



2010
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.

***FSD wishes to acknowledge and thank our volunteers who give of their time and effort to assist---
Mr. Bill Saxton, Mr. Jim Betts, and Mr. David Katz***

DIRECTOR'S SUMMARY

Teresa M. Long

The year 2010 was one of continued expansion and success for the Forensic Sciences Division (FSD). This is not to say that there were not significant challenges and hurdles, such as budget restraints and loss of staff. The success of the Division was a direct result of the expertise, talent and dedicated efforts of the staff. In addition, there was the continued support from the Department's management as well as the other divisions within the State Police.

Another strong contributing factor of FSD's success was having the management team of the Director, Deputy Director, Assistant Commander and Quality Assurance/Safety Manager positions fully staffed for the entire year. The efforts of this team directed the completion of several lab-wide projects.

First, under the direction of Deputy Dan Katz and Assistant Commander Captain Dave Hopp, the laboratory information system (STARLIMS) was implemented in its first stages. All cases received into the laboratory are now entered and tracked within this system and the results from the analysis of Controlled Dangerous Substance (CDS) cases are captured. The reported CDS results are now in a format which allows this information to be forwarded to the DEA's National Forensic Laboratory Information System or NFLIS. This federal program reports out the trends seen nationwide in drug identification results. Captain Hopp directed the Crime Scene Unit as they became the first discipline to handle casework completely within STARLIMS.

Second, FSD formally led the Department into the age of digital photography. The Photography Unit, under the Captain's direction and along with the support of the IT Division, created procedures and policies for the newly purchased *VeriPic* software as well as purchasing the new cameras. This patented software authenticates that images have not been edited or altered and tracks any later made enhancements. As part of the implementation of this system, FSD coordinated "Train the Trainers" workshops. The FSD Crime Scene and the Crash Team were the first units to use the system.

The third lab-wide achievement was led by Dr. Kuperus, the QA/Safety Manager. She oversaw the laboratory's preparation for the next level of accreditation by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). This encompassed the generation of the required conformance file as well as the on-site assessment of the laboratory's operations against the ASCLD/LAB International criteria. The Division should complete the required corrective action plans by summer 2011 with the new accreditation certificate to shortly follow.

Departmental support was received for additional lab-wide projects allowing for the continued restructuring of the Division, the creation of new positions, the filling of vacancies, the continued expansion of forensic services offered and the use of overtime to address the casework backlogs.

On a broader perspective and following the nation's trend in improving forensic science, several personnel of FSD served as members of the National Science and Technology Council Subcommittee on Forensic Science Interagency Working Groups, the National Institute of

Justice Expert Working Group on Human Factors in Latent Print Analysis, Scientific Working Groups, and various regional forensic science organizations. The Division is fortunate to participate in and have access to the policy documents developed by these groups.

The FSD was also involved in statewide legislated efforts concerning the oversight of forensic laboratories. The FSD has hosted and participated in the many meetings of the Maryland Forensic Laboratory Advisory Board. This Gubernatorial appointed committee is charged with the development of regulations which will be used to license all forensic laboratories by the end of 2011.

Lastly, in demonstration of the quality of work performed at FSD, the individual accomplishments of each forensic discipline are detailed within this report. Each unit has been successful in decreasing the casework backlog with the exception of those units that lost two staff members or experienced long term vacancies. In addition to analyzing the casework and meeting scheduled court dates, there are the successes of training new staff, expanding services to include the validation of new procedures and new instrumentation, the development of more efficient case management systems and staff involvement in the activities of the forensic science community.

As an ending note, a summary of 2010 would not be complete without the mention of the loss of three long standing members of the Division. Ms Thelma Guzman served over 35 years with the State and was the Division's Front Desk Receptionist in two of the three laboratories. She protected and secured the entrance into the building with as much energy as she decorated the area for all holidays. It will be a challenge to keep up with her creative ways. The two senior latent print examiners, Mr. Jim Simms/Forensic Scientist Manager and Mr. Tim Ostendarp/Forensic Scientist III, took with them over 35 years of experience and dedication to the Latent Print Unit and FSD. We thank them for their dedication and past successes of the unit, as they will be greatly missed.

Finally with a strong pride of the past year's accomplishments, the FSD will continue with its dedication to providing quality forensic services to the law enforcement community as the laboratory moves forward into 2011.

CASEWORK SUMMARY

Unit	Total Cases Received	MSP Cases Received	Allied Agency Cases Received	Cases Completed	Backlog
Latent Prints/Impressions	2,079	28%	72%	1,321	969
Firearms/Toolmarks	760	44%	56%	682	680
CDS-Pikesville	6,592	19%	81%	6,872	1,372
CDS-Berlin	5,020	33%	67%	4,772	310
CDS-Hagerstown	2,737	40%	60%	2,851	308
Toxicology	1,059	32%	68%	1,145	62
Biology	395	22%	78%	562	178
Trace Evidence	251	38%	62%	247	21
TOTALS	18,893	32%	68%	18,452	

GRANT FUNDING SUMMARY

Coverdell FY08 Formula Grant: CFSI-2008-1702

Start date: 11/01/08

End date: 8/31/10

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 2010 funds were used to purchase for the Crime Scene Unit a down draft hood for processing evidence, magnifying loops to for the analysis of bloodstain pattern analysis, and extruder guns and silicon materials for lifting impressions from uneven or curved surfaces. This grant is closed.

Coverdell FY09 Formula Grant: CFSI-2009-1802

Start date: 10/01/2009

End date: 02/28/11

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. In 2010, funds were used for 61 training events, dues payments to 4 different professional organizations, and the completion of 148 hours of overtime for CDS analysis.

Coverdell FY09 Competitive Grant: CFSI-2009-1008

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). In 2010, the instrument was ordered, received, and validated. This grant is closed.

Coverdell FY10 Formula Grant: CFSI-2010-1902

Start date: 10/01/2010

End date: 09/30/2011

Amount: \$80,695

This grant was entitled Latent Print/Impression Unit Enhancement. The funds in this grant are budgeted for overtime wages for latent print examiners and for a gel lift scanner with a supply of gel lift cards. The new gel lift scanner will improve the ability to obtain useable latent print lifts from objects not amenable to traditional lifting methods. In 2010, the gel lift scanner and supplies were ordered.

Coverdell FY10 Competitive Grant: CFSI-2010-1408

Start date: 10/01/2010

End date: 09/30/2011

Amount: \$78,750

This grant was entitled Crime Scene / CDS Enhancements. The funds in this grant are budgeted for a contractual Inventory Control Specialist for the CDS-Hagerstown Unit, overtime for the Crime Scene Unit to assist the Pattern Evidence Section with latent print processing and firearm test fires, replacement computer CPUs for the Chemistry Section, and additional equipment for the Crime Scene Unit. In 2010, the Inventory Control Specialist was posted, training occurred for the Crime Scene Unit to assist with firearm test fires, and the Crime Scene equipment was ordered.

Byrne-Justice Assistance Grant – ARRA of 2009: BJRA-2009-1083

Start date: 12/01/2009

End date: 06/30/2011

Amount: \$374,871

This grant was entitled Backlog Reduction – DBRA. This grant is broken down between outsourcing of DNA casework, testimony for outsourced DNA casework, overtime for forensic scientists to prepare and review outsourced DNA casework, and a contractual Paralegal II position to assist with DNA Database sample collections. In 2010, the Paralegal II was hired, 186.5 hours of overtime were completed, 115 DNA cases were outsourced, and 2 outsourced testimonies were funded.

NIJ FY08 Solving Cold Cases with DNA: 2008-DN-BX-K208

Start date: 12/01/2008

End date: 05/31/2011

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 DNA casework, overtime for investigators and forensic scientists, travel for investigators, equipment, supplies, a contractual position for the Cold Case Unit, and various other items to support the Cold Case Unit and Forensic Sciences Division staff. In 2010, most of the remaining cold cases were outsourced, the travel with several hit related investigations were funded, the contractual Cold Case position continued to be funded, and various supplies were ordered.

NIJ FY08 Forensic DNA Backlog Reduction Program: 2008-DN-BX-K065

Start date: 10/01/2008

End date: 03/31/2010

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. In 2010, a final piece of equipment was received and the grant was completed. This grant is closed.

NIJ FY09 Forensic DNA Backlog Reduction Program: 2009-DN-BX-K060

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. In 2010, a total of 56 cases were outsourced; 8 individuals traveled to training; 8 replacement computers, 3 mobile lab tables, 9 pipettes, 6 microcentrifuges, 2 UV crosslinkers, and 1 vortex were purchased; and 5 new texts were received.

NIJ FY09 Appropriations Funding: 2009-D1-BX-K003

Start date: 10/01/2009

End 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. In 2010, a total of 75 cases were outsourced, 105.5 hours of overtime were completed, and the Inventory Control Specialist was hired.

NIJ FY10 Forensic DNA Backlog Reduction Program: 2010-DN-BX-K102

Start date: 10/01/2010

End date: 03/31/2012

Amount: \$359,687

This grant was entitled FY2010 Forensic DNA Backlog Reduction Program – Maryland State Police. This grant is broken down into outsourcing, travel, equipment, overtime for forensic scientists, and indirect costs. The special conditions associated with this grant were lifted in December 2010.

NIJ FY10 Convicted Offender/Arrestee Backlog Reduction: 2010-DN-BX-K027

Start date: 10/01/2010

End date: 03/31/2010

Amount: \$206,591

This grant was entitled FY2010 Convicted Offender and/or Arrestee DNA Backlog Reduction Program – Maryland State Police. This grant covers supply costs to perform in-house analysis of over 8,000 DNA database samples and indirect costs. The special conditions associated with this grant were lifted in December 2010.

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 three regions, Western, Eastern, and Central. The Unit is staffed by three Crime Scene Technician Supervisors and sixteen Crime Scene Technicians. There are six technicians assigned to the Western Region, five in the Central Region, and five in the Eastern 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, and one Office Secretary II.

CRIME SCENE UNIT

The Crime Scene Unit (CSU) 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 also provides assistance to neighboring states upon request.

The majority of the evidence examined by the FSD is transported by Crime Scene Technicians (CST). They not only transport evidence for the majority of State Police installations, but also for many of the local police and sheriffs' departments. CSTs also transport CDS for analysis to the Pikesville Laboratory and the two satellite laboratories 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.

In addition to these duties, CSTs 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 CSSTs 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

Western Region: Allegany, Frederick, Washington and Garrett Counties

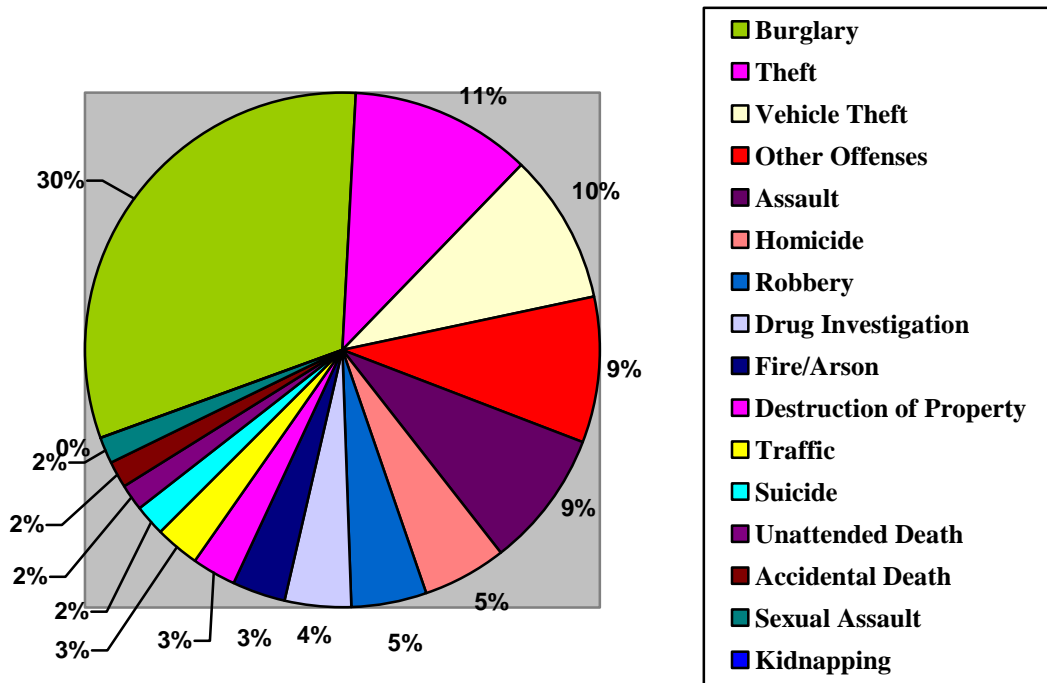
Central Region: Harford, Baltimore, Cecil, Howard, Carroll, Montgomery, Anne Arundel, Prince George's, Calvert, Charles and St. Mary's Counties, Maryland Port and all DOC facilities located in Baltimore City

Eastern Region: Kent Counties, Queen Anne's, Talbot, Caroline, Dorchester, Wicomico, Somerset and Worcester Counties

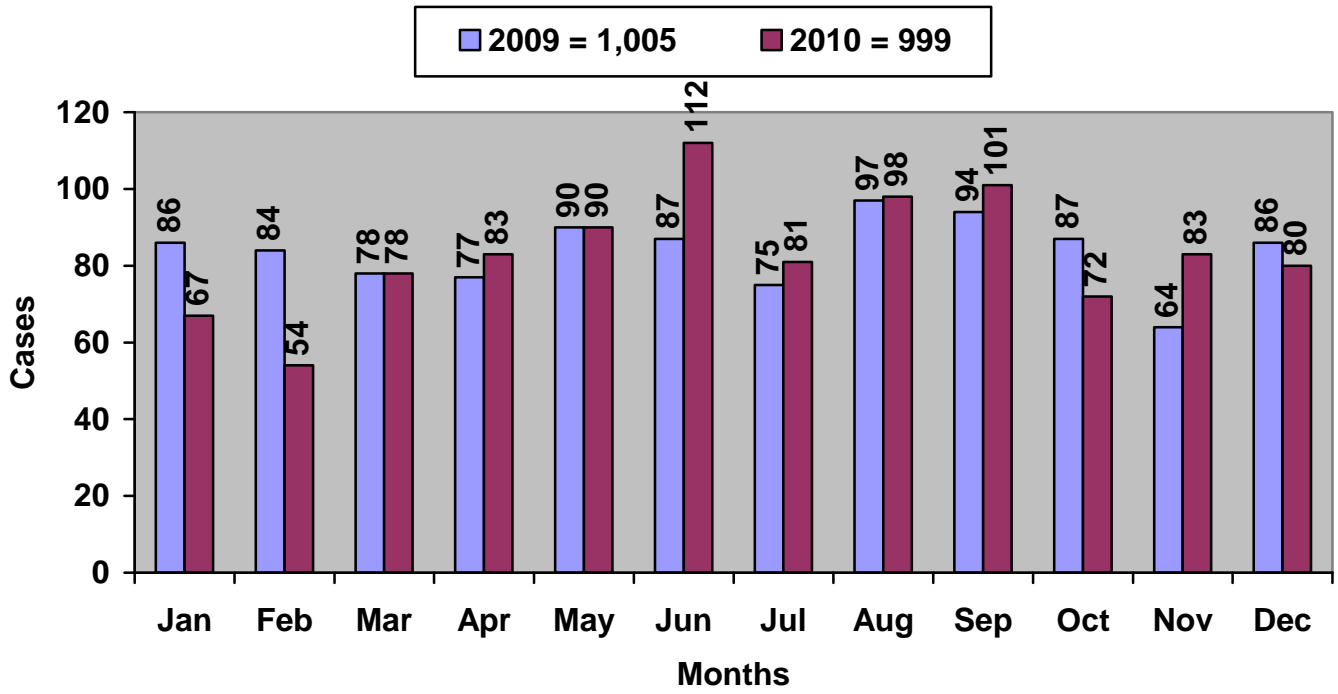
Total Number of Cases Handled in 2010 per Office/Installation

Crime Scene Office	Total Number of Cases
Westminster	147
Easton	119
McHenry	92
Centreville	84
Golden Ring	84
Salisbury	83
Cumberland (C3I)	81
Princess Anne	69
Frederick	59
Bel Air	57
Hagerstown	49
Northeast	39
Pikesville	32
Glen Burnie	4
TOTAL	999

Total Number of CSU Cases in 2010 per Crime Type



Total Number of CSU Cases per Month



PHOTOGRAPHY UNIT

The Photography Unit provides photographic services to the Maryland State Police as requested through FSD management. The Photography Unit implemented the Department's new digital photography data management system, VeriPic, and worked very closely with the Information Technology Division during the first two quarters preparing for its release. By the close of 2010, members from each barrack and the Office of the State Fire Marshal were trained as VeriPic trainers and began providing all personnel training in the field.

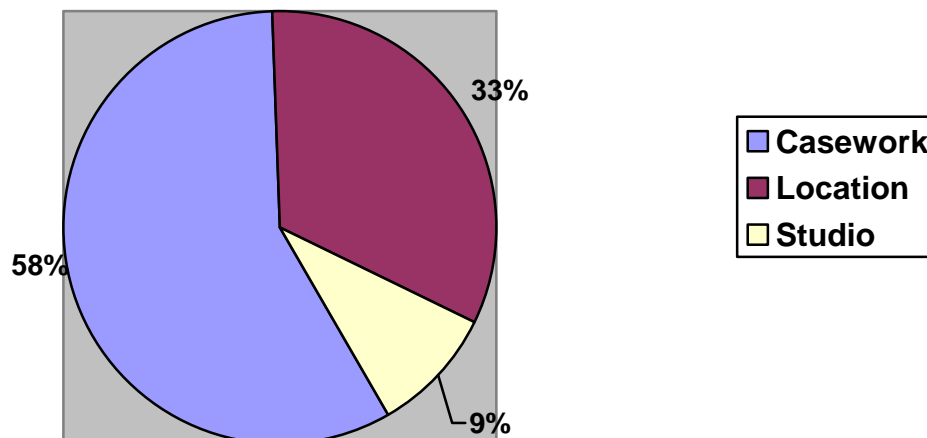
Duties within the unit include the development and printing of film for the Maryland State Police and other agencies related to criminal and motor vehicle accidents. This unit also serves as the VeriPic system administrator. Reprints or CDs are made via requests through various other divisions/units throughout the Department. Other duties include; public relations photos, maintaining the digital Barrack Identification Photo System, and support of other units within the MSP.

Photo Unit personnel serve as members of the Disaster Identification and Mass Arrest Teams and provide technical training in photography.

Photography Requests 2010

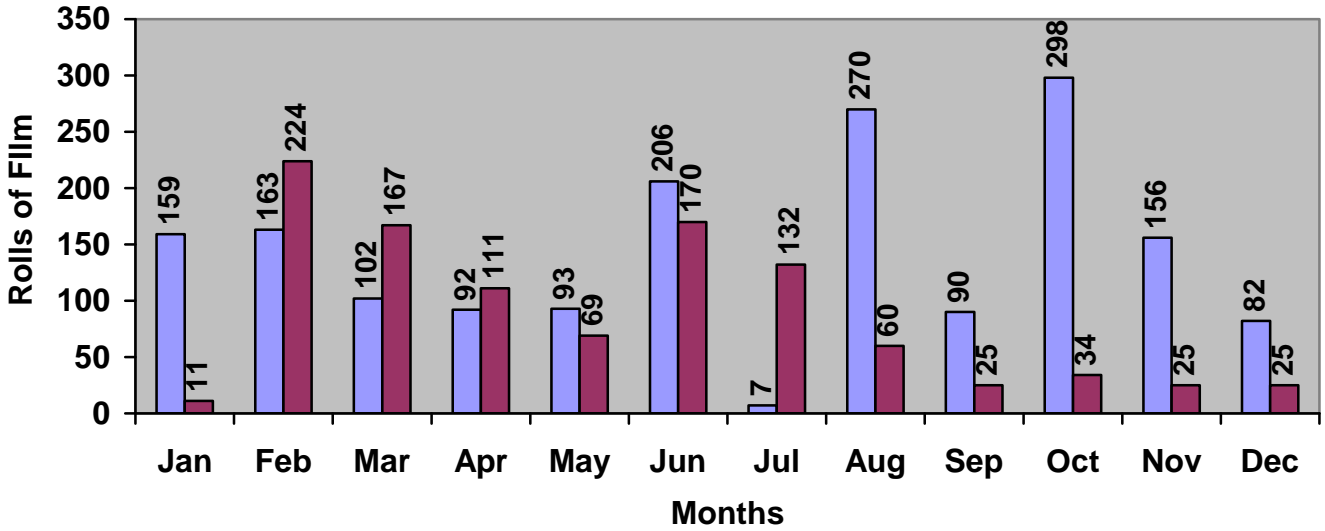
MSP Requestors	Requests
Forensic Science Division	78
Headquarters	25
Special Operations Division	11
Recruiting	6
Barracks	3
Training	2
Aviation	1
TOTAL	126

2010 Total Photo Requests per Request Type



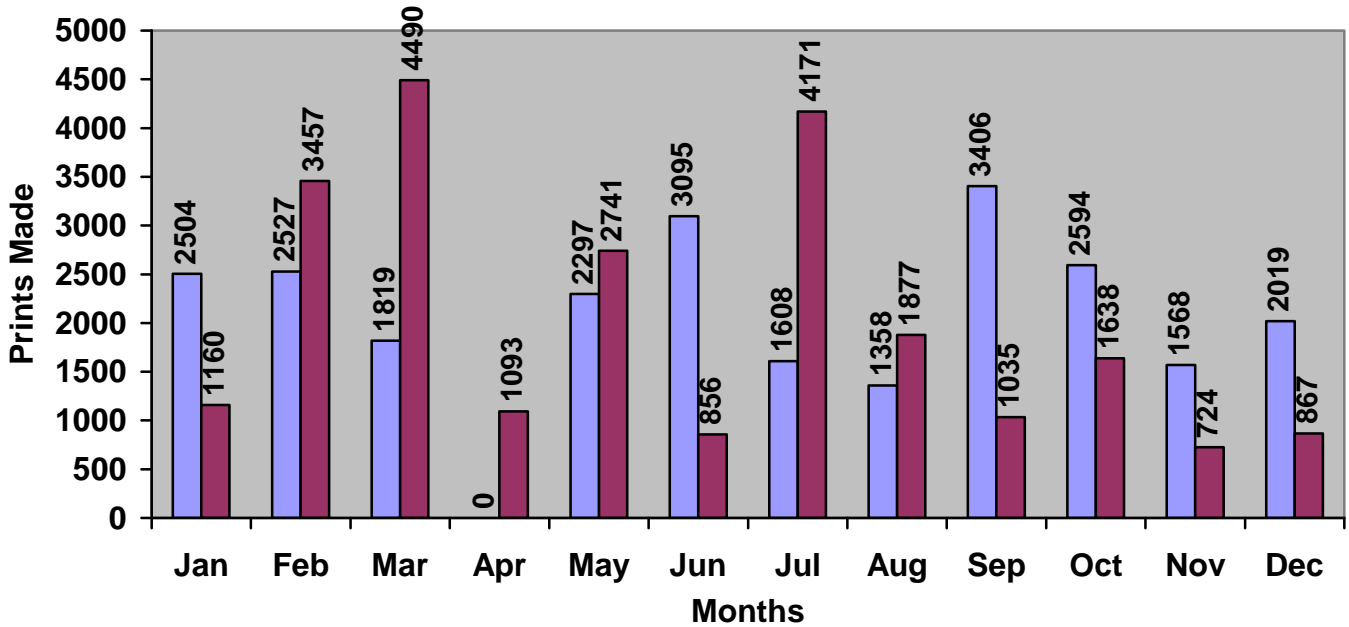
Total Film Processed

■ 2009= 1,718 ■ 2010= 1,053



Total Prints Made

■ 2009 = 24,795 ■ 2010 = 24,109



CENTRAL RECEIVING UNIT

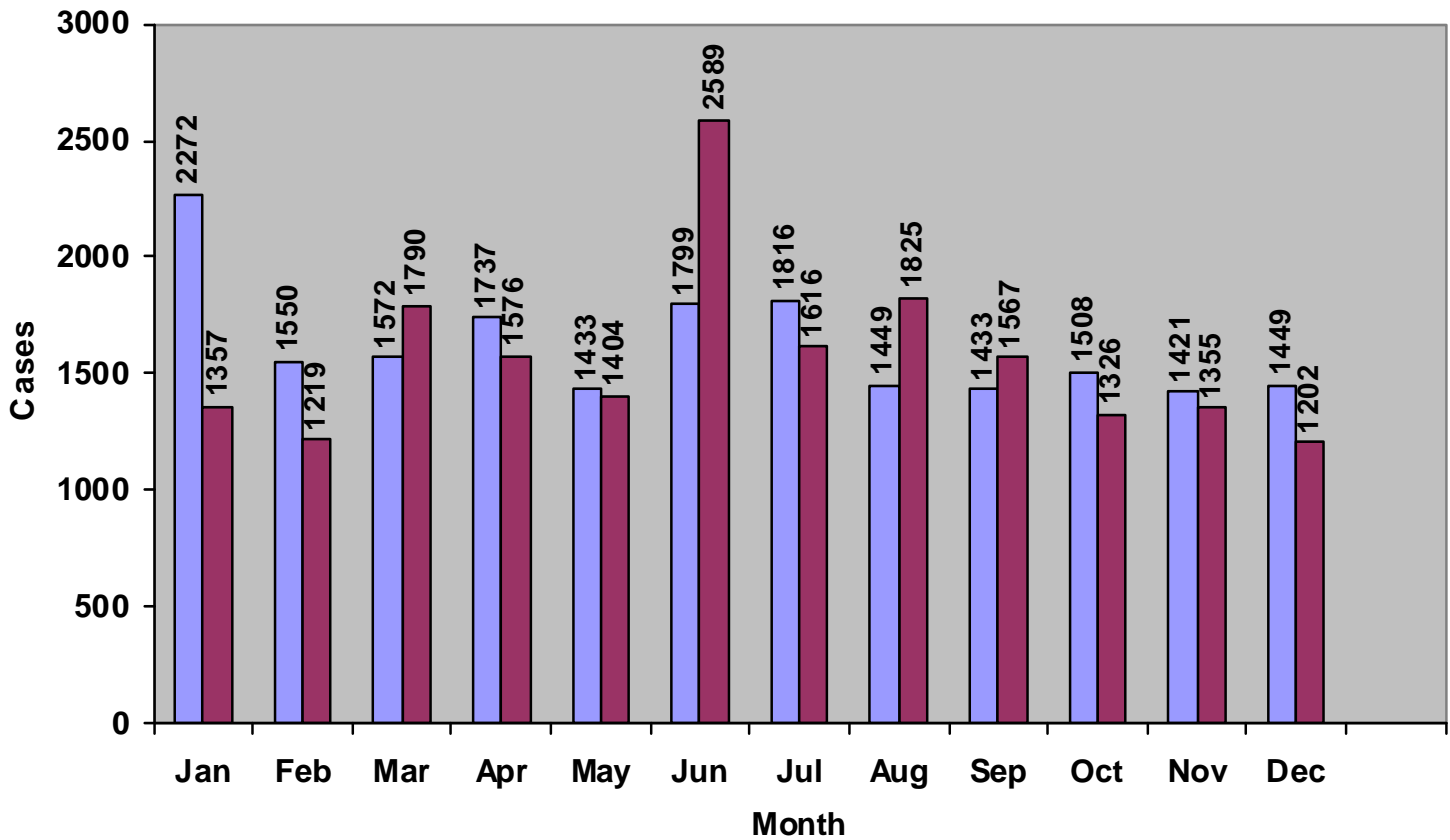
The Central Receiving Unit (CRU) functions as a liaison between the FSD and agencies submitting evidence for scientific analysis and CDS destruction. The CRU is responsible for the acceptance and storage of evidence and the security of evidence between submission, analysis, and return to the originating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

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

■ 2009 = 19,439 ■ 2010 = 18,826



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 involving 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 year the unit welcomed the hiring of a Services Specialist to provide 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 2010

1. The process to convert the Department from film based to digital based photography was completed. To accomplish this goal, the Operational Services Branch worked closely with the Information Technology Division and the VeriPic company to install the VeriPic software program that allows for the upload and storage of all digital photos taken during investigations. Train the trainer sessions were completed which included the Office of the State Fire Marshal. 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 the implementation of this program, digital cameras were issued to all Field Operations Bureau barrack personnel (Corporal and below) and enhanced digital SLR cameras were issued to the FSD Crime Scene Unit and the Crash Team.
2. During August 2010, the Crime Scene Unit became fully functional in the VeriPic system eliminating the downtime for investigators to obtain images from crime scenes. In addition, they continued to work entirely within the STARLIMS system increasing efficiency and sharing of investigative information. Members of the Operational Services Branch remain the only laboratory personnel fully functional in both computer based systems.
3. The Administrative Services Unit has played a critical role in keeping the FSD staffed with minimal vacancies during 2010. With several vacancies occurring during 2010, the Unit had efficiently conducted hiring processes to maintain vacancy levels low. The Unit went above and beyond what was required of them and worked closely with the Human Resources Division to coordinate job postings, creating eligibility lists, conduct and schedule oral interviews and assign/track background investigations. This was conducted in order to more efficiently fill vacancies.

OPERATIONAL SERVICES BRANCH GOALS FOR 2010

1. The Operational Services Branch strives to fully implement a new Department Identification System that will be used to produce a more secure identification card for all Department employees. This project includes the procurement of computer, printer and software products and a complete back-up of all historic photo files. They will work closely with the Quartermaster and Information Technology Divisions to accomplish this goal.
2. The Crime Scene Unit will develop a two week Basic Crime Scene school in order to train members of this Department and allied agencies. This will enhance our ability to more efficiently train new Crime Scene Technicians while teaching allied agencies proper methods that will reduce evidence collection mistakes.
3. The Central Receiving Unit strives to implement a complete inventory process through the STARLIMS system. This will eliminate duplication of efforts throughout the laboratory and will increase productivity.

PATTERN EVIDENCE SECTION

The Pattern Evidence Section (PES) is responsible for performing latent print, footwear, tire track, firearm and toolmark analysis associated with criminal casework. The overall operations of the Pattern Evidence Section are overseen by one Forensic Scientist Manager.

The Latent Prints/Impressions Unit is currently staffed with a Forensic Scientist Supervisor, one Forensic Scientist Advanced, one Forensic Scientist III, one Forensic Scientist II and a contractual employee. The Firearms/Toolmarks Unit is staffed with a Forensic Scientist Supervisor, two Forensic Scientists III and one Lab Technician I.

In June of 2010 two examiners with the Latent Prints/Impressions Unit retired from State employment, while at the same time two examiners were promoted to management and supervisory positions. This created a critical reduction in personnel whose primary responsibility was to perform comparison examinations in this unit. Efforts continue to address this staffing concern.

During the past year the number of cases completed has decreased. However, the percentage of cases with identifications has increased; in 2009 22% of cases completed resulted in identifications while in 2010 27% of cases completed resulted in identifications. 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.

The Latent Prints/Impressions Unit has witnessed an increase in the number of contributing agencies which are providing digital images of recovered latent print evidence. Each examiner is provided with a MAFIS terminal which includes software applications that permit for the analysis and on screen comparison of this evidence. The provision of this capability has eliminated throughput concerns thus helping to manage productivity.

The Impressions Sub-Unit received 67 case requests during 2010 and completed 50 cases during this period. This unit manages the Shoe Impression Capture and Retrieval (SICAR) system for the Maryland State Police. This system provides the ability to link recovered shoe outsole impressions to those recovered from other crime scenes as well as providing investigative information on the type of footwear that a suspect may have been wearing.

In 2010 expansion of the Operation Test Shot program in the Firearms/Toolmarks Unit using "Forensic Buddies" took place. These small portable snail trap devices are used to shoot firearms at the agency level; specifically to determine gun operability in handgun possession cases. A formal training program was finalized and provided to participants from allied agencies as well as MSP Crime Scene Technicians. This contributes significantly to reducing the time examiners are required to perform routine function tests and appearing in court to provide the related testimony.

The Firearms/Toolmarks Unit hosted a regional training program that was well attended by examiners from the area. Continued cooperation between examiners from neighboring laboratories has provided significant benefits including a pending offer to assist with the training of two Forensic Scientist I s expected to be hired in January 2011. Without such support the time required of the limited trained staff in this unit to fulfill this training requirement would likely have a negative impact on the unit's productivity.

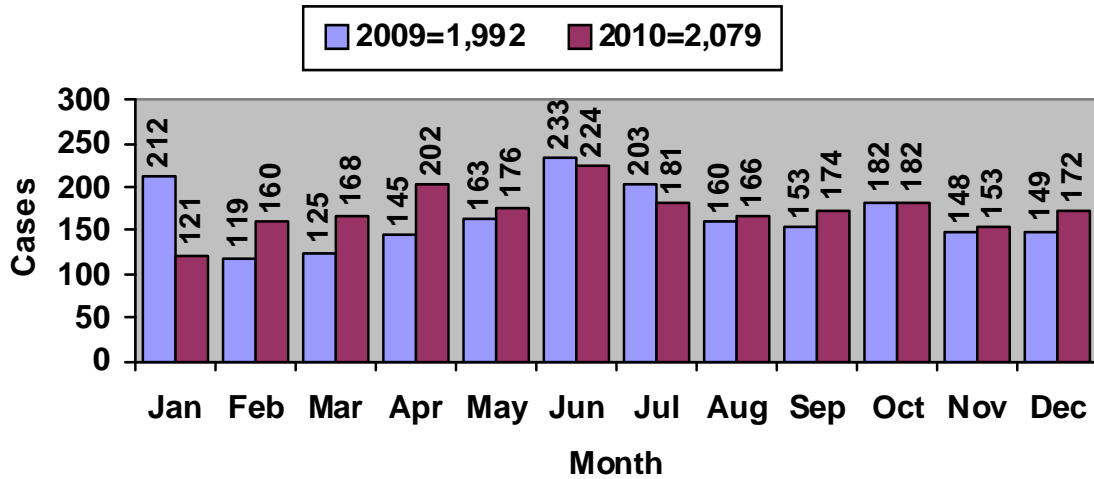
LATENT PRINTS/IMPRESSIONS UNIT

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 retained as part of the case record. In cases where an identification is effected 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 photographic processes are used for the proper visualization and recording 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 meet the suitability requirements 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



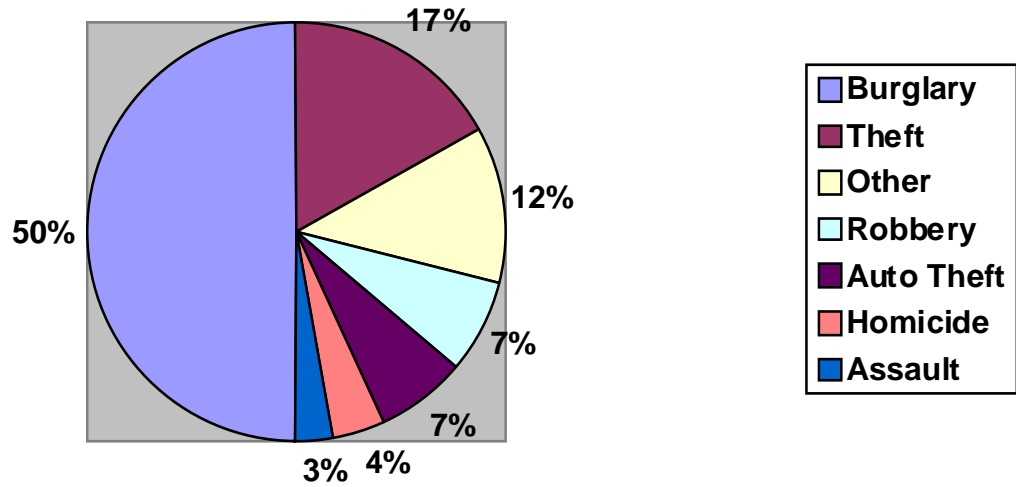
Total MSP Cases Received in 2010 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Westminster	Carroll	134
MSP-Easton	Caroline, Dorchester, Talbot	58
MSP-North East	Cecil	57
MSP-Homicide	State Wide	55
MSP-Centreville	Kent, Queen Anne's	30
MSP-Hagerstown	Washington	28
MSP-Bel Air	Harford	25
MSP-Princess Anne	Somerset	24
MSP-Frederick	Frederick	22
MSP-Golden Ring	Baltimore	20
MSP-Cumberland	Allegany	20
MSP-McHenry	Garrett	17
MSP-Prince Frederick	Calvert	16
MSP-Salisbury	Wicomico	14
MSP-Berlin	Worcester	13
MSP-Leonardtown	St. Mary's	10
MSP-Glen Burnie	Anne Arundel	9
MSP-DED/WINIF	State Wide	9
MSP-JFK Memorial Highway	Cecil, Harford, Baltimore	8
MSP-Forestville	Prince George's	6
MSP-College Park	Prince George's	3
MSP-Annapolis	Anne Arundel	2
MSP-CID	State Wide	1
MSP-LaPlata	Charles	1
	TOTAL	582

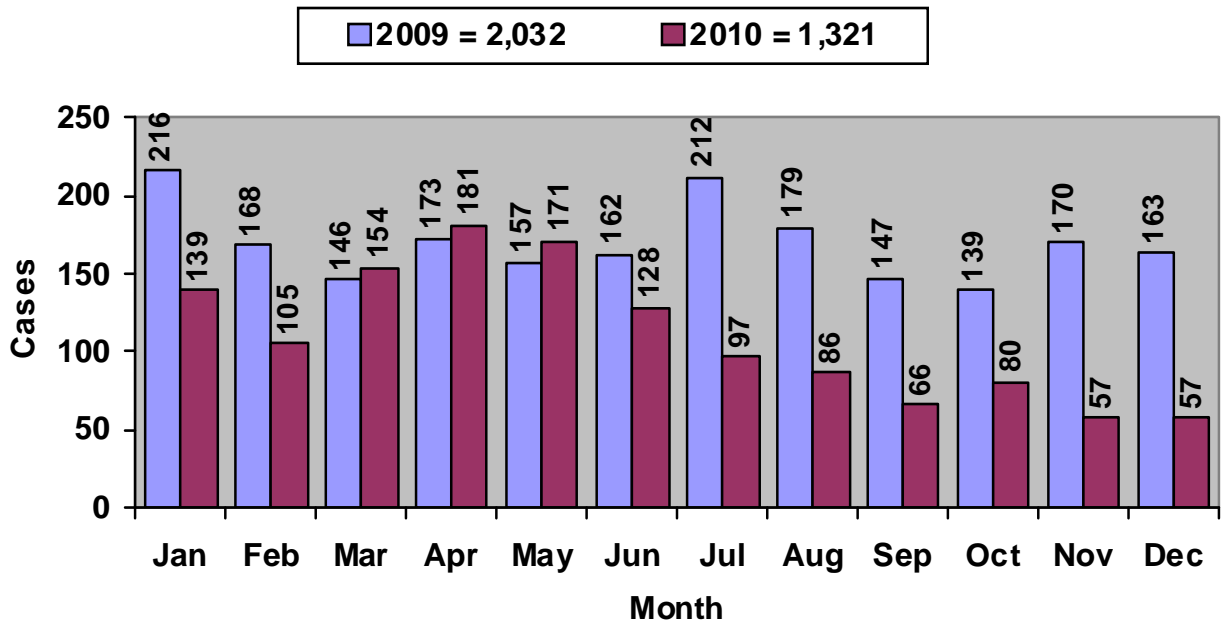
Total Allied Agency Cases Received in 2010 per County

Counties/Jurisdictions	Submissions
Worcester	275
Frederick	259
Wicomico	229
Dorchester	156
Washington	94
Carroll	69
State Wide Agencies	58
Allegany	52
Cecil	51
Talbot	44
Caroline	43
Queen Anne	36
Kent	26
Somerset	25
Baltimore	24
Prince George	22
Unknown	10
Harford	8
Garrett	5
Charles	4
Anne Arundel	2
Out of State	2
Baltimore City	1
Calvert	1
St. Mary's	1
TOTAL	1,497

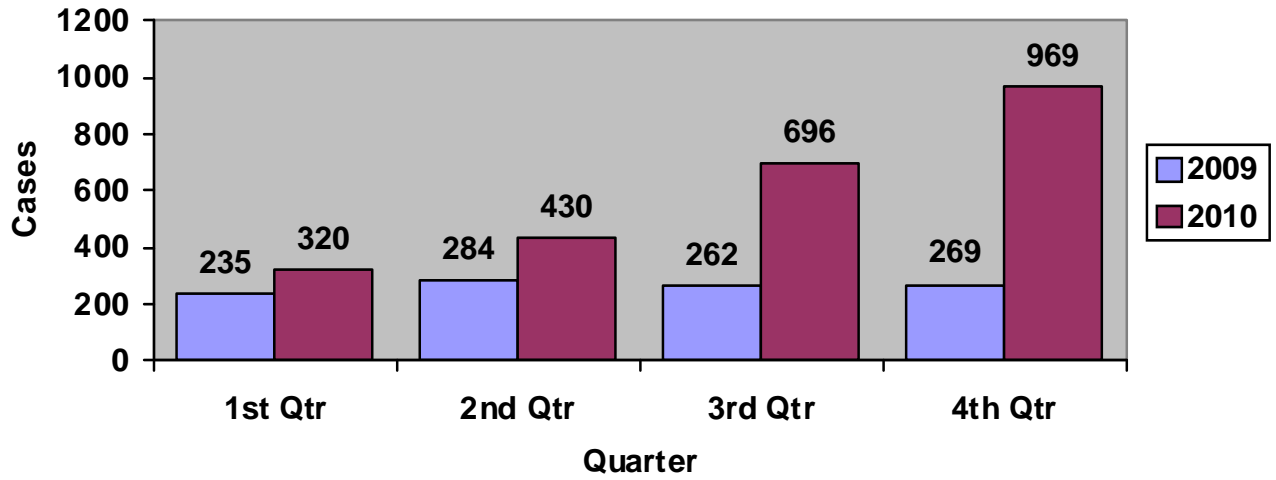
Total Cases Received in 2010 per Crime Type



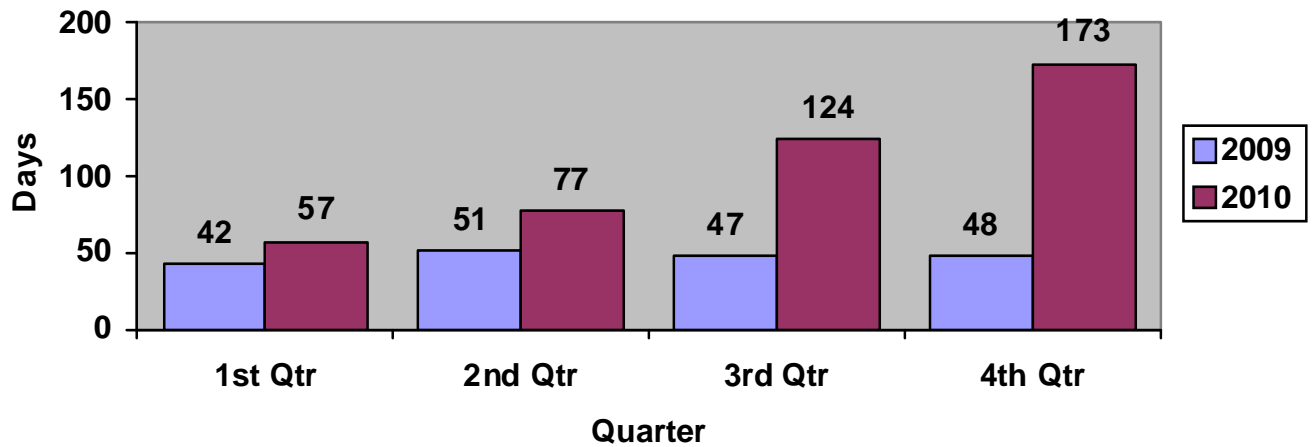
Total Cases Completed per Month



Ending Backlog per Quarter

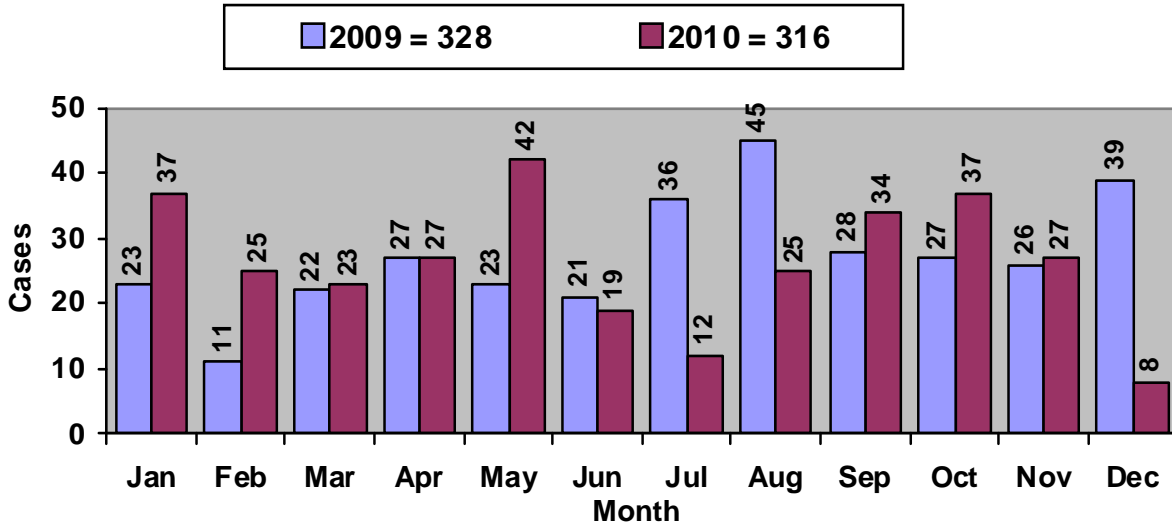


Average Turn Around Time per Quarter



MAFIS Database

Total MAFIS Hits Reported per Month



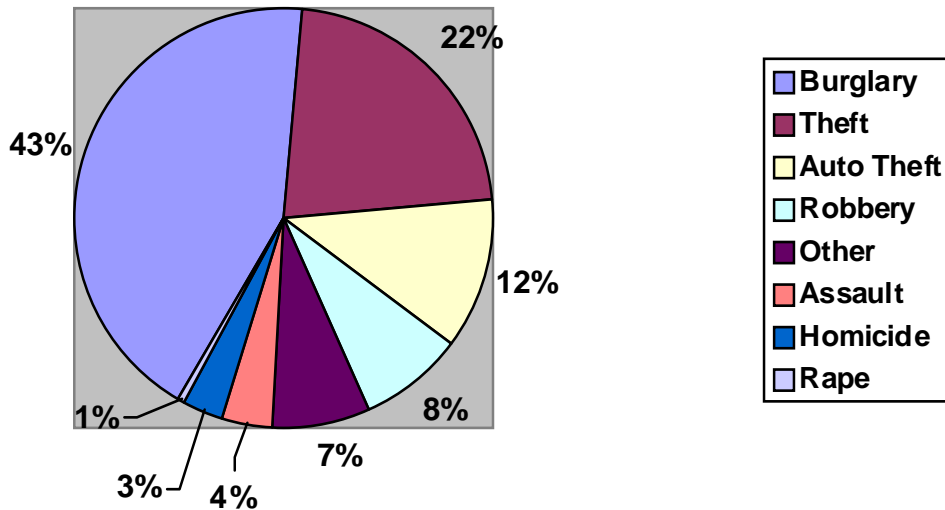
Total Allied Agency MAFIS Hits Reported in 2010 per County

County	Hits Reported
Frederick	41
Wicomico	34
Dorchester	22
Worcester	19
Washington	11
Carroll	9
Queen Anne	9
Cecil	7
Allegany	6
Prince George	6
Caroline	5
Baltimore	5
Somerset	5
Baltimore City	4
Harford	4
Talbot	3
Anne Arundel	3
Kent	2
St. Mary's	1
Garrett	1
TOTAL	197

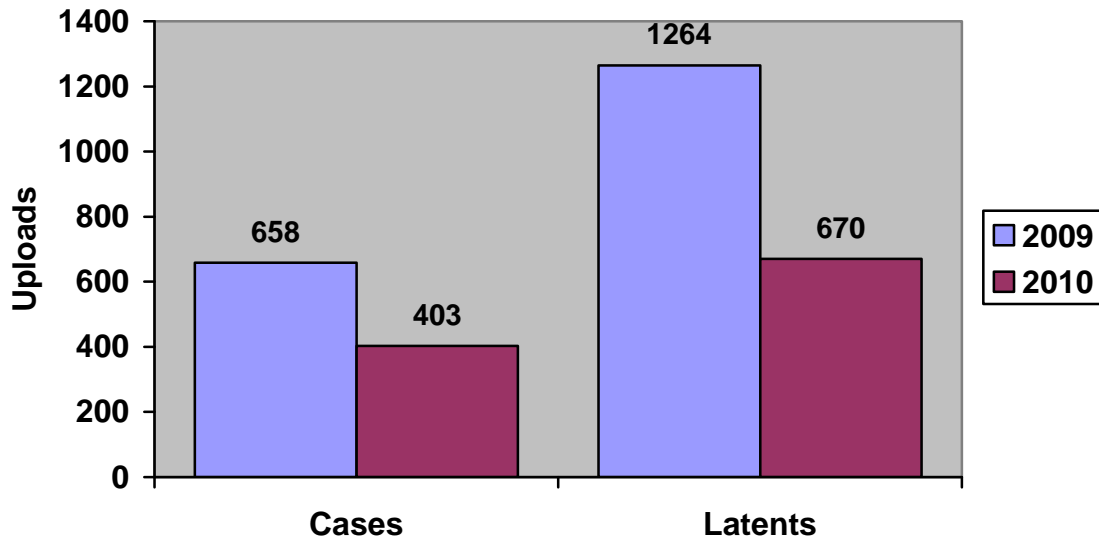
Total MAFIS Hits Reported in 2010 per Year of the Crime

Year of the Crime	Cases with Hits Reported
1988	1
1990	1
1992	5
1993	3
1994	6
1995	5
1996	6
1997	12
1998	8
1999	6
2000	5
2001	9
2002	12
2003	10
2004	13
2005	24
2006	33
2007	31
2008	13
2009	45
2010	68
TOTAL	316

Total MAFIS Hits Reported in 2010 per Crime



Total Uploads to MAFIS per Year



Training and Validation

Forensic Scientist		Competency Certification	
Lindsey Schultz		Competency certificate awarded Nov. 17, 2010	
New Technology Implemented in 2010		Expected Benefits	
New 30" monitors		Easier viewing and more precise comparisons	

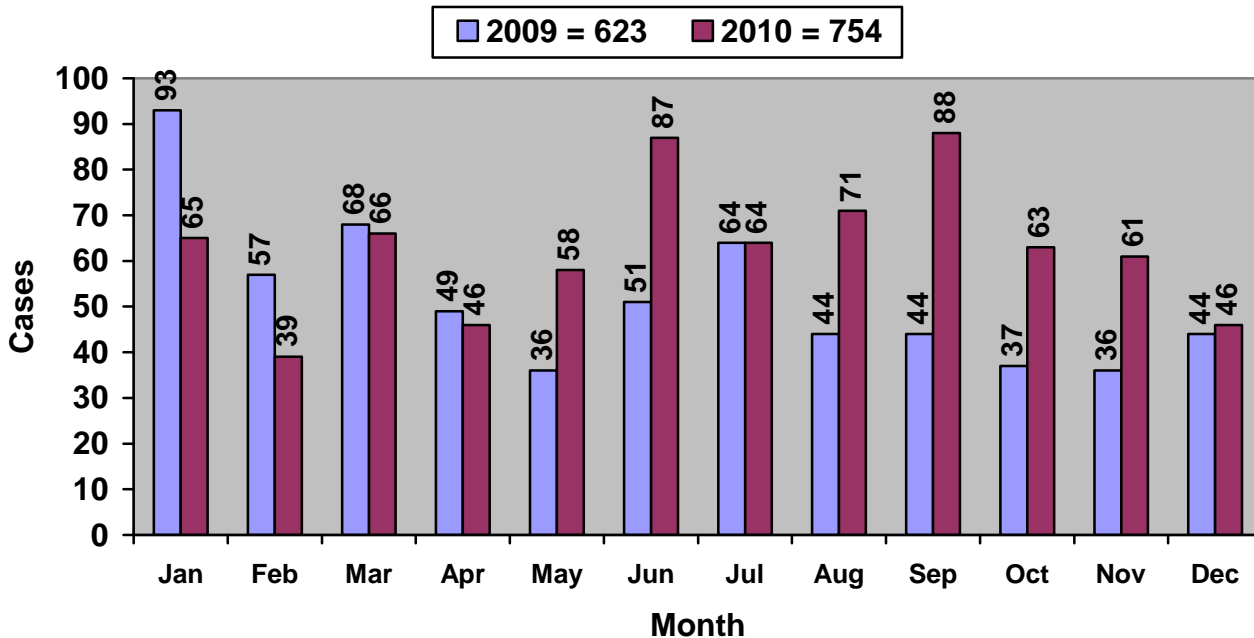
FIREARMS/TOOLMARKS UNIT

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 2010 per Barrack

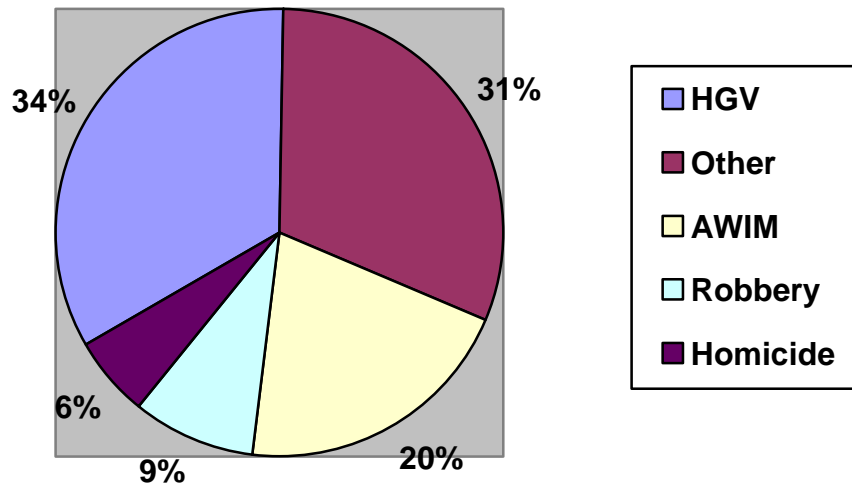
Agency	Counties Served	Submissions
MSP-Waterloo*	Howard	94
MSP-Centerville	Kent, Queen Anne's	26
MSP-Easton	Caroline, Dorchester, Talbot	25
MSP-Westminster	Carroll	23
MSP-Forestville	Prince George's	21
MSP-Salisbury	Wicomico	19
MSP-Northeast	Cecil	16
MSP-Cumberland	Allegany	15
MSP-JFK	Cecil, Harford, Baltimore	12
MSP-Princess Anne	Somerset	11
MSP-Golden Ring	Baltimore	10
MSP-Frederick	Frederick	9
MSP-LaPlata	Charles	9
MSP-Bel Air	Harford	8
MSP-Hagerstown	Washington	6
MSP-McHenry	Garrett	5
MSP-Berlin	Worcester	5
MSP-Prince Frederick	Calvert	4
MSP-Glen Burnie	Anne Arundel	4
MSP-College Park	Prince George's	4
MSP-Rockville	Montgomery	2
MSP-Leonardtown	St. Mary's	2
	TOTAL	330

* Note: Waterloo Barrack statistics also include Task Force activities

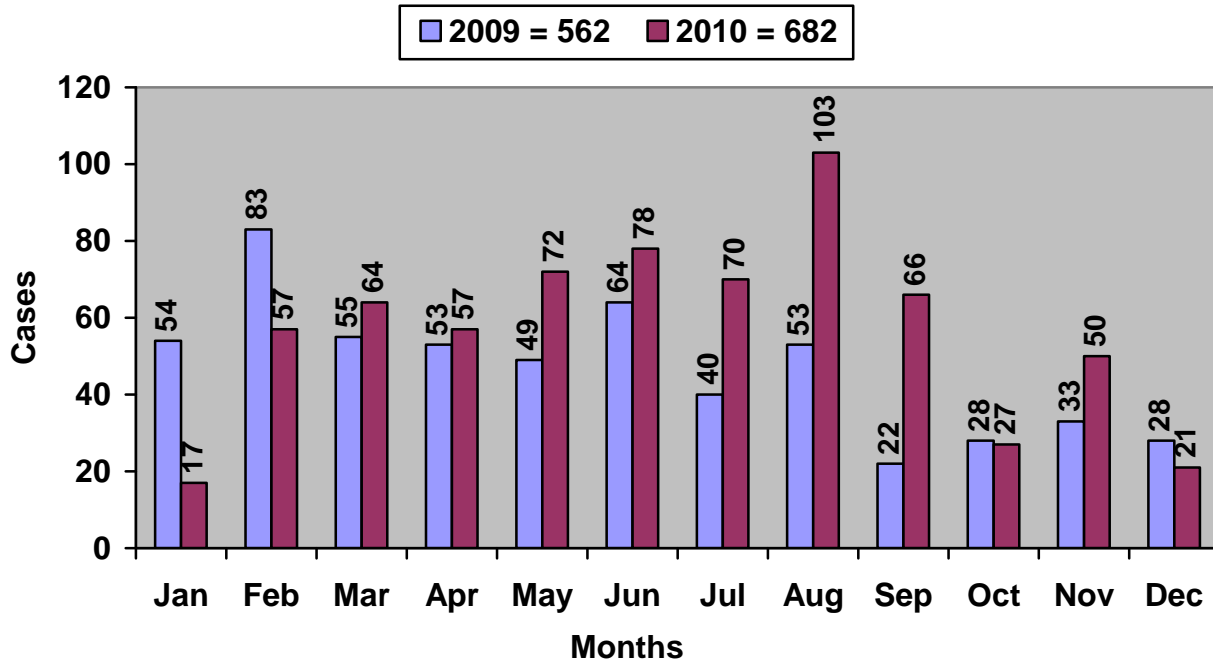
Total Allied Agency Cases Received in 2010 per County

County	Submissions
Anne Arundel	156
Wicomico	72
Frederick	39
Harford	31
Prince George	17
Statewide	16
Worcester	15
Cecil	13
Charles	13
Washington	11
Calvert	7
Somerset	7
Caroline	6
Dorchester	6
Carroll	5
Queen Anne	2
Kent	1
St. Mary's	1
Howard	1
Talbot	1
Garrett	1
Baltimore	1
Montgomery	1
Allegany	1
TOTAL	424

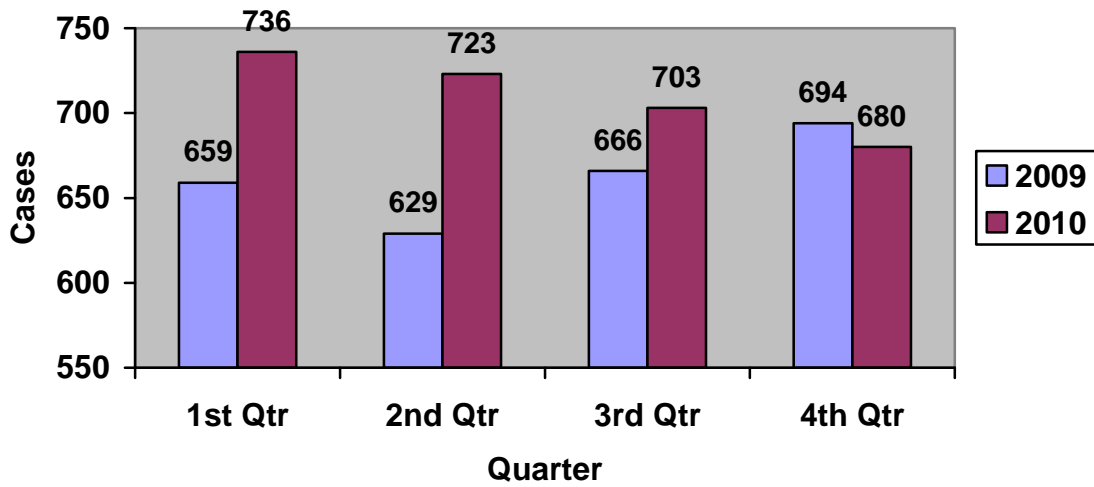
Total Cases Received in 2009 per Crime Type



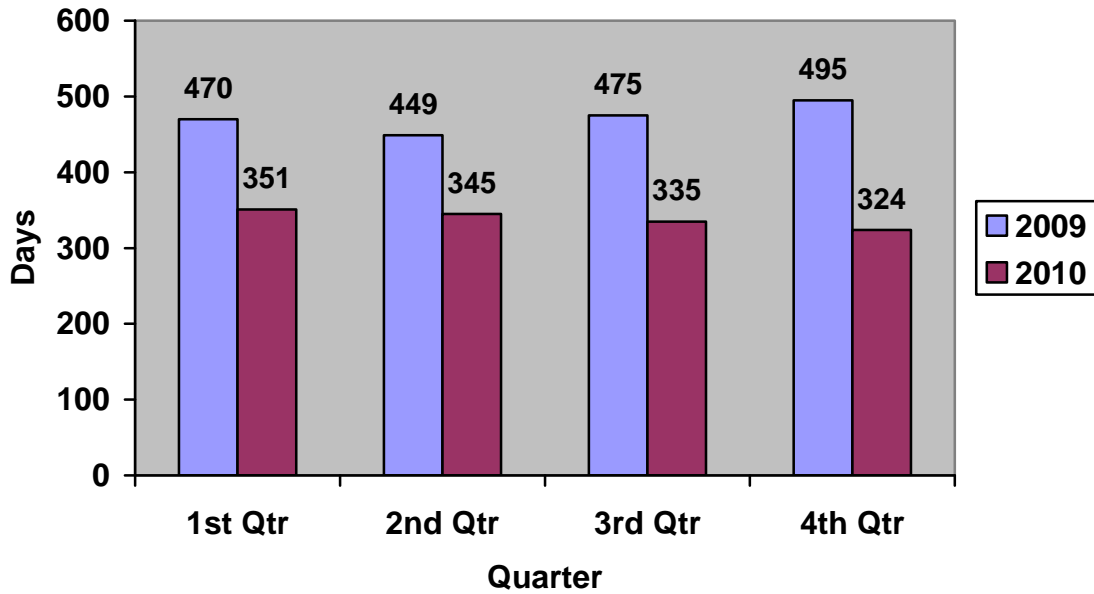
Total Cases Completed per Month



Ending Backlog per Quarter

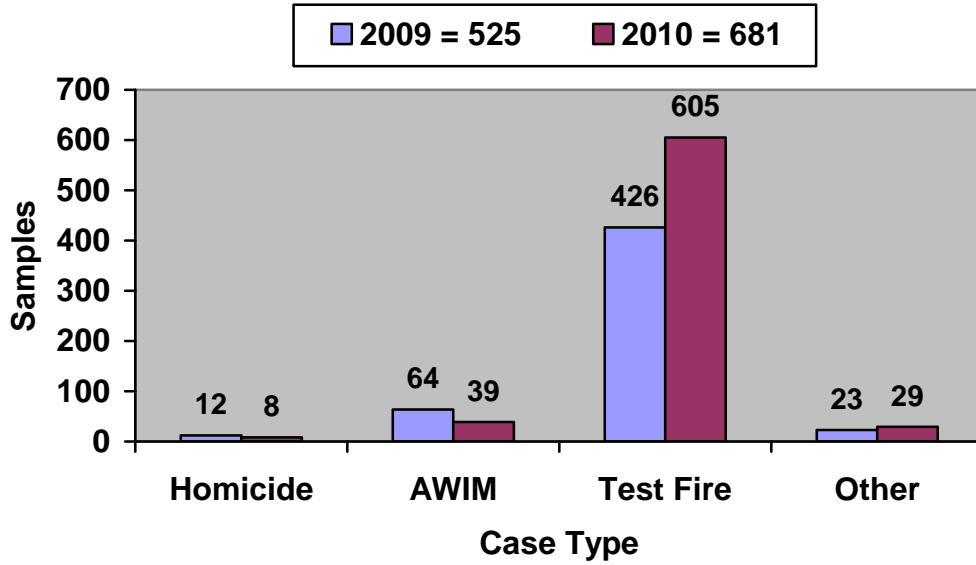


Average Turn Around Time per Quarter

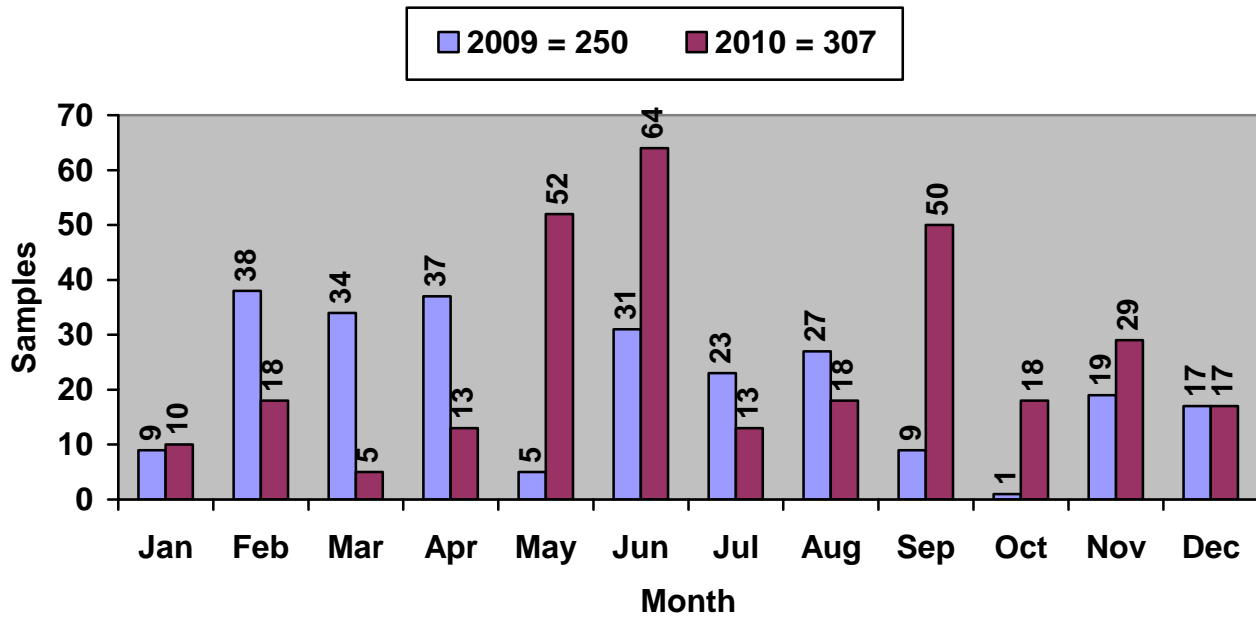


NIBIN/MD IBIS Databases

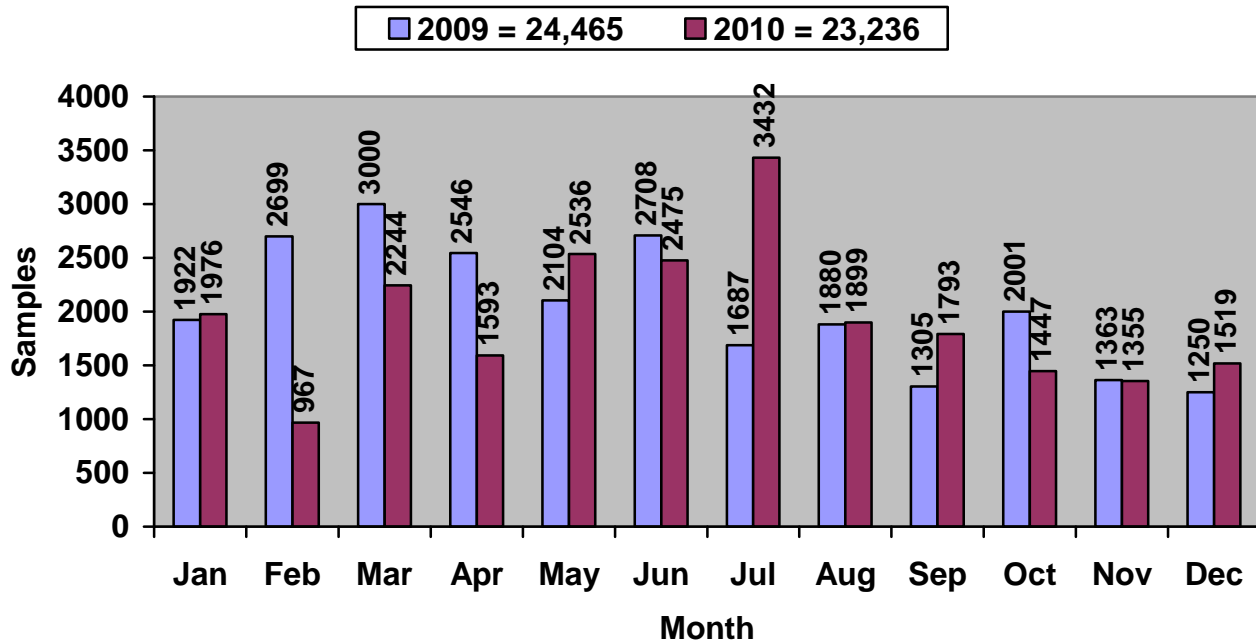
Uploads to NIBIN per Case Type



Operation Test Shot Samples per Month



MD IBIS Samples Received per Month



Training and Validation

Forensic Scientist	Competency Certification
Jaimie Smith	Competency certificate awarded Feb. 2010

New Technology Implemented in 2010	Expected Benefits
Remote Firing Stand	Provides safe and consistent means of assessing gun accuracy.

PATTERN EVIDENCE SECTION ACCOMPLISHMENTS IN 2010

1. Forensic Scientist II, Lindsey Schultz, completed a two year training program and received her competency certificate as a fully qualified latent print examiner.
2. The Firearms/Toolmarks Unit expanded the Forensic Buddy program by training MSP Crime Scene Technicians to perform these function tests in the field.
3. The Pattern Evidence Section contributed heavily to the development of their field by being active in several professional organizations and interagency working groups. The Latent Prints/Impressions Unit has members in executive positions within the Scientific Working Group on Friction Ridge Analysis, Study, and Technology (SWGFAST), the International Association of Identification – Chesapeake Bay Division (IAI-CBD), The Expert Working Group on Human Factors in Latent Print Analysis, and the National Science and Technology Council Subcommittee on Forensic Science Interagency Working Group. The Firearms/Toolmarks Unit hosted a regional meeting of the Association of Firearms and Tool Mark Examiners (AFTE) which enhanced the knowledge base of local examiners and improved communications between laboratories.

PATTERN EVIDENCE SECTION GOALS FOR 2011

1. Develop four new forensic scientists within the Pattern Evidence Section. The Firearms/Toolmarks Unit will initiate the training of two recently hired Forensic Scientists I as Firearms and Toolmark examiners. This is estimated to be a 24 month training program. The Latent Prints/Impressions Unit will interview and select two Forensic Scientists I and subsequently begin their 24 month training program as latent print examiners.
2. Expand upon and improve current standard operating procedures and reference guides in order to ensure consistency within the operations of the Pattern Evidence Section. The Latent Prints/Impressions Unit will develop a pictorial reference guide for examiners to use when performing analysis of distortion in latent print impressions as well as revamp its standard operating procedures. The Firearms/Toolmarks Unit will completely overhaul its standard operating procedures and training manual.
3. Address backlog issues by modifying the case submission policies and workflows within the Pattern Evidence Section. Proposed changes include only accepting no-suspect cases from crimes against persons, establishing limits in regards to the amount of evidence submitted per case, utilizing a light duty Trooper to assist with tracking the statuses of open cases, and transferring evidence processing duties to the MSP Crimes Scene and Photography Units and ultimately to the submitting agencies.

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, two Forensic Scientists III, two Forensic Scientists II, and one Forensic Scientist I. 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.

The CDS-Berlin Unit consists of one Forensic Scientist Supervisor, one Forensic Scientist III, two Forensic Scientists II, 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, two Forensic Scientists III, and one Forensic Scientist II. 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 III. The Toxicology Unit operates out of the main laboratory in Pikesville.

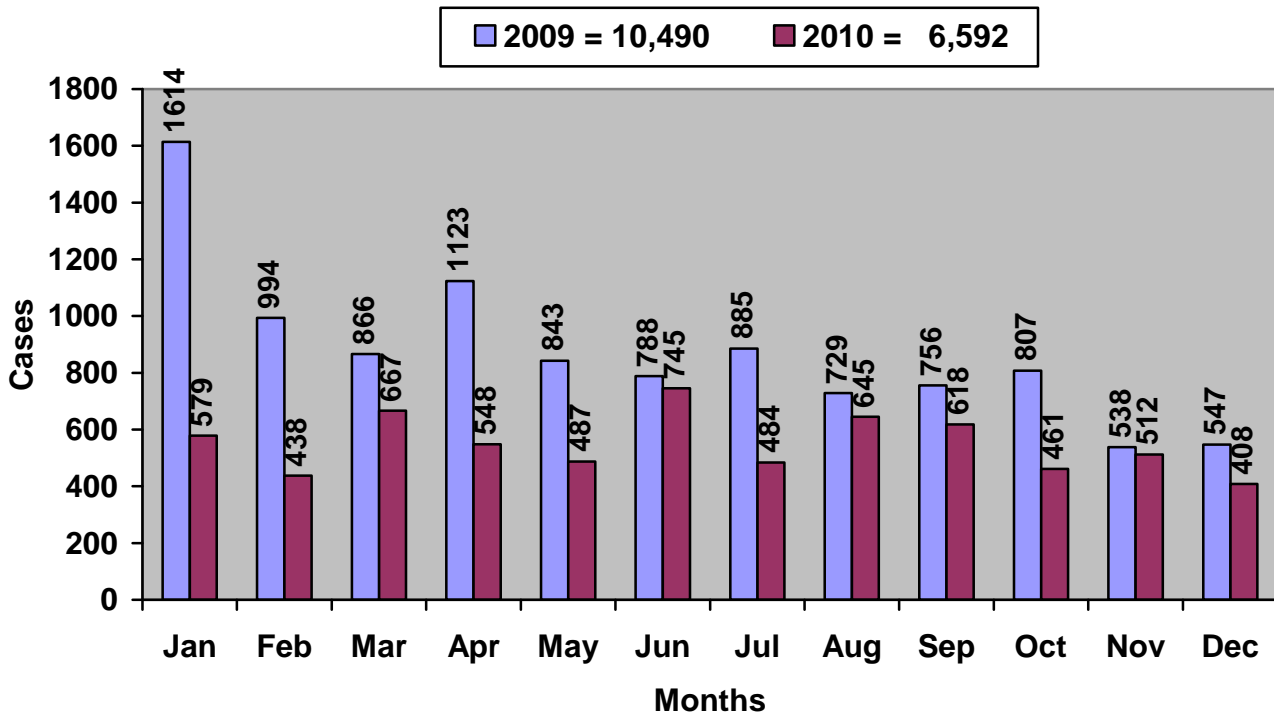
CDS – PIKESVILLE UNIT

The CDS-Pikesville Unit provides illicit drug and pharmaceuticals analyses for central Maryland counties and the staff also provides expert testimony as to the findings. Retirement of two experienced Scientists has resulted in a staffing setback during the year. Rebuilt staffing at the satellite laboratories has allowed for transfer of a Scientist to Pikesville and redistribution of work load. One position has been replaced and is in training; however the other position has not been filled due to budgetary restrictions. The Pikesville Lab also has two Scientists employed by Howard and Frederick Counties working at our facility providing analysis for their own agencies. The allied Scientist from Howard County is new and is in training. By year's end the unit has substantially reduced the overall backlog of cases and the staff is to be commended for a productive year.

Plans for the upcoming year include completion of staff training and for the Unit to become fully staffed and able to further reduce both backlog and turnaround time.

Casework

Total Cases Received per Month



Total MSP Cases Received in 2010 per Barrack

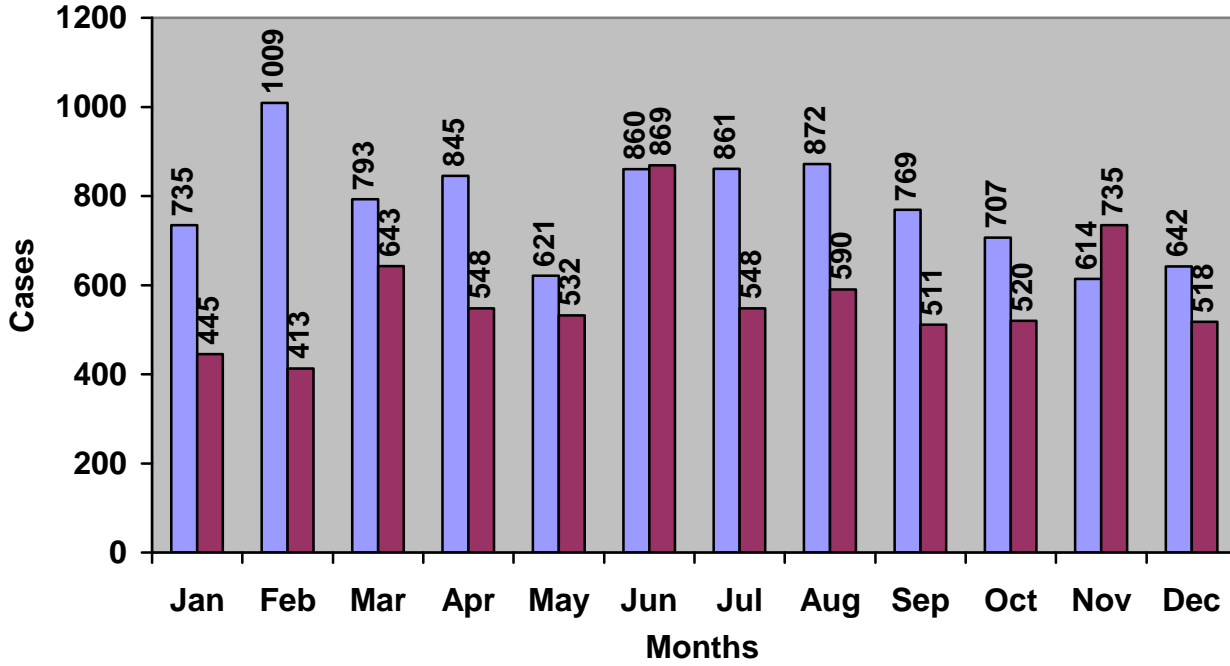
MSP Installation	Counties Served	Submissions
MSP-Leonardtown	St. Mary's	177
MSP-Prince Frederick	Calvert	142
MSP-La Plata	Charles	138
MSP-College Park	Prince George's	138
MSP-JFK Highway	Cecil, Harford, Baltimore	119
MSP-Bel Air	Harford	109
MSP-Glen Burnie	Anne Arundel	105
MSP-North East	Cecil	98
MSP-Golden Ring	Baltimore	91
MSP-Forestville	Prince George's	81
MSP-Waterloo	Howard	28
Criminal Enforcement Command	State Wide	18
MSP-Centerville	Kent, Queen Anne's	14
	TOTAL	1,258

Total Allied Agency Cases Received in 2010 per County

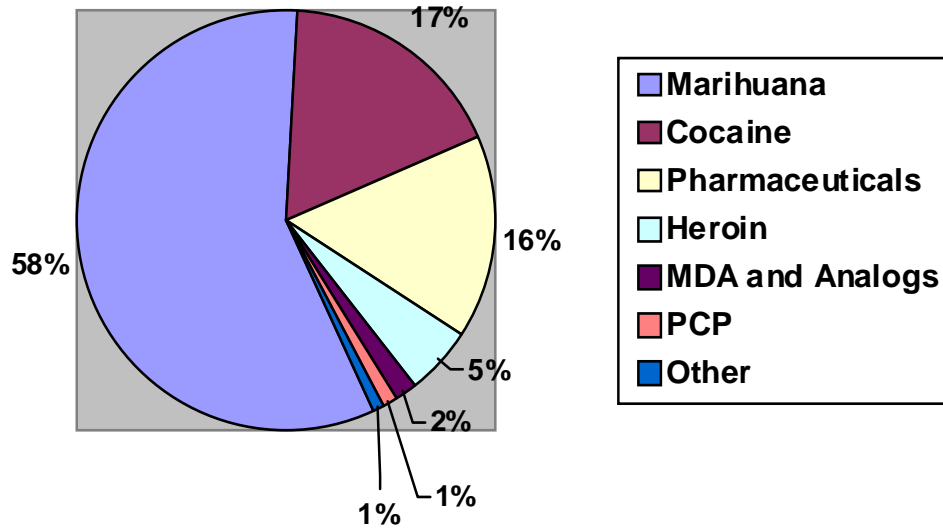
Counties	Submissions
Harford County	1180
Frederick County	1039
Charles County	759
Howard County	683
Calvert County	438
St. Mary's County	329
Cecil County	227
Baltimore City	202
Baltimore County	166
Anne Arundel County	155
Prince Georges' County	118
Queen Anne's County	26
Montgomery County	7
Carroll County	4
Caroline County	1
TOTAL	5,334

Total Cases Completed per Month

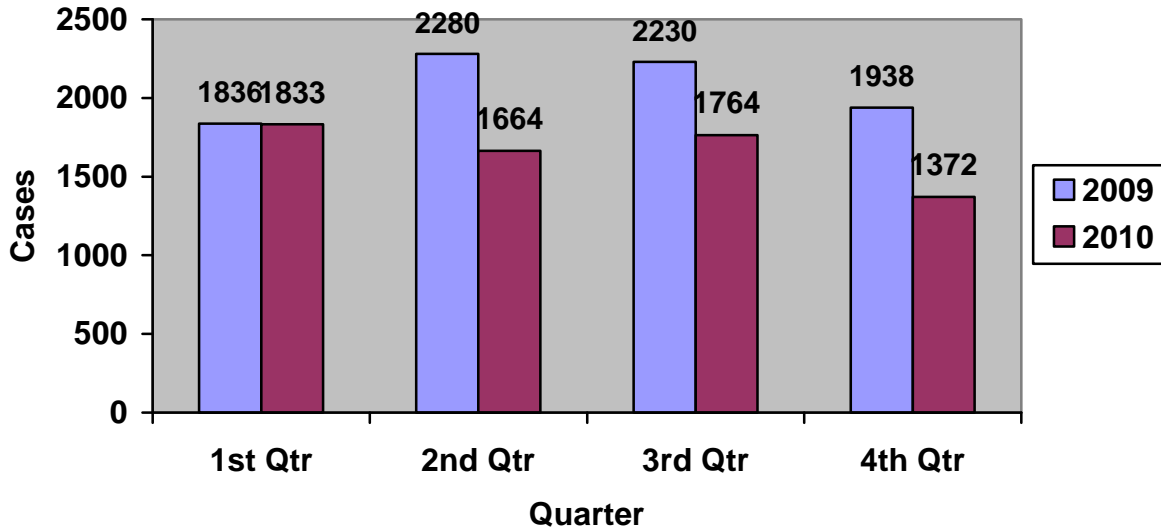
2009 = 9,328
 2010 = 6,872



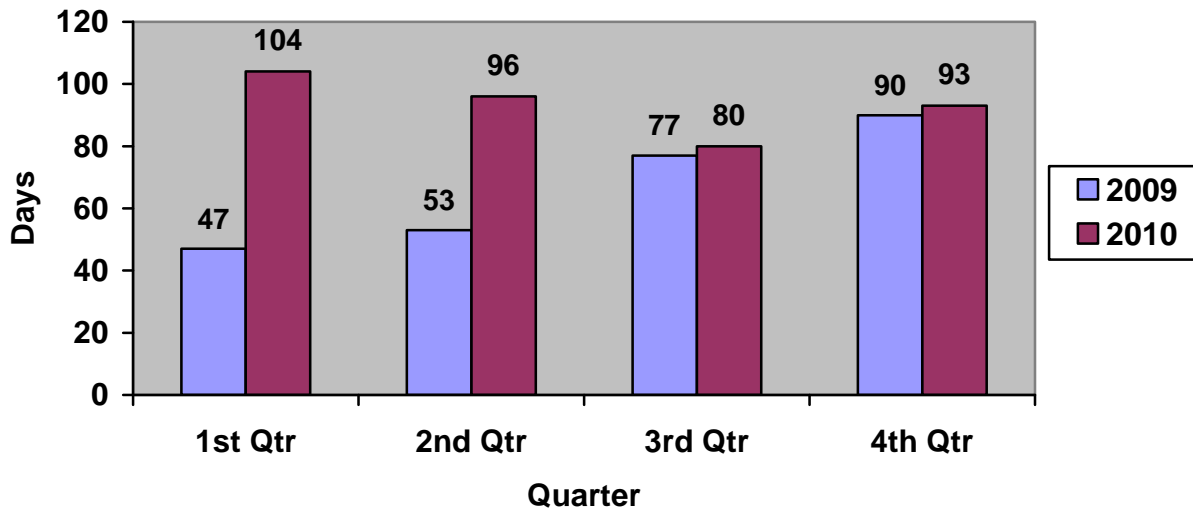
Total Analyses Reported in 2010 per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

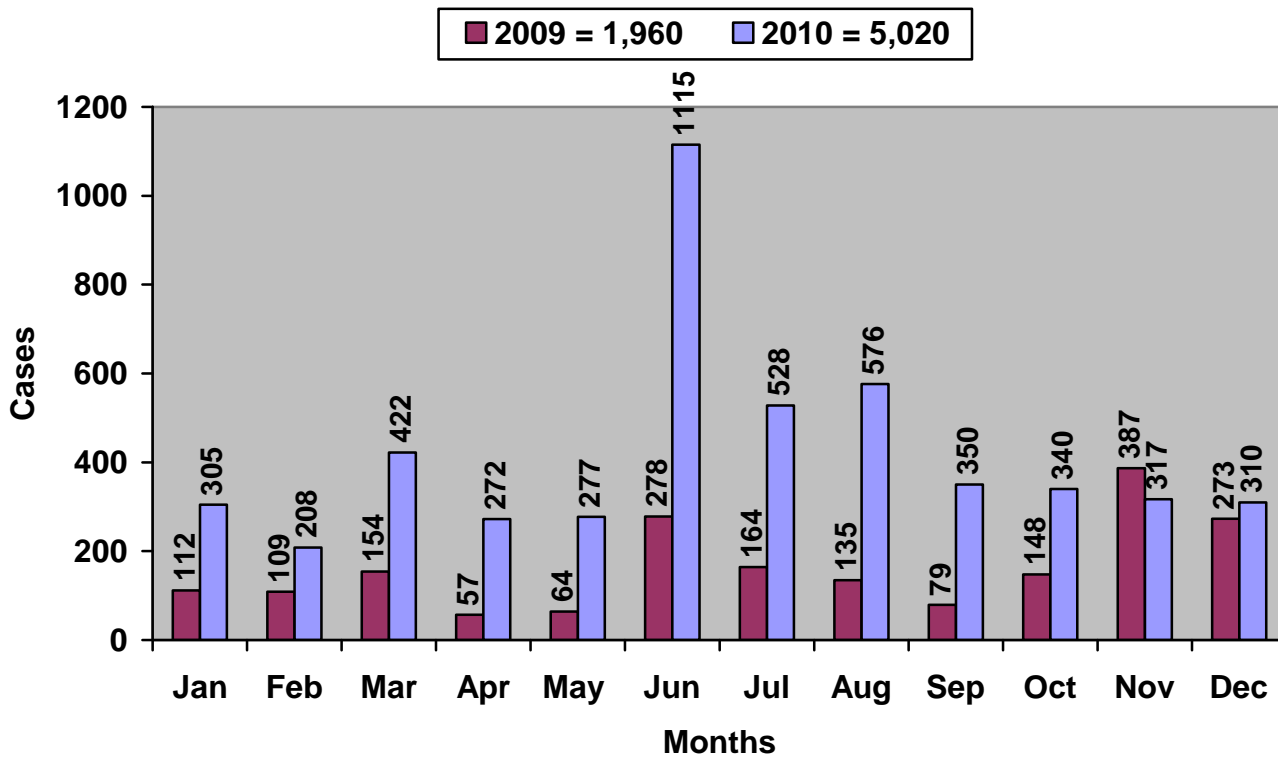
Forensic Scientist	Competency Certification
Brooke Welsh	Certified CDS Chemist
Christine Burns	Certified CDS Chemist
Natasha Conklin	In Training
S. Marie Duket	In Training

CDS-BERLIN UNIT

The CDS-Berlin Laboratory is responsible for analyzing cases submitted to the laboratory for the presence or absence of controlled dangerous substances (CDS). In order to confirm the presence of CDS in a sample, several different types of analysis are performed in the Berlin lab, including color tests, microcrystalline tests, Gas-Chromatography-Mass Spectrometry, and Fourier Transform Infrared Spectrophotometry. The Berlin lab is currently analyzing cases from nine counties: Cecil, Caroline, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester County. Three of the nine counties began submitting to the Berlin lab in 2010, including Cecil, Queen Anne's, and Kent County. In June of 2010, approximately 400 Cecil County backlog cases were transferred from the Pikesville CDS lab to the Berlin CDS lab for analysis. The total cases submitted to the Berlin lab in 2010 was 5,020 cases, and the ending backlog was 310 cases.

Casework

Total Cases Received per Month



Total MSP Cases Received in 2010 per Barrack

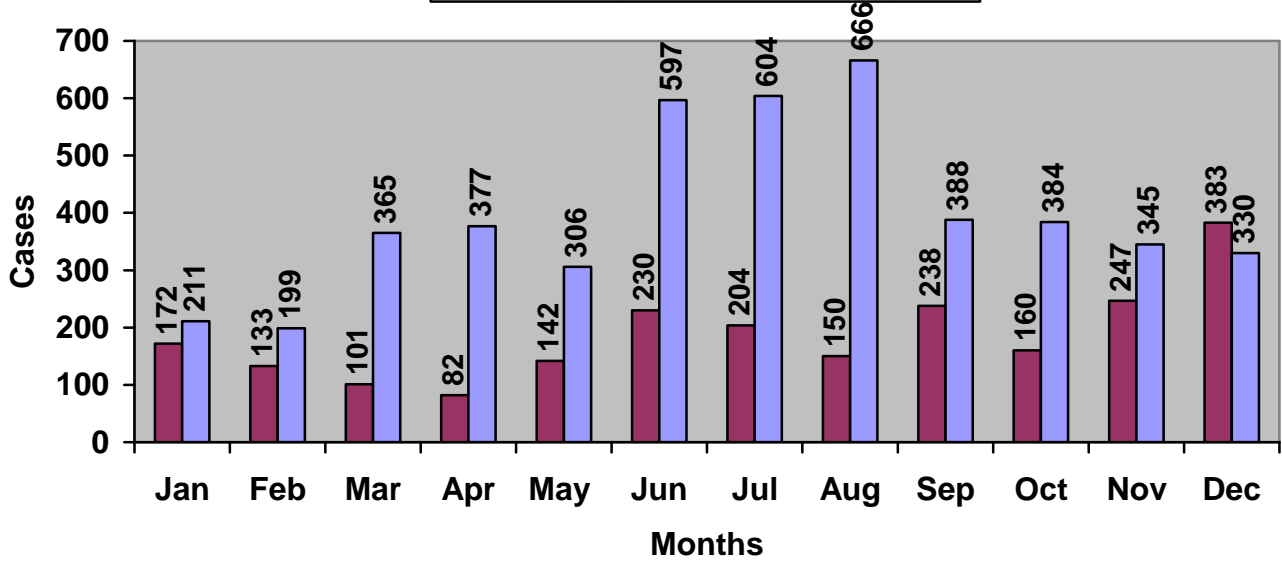
MSP Installation	Counties Served	Submissions
MSP-Salisbury	Wicomico	430
MSP-Centerville	Kent, Queen Anne's	306
MSP-Easton	Talbot, Caroline, Dorchester	302
MSP-North East	Cecil	284
MSP-Berlin	Worcester	213
MSP-Princess Anne	Somerset	137
	TOTAL	1,672

Total Allied Agency Cases Received in 2010 per County

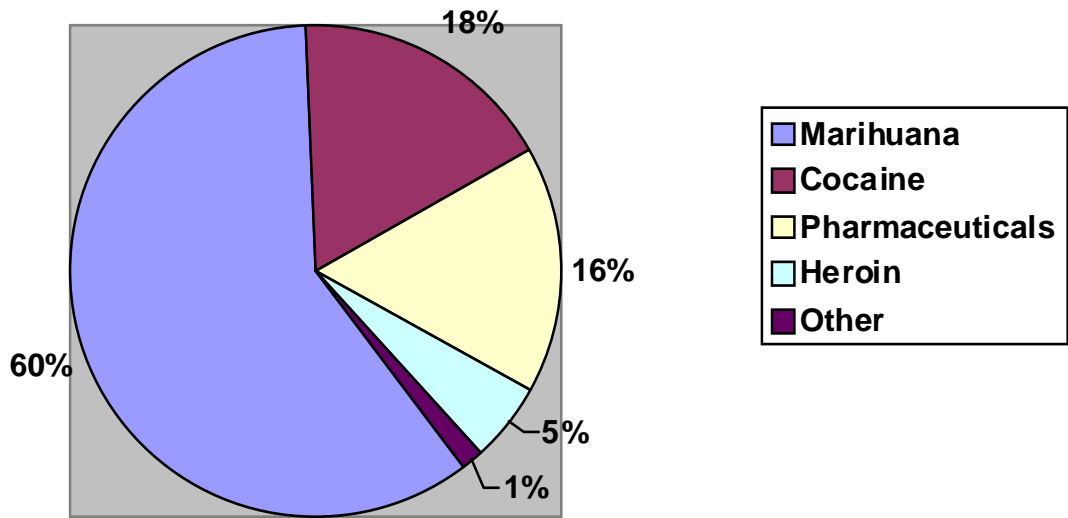
Counties	Submissions
Worcester	1115
Wicomico	649
Cecil	613
Dorchester	228
Talbot	206
Kent	158
Caroline	148
Queen Anne's	142
Somerset	89
TOTAL	3,348

Total Cases Completed per Month

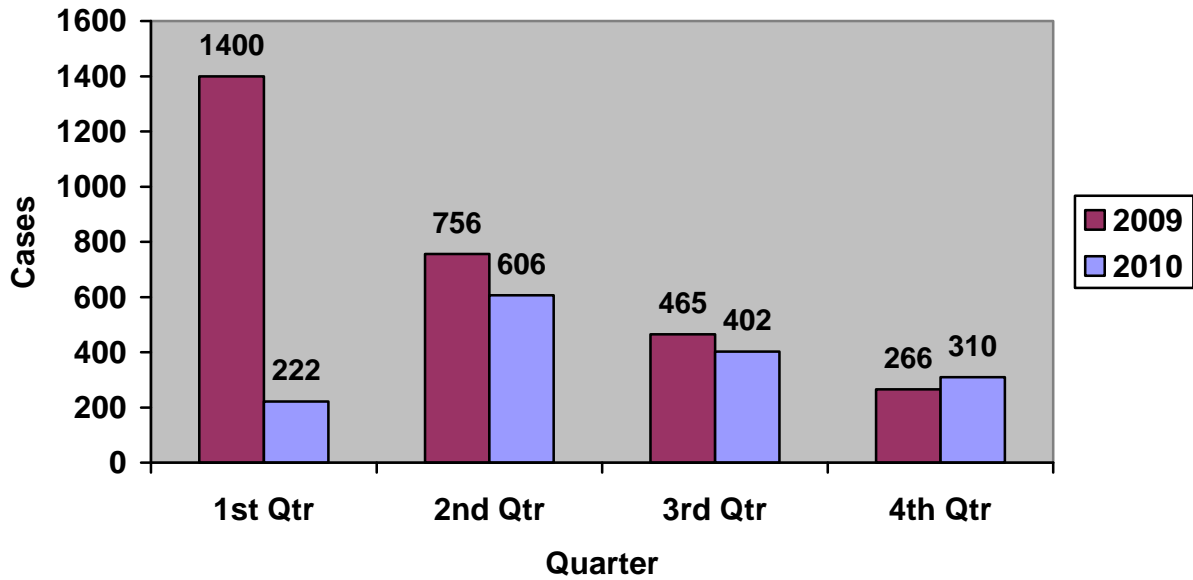
■ 2009 = 2,242 ■ 2010 = 4,772



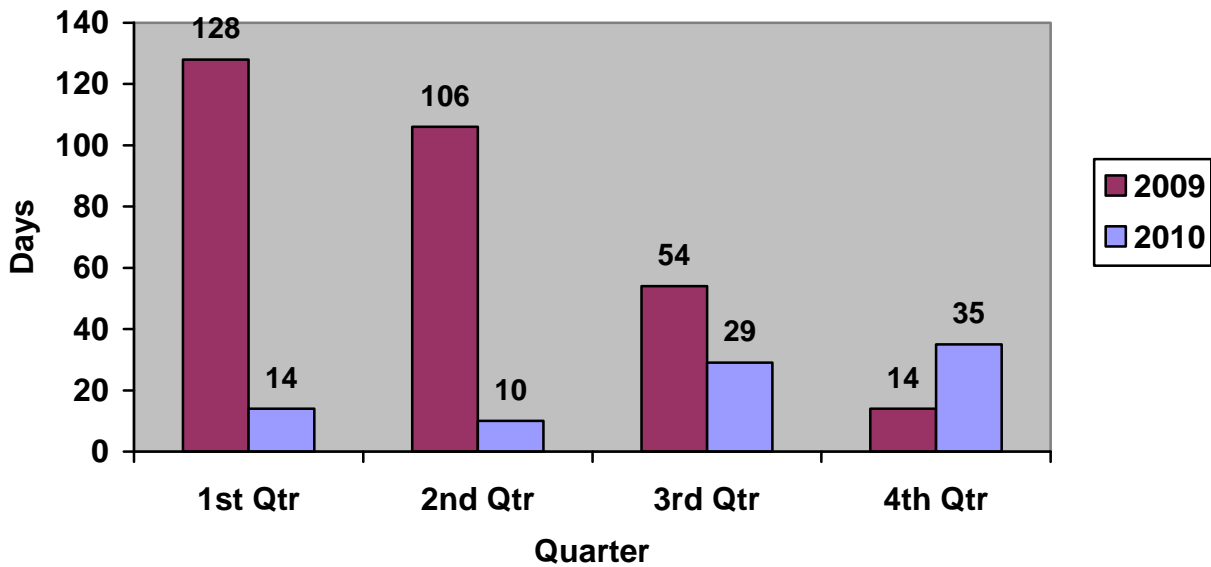
Total Analyses Reported in 2010 per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

Newly Qualified Forensic Scientist	Competency Certification
Elisabeth Schneider	Certified CDS Chemist
Jessica Taylor	Certified CDS Chemist

CDS-HAGERSTOWN UNIT

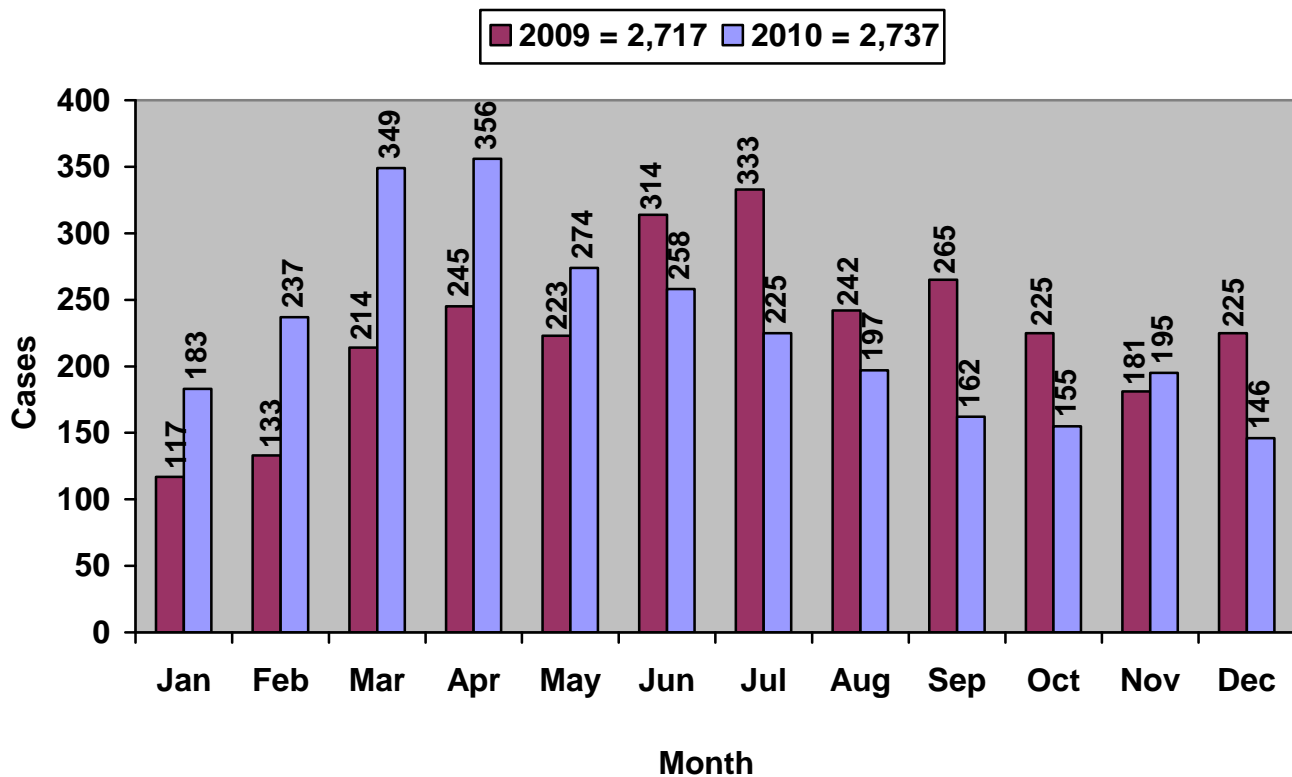
The Regional Forensic Laboratory in Hagerstown provides the Western Maryland Region with controlled dangerous substance (drug) analyses. The clients that submit evidence include various local, state and federal agencies from the following counties: Allegany, Carroll, Garrett, Frederick, Montgomery and Washington. Howard County also submitted cases during the year to reduce backlog at the Pikesville laboratory. Additionally, Frederick County State's Attorneys Office has employed their own Scientist (housed in Pikesville) to assist in handling drug cases from Frederick County.

Groundbreaking for the new Hagerstown Barrack occurred on August 26, 2010 and is estimated to be completed in December 2011. The first floor will consist of the new barrack. The second floor will contain a classroom, crime scene office and the new forensic laboratory. The new laboratory will have sections for drug analysis, latent prints, and crime scene and will be approximately six times larger than the current lab space.

The laboratory is currently in the process of hiring a contractual evidence coordinator to perform evidence transaction and record management.

Casework

Total Cases Received per Month



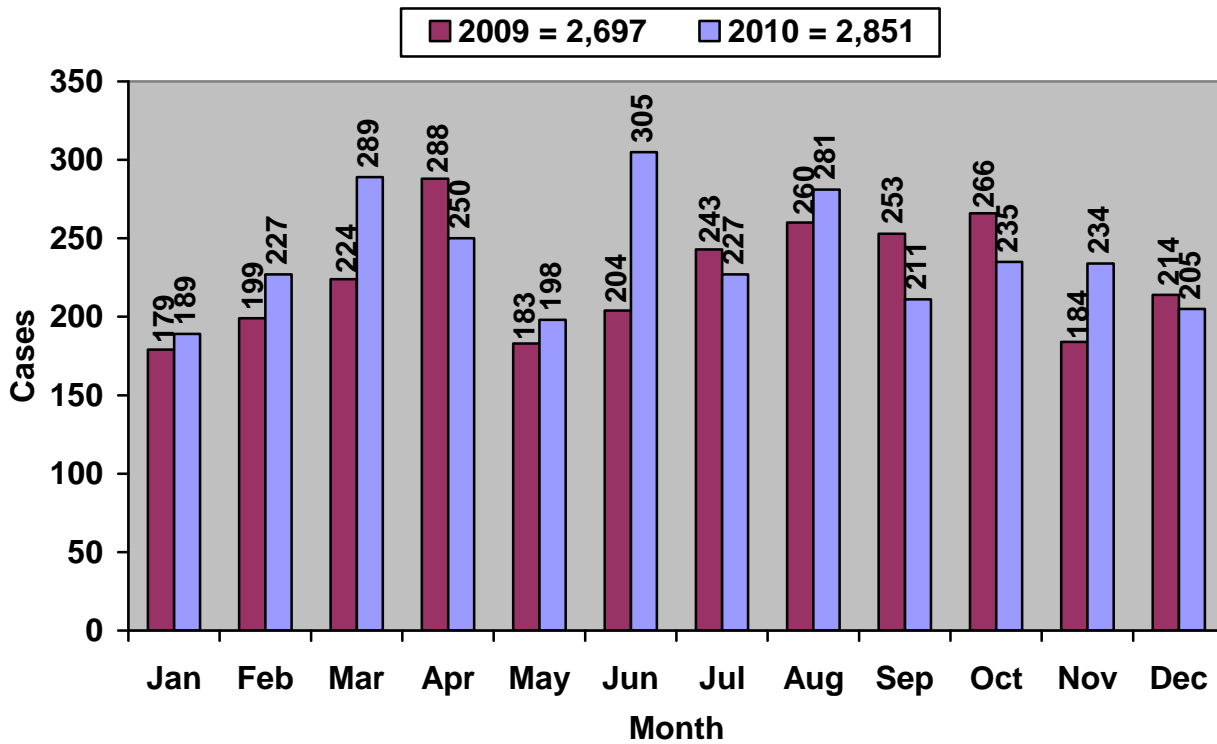
Total MSP Cases Received in 2010 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Westminster	Carroll	429
MSP-Frederick	Frederick	153
MSP-McHenry	Garrett	148
MSP-Hagerstown	Washington	146
MSP-Rockville	Montgomery	107
MSP-Cumberland	Allegany	100
MSP - Waterloo	Howard	17
MSP-Baltimore	Baltimore	5
	TOTAL	1,105

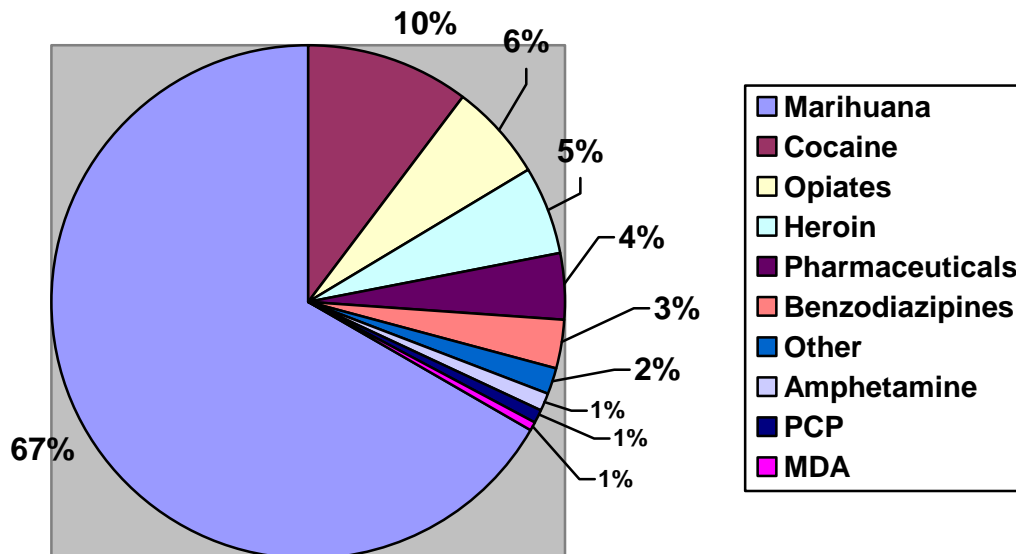
Total Allied Agency Cases Received in 2010 per County

Counties	Submissions
Allegany	632
Howard	428
Carroll	356
Frederick	112
Garrett	58
Washington	44
Montgomery	2
TOTAL	1,632

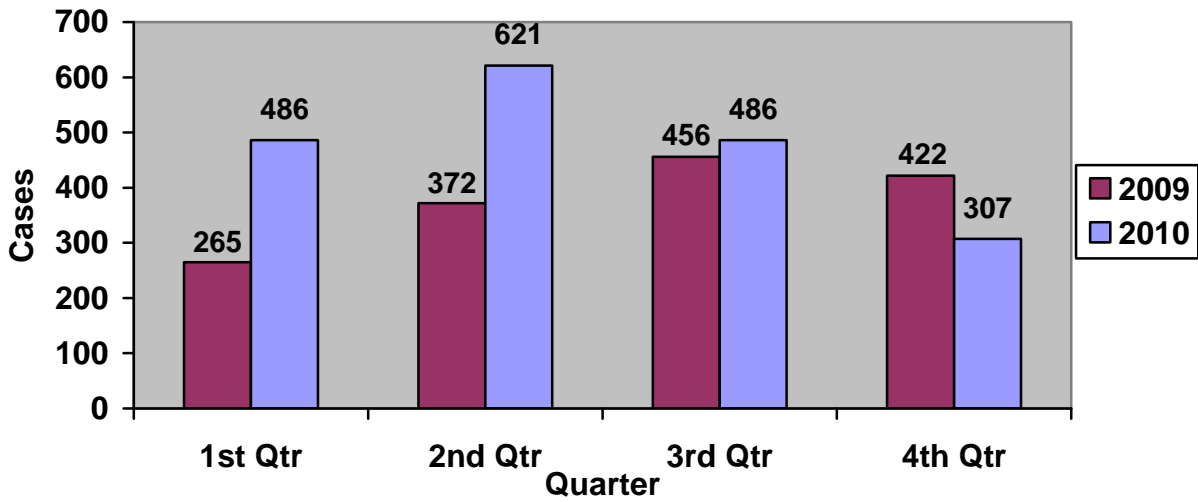
Total Cases Completed per Month



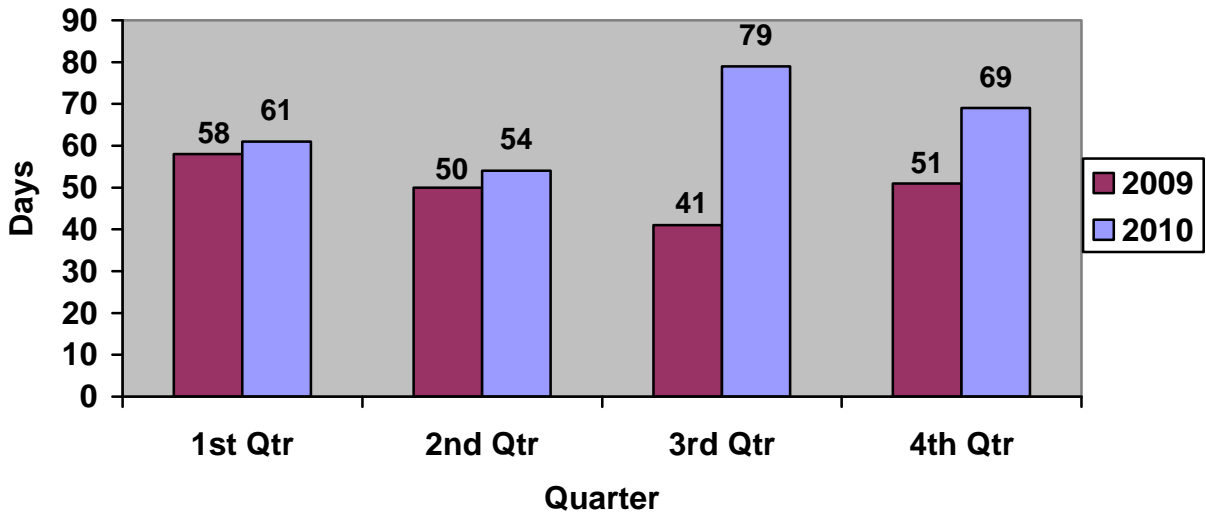
Total Analyses Reported in 2010 per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Training and Validation

Newly Qualified Forensic Scientist	Competency Certification
Emily Potts	Certified CDS Chemist

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.

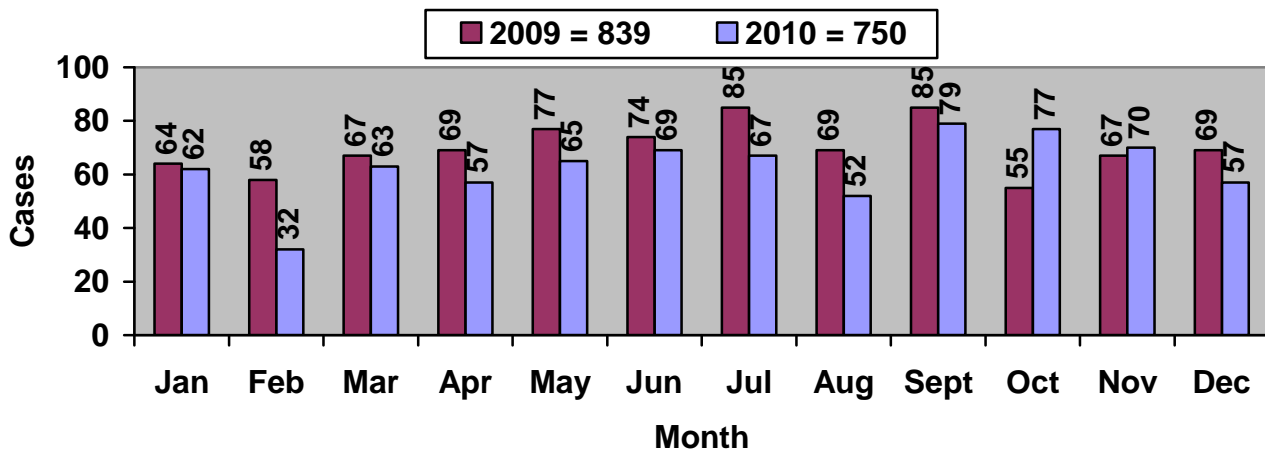
The Toxicology Unit is the only laboratory within the state approved to analyze blood samples for alcohol and drugs in cases related to DWI arrests. Specimens submitted for testing are collected by certified medical personnel at the direction of authorized police personnel. Blood is collected when a 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.

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. The Forensic Sciences Division Toxicology Unit completed alcohol and drug testing on 1,145 total cases during 2010. Testing was completed on 813 blood alcohol submissions and 332 cases for drugs other than alcohol.

Blood Alcohol Casework

Blood Alcohol Cases Received



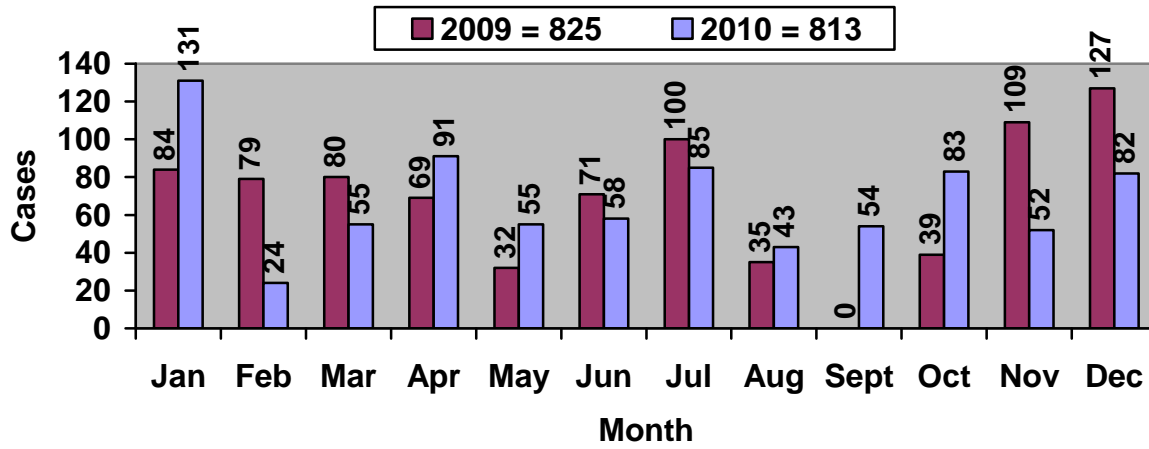
Total MSP Blood Alcohol Cases Received in 2010 per Barrack

MSP Installation	Counties Served	Submissions
MSP- Westminster	Carroll	24
MSP- Frederick	Frederick	21
MSP- Centreville	Kent, Queen Anne's	21
MSP- Hagerstown	Washington	19
MSP- Glen Burnie	Anne Arundel	15
MSP- Golden Ring	Baltimore	15
MSP- Easton	Caroline, Dorchester, Talbot	15
MSP- Forestville	Prince George's	13
MSP- LaPlata	Charles	13
MSP-Rockville	Montgomery	13
MSP- Bel Air	Harford	13
MSP- Salisbury	Wicomico	12
MSP- College Park	Prince George's	11
MSP- Rockville	Montgomery	10
MSP- Leonardtown	St. Mary's	7
MSP- Princess Anne	Somerset	5
MSP- Northeast	Cecil	5
MSP- JFK	Cecil, Harford, Baltimore	5
MSP- Berlin	Worcester	4
MSP- Prince Frederick	Calvert	3
MSP- McHenry	Garrett	3
MSP- Cumberland	Allegany	2
MSP-Hagerstown	Washington	1
	TOTAL	239

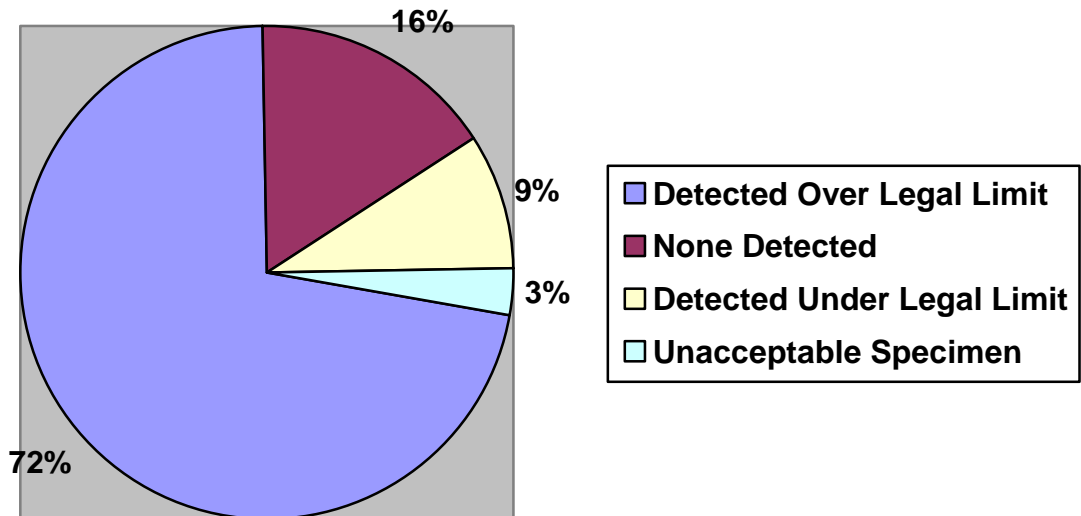
Total Allied Agency Blood Alcohol Cases Received in 2010 by County

Counties	Submissions
Baltimore	109
Montgomery	76
Anne Arundel	64
Howard	33
Prince George's	33
State-Wide Agencies	22
Calvert	21
Washington	21
Frederick	20
Baltimore City	17
St. Mary's	16
Wicomico	15
Charles	11
Cecil	10
Harford	9
Garrett	7
Carroll	6
Queen Anne's	5
Dorchester	4
Allegany	4
Somerset	3
Worcester	3
Caroline	1
Talbot	1
TOTAL	511

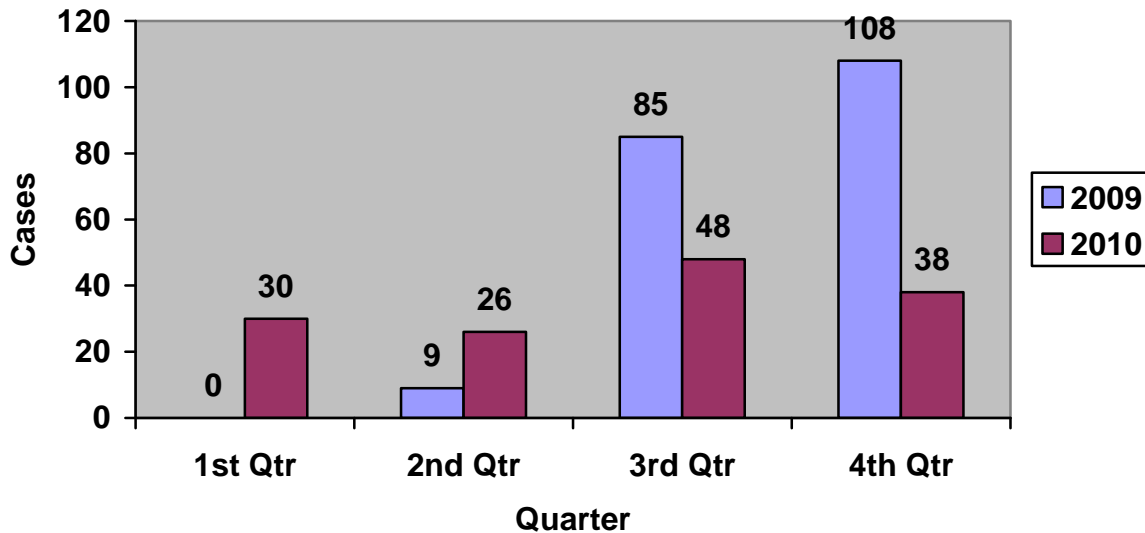
Blood Alcohol Cases Completed



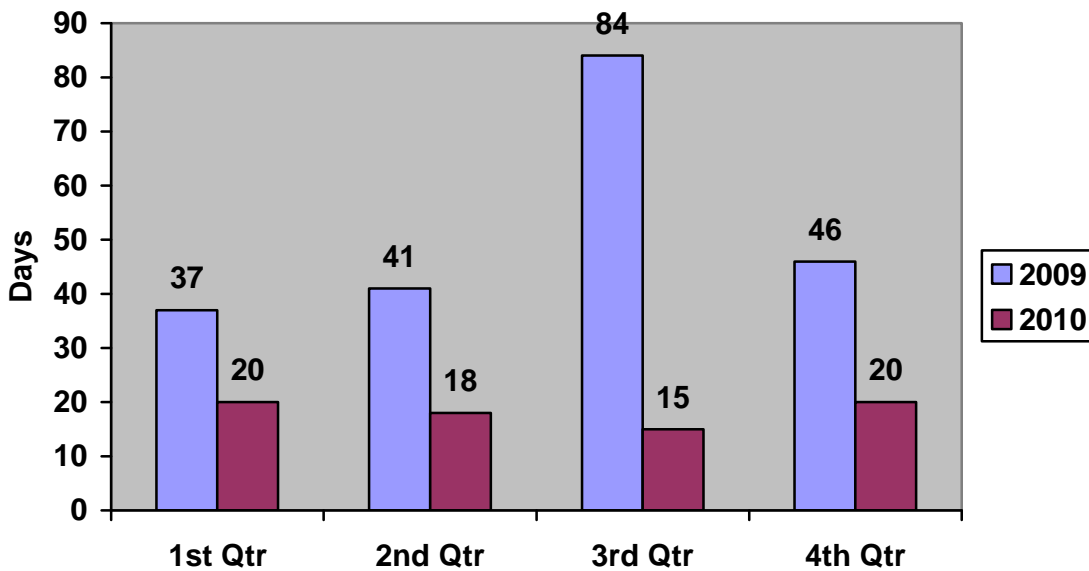
Blood Alcohol Cases Reported in 2010 per Detection Level



Blood Alcohol Testing - Ending Backlog per Quarter

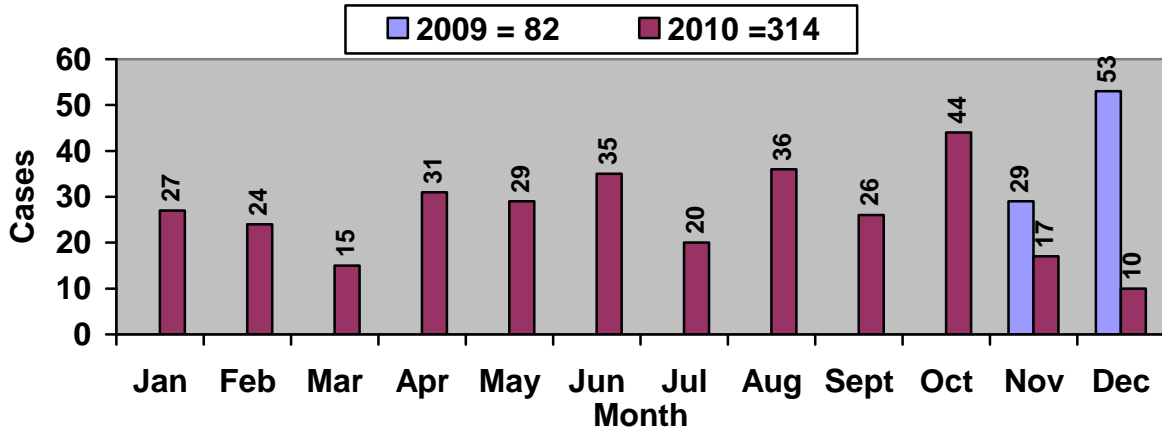


Blood Alcohol Testing - Average Turnaround Time



Blood Drug Casework

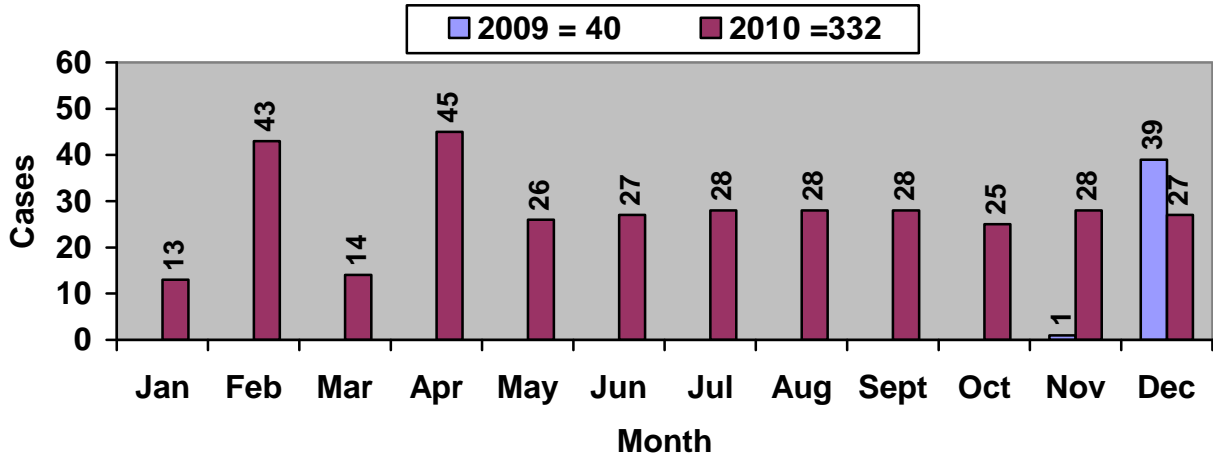
Blood Drug Cases Received



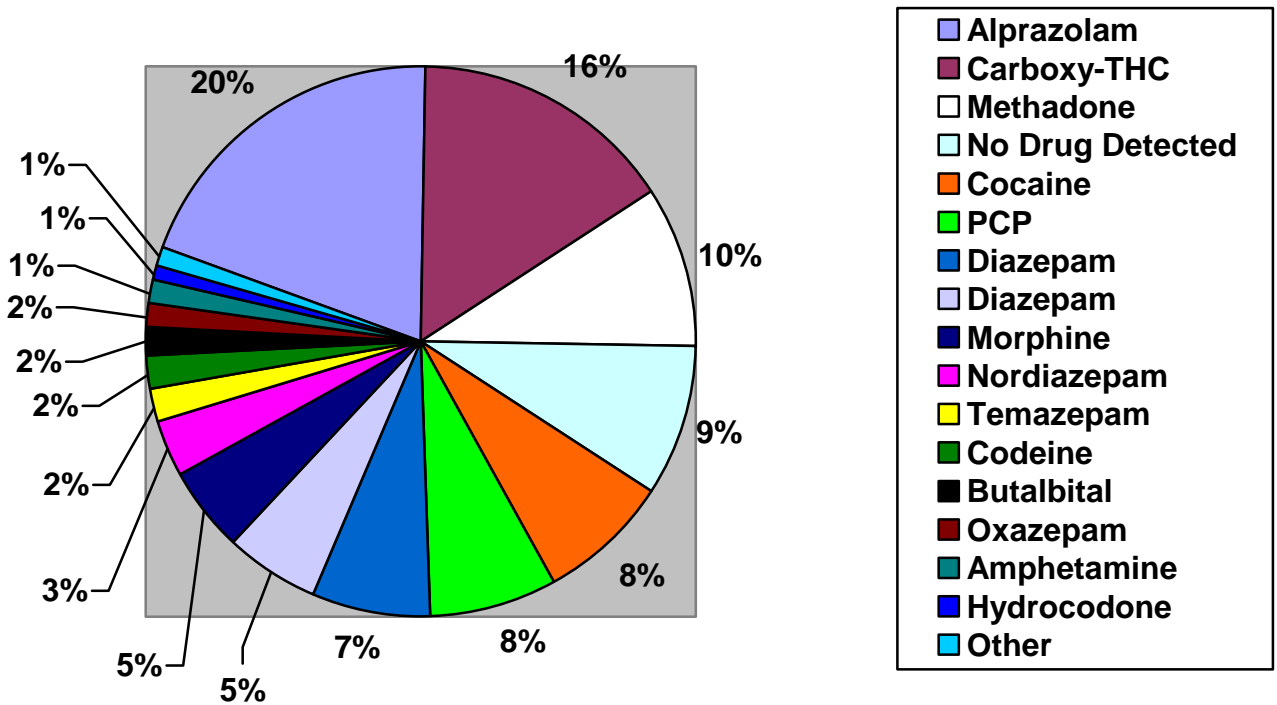
Total Blood Drug Cases Received in 2010 by County

County / Agency	Submissions
Maryland State Police	102
Baltimore Co.	46
Montgomery Co.	34
Anne Arundel	21
Frederick Co.	20
Howard Co.	15
Calvert Co.	14
Harford Co.	13
Prince George's Co.	10
Maryland Transportation Authority	8
Carroll Co.	7
Unknown	6
St. Mary's Co.	3
Charles Co.	3
Cecil Co.	2
Baltimore City	2
Washington Co.	2
Wicomico Co.	2
Allegany Co.	1
Queen Anne's Co.	1
Worcester Co.	1
Garrett Co.	1
TOTAL	314

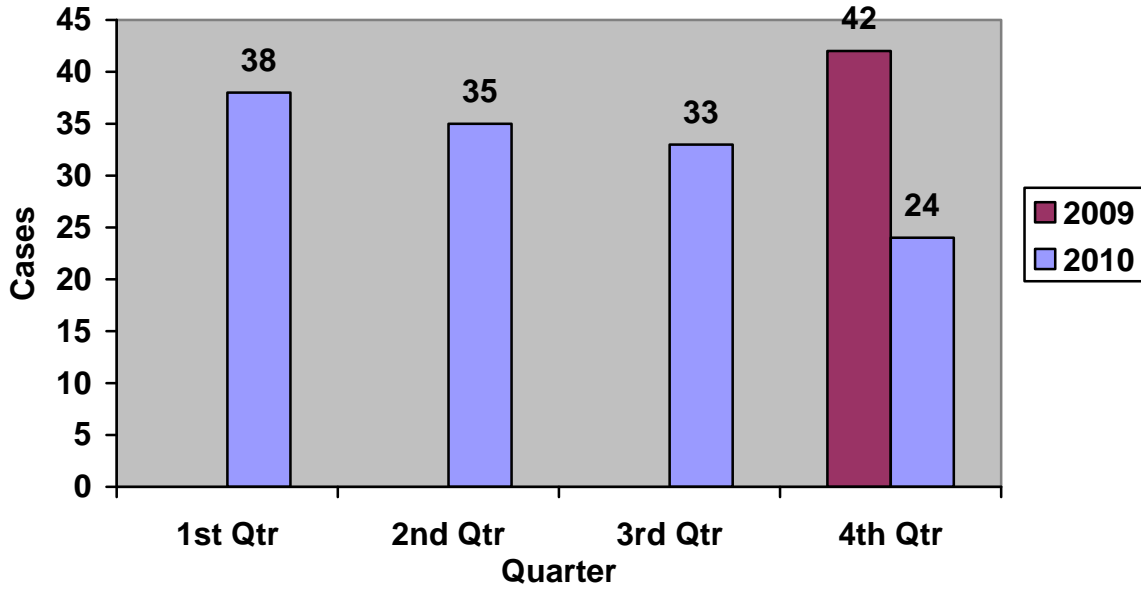
Blood Drug Cases Completed



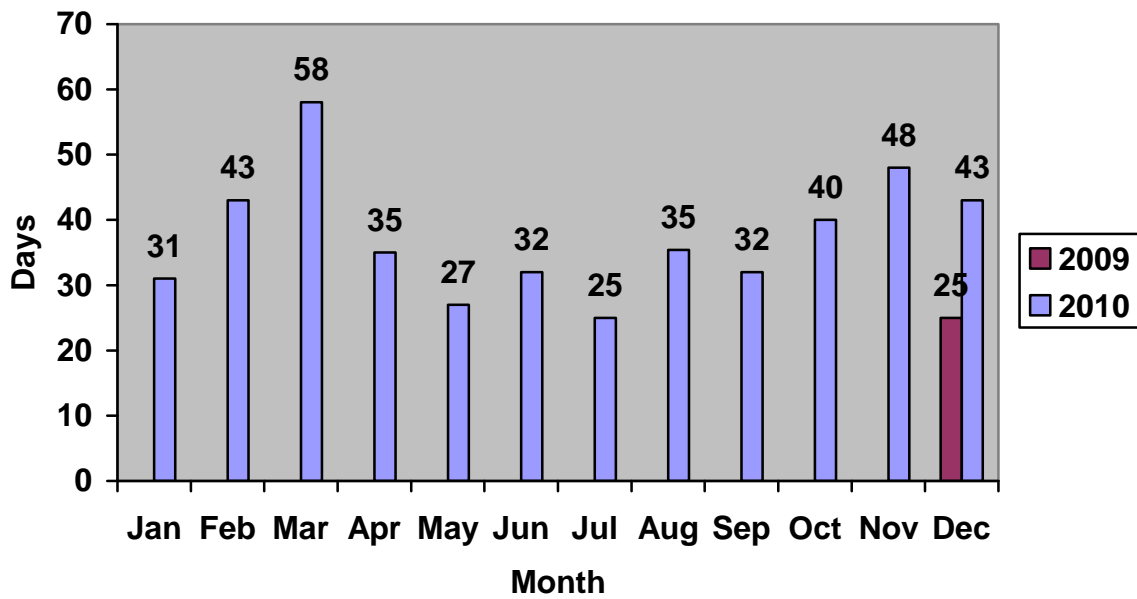
Blood Drug Cases Reported in 2010 per Drug Detected



Blood Drug Cases
Ending Backlog per Quarter



Blood Drug Testing
Average Turn Around Time



Training and Validation

New Technologies Implemented in 2010	Expected Benefits
Testing for Zolpidem (Ambien) added to DRE drug testing menu	Improved frequency of positive drug tests in DRE cases due to Ambien testing
A sensitive initial screening test specific for Oxycodone (Oxycontin) added to DRE drug testing menu	Improved detection of Oxycontin in DRE cases

CHEMISTRY SECTION ACCOMPLISHMENTS IN 2010

1. The CDS Chemistry Units have made substantial progress in reducing case backlog during 2010. End of year case backlog was reduced from 2626 cases (2009) to 1990 cases (2010); a reduction of 24%. Of particular note is the Berlin Unit caseload where the number of cases received increased from 1960 cases in 2009 to 5020 cases in 2010. The staff in Berlin completed a total of 4772 cases with an end of year backlog of 310 cases. The workload was successfully managed during the completion of training of two new Scientists and the implementation of new instrumentation in the laboratory. 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. The CDS Pikesville Unit continues its efforts to rebuild the staff following the resignation of two senior Scientists. The Pikesville Unit was able to complete 6872 cases (up from 6594 in 2009) while training additional Scientists. The staff rebuild continues in 2011 with two additional Scientists currently in training. The Hagerstown CDS Unit has successfully managed their 2010 caseload and completed training of an additional Scientist. The laboratory is currently recruiting an Evidence Coordinator to assist in the management of incoming case evidence. The Inventory Specialist will improve the efficiency of evidence receipt and record management that is currently handled by the Scientists. Construction of the new Barrack-Laboratory should further improve the laboratory operation at the Hagerstown Unit.
2. The CDS Units have also integrated the use the STARLIMS laboratory information management system for casework. Implementation includes tracking of cases along with recording of the final results of the cases in STARLIMS. 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.
3. The Toxicology Unit has successfully completed its first full year of production operation. The Unit completed alcohol and drug testing on 1,145 total cases during 2010. Testing was completed on 813 blood alcohol submissions and 332 cases for drugs other than alcohol. Turnaround times for blood alcohol submissions were improved from an average of 55 days (2009) to 18 days in 2010. Turnaround time for blood DRE drug testing cases averaged 36 days during 2010. The Forensic Scientist staff in the Toxicology Unit gained substantial experience during the year and will continue to develop as drug testing services are expanded. The Toxicology Unit has also acquired new state of the art instrumentation for performing blood alcohol analyses. The new instrumentation has been installed and will be placed in service in the upcoming year.

CHEMISTRY SECTION GOALS FOR 2010

1. The CDS-Hagerstown and CDS-Berlin Units will continue progress toward improvement in their facilities. Groundbreaking for the new state of the art Hagerstown Barrack and Laboratory occurred on August 26, 2010 and is projected for completion in December 2011. The first floor will consist of the new barrack. The second floor will contain a classroom, fire marshal's offices and the new forensic laboratory. The new lab will have sections for drug analysis, latent prints, and crime scene and will be roughly six times larger than the current lab. In Berlin, laboratory renovations and improvements will continue. Addition of a new instrumentation room has been completed as have structural improvements to the laboratory hoods. These projects will provide the staff with appropriate environments to perform their important work.
2. The CDS units will also pursue development of testing procedures for the new generation of "synthetic cannabinoid" compounds. The DEA has issued emergency scheduling of these compounds in late 2010 and testing for JWH-018, HU-210 ("Spice", "Buzz", "K2") and similar compounds will be developed.
3. The Toxicology Unit will expand their testing menu to include analysis for zolpidem (Ambien) and buprenorphine (Suboxone). In addition, an improved method for detecting oxycodone (Oxycontin) will be incorporated into the initial (screening) testing protocol. Addition of these methods to the testing menu will improve the frequency of detection of impairing substances in blood DRE cases. The Unit will also validate and implement new instrumentation and technology for the quantification of blood alcohol. The new technology will utilize dual chromatography columns to simultaneously perform two alcohol determinations and verify quantifications.

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 II. 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 Casework Unit also currently has a contractual Inventory Control Specialist.

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

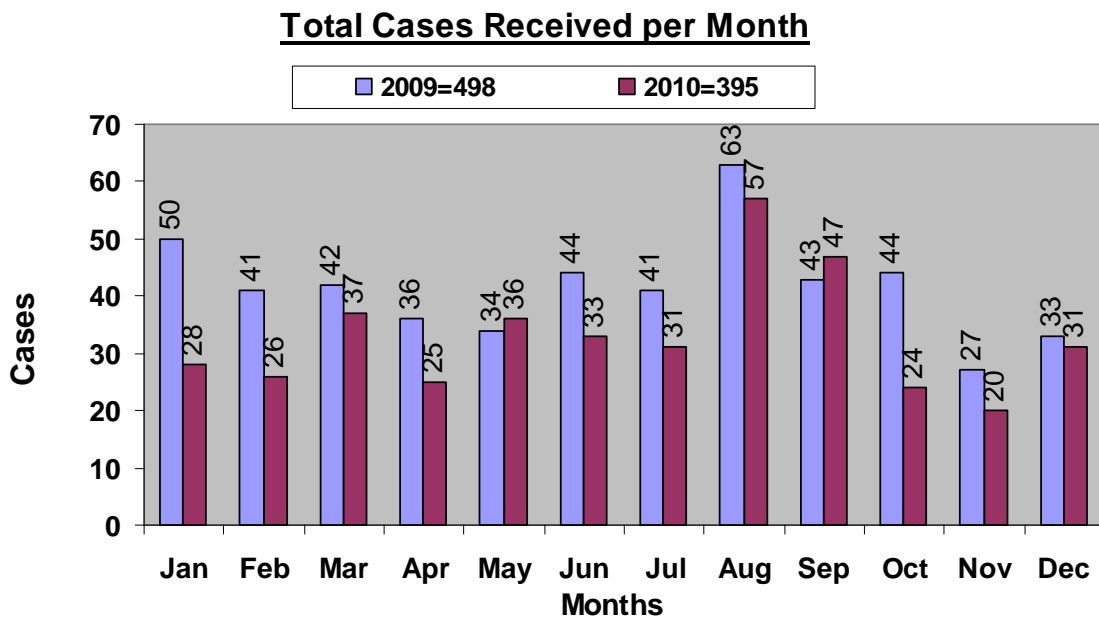
The Technical/Validation Unit is staffed by five scientists including one Forensic Scientist Supervisor (Technical Leader), one Forensic Scientist Advanced, one Forensic Scientist III, one Forensic Scientist II, and one Laboratory Technician I.

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 is 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



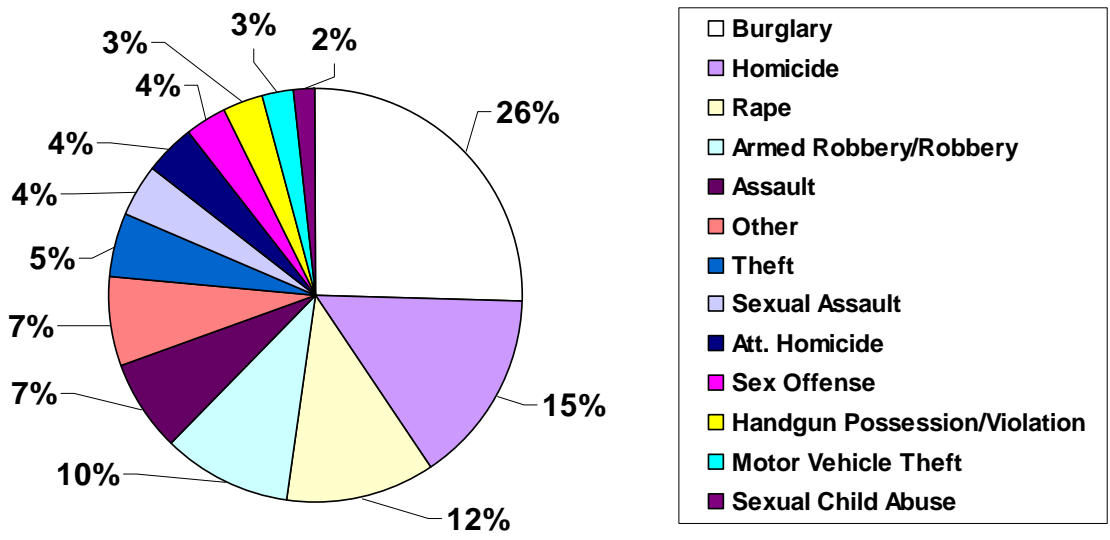
Total MSP Cases Received in 2010 per Barrack

MSP Installation	Counties Served	Submission
MSP-Homicide	State-Wide	13
MSP-CID	State-Wide	9
MSP-Easton	Caroline, Dorchester, Talbot	8
MSP-Westminster	Carroll	8
MSP-Bel Air	Harford	7
MSP-Princess Anne	Somerset	7
MSP-Golden Ring	Baltimore	6
MSP-Centerville	Queen Anne's	5
MSP-Northeast	Cecil	5
MSP-Prince Frederick	Calvert	4
MSP-Frederick	Frederick	2
MSP-Hagerstown	Washington	2
MSP-McHenry	Garrett	2
MSP-Salisbury	Wicomico	3
MSP-Centerville Kent	Kent	1
MSP-College Park	Prince George's	1
MSP-Cumberland	Allegany	1
MSP-Forestville	Prince George's	1
MSP-Glen Burnie	Anne Arundel	1
MSP-Waterloo	Howard	1
	TOTAL	87

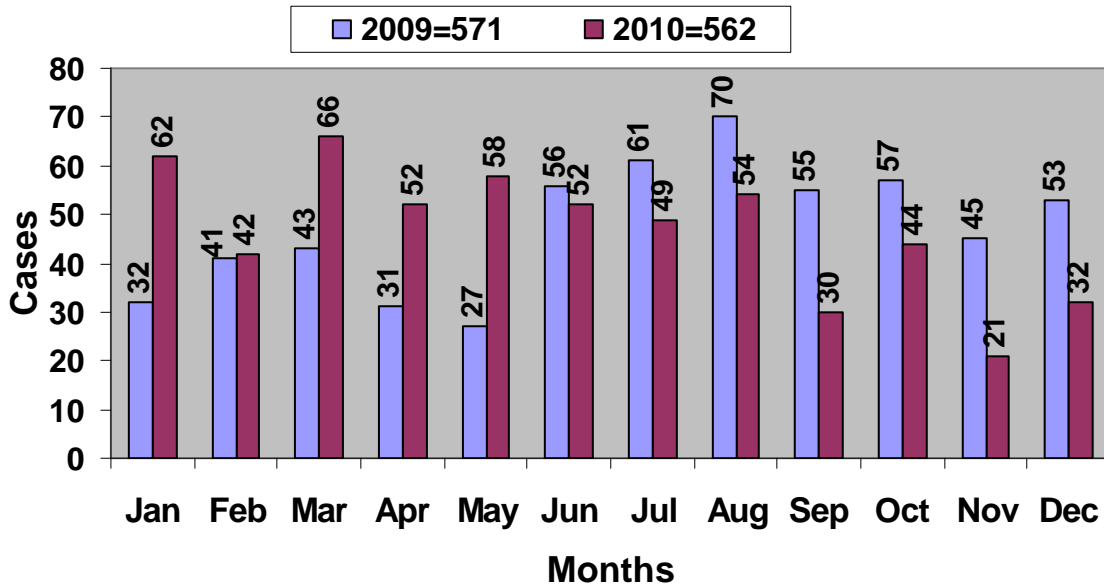
Total Allied Agency Cases Received in 2010 per County

County	Submissions
Wicomico	42
Worcester	39
Harford	34
Frederick	27
Charles	23
Carroll	22
Cecil	17
Dorchester	15
Statewide	13
Allegany	11
Anne Arundel	12
Washington	11
Calvert	8
St. Mary's	8
Queen Anne's	7
Kent	6
Prince George's	5
Caroline	3
Somerset	2
Talbot	2
Baltimore	1
TOTAL	308

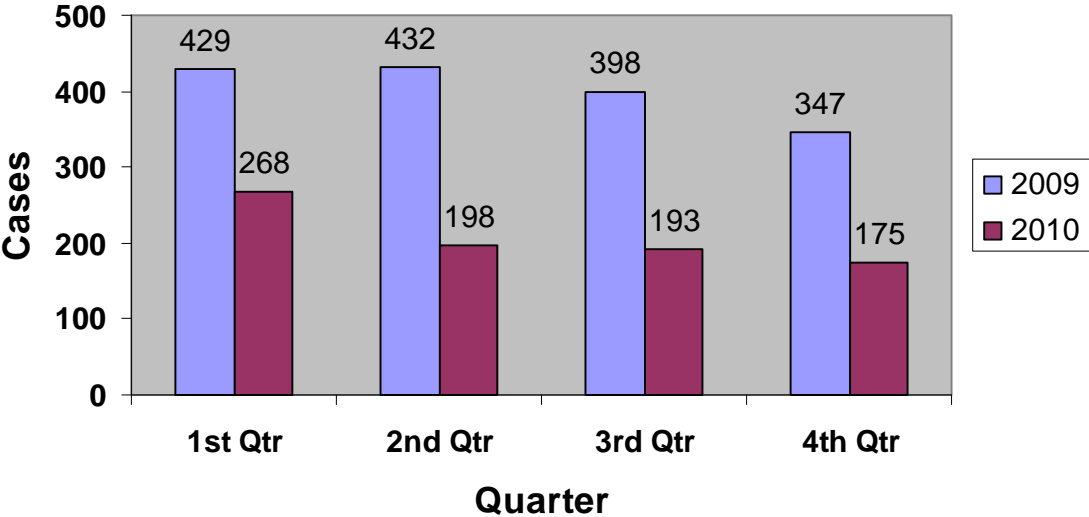
Total Cases Received in 2010 per Crime Type



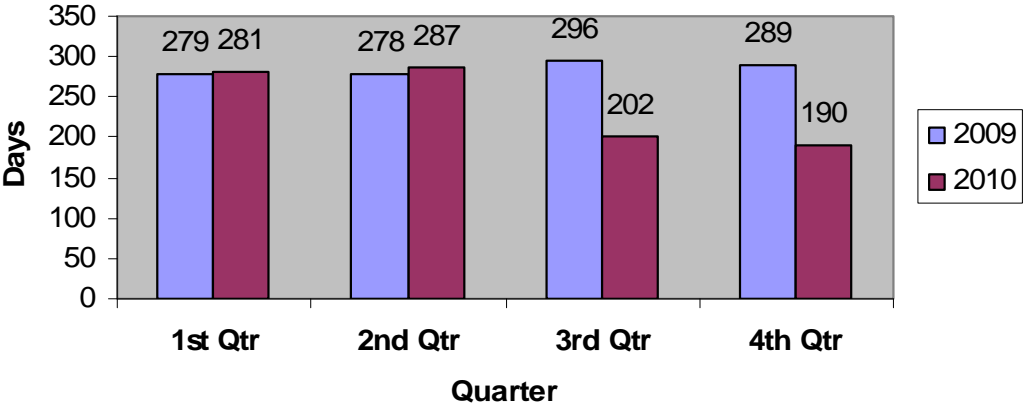
Total Cases Completed per Month



Ending Backlog per Quarter



Turn Around Time of Cases Completed per Quarter



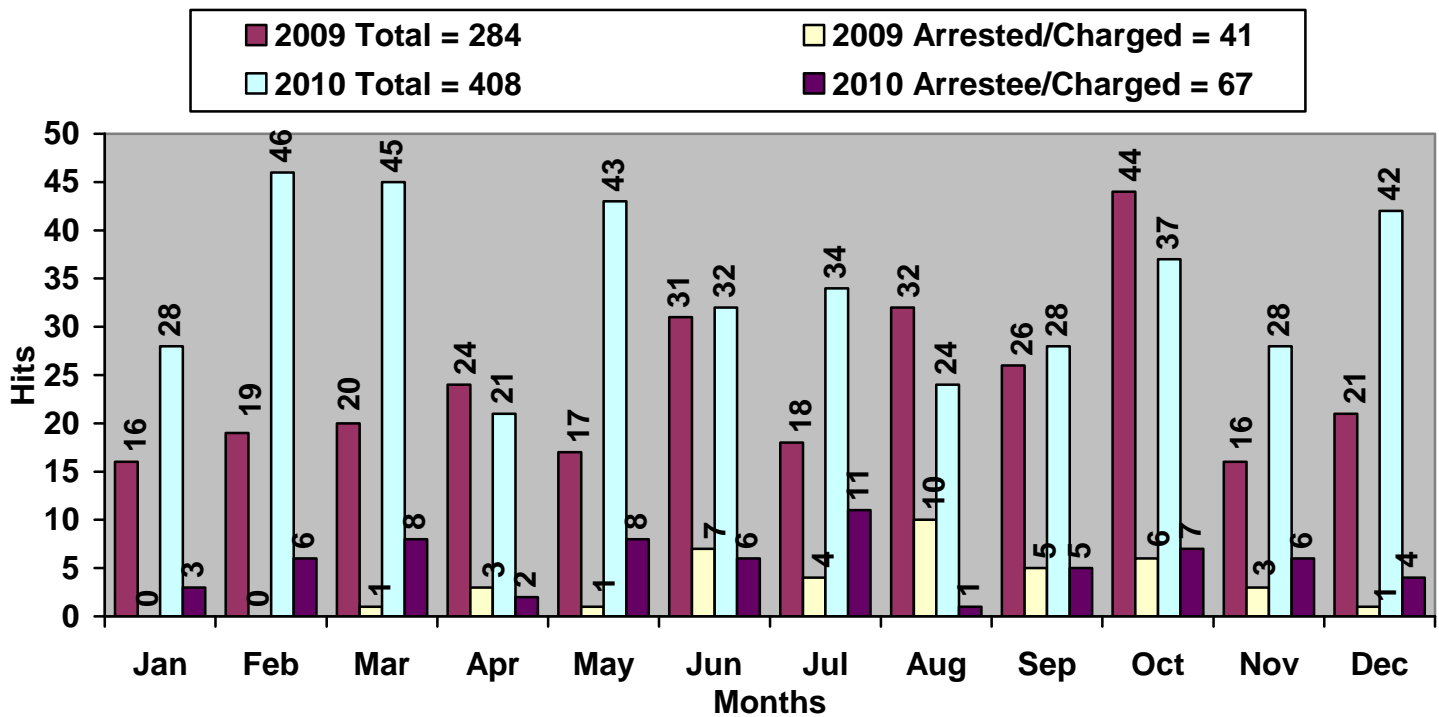
Note: Data on the 2009 Turn- Around- Times have been revised from last year's report.

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,

BIOLOGY DATABASE UNIT

Total Hits Reported per Month



Note – Although 408 hits were reported in 2010 as per NDIS guidelines (hits involving Maryland offenders/arrestee hitting Maryland cases as well as Maryland cases hitting Maryland cases are only counted as one hit each per NDIS). Hits here are reported by date released instead of by the previous method of using the date the hit occurred.

Total Hits in 2010

Number of Hits Reported	
Maryland Offender/Arrestee Hits	272
Maryland Case Hits	408

Note - Maryland case hits include a Maryland case hitting to a Maryland offender/arrestee, a Maryland case hitting a National offender/arrestee, 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 (this is not consistent with how hits are reported for NDIS). A Maryland case hitting to a Maryland offender/arrestee is counted as both a Maryland offender/arrestee hit and a Maryland case hit.

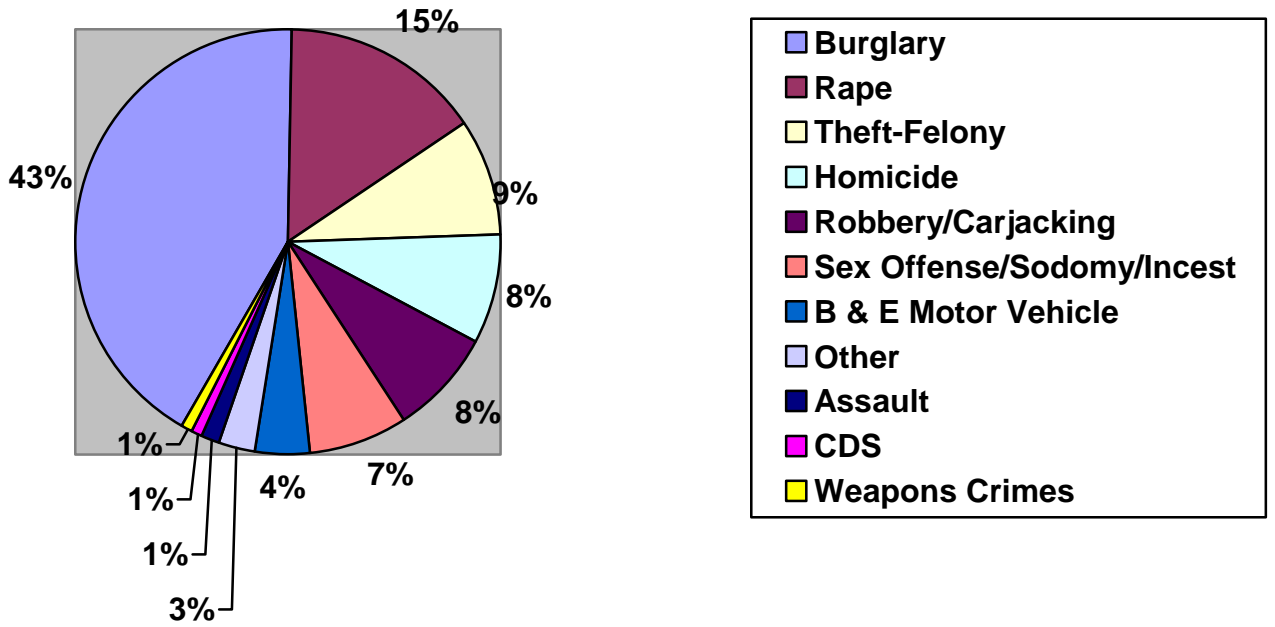
Total Maryland Case Hits in 2010 by County

Maryland County	Hits
Baltimore City	99
Montgomery	81
Anne Arundel	49
Baltimore	29
Prince George's	25
Wicomico	17
Howard	14
Dorchester	12
Carroll	11
Frederick	11
Talbot	8
Worcester	8
Charles	7
Harford	7
Washington	6
Somerset	6
Saint Mary's	4
Cecil	4
Calvert	3
Queen Anne's	3
Alleghany	2
Caroline	1
Kent	1
TOTAL	408

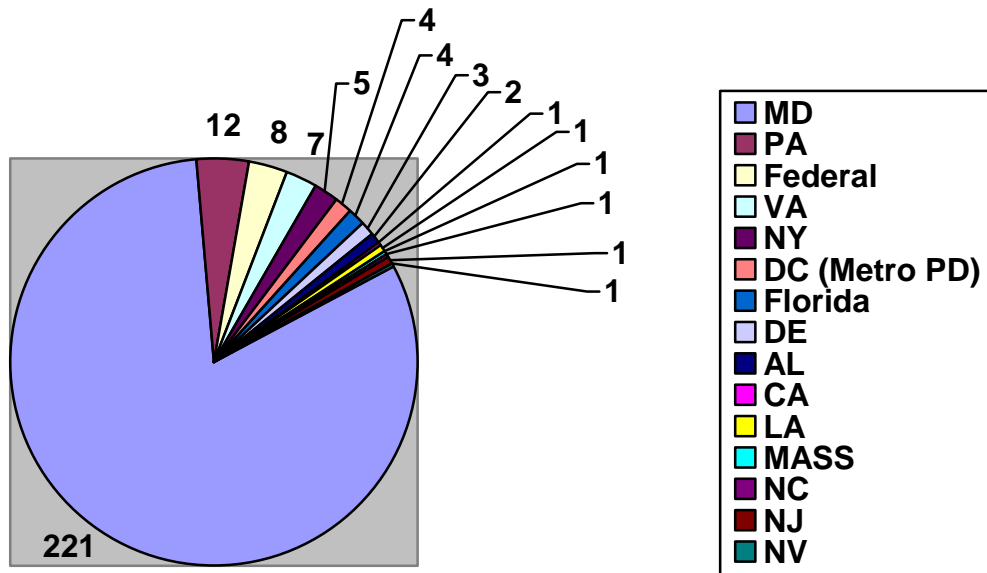
Total Maryland Case Hits in 2010 by Crime Year

Crime Year	Hits
1979	2
1980	3
1981	2
1982	2
1985	1
1987	2
1988	2
1989	1
1990	1
1991	2
1992	2
1993	2
1995	2
1996	1
1997	2
1998	3
1999	4
2000	6
2001	7
2002	7
2003	6
2004	14
2005	14
2006	29
2007	26
2008	57
2009	155
2010	45
Unknown	8
Total	408

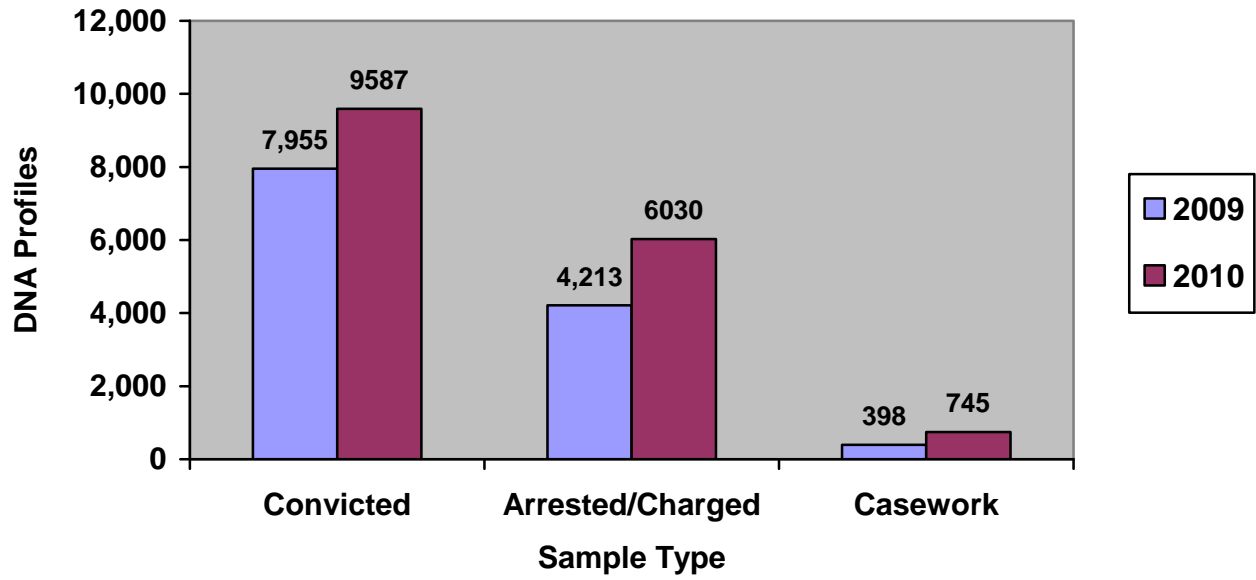
Total Maryland Case Hits in 2010 per Crime Type



Total Maryland Offender/Arrestee Hits in 2010 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 2010

The main thrust of the validations for the Technical Unit in 2010 was the ongoing validation of a system for allowing for a rapid DNA analysis process for databanking. Validations were completed and training was initiated. This technology will be implemented in early 2011.

Technology	Expected Benefit
Robotic Processing and Use of Identifiler Direct Amplification Kit	Automated procedure to reduce the 'hands-on' time for analysts to perform processing required to amplify DNA for eventual upload into CODIS. Use of this technology will allow for the processing of databank samples in-house, reducing the time from receipt to upload.
ABI 3730	This forty-eight capillary electrophoresis instrument has the capability to generate the DNA profiles of approximately 100 samples every 2hrs. With the inclusion of a sixteen tray feeder, this instrument has a maximum capacity to generate the DNA profiles of approximately 1450 samples in a thirty-four hour timeframe once the analyst has completed all of the pre-run preparation.

Training Completed in 2010

Training included the use of the robotic instruments for currently qualified analysts, greater implementation of the database staff in the workflow of database review, completion of casework training, and the completion of training for the Biology Section's QA/QC Laboratory Technician.

Analyst	New Field of Competency
Jessi Brown	Serology Casework
Timothy Graham	Robotics, Review of Database folders
Michelle Groves	DNA Interpretation
Amanda High	Review of Database folders, Robotics
Tiffany Keener	DNA Casework, Review of Database folders
Kelly Knight	Serology Casework
Sara Lee	Review of Database folders
Holeatheia Rene	QA/QC Laboratory Technician
Devon Pierce Hall	Review of Database folders

BIOLOGY SECTION ACCOMPLISHMENTS IN 2010

1. The casework backlog was reduced by 50.4% from a starting backlog of 347 cases in January 2010 to an ending backlog of 175 cases in December 2010. 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), achieving a 16% reduction by the end of 2009 (backlog of 347 cases) and ending 2010 with a 50.4% casework backlog reduction, the casework unit surpassed its original goals and has made the backlog reduction a tremendous success. This backlog reduction could not have been accomplished without the implementation of direct outsourcing (which controlled the influx of cases) in parallel with in-house outsourcing, in-house casework and the use of newly implemented robotics, the assistance of a contractual Inventory Control Specialist and the assistance of the Database group. Under grant funding direct outsourcing truly went full force this year and has become a complete success with 202 cases directly outsourced. All of these important functions contributed to this successful year and the Biology Section looks forward to continuing this trend and to a further decrease in the casework backlog in 2011.
2. The Technical unit has completed the validation of in-house analysis procedures for the transfer of database analysis completely within the MSP FSD Database unit which will reduce outsourcing. Training of database scientists in the in-house database analysis is to be initiated in early 2011. During this year, the Technical Unit has trained the scientists and the Tech Leader has overseen these operations and has interacted with the local Maryland labs and labs across the country by providing training in the understanding and application of new DNA interpretation guidelines. More validation projects that would lead to even more novel DNA applications and make the DNA casework flow even more efficient have been initiated for the upcoming year.
3. The database-collections unit received over 11,000 arrestee samples and expunged over 3,400 of those samples in 2010. Over 6,500 arrestee samples were imported into CODIS. Over 7,000 offender samples were received and more than 9,500 offender samples were imported into CODIS. The database staff has been able to maintain a zero to minimal backlog of offender and arrestee samples needing to be reviewed and sent for analysis while trouble shooting the various challenges in implementing the arrestee collection law. The increasing needs of this unit led us to the re-organization of the collections subunit so that data could be tracked more efficiently. The lab tech position was filled to provide an alternate for the collections coordinator. A contractual paralegal was hired and has greatly assisted both the database staff as well as our legal department by researching scientist's questions in regards to the arrestee collection law. An unsolved 2007 Howard County B&E of a motor vehicle hit to a Puerto Rico offender in November. Maryland had over 300 hits for 2010 including over 60 arrestee hits. At the end of November we had our 100th arrestee hit. To date we have released over 1998 hits and have over 92,000 Convicted Offender samples and 10,000 arrestee samples in CODIS.

BIOLOGY SECTION GOALS FOR 2011

1. The Biology Section has made tremendous progress already and it expects to further reduce the existing casework backlog by continuing to outsource cases directly and in-house to a vendor lab as well as utilize newly implemented technology for in-house testing. If all factors that have allowed the current success in backlog reduction remain, we anticipate coming eliminating the casework backlog and establishing methods to control future large backlog increases.
2. While the Technical Unit will continue to implement new technology, train new scientists, and cross-train existing scientists; they will begin efforts to improve the ability to successfully collect Touch DNA by pursuing techniques such as vacuum collection and micro-dissection of cellular material. The Technical Unit will also closely work with the Trace Section to assist in the formation of a Trace Biology sub-unit that will focus on the analysis of animal material, plant material, and hairs.
3. The Database Unit has done an outstanding job of handling the DNA database law requiring samples from individuals charged and arrested with violent crimes and burglary. The workflow has been successful but continues to experience 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. Furthermore, in an effort to improve workflow policy will be pursued to establish time limits for how long the Database Unit is required to await the resolution of an arrested and charged sample. In addition, this year the database unit will transition into the in-house analysis of samples from individuals charged and arrested with violent crimes and eventually from convicted offenders which will allow for improved turn around time of database samples as well as long term cost savings. The anticipated implementation of the TrueAllele expert system for database samples will increase efficiency even more.

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, and three Forensic Scientists III. 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; 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

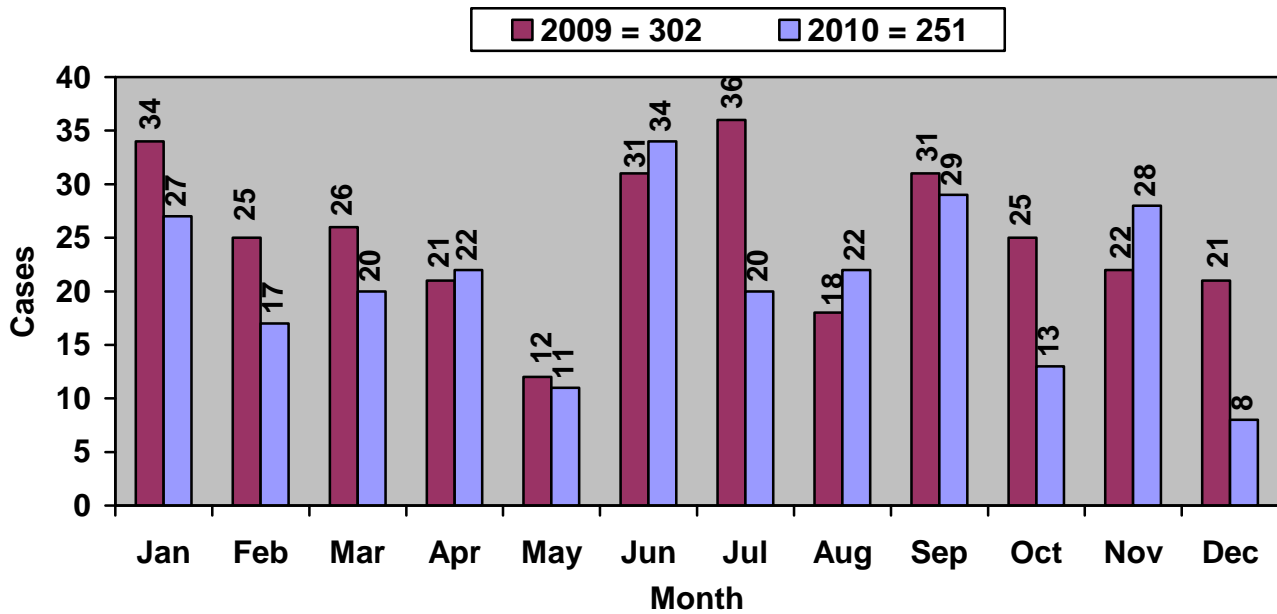
The Trace Chemistry Sub-Unit receives the bulk of the Trace Section evidence and is responsible for the analyses of any evidence submitted to the section that requires chemical or instrumental testing to determine physical and chemical properties. These include analyses in the areas of Fire Debris; Paint; 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 analyze biological material (both animal and plant) that is not currently possible.

Casework

Total Cases Received per Month



MSP Cases Received in 2010 per Barrack

Barrack	Counties Served	Submissions
MSP - Homicide	State-Wide	6
MSP - Centreville	Kent, Queen Anne's	4
MSP - Bel Air	Harford	3
MSP - Easton	Caroline, Dorchester, Talbot	2
MSP - Golden Ring	Baltimore	1
MSP-Rockville	Montgomery	1
MSP - Mc Henry	Garrett	1
MSP - Forestville	Prince George's	1
MSP - Westminster	Carroll	1
MSP - North East	Cecil	1
	TOTAL	21

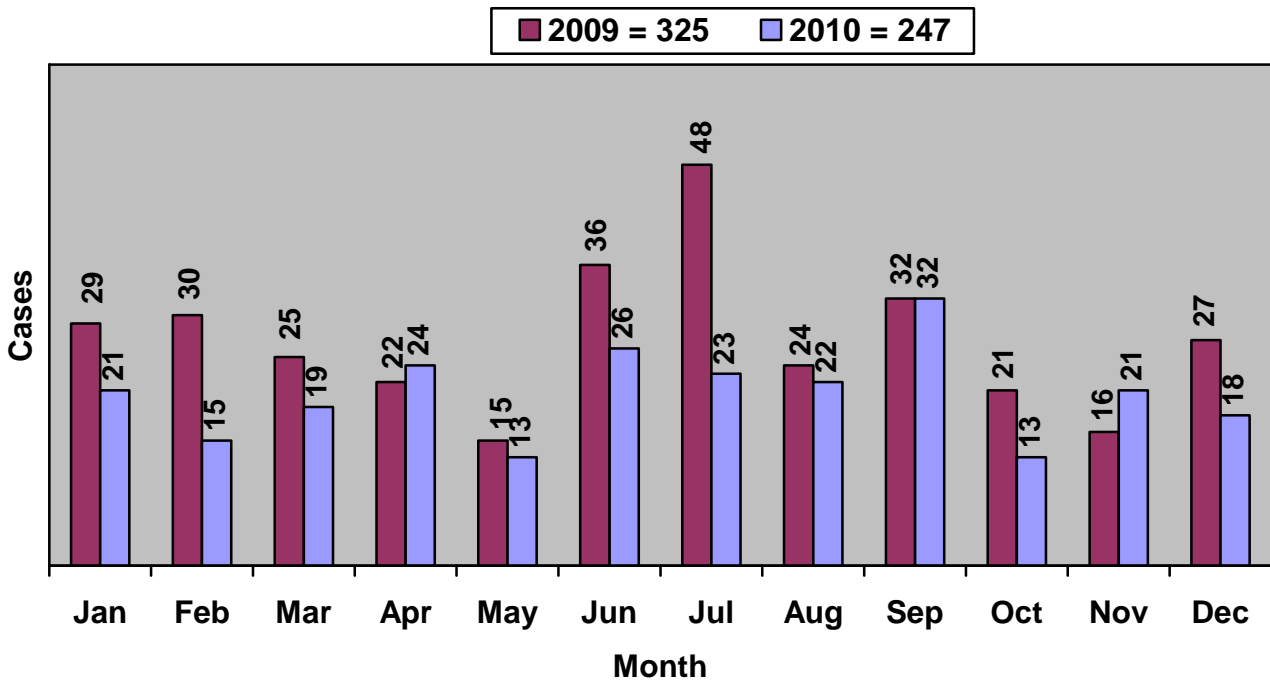
OSFM Cases Received in 2010 per OSFM Region

Region	Counties Served	Submissions
OSFM – Lower Shore	Dorchester, Somerset, Wicomico, Worcester	24
OSFM – Southern	Calvert, Charles, St. Mary’s	19
OSFM – Metro	Carroll, Frederick, Howard	16
OSFM – Upper Shore	Caroline, Kent, Queen Anne’s, Talbot	7
OSFM – North East	Harford, Cecil	6
OSFM – Western	Alleghany, Garrett, Washington	3
	TOTAL	75

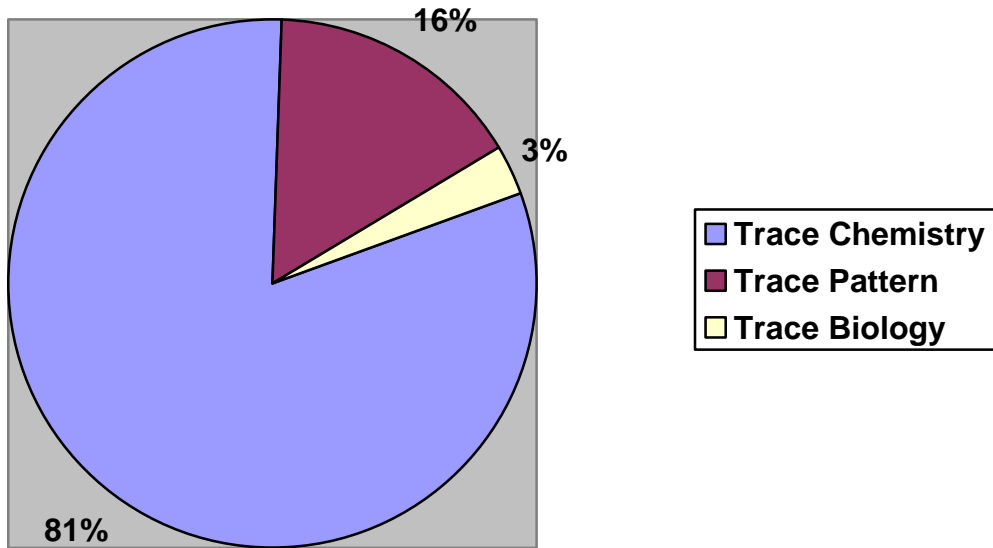
Allied Agency Cases Received in 2010 per County

Counties	Submissions
Anne Arundel	43
State-wide	35
Baltimore County	14
Howard	14
Worcester	12
Montgomery	12
Wicomico	8
Baltimore City	4
Harford	4
Frederick	2
Prince George’s	2
Alleghany	1
Charles	1
Queen Anne’s	1
Carroll	1
Out of State	1
Cecil	0
Caroline	0
Dorchester	0
Talbot	0
St. Mary’s	0
Washington	0
TOTAL	155

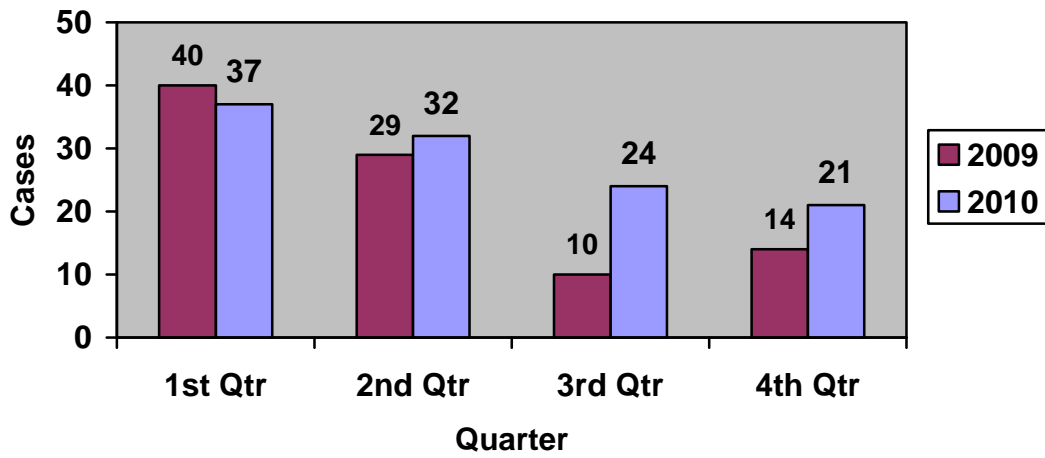
Total Cases Completed per Month



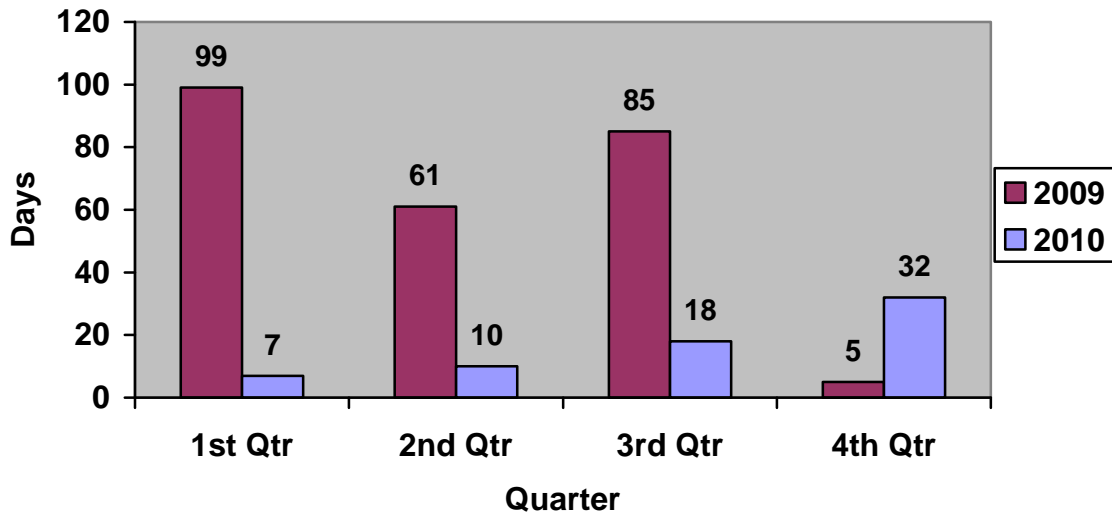
Cases Completed per Sub-Unit



Ending Backlog per Quarter



Average Turn Around Time per Quarter



Note: Data for 2009 has been revised from last year's report.

Training and Validation

New Technologies Implemented in 2010	Expected Benefits
Fourier Transform Infrared Spectrometer (FT/IR) with Microscope	The ability to analyze smaller pieces of evidence for their chemical composition.

Forensic Scientist	Competency Certification
Andreana Dimakakos	Fire Debris, Bank Dye Examination
Salvatore Bianca	Soil, General Chemistry, Bank Dyes, Nature of Damage and Direction of Force, Hair Evaluations for DNA Analysis, Plastic Bags, Preliminary Examination of Soil, Tapes/Adhesives
Diane Lawder	In Training

TRACE EVIDENCE SECTION ACCOMPLISHMENTS IN 2010

1. The Trace Evidence Section (TES) was able to advertise and fill the position of Trace Evidence Supervisor with a forensic scientist having over 30 years experience in the field. This supervisor will relieve the Deputy Director as acting supervisor and oversee the continued training of staff and the expansion of the sub-disciplines.
2. TES staff completed a thorough and well designed validation of the new Fourier Transform Infrared Spectrometer with Microscope (Nicolet 380 FT-IR, utilizing the Smart Goldengate KRS-5 Diamond ATR and Bench Sample Compartment). This instrument allows for the analyses and identification of functional groups of the casework samples such as paints, fibers, adhesives, tapes and powders, to name a few.
3. In keeping with the FSD objectives of providing quality laboratory services, the senior Forensic Scientist, Sal Bianca, completed the required competency tests in the sub-disciplines of Plastic Bags, Hair Evaluation for DNA Analysis, Nature of Damage and Direction of Force, analysis of Bank Dyes, Preliminary Examinations of Soil, General Chemistry Examination and Tapes/Adhesives analysis. He is now authorized to perform these testing in these areas and will continue to provide training to the other forensic scientists.

TRACE EVIDENCE SECTION GOALS FOR 2011

1. The TES completed its first full year under its restructured organization consisting of three sub-units including the Trace Chemical, Trace Pattern, and Trace Biology sub-units. Andreana Dimakakos is assigned to the Trace Chemical sub-unit and Diane Lawder is assigned to the Trace Pattern sub-unit. A goal for 2011 is to have these two forensic scientists complete their respective training programs, receiving competency certificates for all the respective disciplines in their sub-units. With Sal Bianca receiving competency certificates in all sub-disciplines in 2010 (Questioned Documents the exception) he is able to continue mentoring and training these two scientists. In addition to the in-house training, Diane and Andreana will have the opportunity to attend NIJ sponsored trainings taught through either the McCrone Research Institute or The Hooke College of Microscopy.
2. The Trace Biology sub-unit is currently conducting hair examinations to determine species and growth phase for further DNA profiling. It is a goal to increase the function of this sub-unit to perform advanced biological screening in an effort to analyze biological material that is currently not possible. Sal Bianca will work with a designated individual from the Biology Section to develop the Trace Biology Sub-Unit. The development will consist of Animal Material Analysis, Plant Material Analysis, and Hair Analysis.
3. With the validation of the Nicolet 380 FT-IR, *Continuum* Microscope and the instrument's accessories complete the TES will now focus on completing a thorough and well designed validation of the new JEOL JSM – 6490LV Scanning Electron Microscope with Oxford INCA Energy 250 Energy Dispersive Spectrometer Detector. The validation will include a reproducibility study, a sample study, a mixture study, and a non-probative casework study. By performing the validation on this new *JEOL* Scanning Electron Microscope with an *Oxford* Energy Dispersive Spectrometer Detector, the TES is providing documentation that they are working according to the specifications of the manufacturers to provide accurate and reproducible analyses of samples to show their individual morphology, topography and chemical composition.