LATENT PRINTS/IMPRESSIONS UNIT

The Latent Prints Sub-Unit analyzes latent fingerprints and palm prints from lifts or photographs. Comparisons are made from known to unknown prints. An evaluation or conclusion is reached and supporting documents and notes are kept. In cases where an identification is made a second examiner performs an independent verification. All case files are administratively and technically reviewed. The unit photographs friction ridge images using both digital and conventional capture/photo processes. Chemicals, powders, fuming and photography are used for the detection and or capture of latent prints. Any prints suitable will be entered and searched through the Maryland Automated Fingerprint Identification System (MAFIS). An official report is issued on all case requests.

The Impressions Sub-Unit is responsible for footwear and tire track cases. An analysis and comparison is performed as required for these sub-disciplines. Various powders, chemicals, and photography are used for the proper capture of this impression evidence. Photographs are taken conventionally with silver base photography as a primary method and digitally as a secondary method. Any footwear images that are suitable are entered and searched through the SICAR database. All notes, photos, reports and case file contents are reviewed through an administrative and technical review process.

Casework

Total Cases Received



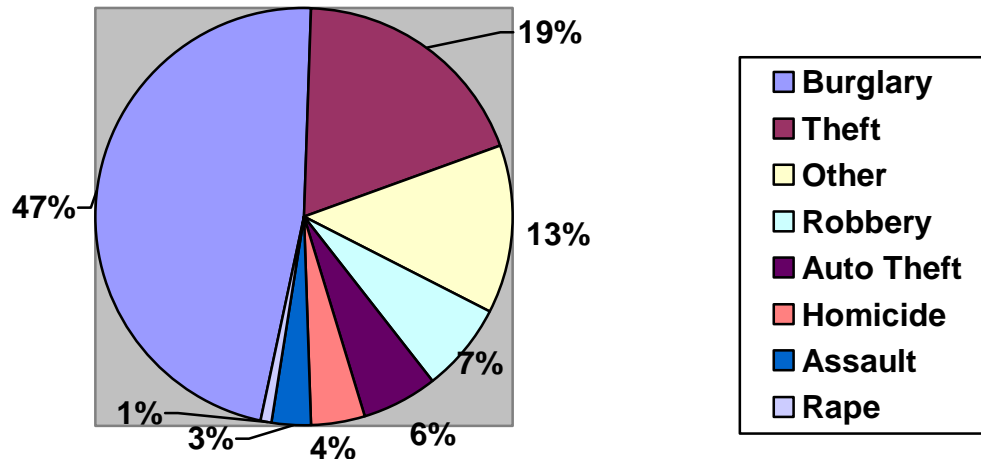
Total MSP Cases Received in 2009 per Barrack

MSP Installation	Counties Served	Submissions
MSP–Westminster	Carroll	131
MSP–North East	Cecil	54
MSP–Easton	Caroline, Dorchester, Talbot	44
MSP–Homicide	State Wide	33
MSP–Centreville	Kent, Queen Anne’s	30
MSP–Frederick	Frederick	30
MSP–Bel Air	Harford	28
MSP–Hagerstown	Washington	27
MSP–Princess Anne	Somerset	26
MSP–Mc Henry	Garrett	22
MSP–Prince Frederick	Calvert	18
MSP–Salisbury	Wicomico	17
MSP–Cumberland	Allegany	15
MSP–Leonardtown	St. Mary’s	12
MSP–Glen Burnie	Anne Arundel	8
MSP–Narcotics Task Force	State Wide	7
MSP–Golden Ring	Baltimore	6
MSP–Forestville	Prince George’s	5
MSP–Berlin	Worcester	5
MSP–JFK Memorial Highway	Cecil, Harford, Baltimore	3
MSP–DOC	State Wide	3
MSP–College Park	Prince George’s	2
MSP–La Plata	Charles	2
MSP- Internal Affairs	State Wide	2
MSP–Waterloo	Howard	1
	TOTAL	531

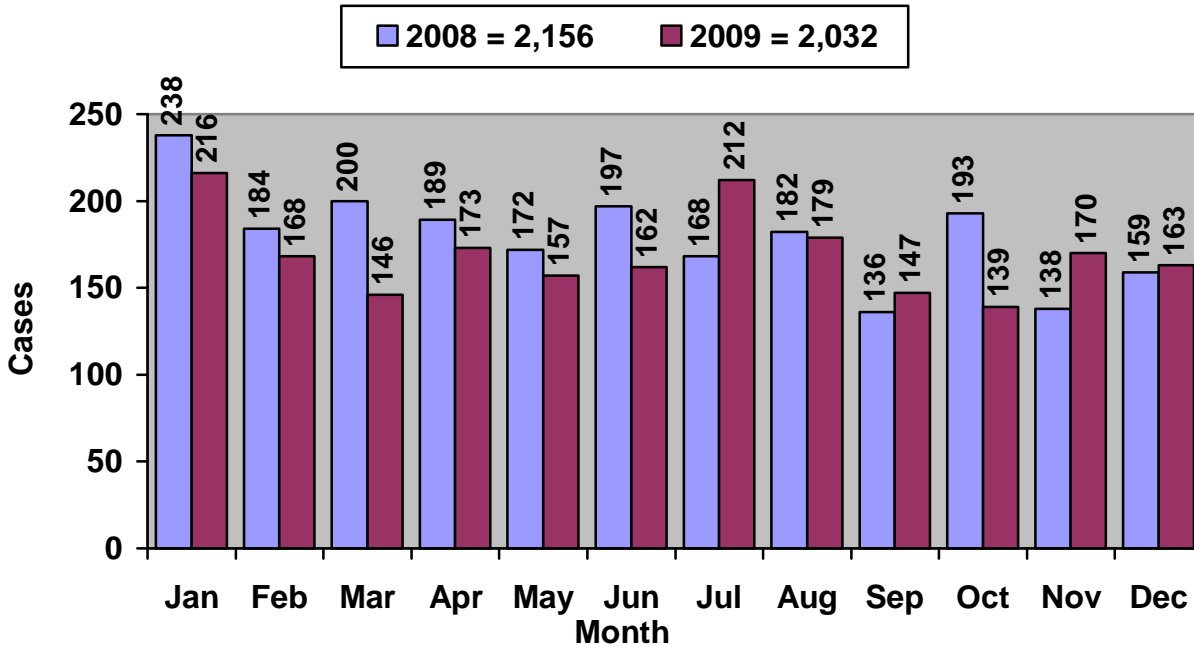
Total Allied Agency Cases Received in 2009 per County

Counties / Jurisdictions	Submissions
Frederick	262
Worcester	200
Wicomico	185
Dorchester	159
Washington	106
Cecil	81
Carroll	80
State Wide Agencies	72
Allegany	64
Queen Anne	54
Talbot	48
Caroline	47
Somerset	36
Prince George's	21
Baltimore	13
Kent	9
Garrett	8
Baltimore City	4
Harford	3
State of Virginia	3
Charles	2
Federal	2
Howard	1
State of Illinois	1
TOTAL	1,461

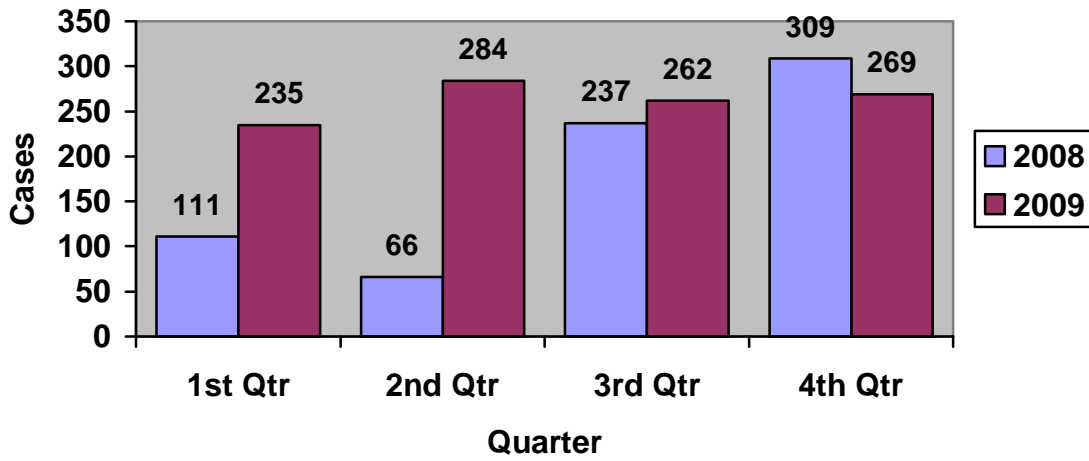
Total Cases Received in 2009 per Crime Type



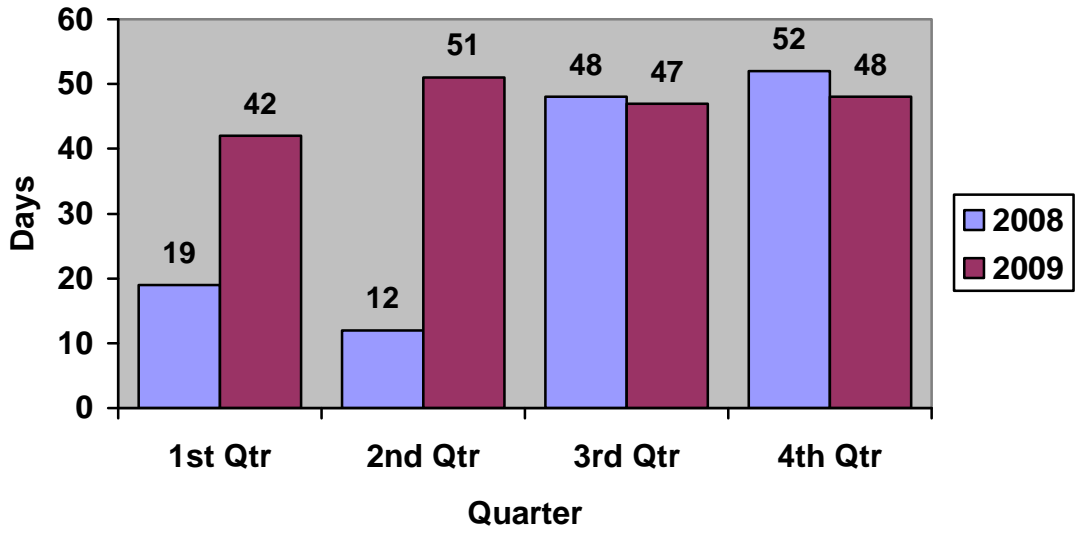
Total Cases Completed per Month



Ending Backlog per Quarter

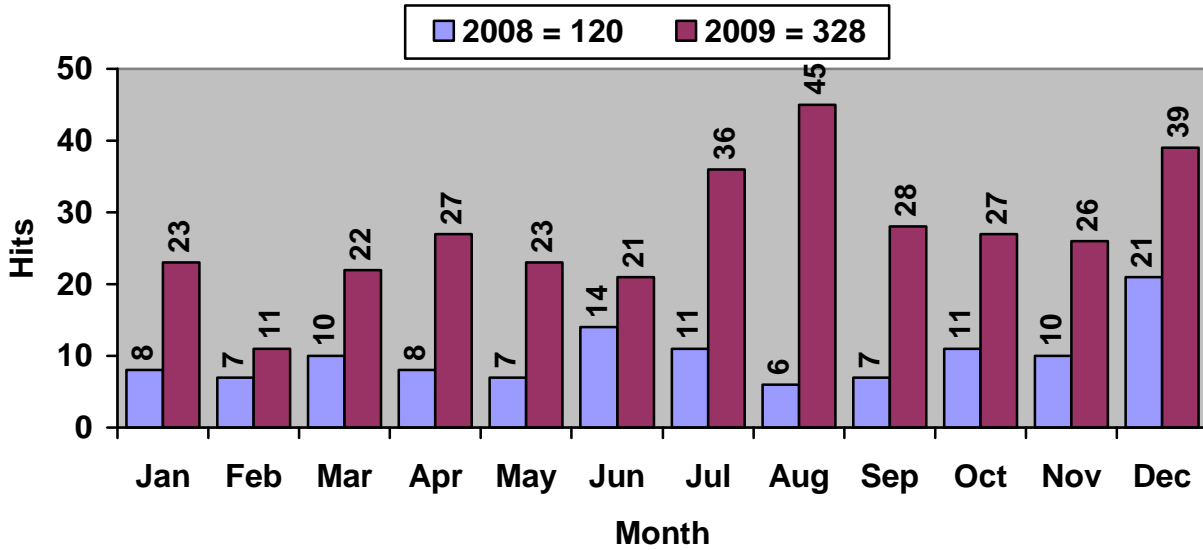


Average Turn Around Time per Quarter



MAFIS Database

Total MAFIS Hits Reported per Month



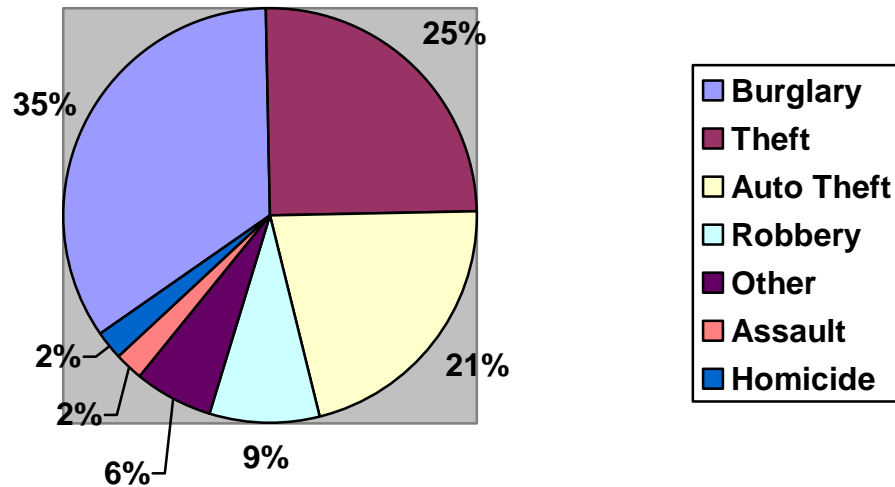
Total Allied Agency MAFIS Hits Reported in 2009 per County

County	Hits Reported
Wicomico	32
Frederick	29
Dorchester	20
Worcester	20
Carroll	14
Washington	11
Cecil	8
Prince George's	8
Queen Anne's	7
Baltimore	7
Talbot	7
Allegany	6
Caroline	5
Garrett	4
Kent	2
Harford	2
Somerset	2
Calvert	2
TOTAL	186

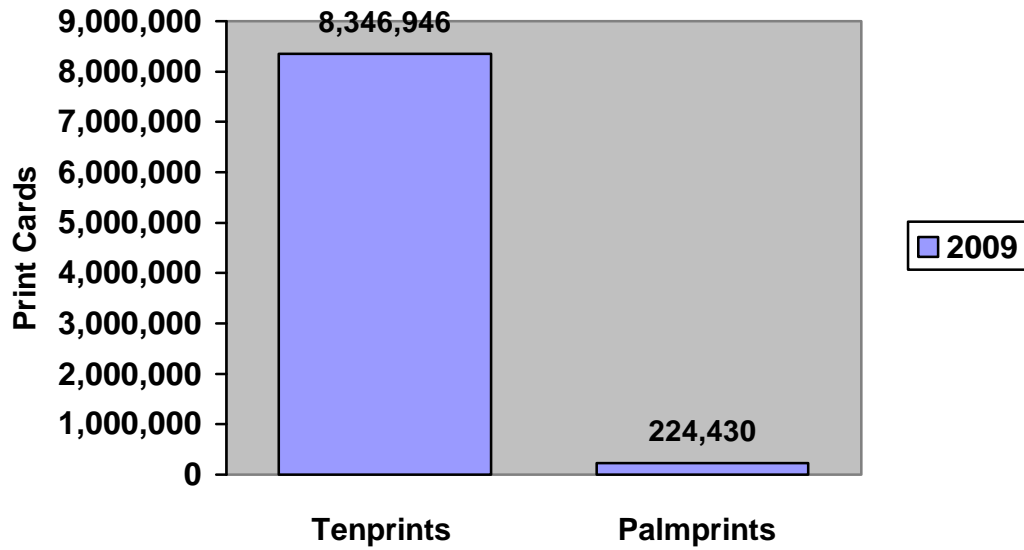
Total MAFIS Hits Reported in 2009 per Year of the Crime

Year of the Crime	Cases with Hits Reported
1991	2
1992	2
1993	6
1994	4
1995	6
1996	11
1997	4
1998	11
1999	6
2000	9
2001	16
2002	28
2003	11
2004	13
2005	11
2006	10
2007	16
2008	48
2009	114
TOTAL	328

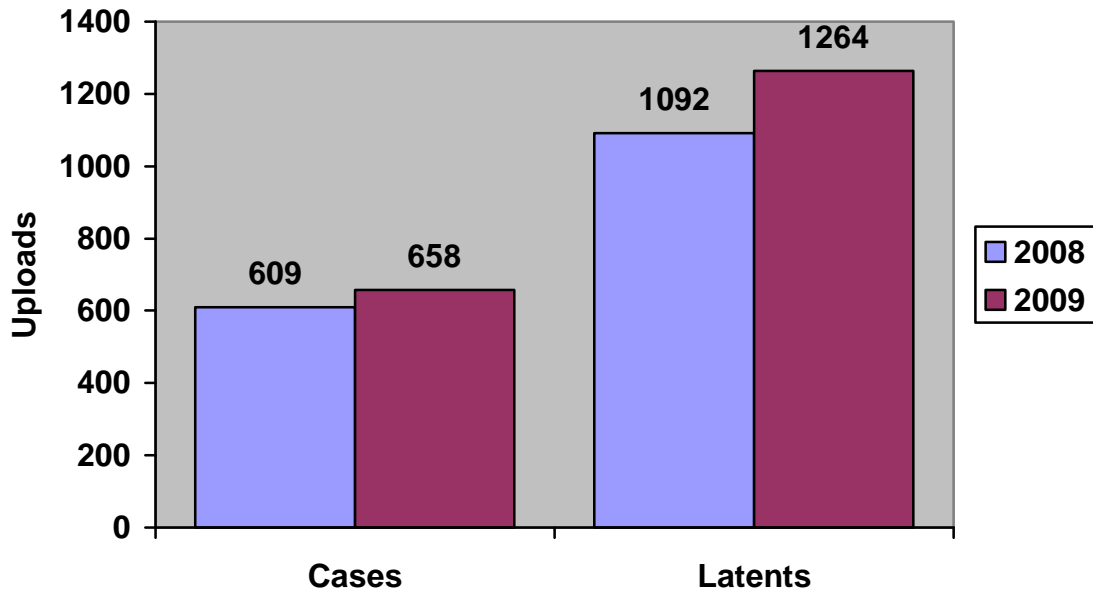
Total MAFIS Hits Reported in 2009 per Crime



Total Known Reference Samples in MAFIS



Total Uploads to MAFIS per Year



Training and Validation

Forensic Scientist	Competency Certification
Lindsey Schultz	In Training (Mock Trial Completed)

New Technology Implemented in 2009	Expected Benefits
Cogent's MAFIS	New matchers allow for increased case hit productivity
SICAR - SOLE MATE update	Additional database reference material for casework
New Digital Imaging workstation	Improved image capture and enhancement
Downdraft Powder System	Safer environment when processing with powder

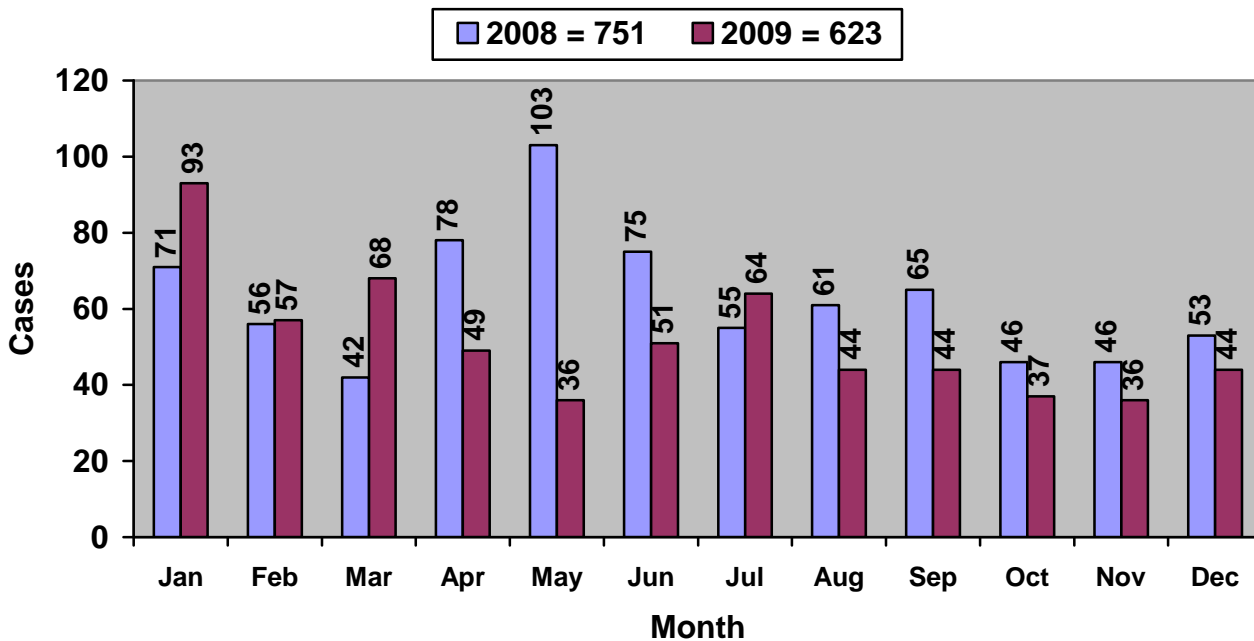
FIREARMS/TOOLMARKS UNIT

The Firearms/Toolmarks Unit has the responsibility of conducting microscopic, chemical and functional examinations on firearms and toolmarks. Analyses include direct comparisons, distance determinations, and serial number restorations. The unit is also equipped with the National Integrated Ballistic Identification Network (NIBIN) database system, which allows for fired cartridge cases from test fires or crime scenes to be captured. The system is used as an investigative tool for the possible detection of a particular cartridge case being used in another crime. After the completion of examination the individual examiner will report the conclusions of their findings. This procedure also includes an independent administrative and technical review by another qualified examiner. The unit services over 20 different law enforcement agencies throughout the state of Maryland.

By law any new handgun purchased in the state must be accompanied with a fired cartridge case sample from the manufacturer for entry into a database. This database, the Maryland Integrated Ballistic Identification System (MD IBIS) is housed along with the samples submitted by the manufacturer in this unit.

Casework

Total Cases Received per Month



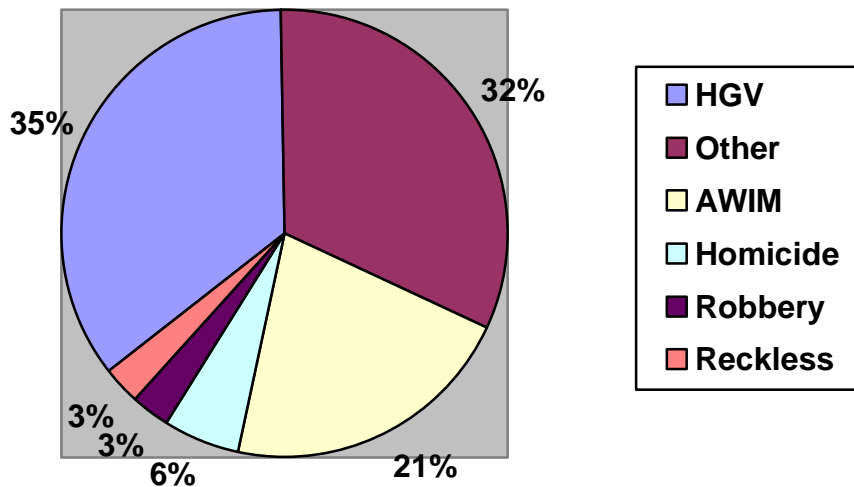
Total MSP Cases Received in 2009 per Barrack

MSP Installation	Counties Served	Submissions
MSP – Westminster	Carroll	27
MSP – Easton	Caroline, Dorchester, Talbot	22
MSP – Centerville	Kent, Queen Anne’s	20
MSP – JFK	Cecil, Harford, Baltimore	20
MSP – Forestville	Prince George’s	15
MSP – Waterloo	Howard	15
MSP – North East	Cecil	14
MSP – Frederick	Frederick	12
MSP – Bel Air	Harford	11
MSP – Cumberland	Allegany	11
MSP – Hagerstown	Washington	10
MSP – Prince Frederick	Calvert	9
MSP – Princess Anne	Somerset	9
MSP – Glen Burnie	Anne Arundel	8
MSP – College Park	Prince George’s	7
MSP – Golden Ring	Baltimore	7
MSP – Leonardtown	St. Mary’s	6
MSP – Berlin	Worcester	6
MSP – LaPlata	Charles	5
MSP – McHenry	Garrett	5
MSP – Rockville	Montgomery	3
MSP – Salisbury	Wicomico	1
	TOTAL	243

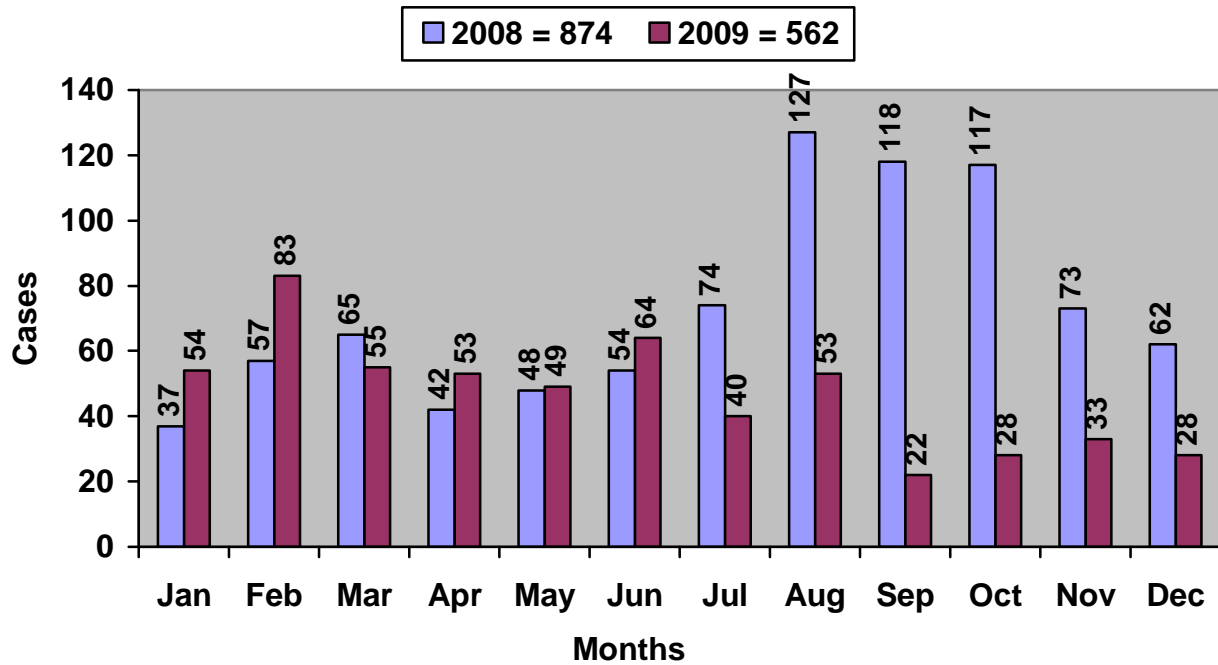
Total Allied Agency Cases Received in 2009 per County

County	Submissions
Anne Arundel	70
Wicomico	58
Frederick	54
Harford	36
Charles	22
Allegany	20
Carroll	18
Howard	17
Cecil	14
Baltimore City	12
Worcester	12
Kent	10
Washington	7
Dorchester	6
St. Mary	5
Prince George	5
Caroline	5
Queen Anne	3
Princess Anne	3
Talbot	2
Calvert	1
TOTAL	380

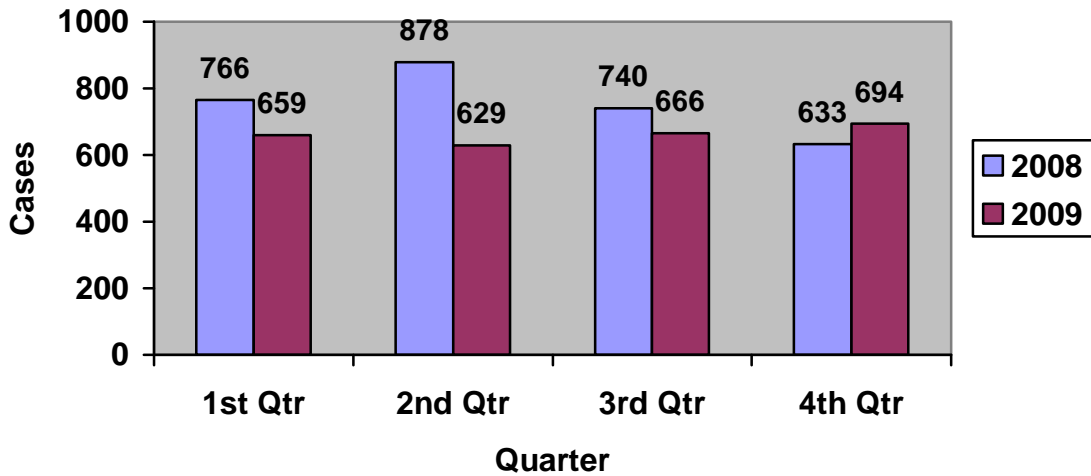
Total Cases Received in 2009 per Crime Type



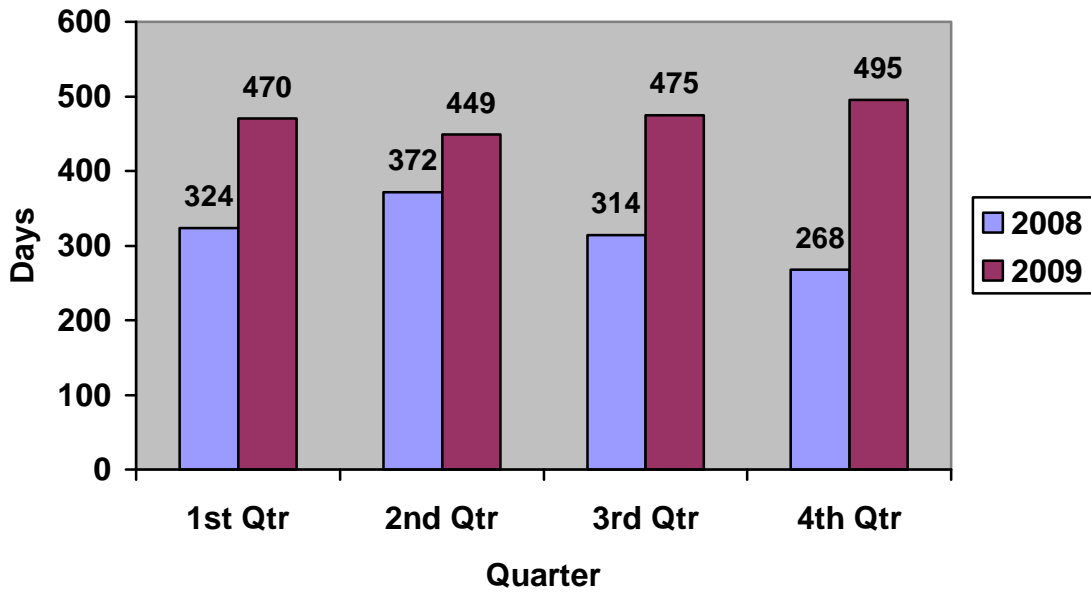
Total Cases Completed per Month



Ending Backlog per Quarter

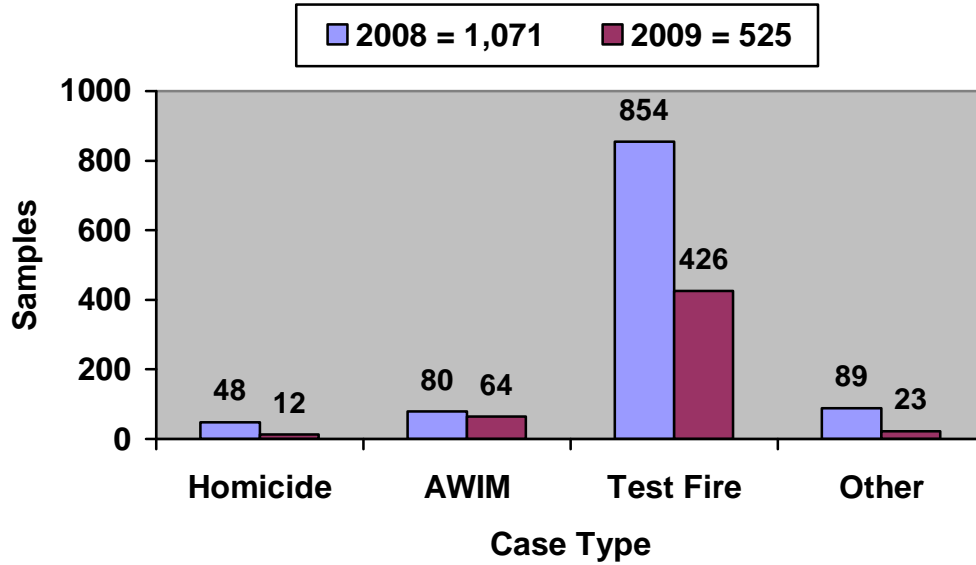


Average Turn Around Time per Quarter

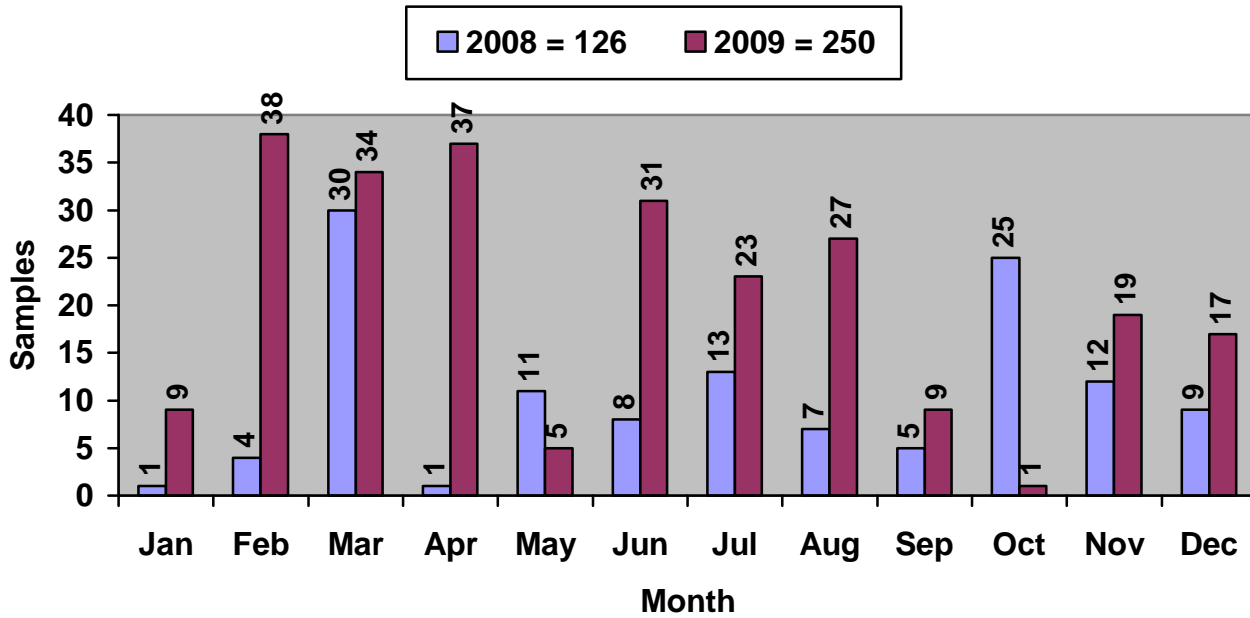


NIBIN/MD IBIS Databases

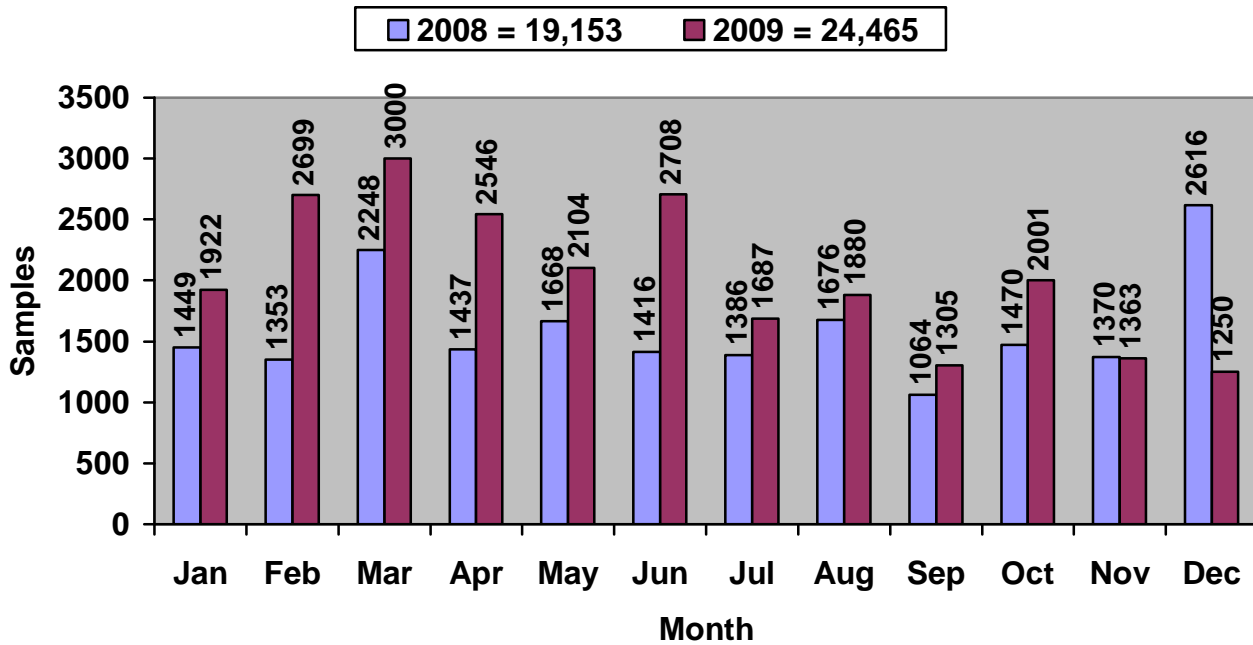
Uploads to NIBIN per Case Type



Operation Test Shot Samples per Month



MD IBIS Samples Received per Month



Training and Validation

New Technology Implemented in 2009	Expected Benefits
Forensic Buddy – 9 systems	Allows outside agencies to perform own test shot for database

PATTERN IDENTIFICATION SECTION ACCOMPLISHMENTS IN 2009

1. The primary accomplishment for 2009 within the Pattern Identification Section was the implementation of the Cogent Software for the new MAFIS database. All ten print cards in the Maryland system, all unsolved latent casework, and the palm print cards previously housed at the MSP-FSD were digitally converted into the new MAFIS database. Due to this outstanding conversion with new matcher algorithms, the number of case identifications through this database increased from 120 in 2008 to 328 in 2009, representing a 173% increase in MAFIS identifications.
2. Forensic Scientist II, Lindsey Schultz, is near the end of her training as a latent print examiner. Lindsey has been trained by her mentor, Leonard Butt, training coordinator, in house on technical issues and methodology in friction print analysis, comparison, and evaluation. Lindsey also attended several formal training classes hosted by the IAI, CBD-IAI and Ron Smith & Associates in the methods used in friction ridge analysis and comparison, implications from current court cases, and the NAS report findings. She has successfully completed moot court, public speaking engagements, and practical exercises. Lindsey Schultz is a welcome addition to the Latent Prints/Impressions Unit and has gained a wealth of knowledge through her extensive training module. Lindsey should be released to perform casework with general supervision after the first quarter of 2010.
3. The Firearms/Toolmarks Unit placed portable Forensic Buddy systems out into eight allied law enforcement agencies in support of Operation Test Shot. After training was given by MSP firearms examiners the Forensic Buddy systems were placed into these agencies in order that sworn agency personnel can shoot the guns into these snail trap devices in handgun possession cases to determine weapon operability. After the weapons are successfully fired, qualifying bullets and casings are submitted to the Firearms/Toolmarks Unit for later entry into the NIBIN system. This program has eliminated the process of law enforcement agencies sending the weapon on these possession cases to the FSD laboratory and speeding up the operability issue for court. This successful program will be expanded in the near future.

PATTERN IDENTIFICATION SECTION GOALS FOR 2010

1. With an additional latent print examiner performing casework the goal of the Latent Prints/Impressions Unit is to reduce the backlog by 20% or approximately 50 cases over the next year. This goal can be accomplished through dedicated personnel and maintaining full staffing.
2. The Firearms/Toolmarks Unit has added a new forensic scientist and anticipates adding another new forensic scientist in 2010. If the unit becomes fully staffed the goal is to decrease the backlog by 20% or approximately 140 cases during the next year.
3. Expansion of the Operation Test Shot program. Currently there are eight systems in allied agencies and the goal for this year is to increase the placement of Forensic Buddy systems by seven additional, for a total of 15 systems out into the field. The systems are purchased and training will have to be given. The Forensic Buddy systems will be strategically placed into law enforcement agencies to ensure this program's success.

CHEMISTRY SECTION

The Chemistry Section is responsible for performing Controlled Dangerous Substances (CDS) analysis and Toxicology analysis of blood. The Chemistry Section consists of the following four Units: the CDS-Pikesville Unit, CDS-Berlin Unit, CDS-Hagerstown Unit, and Toxicology Unit. The CDS Units focus on identifying submitted evidence as being a specific type of drug while the Toxicology Unit focuses on identifying alcohol and drugs in blood taken from individuals suspected of being intoxicated/impaired. The Chemistry Section Manager oversees the work of all four units.

The CDS-Pikesville Unit consists of one Forensic Scientist Supervisor, one Forensic Scientist Advanced, three Forensic Scientists III, and two Forensic Scientists I (one is currently vacant). In addition, two Allied Agency Chemists work in the CDS-Pikesville laboratory. One Allied Agency Chemist is employed by the Frederick County State's Attorney's Office and the other Allied Agency Chemist is employed by the Howard County Police Department (currently vacant).

The CDS-Berlin Unit consists of one Forensic Scientist Supervisor, one Forensic Scientist III, three Forensic Scientists I, and one Inventory Control Specialist. The CDS-Berlin Unit operates out of the Berlin Regional Laboratory located at the MSP-Berlin Barrack.

The CDS-Hagerstown Unit consists of one Forensic Scientist Supervisor, one Forensic Scientist III, one Forensic Scientist II, and one Forensic Scientist I. The CDS-Hagerstown Unit operates out of the Hagerstown Regional Laboratory located at the MSP-Hagerstown Barrack.

The Toxicology Unit consists of one Acting Supervisor (Chemistry Manager) and two Forensic Scientists II. The Toxicology Unit operates out of the main laboratory in Pikesville.

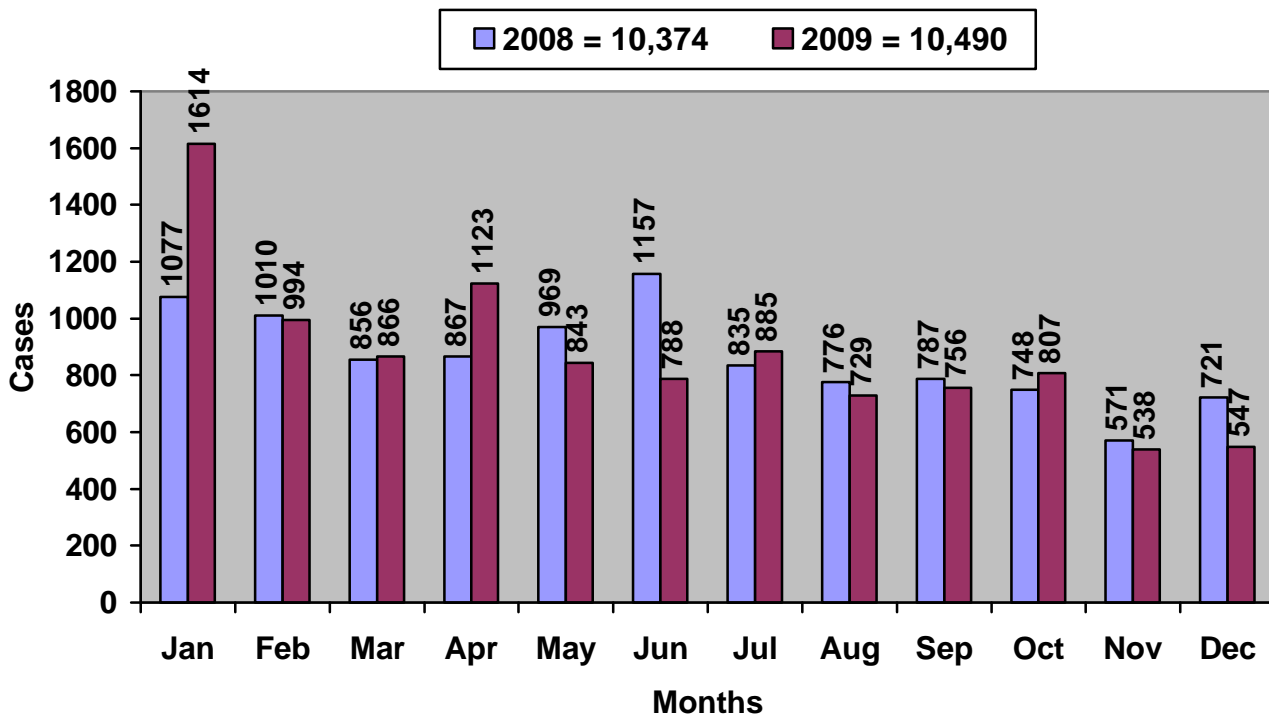
CDS – PIKESVILLE UNIT

The CDS-Pikesville Unit is responsible for the analysis, both qualitative and quantitative, of illicit drugs and pharmaceuticals and provides expert testimony as to the findings. The CDS-Pikesville Unit services the counties in central Maryland. This year due to staffing issues at the CDS-Berlin Unit, several of the Eastern Shore counties had to submit their cases to the CDS-Pikesville Unit for analysis, thus causing an increase in the backlog and the turnaround time. By year's end the issues were resolved in the CDS-Berlin Unit, but unfortunately the increased numbers in the CDS-Pikesville Unit remain. The hard-working staff is to be commended for taking on the additional cases.

The CDS-Pikesville Unit lost one Forensic Scientist III who transferred to the CDS-Berlin Unit to become their new Forensic Scientist Supervisor. In addition, another Forensic Scientist III retired on 12/31/09. The CDS-Pikesville Unit continues to host two allied chemists, one from Howard County and one from Frederick County. Towards the end of 2009 the Howard County allied chemist announced his resignation. Hopes for the upcoming year are that the unit becomes fully staffed and is able to reduce both the backlog and turnaround time.

Casework

Total Cases Received per Month



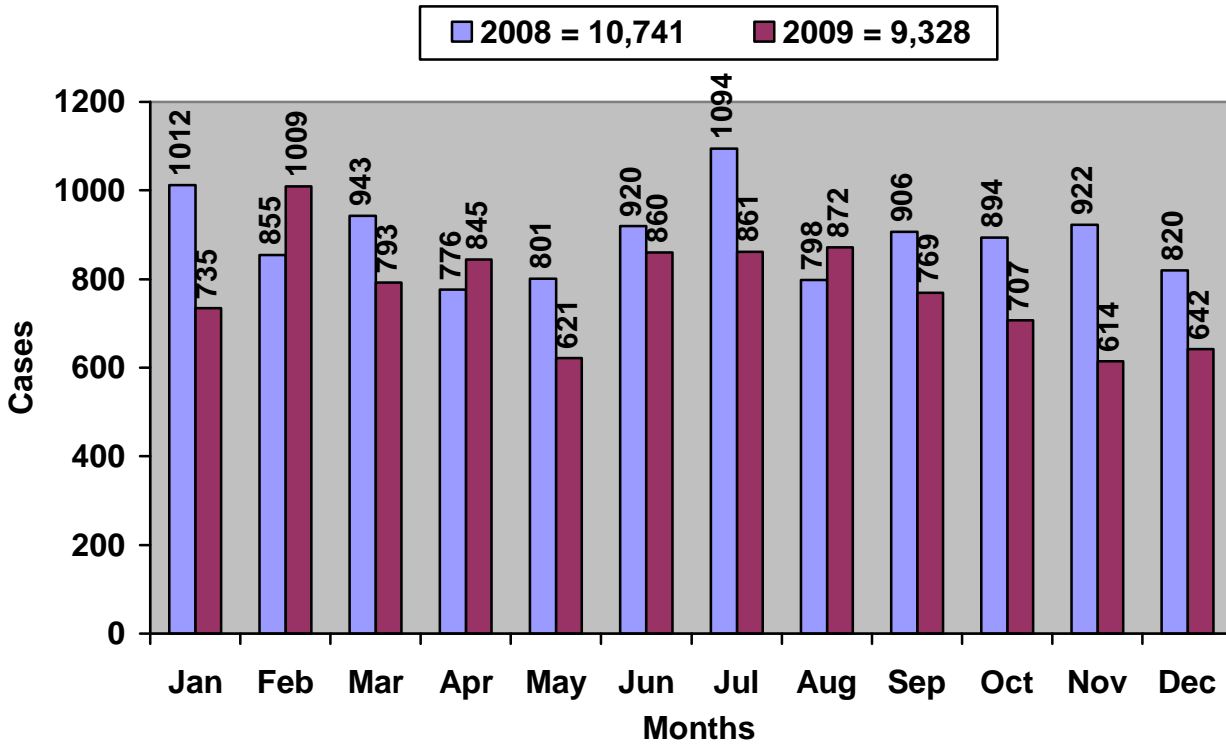
Total MSP Cases Received in 2009 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Easton	Caroline, Dorchester, Talbot	463
MSP-Centerville	Kent, Queen Anne's	288
MSP-Salisbury	Wicomico	279
MSP-Leonardtown	St. Mary's	191
MSP-JFK Highway	Cecil, Harford, Baltimore	188
MSP-North East	Cecil	145
MSP-Glen Burnie	Anne Arundel	135
MSP-La Plata	Charles	134
MSP-Prince Frederick	Calvert	129
MSP-College Park	Prince George's	121
MSP-Westminster	Carroll	103
MSP-Golden Ring	Baltimore	90
MSP-Princess Anne	Somerset	72
MSP-Bel Air	Harford	72
MSP-Forestville	Prince George's	49
MSP-Waterloo	Howard	35
Criminal Enforcement Command	State Wide	18
	TOTAL	2,512

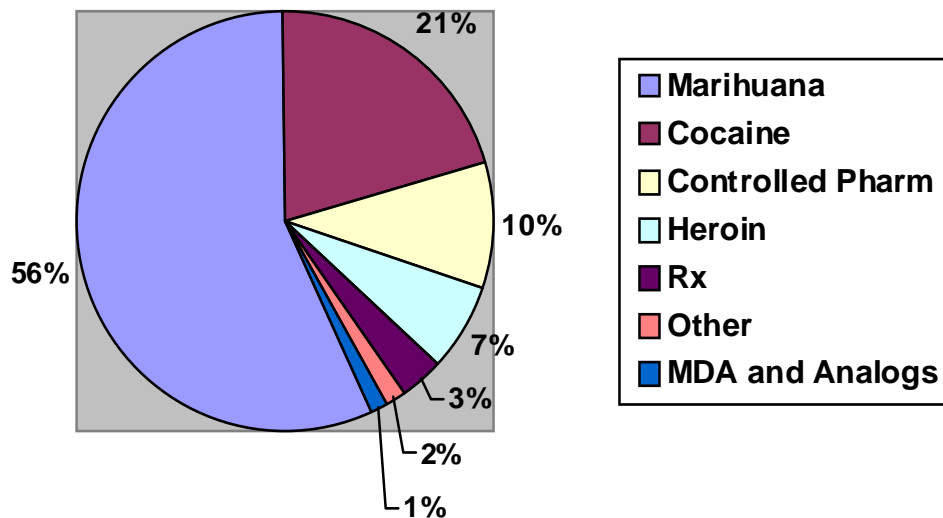
Total Allied Agency Cases Received in 2009 per County

Counties	Submissions
Howard County	1200
Harford County	1188
Frederick County	927
Charles County	798
Wicomico County	785
Calvert County	558
Cecil County	500
State Wide Agencies	465
Dorchester County	272
Talbot County	250
St. Mary's County	211
Caroline County	172
Kent County	148
Worcester County	139
Queen Anne's County	128
Carroll County	80
Prince Georges' County	68
Somerset County	47
Baltimore County	40
Baltimore City	2
TOTAL	7,978

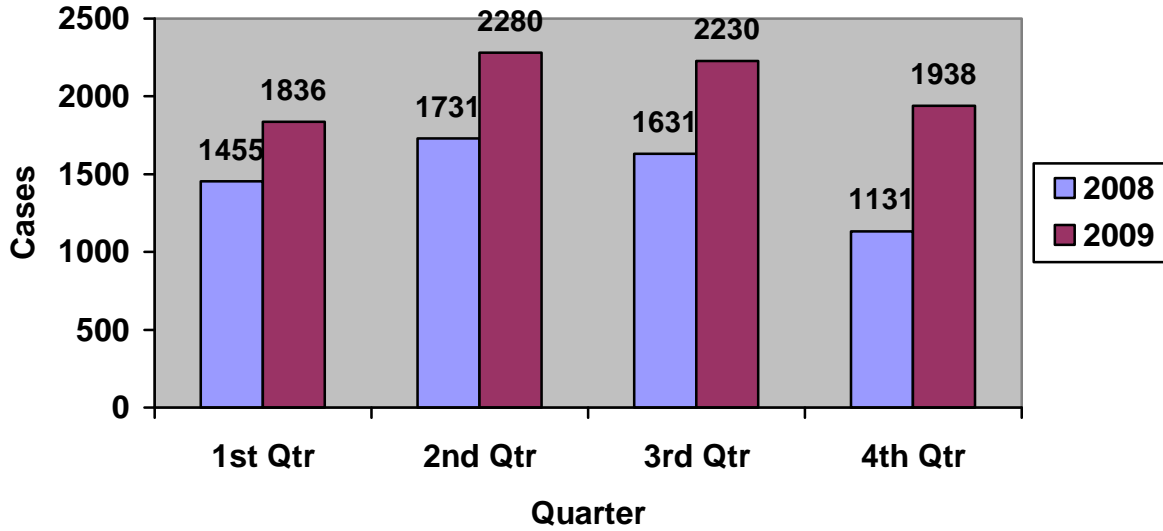
Total Cases Completed per Month



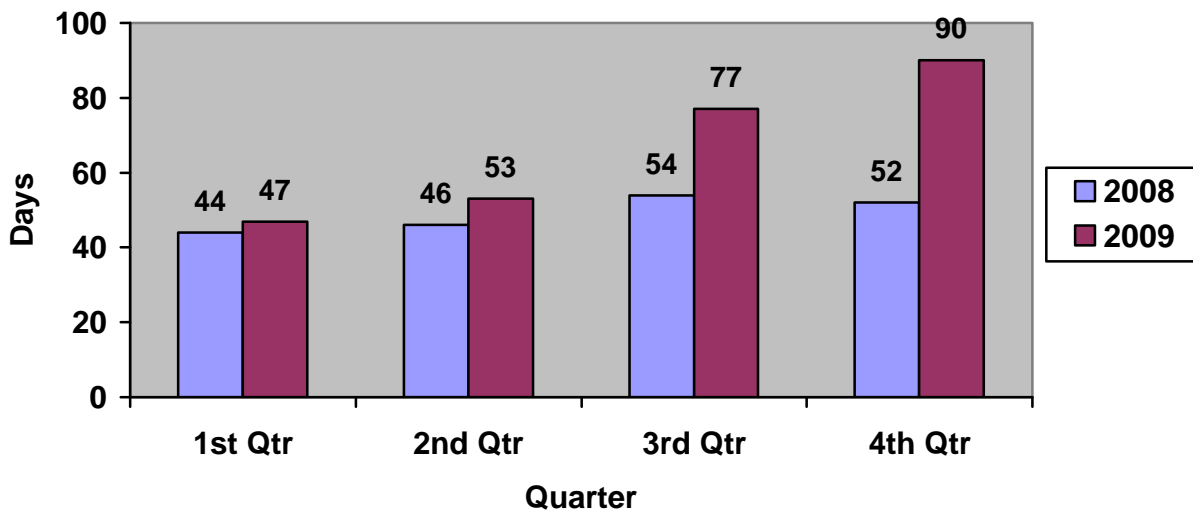
Total Analyses Reported in 2009 Per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

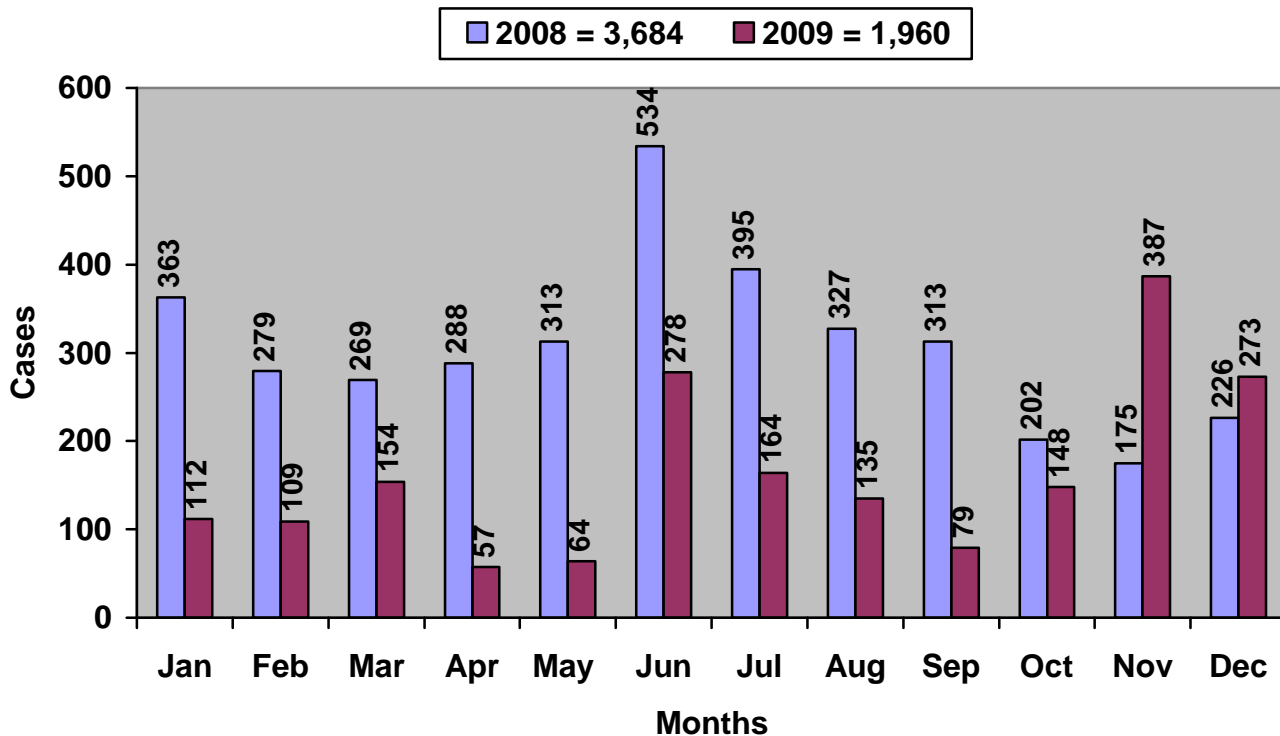
Forensic Scientist		Competency Certification
Brooke Welsh		In Training

CDS-BERLIN UNIT

The CDS-Berlin Unit is responsible for the analysis, both qualitative and quantitative, of illicit drugs and pharmaceuticals and provides expert testimony as to the findings. The CDS-Berlin Unit services the counties on the Maryland Eastern Shore. Currently, the lab is analyzing cases from six of the counties on the eastern shore: Caroline, Dorchester, Somerset, Talbot, Wicomico, and Worcester. In 2009, 834 cases were transferred from the CDS-Berlin Unit to the CDS-Pikesville Unit for analysis (653 cases in January, 2009 and 181 cases in April, 2009). These cases were the bulk of the backlog in Berlin. Due to the fact that some of these cases were submitted prior to 2009, it is impossible to separate these cases from the total cases received by the Berlin lab in 2009. Therefore, these cases are included in the total cases received by the CDS-Berlin Unit. Later in 2009, 366 cases were transferred from the CDS-Pikesville Unit back to the CDS-Berlin Unit. One of the more interesting challenges the CDS-Berlin Unit faced in 2009 was dealing with a new law passed by Ocean City making the previously uncontrolled substance Salvia illegal to possess.

Casework

Total Cases Received per Month



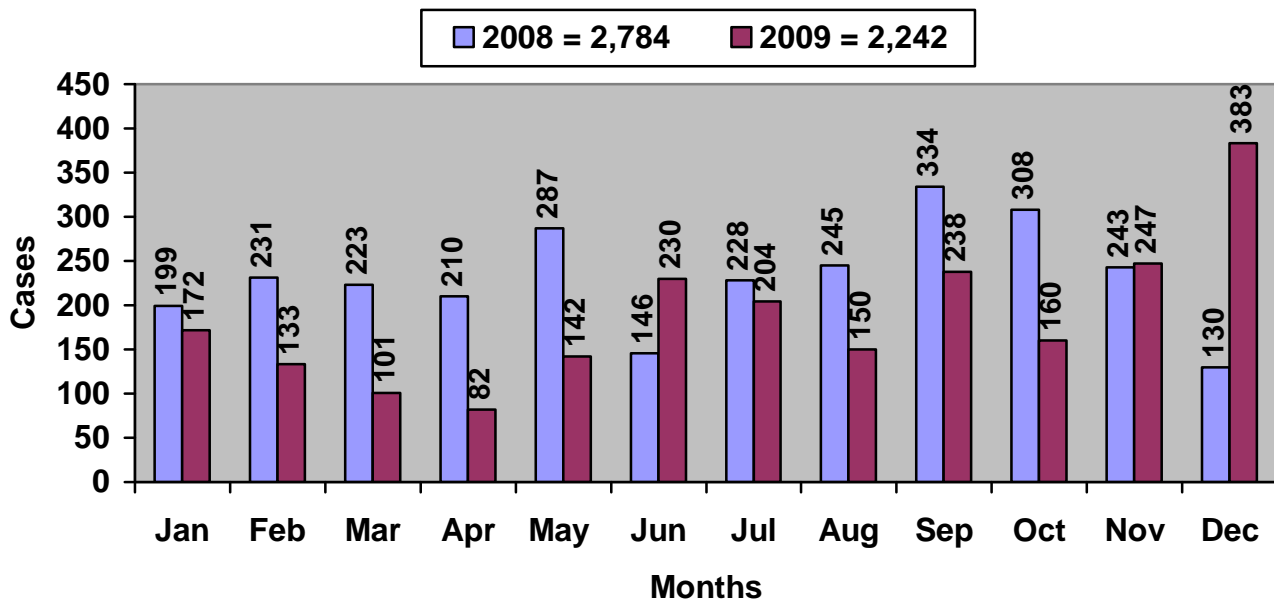
Total MSP Cases Received in 2009 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Berlin	Worcester	229
MSP-Salisbury	Wicomico	172
MSP-Easton	Talbot	76
MSP-Princess Anne	Somerset	73
	TOTAL	550

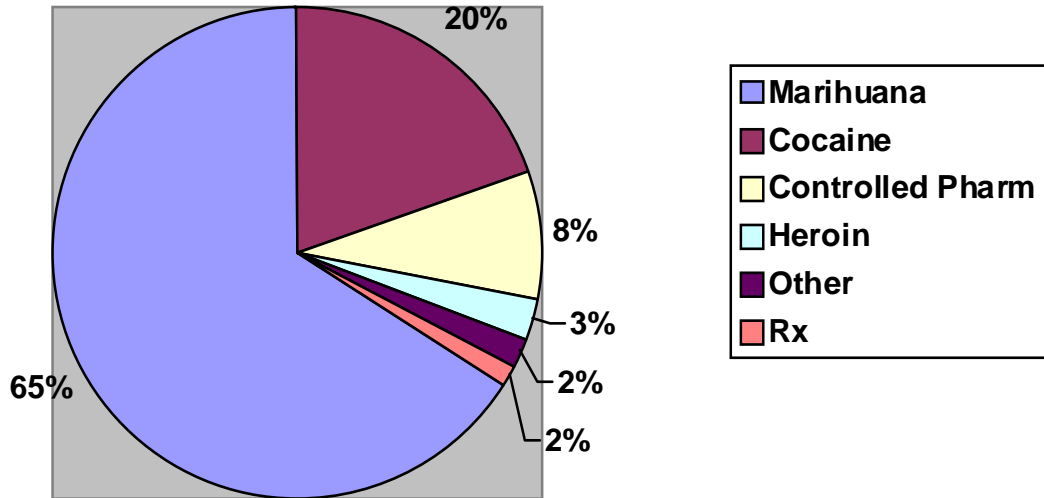
Total Allied Agency Cases Received in 2009 per County

Counties	Submissions
Worcester	941
Wicomico	331
Somerset	60
Dorchester	40
Talbot	24
Caroline	14
TOTAL	1410

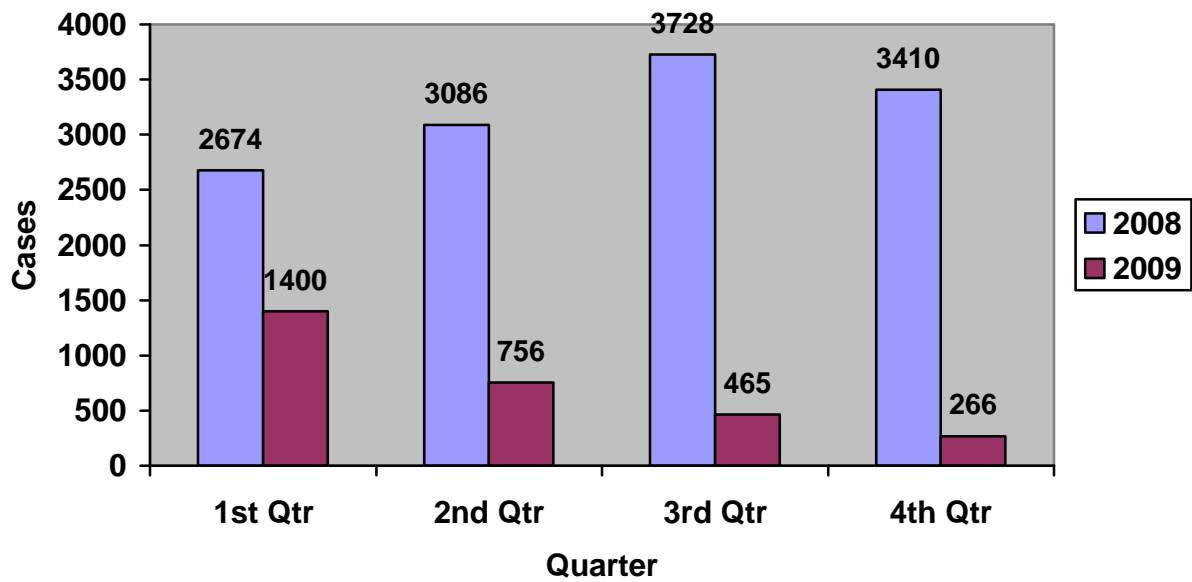
Total Cases Completed per Month



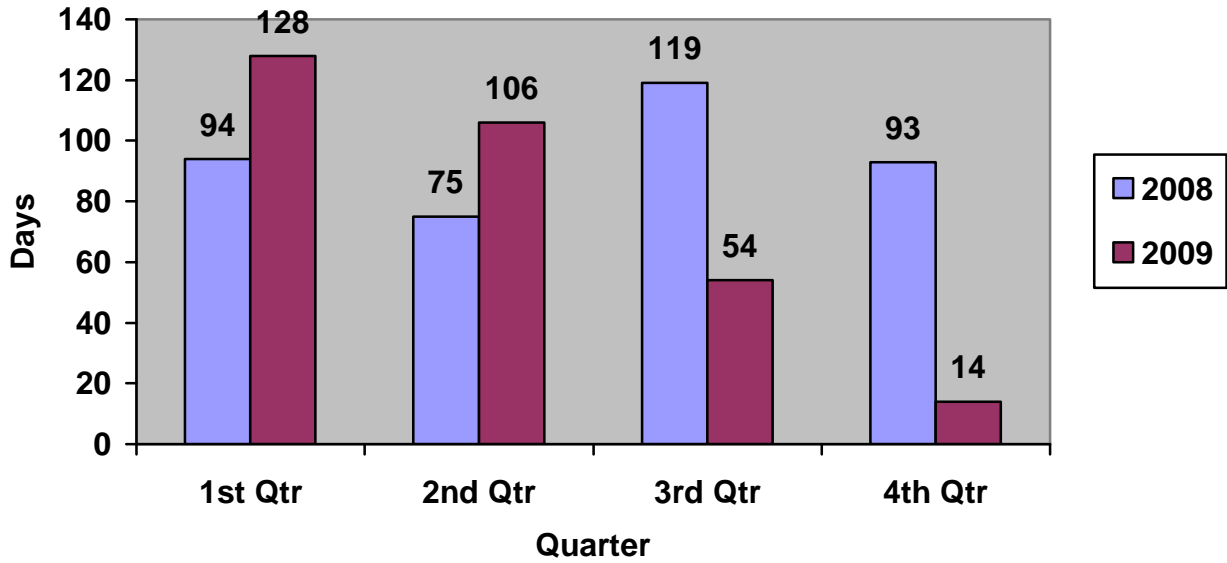
Total Analyses Reported in 2009 Per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

Newly Qualified Forensic Scientist	Competency Certification
Elisabeth Schneider	Marihuana Analyst
Jessica Taylor	Marihuana Analyst
Christine Burns	In Training

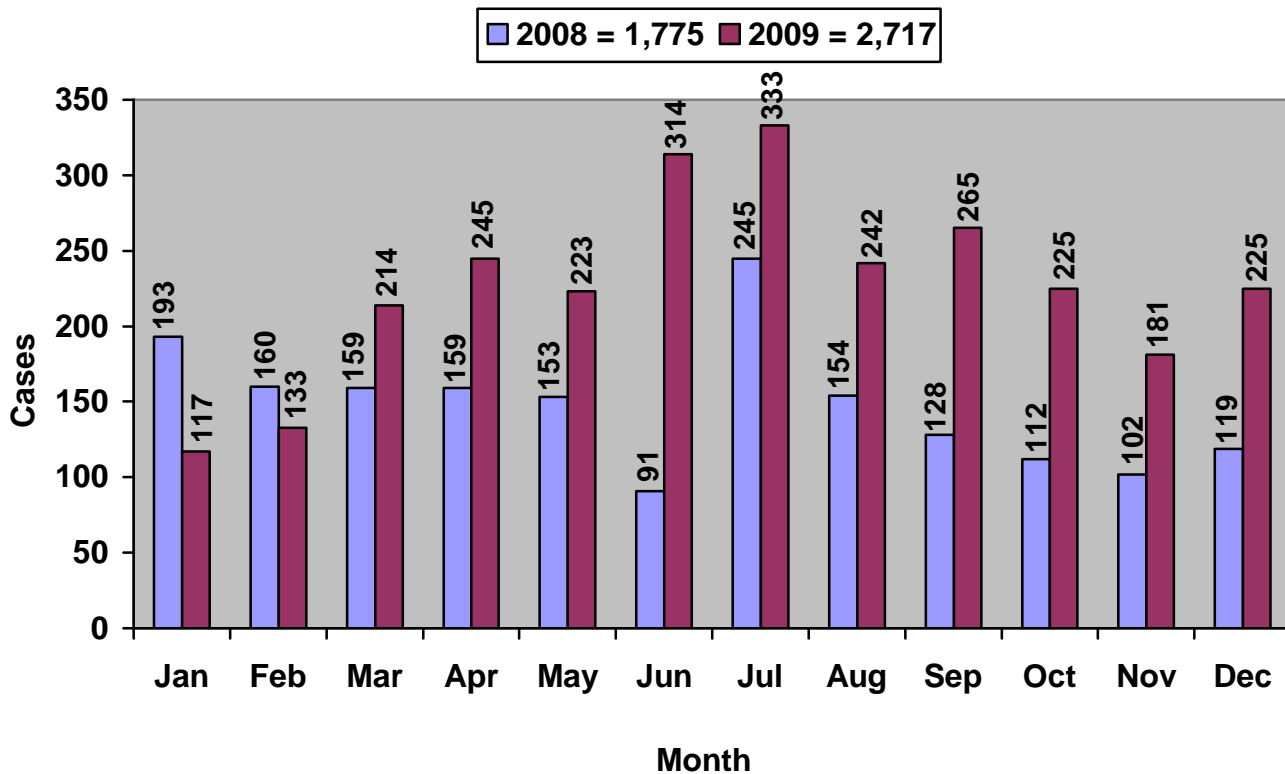
CDS-HAGERSTOWN UNIT

The CDS-Hagerstown Unit is responsible for the analysis, both qualitative and quantitative, of illicit drugs and pharmaceuticals and provides expert testimony as to the findings. The CDS-Hagerstown Unit services the counties in the western Maryland region. The clients that submit evidence include various local, state and federal agencies from the following counties: Allegany, Carroll, Frederick, Montgomery and Washington. In March 2009, Carroll County was transferred to the CDS-Hagerstown Unit from the CDS-Pikesville Unit when they started taking cases from the CDS-Berlin Unit. A new laboratory is slated to be incorporated in the new Hagerstown Barrack which is to begin construction in 2010. This new lab will have sections for drug analysis, latent prints and crime scene processing and will be roughly six times larger than the current lab.

The laboratory's technician, Emily Potts, has been upgraded to a Forensic Scientist I and is currently training to become a certified forensic chemist by the Department of Health and Mental Hygiene. Emily has completed her training as a Marihuana Analyst and became certified to analyze marihuana in September 2009. She has applied to attend the Drug Enforcement Administration's training course for Forensic Chemists. The duties of the Lab Technician/Evidence Coordinator are currently being shared by everyone in the Laboratory.

Casework

Total Cases Received per Month



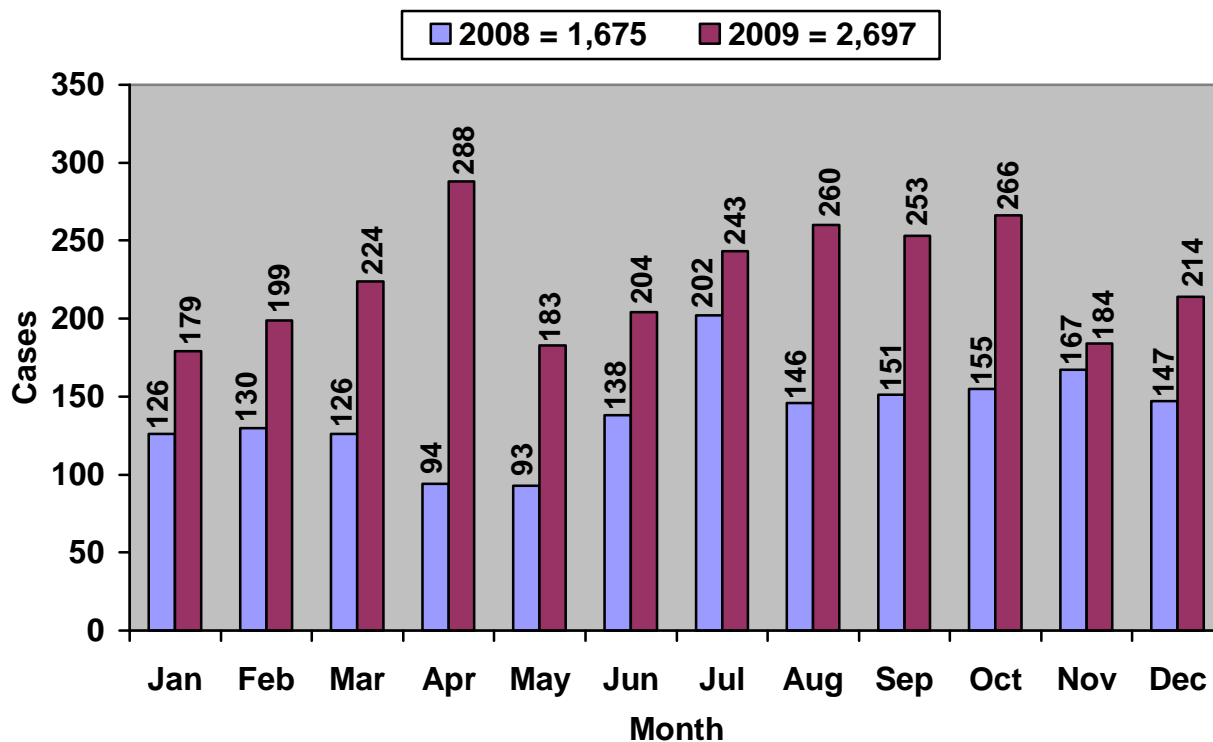
Total MSP Cases Received in 2009 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Cumberland	Allegany	388
MSP-Rockville	Montgomery	200
MSP-McHenry	Garrett	180
MSP-Frederick	Frederick	147
MSP-Westminster	Carroll	86
MSP-Hagerstown	Washington	80
	TOTAL	1,081

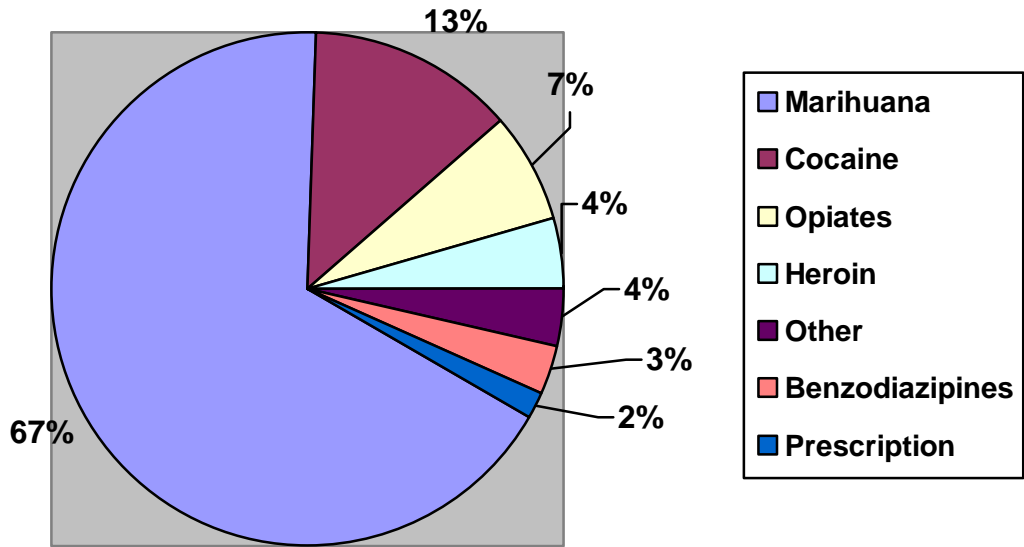
Total Allied Agency Cases Received in 2009 per County

Counties	Submissions
Allegany	758
Frederick	523
Carroll	285
Garrett	40
Washington	30
TOTAL	1,636

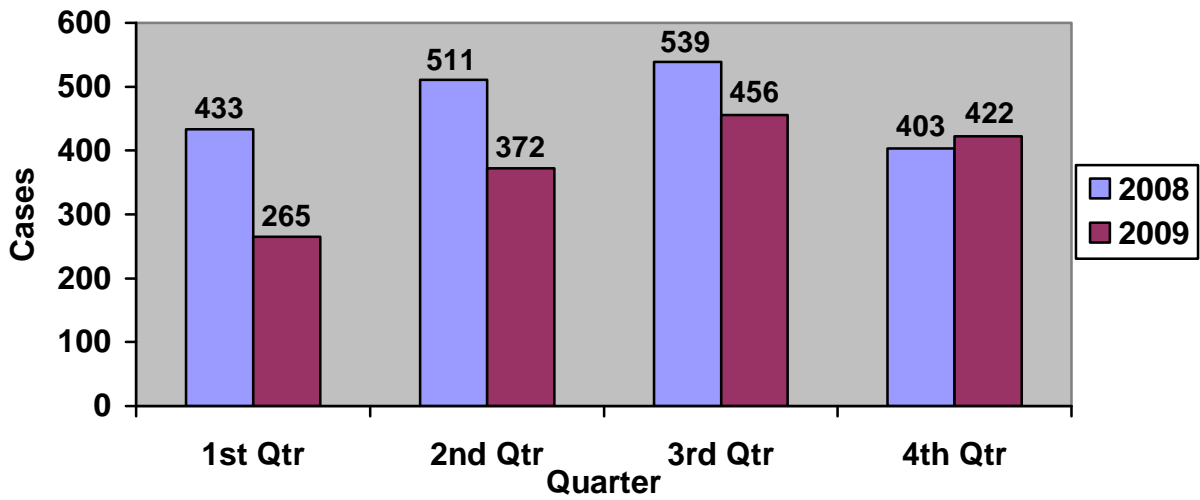
Total Cases Completed per Month



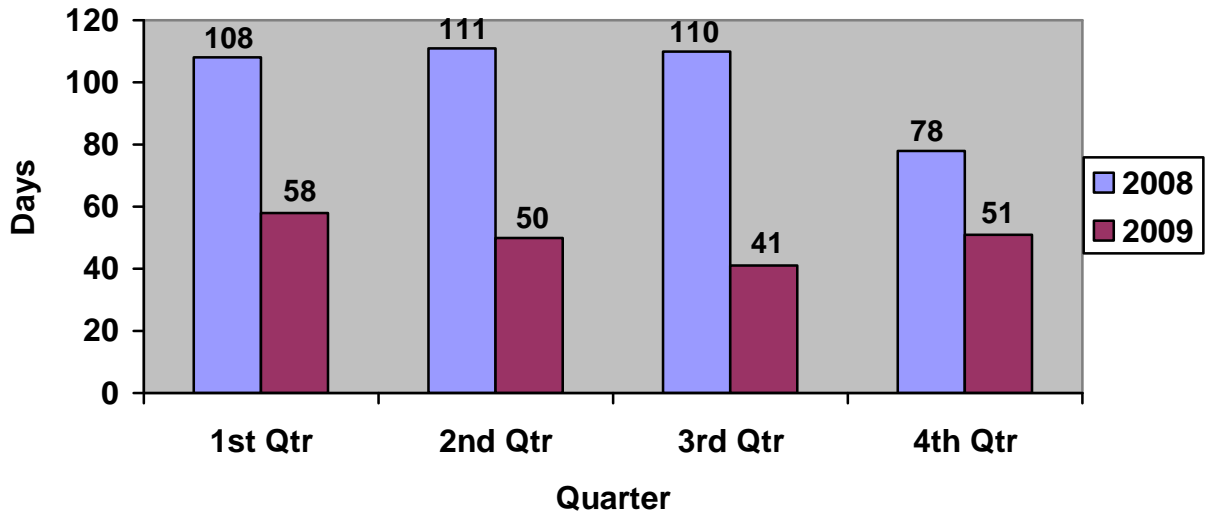
Total Analyses Reported in 2009 per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

Newly Qualified Forensic Scientist	Competency Certification
Emily Potts	Marihuana Analyst

Toxicology Unit

The Toxicology Unit is responsible for the analysis of alcohol and drugs contained in blood specimens submitted to the Maryland State Police Forensic Sciences Division in conjunction with the Driving While Impaired (DWI) program of the Maryland State Police and the State Toxicologist's Office. Testing for alcohol and drugs is performed for both the Maryland State Police and allied state law enforcement agencies requiring laboratory support for impaired driving programs.

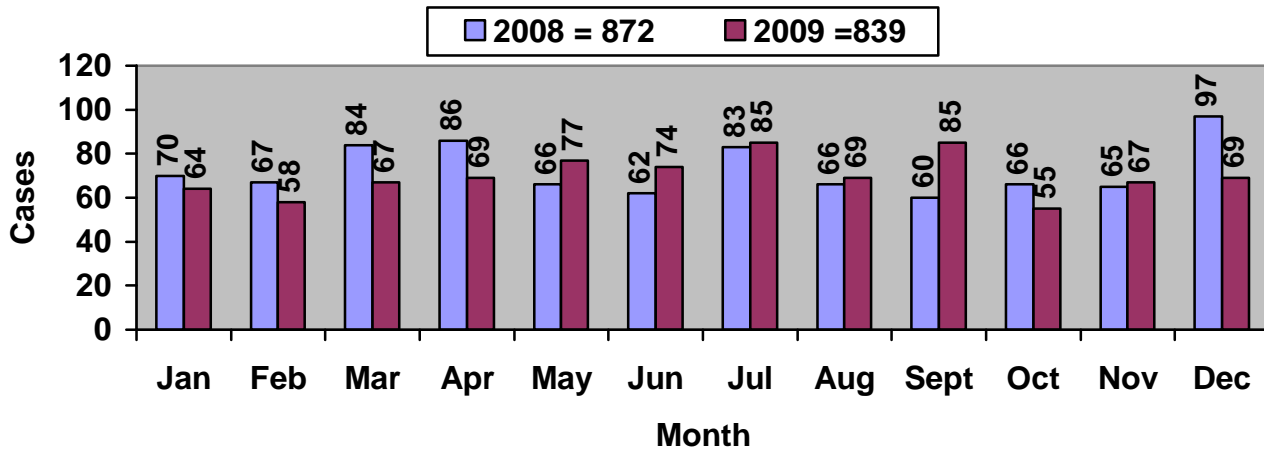
The Toxicology Unit is the only laboratory within the state approved to analyze blood samples for alcohol and drugs in cases related to DWI arrests. Specimens submitted for testing are collected by certified medical personnel at the direction of authorized police personnel. Blood is collected when a person is injured or hospitalized, a fatality has occurred, or when alcohol is suspected and a breath test operator is not available. Many cases, therefore, involve serious personal injury and manslaughter charges that require the Forensic Scientist's expert testimony at trial.

The blood testing program for drugs other than alcohol began in 2008 with the acquisition of instrumentation and personnel recruitment. Method development, instrument and method validation, training, and certification by the State Toxicologist were completed in November, 2009. Blood drug testing is conducted with two scientifically different techniques. Initial testing of blood specimens is by immunoassay that employs an antibody to detect the drug. A second confirmation test is performed with a state of the art technique which provides unique, characteristic molecular fragmentation identification of the drug. In order for a result to be reported as positive, both the initial and confirmation tests must be positive for the drug in question.

Maryland State Police Superintendent Colonel Terrence B. Sheridan formally announced the addition of blood testing for illegal and prescription drugs from suspected drugged drivers on December 9, 2009. The successful development of blood drug testing is an important addition to services provided by the Forensic Sciences Division and will assist police and prosecutors in obtaining the forensic evidence needed to prosecute impaired drivers in court.

Blood Alcohol Casework

Blood Alcohol Cases Received



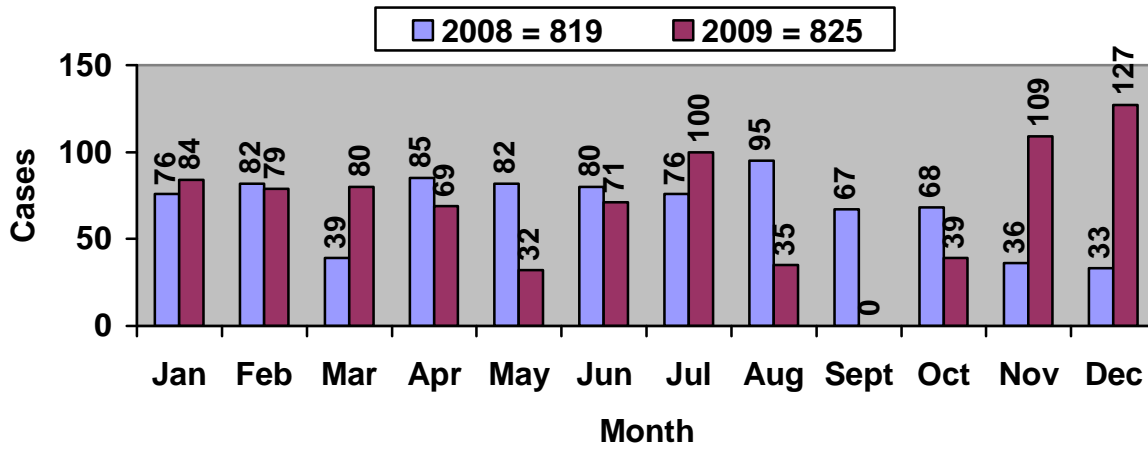
Total MSP Blood Alcohol Cases Received in 2009 per Barrack

MSP Installation	Counties Served	Submissions
MSP- Westminster	Carroll	33
MSP- Frederick	Frederick	28
MSP- Easton	Caroline, Dorchester, Talbot	25
MSP- Golden Ring	Baltimore	18
MSP- Glen Burnie	Anne Arundel	16
MSP- Bel Air	Harford	16
MSP- LaPlata	Charles	15
MSP- Forestville	Prince George's	13
MSP- College Park	Prince George's	13
MSP- Salisbury	Wicomico	11
MSP- Hagerstown	Washington	10
MSP- Cumberland	Allegany	10
MSP- Rockville	Montgomery	10
MSP- Centreville	Kent, Queen Anne's	10
MSP- Leonardtown	St. Mary's	8
MSP- Northeast	Cecil	8
MSP- Berlin	Worcester	7
MSP- Princess Anne	Somerset	7
MSP- Prince Frederick	Calvert	6
MSP- JFK	Cecil, Harford, Baltimore	4
MSP- McHenry	Garrett	3
MSP- Waterloo	Howard	1
MSP-Hagerstown	Washington	1
	TOTAL	273

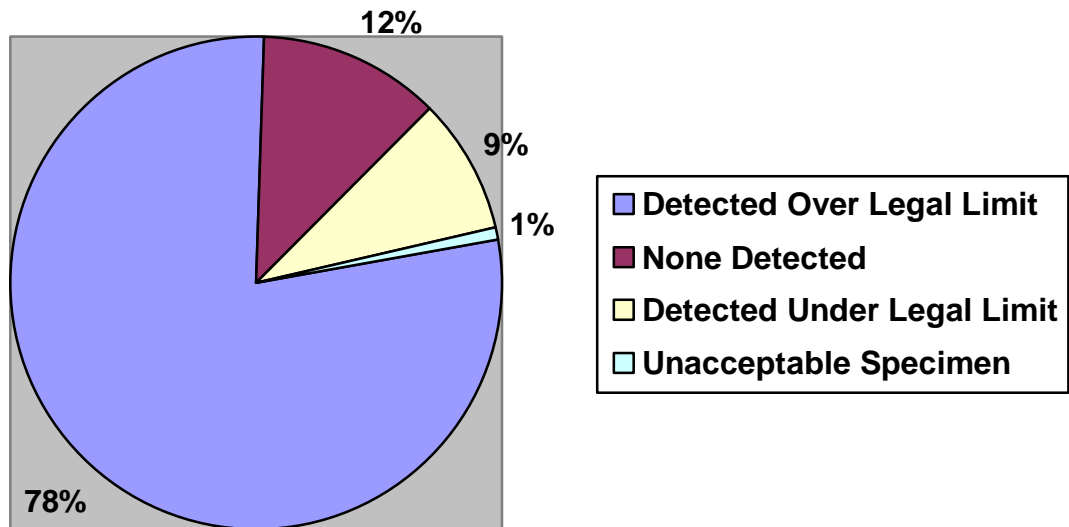
Total Allied Agency Blood Alcohol Cases Received in 2009 by County

Counties	Submissions
Baltimore	106
Anne Arundel	92
Montgomery	80
Howard	40
Prince George's	39
Frederick	27
Harford	23
Washington	18
Calvert	17
St. Mary's	14
Wicomico	14
Baltimore City	14
State-Wide Agencies	14
Charles	12
Allegany	12
Carroll	11
Cecil	7
Somerset	6
Talbot	5
Dorchester	5
Garrett	3
Caroline	2
Worcester	2
Kent	2
Queen Anne's	1
TOTAL	566

Blood Alcohol Cases Completed



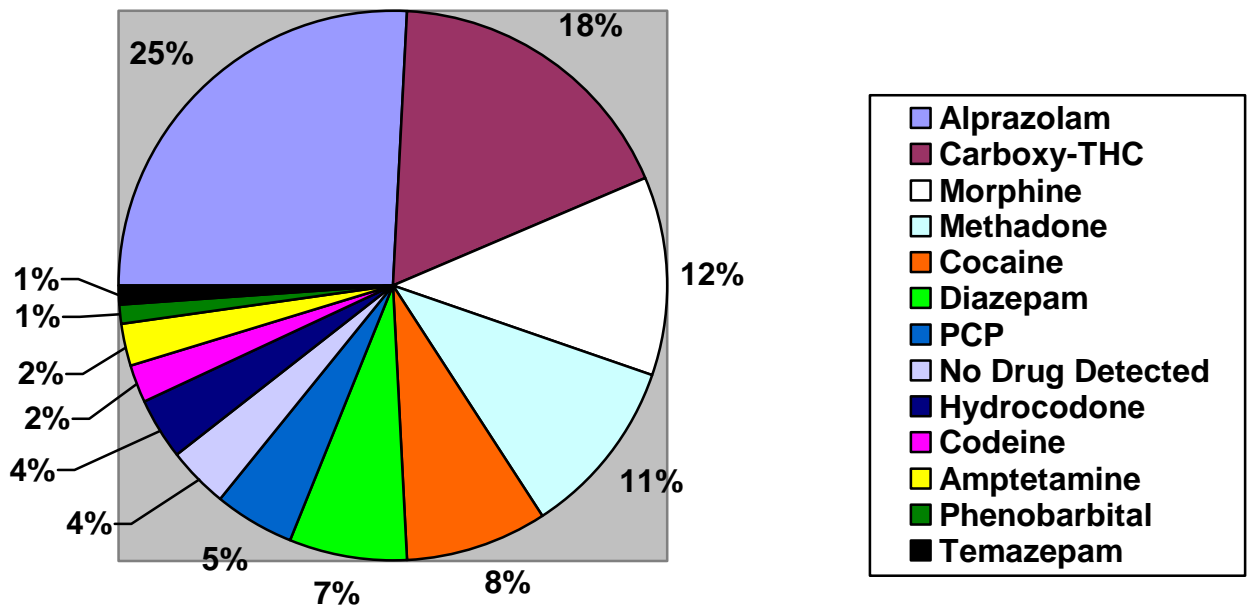
Blood Alcohol Cases Reported in 2009 per Detection Level



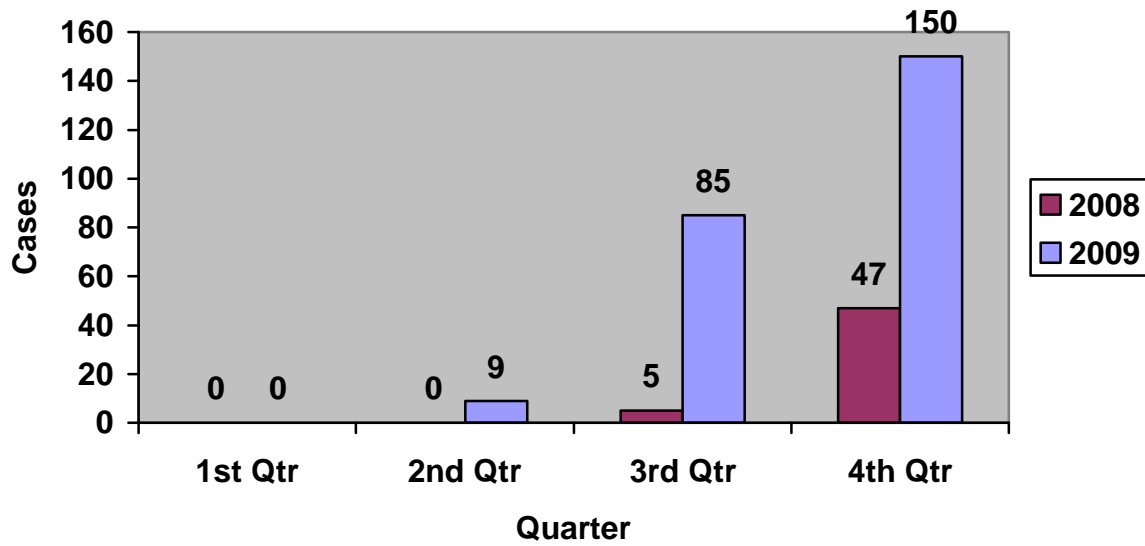
Total Blood Drug Cases Received in 2009 by County

Counties	Submissions
State-Wide Agencies	32
Anne Arundel	13
Baltimore	8
Montgomery	8
Carroll	5
Frederick	4
Allegany	3
Harford	2
Baltimore City	1
Howard	1
Prince George's	1
Washington	1
Wicomico	1
TOTAL	80

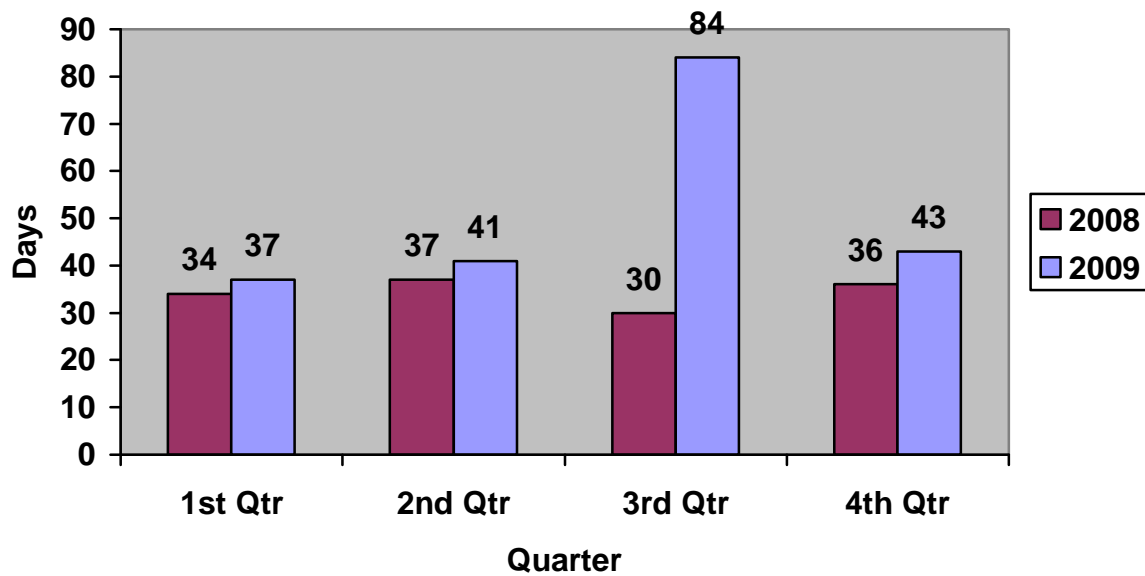
Blood Drug Cases Reported in 2009 per Drug Detected



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

New Technologies Implemented in 2009	Expected Benefits
Automated Micro-Plate Immunoassays for Drugs in Blood	Test method enables rapid, automated initial analysis for drugs in blood
Solid Phase Extraction Procedures	Procedures enable extraction of drugs from blood or other fluids
Gas Chromatography/Mass Spectrometry Assays for Drugs in Blood	State of the art confirmation testing for drugs in blood

Forensic Scientist	Competency Certification
Laura Waters	Blood Alcohol Testing Blood Drug Testing
Wayne Shu	Blood Alcohol Testing Blood Drug Testing
Ross Lowe	Blood Drug Testing

CHEMISTRY SECTION ACCOMPLISHMENTS IN 2009

1. The Toxicology Unit was able to meet the deadline of having the Blood Drug Testing laboratory operational by the end of 2009. This was a labor intensive effort that involved the training of the staff, the validation of methodology, and the writing of standard operating procedures. As a result of the dedicated staff's work, the state of Maryland now has a means of successfully prosecuting individuals who are under the influence of drugs while operating a motor vehicle.
2. The CDS-Berlin Unit was able to deal with significant staff turnover and reemerge with a fully staffed laboratory capable of handling their own caseload. During the year, the lack of staff in the CDS-Berlin Unit resulted in the casework of several counties being reassigned to the CDS-Pikesville Unit and the CDS-Hagerstown Unit. The outstanding efforts of the staff in Pikesville and Hagerstown ensured that all clients' needs were still adequately addressed. Furthermore, the timely and effective training of the new staff in Berlin allowed for the return of all reassigned Eastern Shore counties back to the CDS-Berlin Unit by year's end.
3. The establishment of a Chemistry Manager position to oversee the three CDS Units and the Toxicology Unit was an accomplishment in 2009 that will reap benefits for years to come. The Management team now has a new sense of confidence that the Chemistry Section operations are being adequately addressed since there will be a manager in place with expertise in the field of Chemistry.

CHEMISTRY SECTION GOALS FOR 2010

1. The CDS Units will be the first scientific units to begin to use the StarLIMS laboratory information management system for casework. While implementation will first be limited to the tracking of the cases along with the recording of the final results of the cases in StarLIMS, efforts will continue to ultimately bring on a fully supported Chemistry module in StarLIMS that would allow for a paperless case folder. The implementation of StarLIMS in the CDS Units will allow FSD to actively participate in the DEA's National Forensic Laboratory Information System (NFLIS) program that provides law enforcement with national drug trends.
2. In 2010 both the CDS-Hagerstown and CDS-Berlin Units will see efforts to improve their facilities. A brand new Hagerstown Barrack with a state of the art laboratory is scheduled to begin construction in 2010. In Berlin, the laboratory will be remodeled to allow for the implementation of a new instrumentation room. Both of these projects will go a long ways in providing the staff with appropriate environments to perform their important work.
3. While the Toxicology Unit came online in 2009, they will need to continue to expand their capabilities through gaining experience and looking to optimize their procedures. This will be a challenge as the Toxicology Supervisor will become the Chemistry Manager in 2010 leaving no immediate supervisor over the Toxicology Unit. Therefore, an additional position will be pursued to hire a new Toxicology supervisor.

BIOLOGY SECTION

The Forensic Biology Section is responsible for performing Serological and DNA analysis associated with criminal casework as well as maintaining and operating the State's DNA database. In order to efficiently address these functions the Biology Section is structured on a three unit basis overseen by one Forensic Scientist Manager.

The Casework Unit is comprised of two sub-units. The Investigative Casework Sub-Unit is staffed by four scientists including one Forensic Scientist Supervisor, one Forensic Scientist Advanced, one Forensic Scientist III, and one Forensic Scientist I. The Trial Casework Sub-Unit is staffed by five scientists including one Forensic Scientist Supervisor, one Forensic Scientist Advanced, and three Forensic Scientists III.

The Database Unit is staffed by nine scientists including one Forensic Scientist Supervisor (CODIS Administrator), two Forensic Scientists Advanced, two Forensic Scientists III, two Forensic Scientists II, one Forensic Scientist I (currently vacant), and one Laboratory Technician I (currently vacant).

The Technical/Validation Unit staffed by four scientists including one Forensic Scientist Supervisor (Technical Leader), one Forensic Scientist Advanced, one Forensic Scientist III, one Forensic Scientist II, and one Laboratory Technician I.

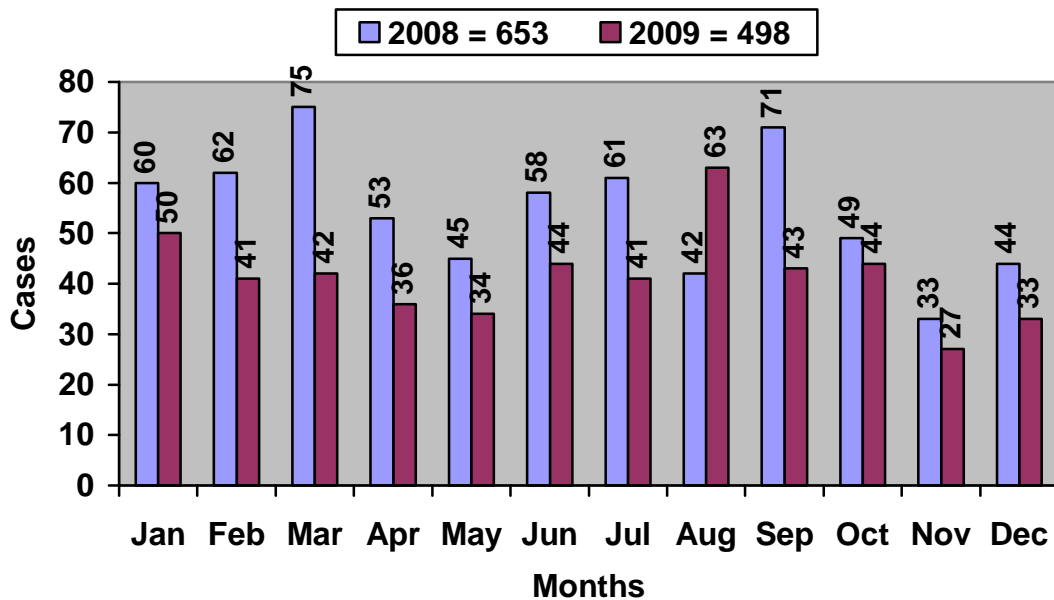
BIOLOGY CASEWORK UNIT

The Trial Casework Sub-Unit is a subunit of the Biology Casework Unit. The Trial Casework Sub-Unit performs serology and/or DNA testing on cases that have resulted in an arrest and are being tested in support of the adjudication of the arrestee. This unit has the main responsibility of assigning, analyzing, and reviewing these cases for those agencies serviced by the MSP-FSD Biology Section. They meet all trial dates which are provided to the MSP-FSD in a timely manner which will allow time for the analysis and review of each case. These individuals are responsible for communicating with investigators and attorneys on a regular basis to discuss those cases being handled by their unit. While the primary responsibility of this unit are those cases with pending trial dates, this unit also does assist with the analysis of investigative and cold cases, the preparation and review of outsourced casework, and training of new analysts as necessary.

The Investigative Casework Sub-Unit is a subunit of the Biology Casework Unit. The Investigative Casework Sub-Unit performs serology and/or DNA testing on cases without pending court dates, which have not resulted in an arrest but are being tested in support of making an arrest. This unit is responsible for handling priority/high-profile investigative cases, routine investigative cases, and cold cases. The Investigative Casework Sub-Unit is also responsible for the management and processing of outsourced casework to the contract vendor laboratory and training of new analysts as necessary.

Casework

Total Cases Received per Month



Note - The method for counting cases received was modified in April of 2008.

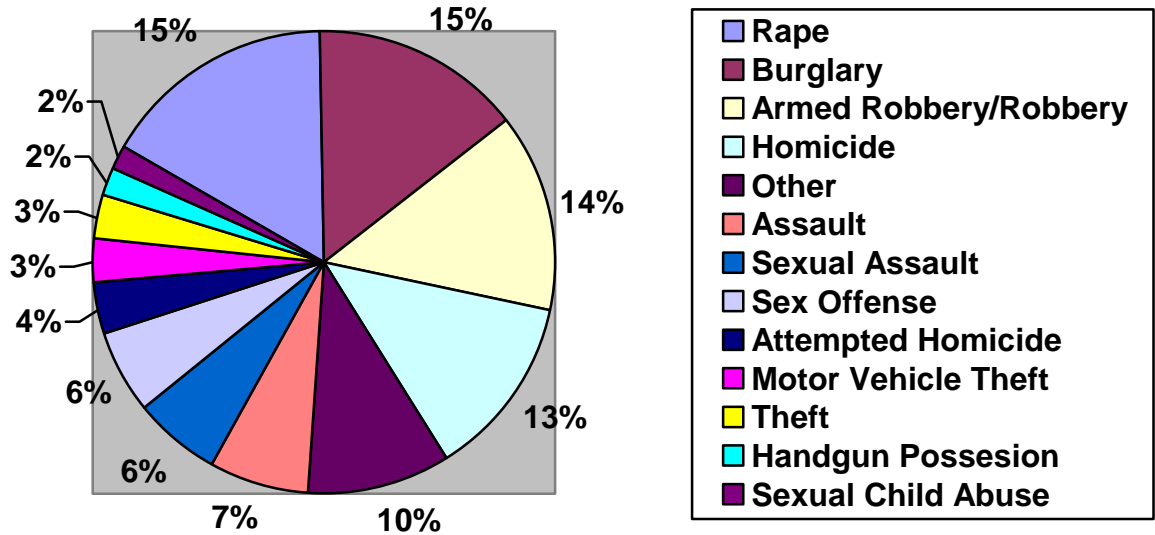
Total MSP Cases Received in 2009 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Homicide	State-Wide	21
MSP-Bel Air	Harford	8
MSP-Northeast	Cecil	8
MSP-Westminster	Carroll	8
MSP-Centerville	Kent, Queen Anne's	7
MSP-Princess Anne	Somerset	7
MSP-Frederick	Frederick	6
MSP-Glen Burnie	Anne Arundel	5
MSP-Leonardtown	St. Mary's	4
MSP-Easton	Caroline, Dorchester, Talbot	4
MSP-Prince Frederick	Calvert	3
MSP-Golden Ring	Baltimore	3
MSP-Cumberland	Allegany	3
MSP-Berlin	Worcester	3
MSP-Salisbury	Wicomico	3
MSP-Forestville	Prince George's	2
MSP-CID	State-Wide	2
MSP-McHenry	Garrett	1
MSP-JFK Highway	Cecil, Harford, Baltimore	1
MSP-Rockville	Montgomery	1
MSP-Waterloo	Howard	1
	TOTAL	101

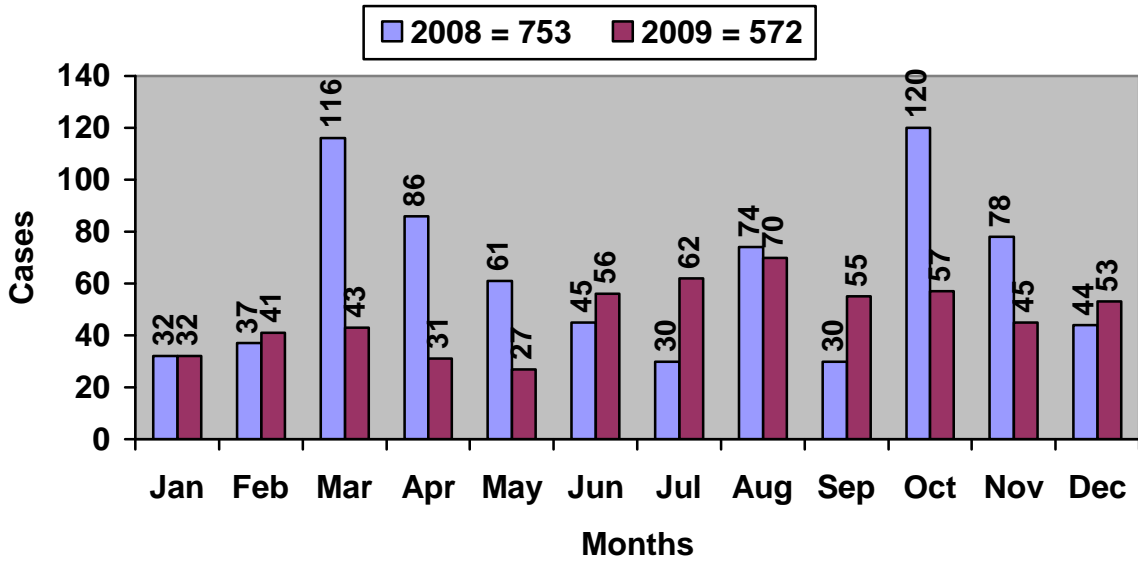
Total Allied Agency Cases Received in 2009 per County

County	Submissions
Wicomico	68
Frederick	44
Harford	39
Charles	35
Washington	27
Anne Arundel	24
Dorchester	23
Worcester	23
Carroll	17
Prince George's	15
Talbot	13
Caroline	10
Calvert	9
Cecil	9
Saint Mary's	8
Queen Anne's	6
Somerset	6
Kent	6
Baltimore City	5
Allegany	5
Howard	3
Baltimore	2
TOTAL	397

Total Cases Received in 2009 per Crime Type

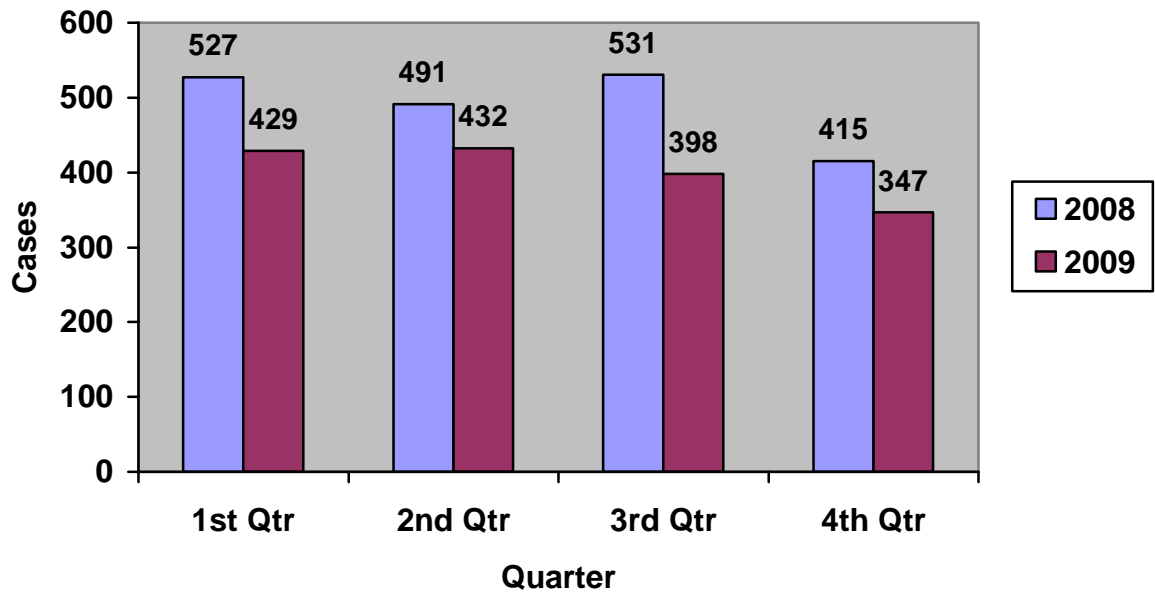


Total Cases Completed per Month

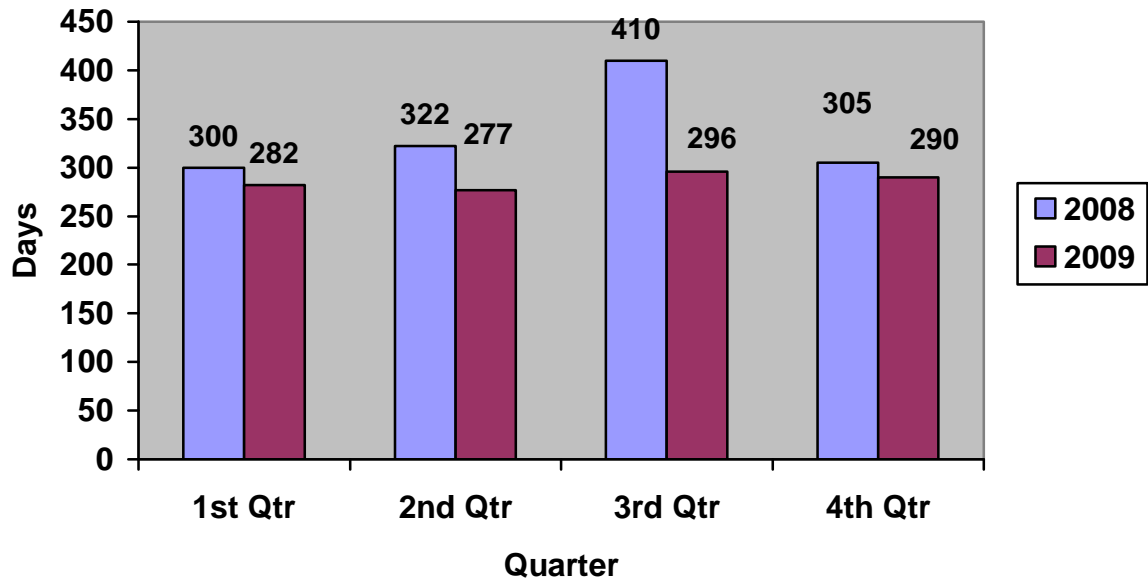


Note - The method for counting cases completed was modified in April of 2008.

Ending Backlog per Quarter



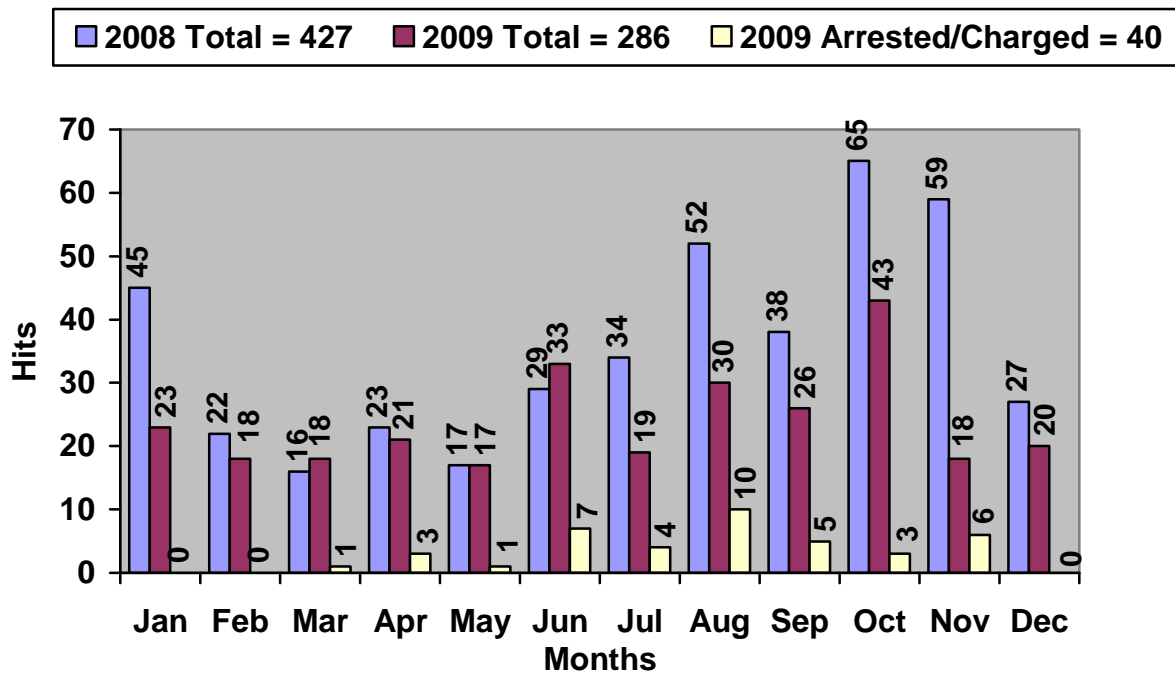
Turn Around Time of Cases Completed per Quarter



BIOLOGY DATABASE UNIT

The DNA Database Unit is responsible for collecting DNA database samples from individuals required under Maryland law to provide a sample. The law was expanded in 2009 to include individuals arrested and charged with crimes of violence, burglary, and attempts of these crimes. While the majority of samples are collected by Allied Agencies, the DNA Database Unit is responsible for ensuring that all samples that were collected are received. The DNA Database Unit is also responsible for processing the DNA database samples received (as per Maryland law), entering DNA profiles from DNA database samples into the database, searching the database for hits, and reporting database hits. The DNA Database Unit also oversees the entry of DNA profiles from casework evidence into the database,

Total Hits Reported per Month



Note – Although 286 hits were reported in 2009 as per NDIS guidelines, the total number of Maryland offender hits and Maryland case hits is actually greater. This is because hits involving Maryland offenders hitting Maryland cases as well as Maryland cases hitting Maryland cases are only counted as one hit each per NDIS.

Total Hits in 2009

Number of Hits Reported	
Maryland Offender Hits	252
Maryland Case Hits	257

Note - Maryland case hits include a Maryland case hitting to a Maryland offender, a Maryland case hitting a National offender, a Maryland case hitting a Maryland case, and a Maryland case hitting a National case. A Maryland case hitting a Maryland case is considered as two Maryland case hits. A Maryland case hitting to a Maryland offender is counted as both a Maryland offender hits and a Maryland case hit.

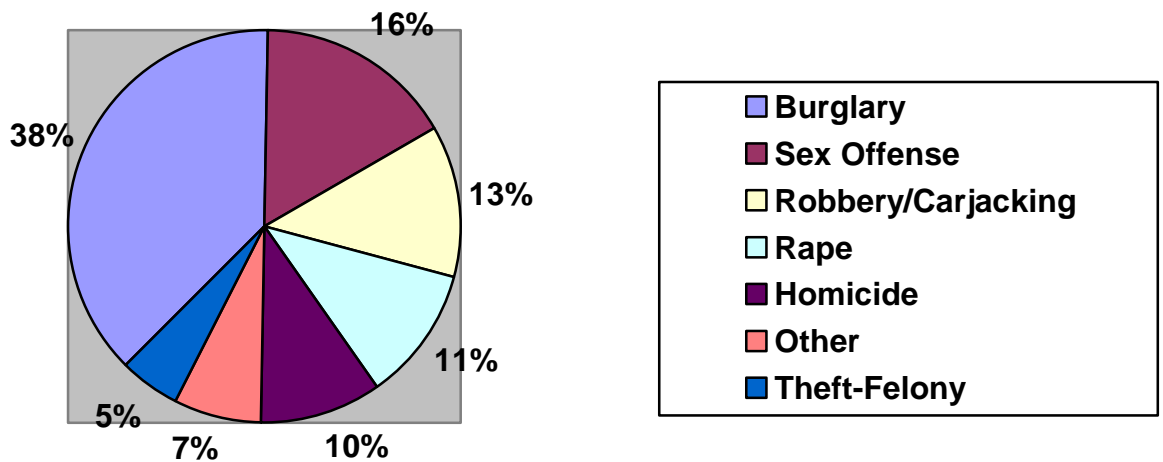
Total Maryland Case Hits in 2009 by County

Maryland County	Hits
Baltimore City	70
Montgomery	43
Anne Arundel	42
Prince George's	40
Baltimore	23
Wicomico	7
Harford	6
Dorchester	5
Washington	4
Carroll	4
Worchester	3
Frederick	3
Cecil	2
Kent	2
Queen Anne's	1
Calvert	1
DOC/IU	1
TOTAL	257

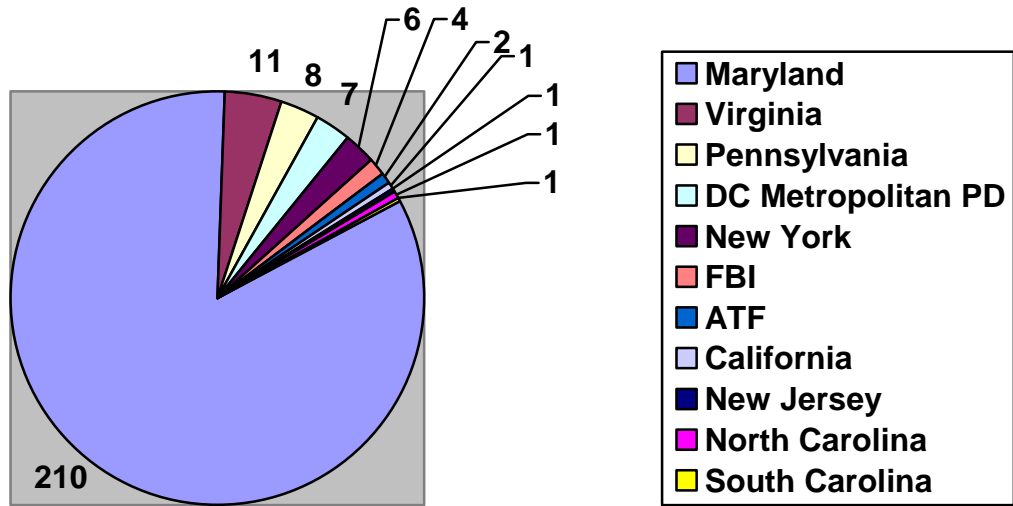
Total Maryland Case Hits in 2009 by Crime Year

Crime Year	Hits
1979	1
1981	1
1987	1
1989	3
1990	4
1991	2
1993	1
1994	1
1995	1
1996	3
1997	1
1998	4
1999	2
2000	9
2001	6
2002	8
2003	14
2004	11
2005	18
2006	34
2007	38
2008	62
2009	27
Unknown	5
Total	257

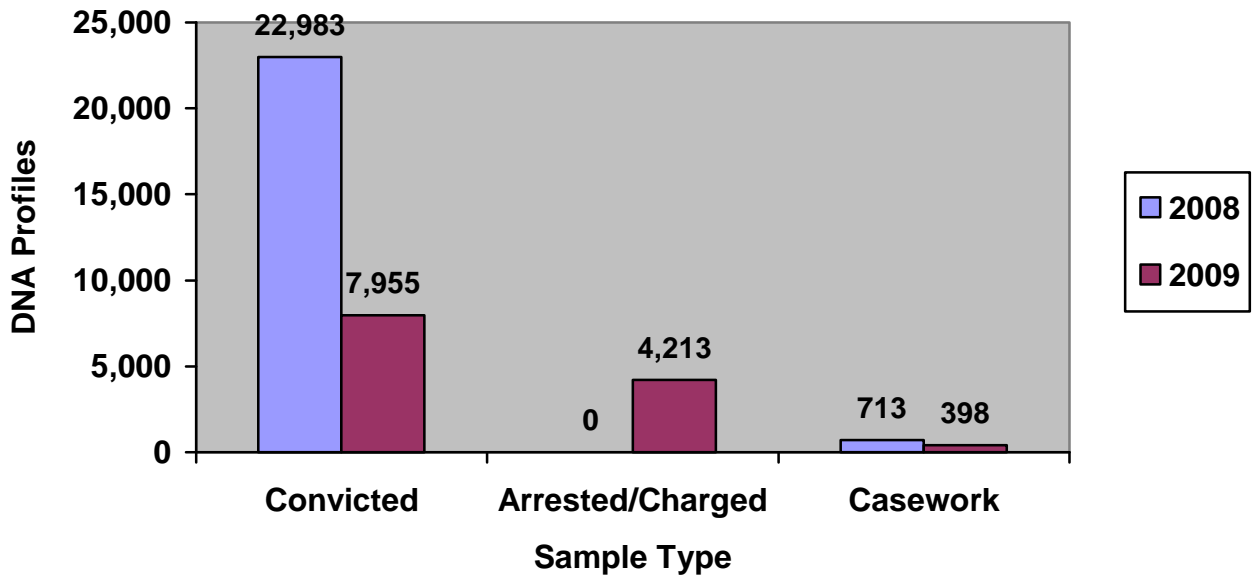
Total Maryland Case Hits in 2009 per Crime Type



Total Maryland Offender Hits in 2009 per Jurisdiction of Crime



Total DNA Profiles Uploaded to CODIS per Sample Type



BIOLOGY TECHNICAL UNIT

The Technical Unit of the Biology Section is responsible for the evaluation of new technologies to determine if they are appropriate to implement into the Section, validation of new technologies, training of personnel on new and current technologies, and quality assurance / quality control aspects of the Biology Section.

New Technologies Implemented in 2009

The main thrust of the validations for the Technical Unit in 2009 was the implementation of the use of robotics in DNA analysis, and the use of up to date analysis procedures for DNA profiles of limited quantity and mixtures.

Technology	Expected Benefit
QiaCube	Automated extraction process to reduce the 'hands-on' time for analysts to perform DNA extractions, to reduce the potential for analyst error and contamination, and to produce purer DNA extracts. Use of this technology will allow the robot to perform the extraction, freeing the analyst to perform other duties that cannot be automated, such as serology, DNA interpretation, and report writing.
Corbett	Automated liquid handling for setup of quantitation and amplification reactions to reduce the 'hands-on' time for analysts to perform these procedures, and to reduce the potential for analyst error and contamination. Use of this technology will allow the robot to perform the extraction, freeing the analyst to perform other duties that cannot be automated, such as serology, DNA interpretation, and report writing.
MinElute	Procedure to purify post-PCR amplification reactions to yield DNA profiles from samples that have limited quantity of DNA. Use of this technology will allow for the analysis of evidence samples that previously had too limited amount of DNA present for any significant interpretation.
DNA Profile Analysis/ Mixture Interpretation	To stay up to date with upcoming recommendations from the Scientific Working Group for DNA Analysis Methods, procedures were validated to provide more uniform reporting of low level DNA profiles and mixture interpretation, and eliminate the policy of reporting inclusionary statements without supporting statistical support.

Training Completed in 2009

Training included the use of new robotic instruments for currently qualified analysts, current and new instruments for analysts who had not previously been qualified, and training regarding new methods for interpretation of low level DNA profiles and mixed DNA profiles for all relevant personnel. Some training completed in the beginning of the year was also related to new technologies implemented in 2008.

Forensic Scientist	Competency Certification
Jason Befus	Robotics, DNA Interpretation
Damon Burman	Robotics, DNA Interpretation
Jessi Brown	In Training
Kathy Busch	Robotics, DNA Interpretation
Courtney Diehle	Robotics
Timothy Graham	DNA Database Analysis, DNA Technician for Casework
Bruce Heidebrecht	Robotics, DNA Interpretation
Debra Heller	Robotics, DNA Interpretation, Sperm HyLiter
Amanda High	DNA Database Analysis, DNA Technician for Casework
Jennifer Kassing	Robotics, DNA Interpretation, Sperm HyLiter
Tiffany Keener	Inventory/Packaging Cases for Outsourcing, Robotics, DNA Interpretation
Amy Kelly	Robotics, DNA Interpretation
Julie Kempton	Robotics, DNA Interpretation
Kelly Knight	DNA Technician for Casework
Sara Lee	Robotics
Argiro Magers	Sperm HyLiter
Leslie Mounkes	Robotics, DNA Interpretation
Devon Pierce	Robotics, DNA Interpretation
Teri Zerbe	Robotics, DNA Interpretation

BIOLOGY SECTION ACCOMPLISHMENTS IN 2009

1. The casework backlog was reduced by 16% in 2009 from a starting backlog of 415 cases in January, 2009 to an ending backlog of 347 cases in December, 2009. With a goal of a 15% backlog reduction to be achieved by the end of the year starting in May, 2009 (backlog of 440 cases); the casework unit actually exceeded this goal by achieving a 21% backlog reduction by December 2009 (backlog of 347 cases). This backlog reduction was led by the Casework Unit but could not have been achieved without the significant assistance of both the Database and Technical Units.
2. The Technical Unit validated new robotic instruments and trained all necessary personnel on their use. Once implemented, these instruments have assisted a great deal with both the quantity and quality of casework and database sample analysis. During this year, the Technical Leader has been instrumental in training the analysts in the understanding and application of new DNA interpretation guidelines as recommended by the international community.
3. The Database Unit managed to keep Convicted Offender samples (at FSD to be processed, analyzed and in review) to a minimal backlog while tackling the arrestee law and overcoming many challenges that are associated with it. While a smooth application of the arrestee law is still in developmental stages the arrestee samples that have been received and processed by the MSP Forensic Sciences Division have been dealt with in an efficient and analytical manner. So far, there have been 40 arrestee hits and samples are being processed once there is a scheduled arraignment date. To date we have released over 1500 total hits and have over 82,000 Convicted Offender samples in CODIS.

BIOLOGY SECTION GOALS FOR 2010

1. The Biology Section expects to further reduce the existing backlog by continuing to outsource cases to a vendor lab as well as utilize newly implemented technology for in-house testing. A new program that is being implemented in 2010 is "Direct Outsourcing" that will offer submitting agencies the choice to outsource their cases directly to the approved vendor lab rather than submitting the case to FSD for subsequent outsourcing. It is anticipated that direct outsourcing will not only provide a quicker turn around time for our clients but it will also reduce the number of case submissions and allow the backlog to go down quicker.
2. While the Technical Unit will continue to implement new technology, train new scientists, and cross-train existing scientists; they will be focusing much of their resources in 2010 on the validation of an optimized in-house platform for the analysis of convicted and charged/arrested database samples. By bringing database analysis in house the Biology Section will be able to realize long-term cost savings as well as provide the quicker turn around time required of charged/arrested database samples.
3. The Database Unit has done an outstanding job of taking on the new DNA database law requiring samples from individuals charged and arrested with violent crimes and burglary. The Biology Section had six months to implement a workflow to handle this complex task. The workflow has been successful but has experienced several IT related roadblocks. The Database Unit will continue to work closely with GetReal Consulting and MSP-ITD to optimize both the internal sample tracking program and the flow of information involving datafeeds between the Courts and FSD.

TRACE EVIDENCE SECTION

The Trace Evidence Section (TES) was established in 2009. Trace Evidence can be viewed as a microcosm of the rest of the lab in that its many sub-disciplines cover the applications of Pattern, Chemical, and Biological analysis. Since it does not fit into one specific area it was decided that it deserves to be treated as its own Section. This new Section was created by combining the previously existing Trace Evidence Unit with the previously existing Questioned Documents Unit. The Trace Evidence Section consists of one Acting Manager (FSD Deputy Director), one Forensic Scientist Supervisor, two Forensic Scientists III, and one Forensic Scientist II. The creation of this new section will allow FSD to establish sufficient staff to analyze and review casework for the numerous sub-disciplines that make up the Trace Evidence field.

TRACE PATTERN SUB-UNIT

The Trace Pattern Sub-Unit performs analyses on evidence that either contains or produces a unique pattern that provides beneficial information to the investigators of the case. These analyses include Questioned Documents; Impressions (other than Latent Prints, Shoe & Tire prints and Toolmarks); Fracture Matches; Lamp Examinations; Nature of Damage (including Direction of Force, Fabric Separation and general sustained damage); Cordage, Knots & Ligatures; and Plastic Bag comparisons.

TRACE CHEMISTRY SUB-UNIT

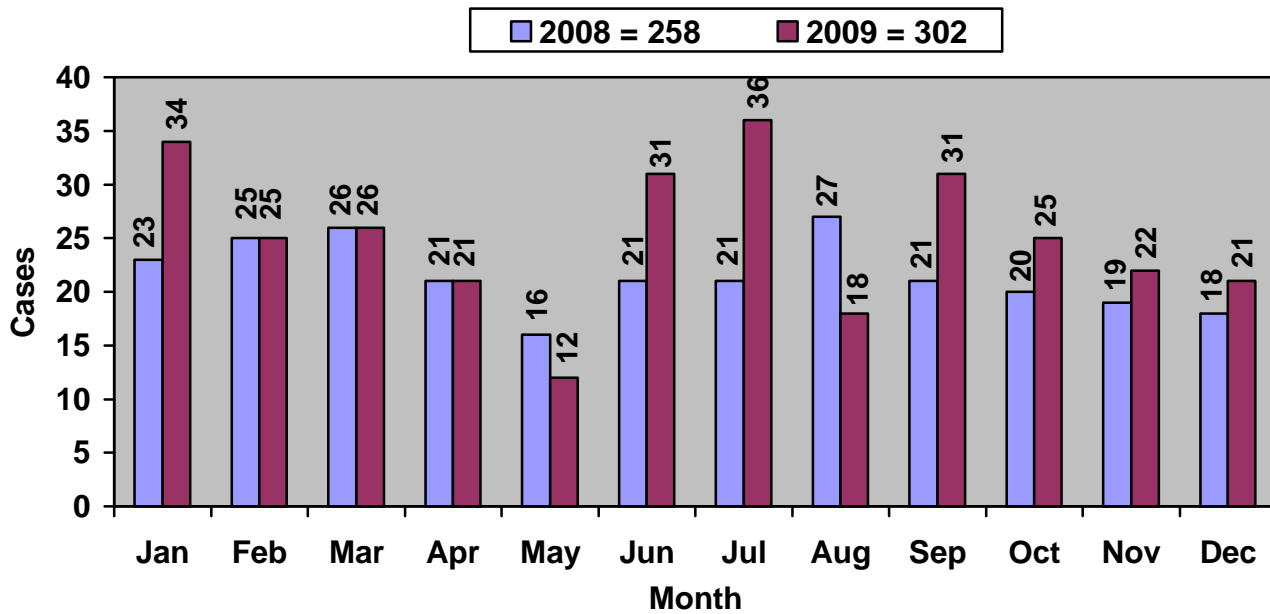
The Trace Chemistry Sub-Unit receives the bulk of the Trace Section evidence and is responsible for the analyses of any evidence submitted to the section that requires chemical or instrumental testing to determine physical and chemical properties. These include analyses in the areas of Fire Debris; Paint; Bank Dye Packs; Fibers; Tapes & Adhesives; Glass; Soil Anomalies; and miscellaneous liquids, powders & solids.

TRACE BIOLOGY SUB-UNIT

The Trace Biology Sub-Unit examines biological evidence in support of the operations of the Biology Section. The main area of analyses is with hair examinations to determine species, body area, root shape, and growth phase for further DNA profiling. It is anticipated that in the future the Trace Biology Sub-Unit will also perform advanced biological screening in an effort to isolate biological material for DNA testing that is not currently possible.

Casework

Total Cases Received per Month



MSP Cases Received in 2009 per Barrack

Barrack	Counties Served	Submissions
MSP - Homicide	State-Wide	11
MSP - C3I	Allegany	7
MSP - Bel Air	Harford	5
MSP - Westminster	Carroll	5
MSP - North East	Cecil	5
MSP - Centreville	Kent, Queen Anne's	2
MSP - Prince Frederick	Calvert	2
MSP - Rockville	Montgomery	2
MSP - JFK	Cecil, Harford, Baltimore	1
MSP - Hagerstown	Washington	1
MSP - Glen Burnie	Anne Arundel	1
MSP - La Plata	Charles	1
MSP - Easton	Caroline, Dorchester, Talbot	1
MSP - Mc Henry	Garrett	1
MSP - Salisbury	Wicomico	1
MSP - Cumberland	Allegany	1
MSP - Frederick	Frederick	1
	TOTAL	48

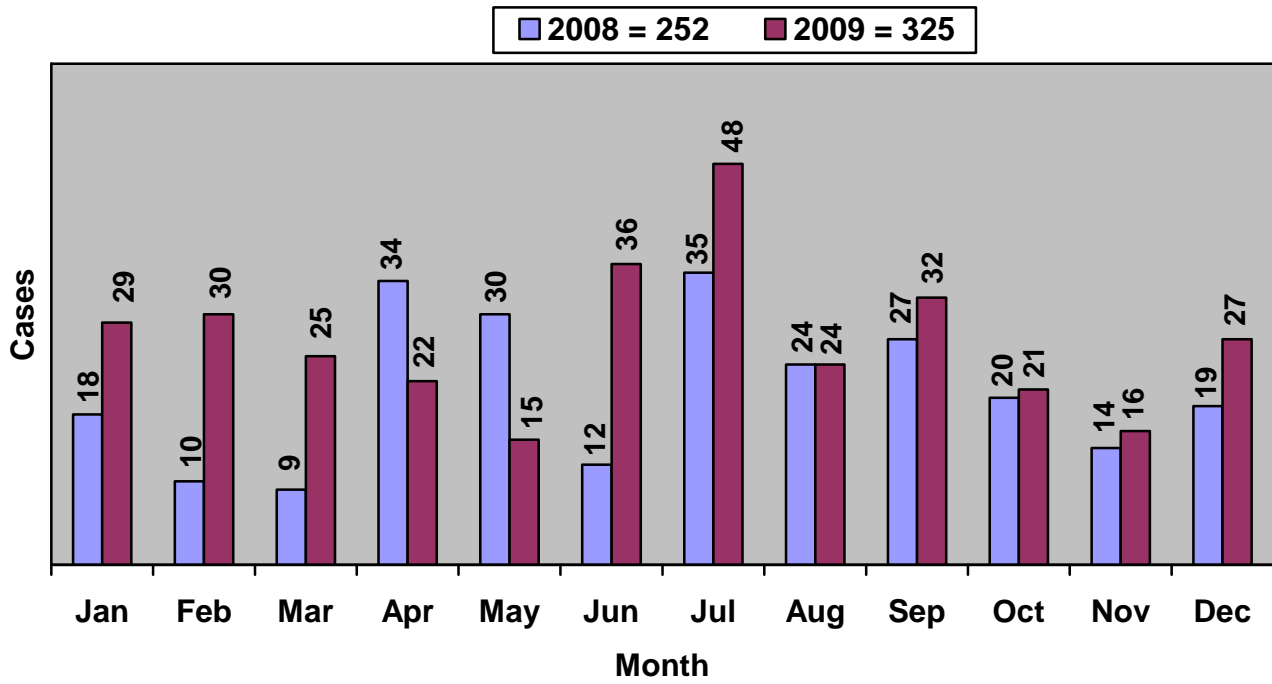
OSFM Cases Received in 2009 per OSFM Region

Region	Counties Served	Submissions
OSFM – Western	Allegany, Garrett, Washington	9
OSFM – Southern	Calvert, Charles, St. Mary’s	7
OSFM – Metro	Carroll, Frederick, Howard	11
OSFM – North East	Harford, Cecil	9
OSFM – Upper Shore	Caroline, Kent, Queen Anne’s, Talbot	24
OSFM – Lower Shore	Dorchester, Somerset, Wicomico, Worcester	27
	TOTAL	87

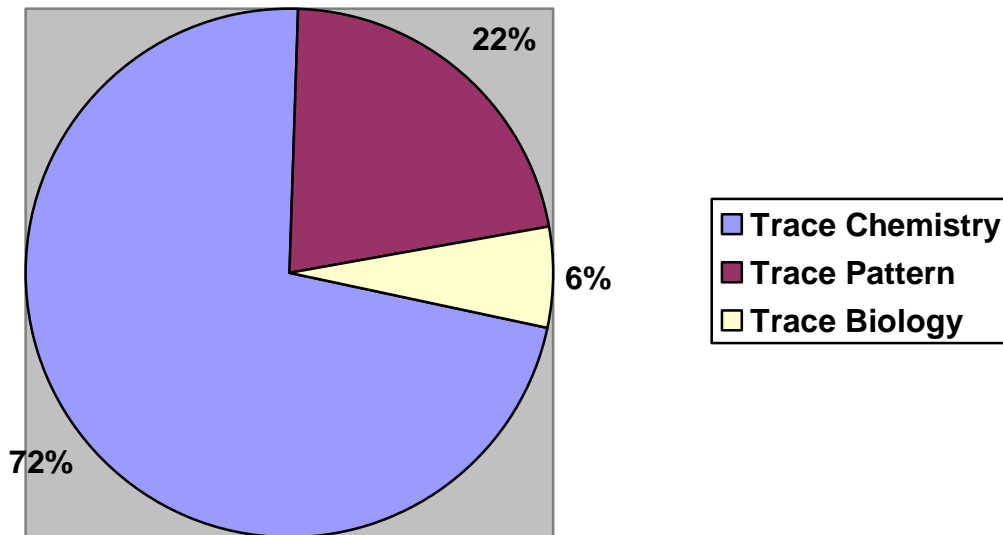
Allied Agency Cases Received in 2009 per County

Counties	Submissions
Anne Arundel	46
Baltimore County	31
Howard	20
Wicomico	10
Worcester	10
Montgomery	9
Frederick	5
Prince George’s	5
St. Mary’s	5
Baltimore City	4
Cecil	4
Carroll	4
Harford	3
Washington	3
Charles	3
Queen Anne’s	1
Dorchester	1
Talbot	1
Alleghany	1
Caroline	1
TOTAL	167

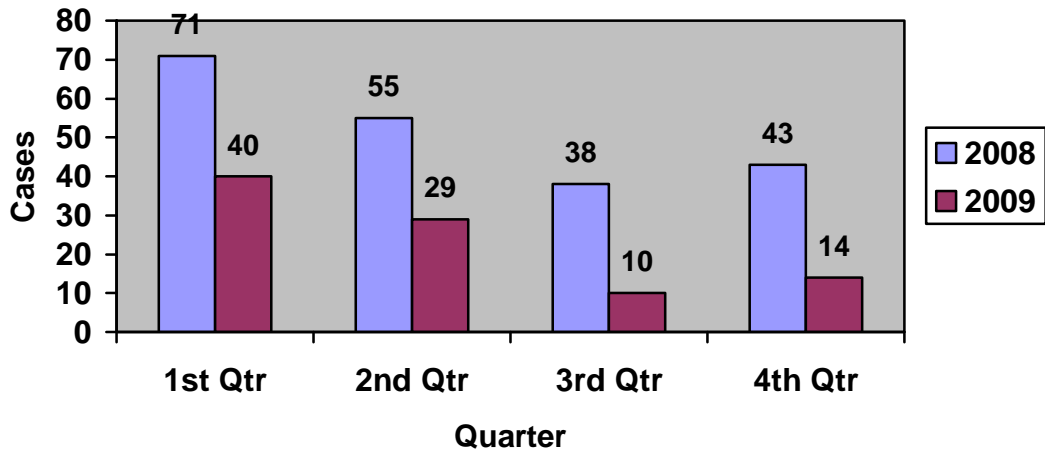
Total Cases Completed per Month



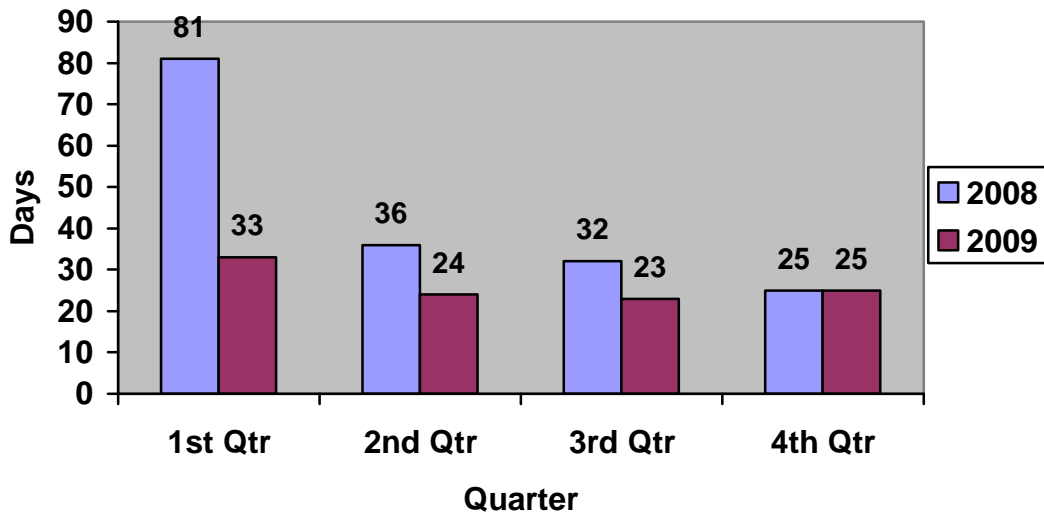
Cases Completed per Sub-Unit



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

New Technologies Implemented in 2009	Expected Benefits
Fourier Transform Infrared Spectrometer (FT/IR) with Microscope	The ability to analyze smaller pieces of evidence for their chemical composition. Validation in progress.
Scanning Electron Microscope with Energy Dispersive Spectrometry (SEM/EDS)	The ability to determine both morphological and elemental constituents of particles. Validation in progress.

Forensic Scientist	Competency Certification
Andreana Dimakakos	Fire Debris
Salvatore Bianca	Lamp Examination
Sandra Hartsock	Lamp Examination
Diane Lawder	In Training

TRACE EVIDENCE SECTION ACCOMPLISHMENTS IN 2009

1. The creation of the Trace Evidence Section provided the structure needed to properly address the numerous sub-disciplines that encompass Trace Evidence.
2. A new Standard Operating Procedure was drafted that provides excellent guidance on the proper analysis of 17 different sub-disciplines.
3. A new Training Manual was drafted that details the requirements that must be met for a forensic scientist to be trained and qualified as competent to perform independent analysis. Each of the 17 sub-disciplines is addressed.

TRACE EVIDENCE SECTION GOALS FOR 2010

1. Have the senior Trace Evidence analyst, Sal Bianca, receive a competency certificate in all of the sub-disciplines for which testing is offered.
2. Have the two junior Trace Evidence analysts, Andreana Dimakakos and Diane Lawder, complete their respective training programs. This will result in Ms. Dimakakos receiving competency certificates for all sub-disciplines within the Trace Chemistry Sub-Unit and Ms. Lawder receiving competency certificates for all sub-disciplines within the Trace Pattern Sub-Unit.
3. Obtain a Forensic Scientist Manager position to oversee the Trace Evidence Section relieving those duties from the Deputy Director.