2011

ANNUAL REPORT

MARYLAND STATE POLICE

FORENSIC SCIENCES DIVISION

TABLE OF CONTENTS

FORENSIC SCIENCES DIVISION DESCRIPTION

"It is the mission of the Maryland State Police – Forensic Sciences Division to provide the citizens of the State of Maryland with the highest level of service possible in the field of Forensic Science. MSP-FSD's dedication to science, quality, efficiency, and vision ensures that the Law Enforcement, Legal, and Judicial communities are always provided with reports and expert testimony that are ethical, reliable, and scientifically informative."

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 twelve Units.

The 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, Mr. David Katz, and Mr. Rick Przybylowski

DIRECTOR'S SUMMARY

Teresa M. Long

An unknown author once said that "People know you for what you've done, not for what you plan to do". However, in 2011 the Forensic Sciences Division (FSD) was recognized for both its extensive planning and the milestone accomplishment of laboratory accreditation under the International program of the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). On June 24, 2011, ASCLD/LAB awarded the three laboratories of the Maryland State Police Forensic Sciences Division accreditation in the Field of Forensic Science Testing. This achievement is a testament to the quality of the laboratory's management system and technical procedures as well as the dedication of the staff.

During 2011, FSD continued to restructure and build its organization with the support from the Department. Technical leaders with associated job responsibilities were designated within each discipline. This action allowed the laboratory to become compliant with the upcoming Department of Health and Mental Hygiene licensing regulations. Our laboratory system was licensed as required by December 31, 2011. Throughout the year, new and/or replacement staff was added to the Crime Scene, Photography, Trace Evidence, Firearms/Toolmarks, and Latent Prints/Impressions Units. In addition, there was continued success with the allied forensic scientist positions that perform work in the laboratory of the CDS-Pikesville Unit. FSD hopes to expand this program into other laboratory locations and within other disciplines in the future.

In efforts to remain current, the Division continues to bring on new technologies and validate new instruments. For example, the Toxicology Unit validated an improved GC/Headspace sampler for use in the analysis of blood alcohol samples and expanded drug types tested for within the drug of impairment program. The new Scanning Electron Microscope with the Energy Dispersive Spectrometer was put on-line in the Trace Evidence Unit. The Biology Section DNA Database Unit started the in-house analysis of samples from arrested/charged individuals with the use of the Genemapper ID-X Expert System Software. The in-house analysis of convicted offender samples is due to be on-line the winter of 2012. The laboratory's technical operations again received additional support under several federal grant programs. Overtime wages, training expenses, and instrument/equipment purchases were the primary uses of the grant funding.

Work within the Division continues on several lab wide projects. In anticipation of transitioning forward into the most current software release of the laboratory's information management system, StarLIMS, a week long training session on the new features was provided to staff in December. This project however still faces the obstacle of acquiring on-site StarLIMS IT support. Both a contractual position and in-house PINS are being pursued. The digital photography system, *VeriPic*, brought on-line last year has proven to be very successful in its first year of operation.

In 2011 the state of the art facility in Pikesville was fortunate to obtain a new multi-year maintenance contract that ensures the continued high standard of attention given to the building and grounds. In regards to state of the art facilities, the Division anxiously awaits the completion of the new Hagerstown Barrack which contains an expanded laboratory space. This new laboratory space, six times the size of the current operations, allows for the future addition of

latent prints/impressions analysis and accommodates the crime scene technician assigned to that region. It is anticipated that the new barrack will be completed in March 2012.

FSD staff continued to provide forensic science training and support to the community. Tours and lectures were provided to high school/college forensic science classes, career academies, and professional medical/legal groups, not to mention foreign dignitary tours from China, Japan, and Uzbekistan. The on-going internship program continued this year with a total of twenty-nine placements at FSD from colleges and universities within our state and across the country. Interns assisted in such projects as the validation of new instruments, data entry for multiple disciplines, and the gathering of research on new synthetic drugs. As part of the laboratory's service to client program, the forensic scientists also presented technical information to various States Attorney's Offices.

Comparing the 2011 end of year statistics to those from 2010 show the Division having a small increase in case submissions with relatively the same amount of casework completed. The CDS casework was distributed between laboratory locations in order to manage and decrease the backlogs. In a separate attempt to decrease casework backlogs, the Crime Scene Unit assisted the Firearms/Toolmarks Unit with the test firing of weapons to determine functionality. Overall, the casework backlogs within all disciplines decreased with the exception of the unit recovering from the recent loss of experienced staff. Each unit's accomplishments and statistical information is detailed within this report.

Continued success was seen in 2011 for the Forensic Sciences Division. The hurdles brought about by budget restraints and loss of staff existed but the talent and professionalism of the management team was able to push the laboratory forward in spite of these obstacles. Many thanks go out to Deputy Director Daniel Katz, Assistant Commander Captain David Hopp and Quality Assurance/Safety Manager Dr. Wanda Kuperus for their efforts. However, none of the laboratory's success would be possible without the continued support of the FSD administrative staff, other MSP Divisions, and Department Management.

For 2012, the Forensic Science Division will continue its dedication to conforming with the accreditation criteria while providing timely quality forensic services to the law enforcement community.

2011 CASEWORK SUMMARY

Cases Received and Completed

Unit	Total Cases Received	MSP Cases Received	Allied Agency Cases Received	Cases Completed
Latent Prints/Impressions	1,873	28%	72%	1,255
Firearms/Toolmarks	504	47%	53%	771
CDS-Pikesville	6,948	22%	78%	7,808
CDS-Berlin	5,201	26%	74%	5,101
CDS-Hagerstown	2,754	46%	54%	2,705
Toxicology	1,173	34%	66%	1,102
Biology	416	23%	77%	449
Trace Evidence	225	41%	59%	240
TOTALS	**19,094**	**29%**	**71%**	**19,431**

Backlogs and Turn Around Times

Unit	Backlog (Cases)	Turn Around Time (Calendar Days)
Latent Prints/Impressions	1,581	460
Firearms/Toolmarks	413	296
CDS-Pikesville	512	32
CDS-Berlin	410	38
CDS-Hagerstown	358	53
Toxicology	142	38
Biology	145	174
Trace Evidence	14	42

Quantity of Submissions to FSD Ranked by MSP Installation

Rank	MSP Installation	Counties Served
1	MSP-Westminster	Carroll
2	MSP-DED	Statewide
3	MSP-JFK Highway	Cecil, Harford, Baltimore
4	MSP-Easton	Caroline, Dorchester, Talbot
5	MSP-McHenry	Garrett
6	MSP-Northeast	Cecil
7	MSP-Bel Air	Harford
8	MSP-Berlin	Worcester
9	MSP-Frederick	Frederick
10	MSP-Salisbury	Wicomico
10	MSP-Glen Burnie	Anne Arundel
12	MSP-Prince Frederick	Calvert
13	MSP-Centerville	Kent, Queen Anne's
13	MSP-Leonardtown	St. Mary's
15	MSP-Rockville	Montgomery
16	MSP-Golden Ring	Baltimore
17	MSP-College Park	Prince George's
18	MSP-Hagerstown	Washington
19	MSP-LaPlata	Charles
20	MSP-Cumberland	Allegany
21	MSP-Princess Anne	Somerset
22	MSP-CID	Statewide
23	MSP-Waterloo	Howard
24	Office of State Fire Marshall	Statewide
25	MSP-Homicide	Statewide
26	MSP-Forestville	Prince George's

Quantity of Submissions to FSD Ranked by Allied Agency County

Rank	County
1	Worcester
2	Frederick
3	Harford
4	Howard
5	Wicomico
6	Cecil
7	Charles
8	Allegany
9	Carroll
10	Calvert
11	Dorchester
12	Anne Arundel
13	Baltimore
14	Talbot
14	St. Mary's
16	Prince George's
17	Queen Anne's
18	Baltimore City
19	Washington
20	Caroline
21	Montgomery
22	Kent
23	Somerset
24	Garrett
25	Statewide

Operational Services Branch Annual Comparison

Unit *(Action)*	2010	2011
Crime Scene *(Cases Processed)*	999	1,217
Photography *(Film Processed)*	1,053	45
Photography *(Prints Made)*	24,109	13,505
Central Receiving *(Forensic Cases Received)*	18,826	19,094

Scientific Analysis Branch Annual Comparison

Unit *(Action)*	2010	2011
Latent Prints/Impressions *(Cases Received)*	2,079	1,873
Latent Prints/Impressions *(Cases Completed)*	1,321	1,255
Latent Prints/Impressions *(MAFIS Hits)*	316	206
Latent Prints/Impressions *(Case Uploads to MAFIS)*	403	339
Latent Prints/Impressions *(Latent Print Uploads to MAFIS)*	670	619
Firearms/Toolmarks *(Cases Received)*	754	504
Firearms/Toolmarks *(Cases Completed)*	682	771
Firearms/Toolmarks *(Case Uploads to NIBIN)*	681	702
Firearms/Toolmarks *(Operations Test Shot Samples Received)*	307	102
Firearms/Toolmarks *(Maryland IBIS Samples Received)*	23,236	23,771
CDS-Pikesville *(Cases Received)*	6,592	6,948
CDS-Pikesville *(Cases Completed*)	6,872	7,808
CDS-Berlin *(Cases Received)*	5,020	5,201
CDS-Berlin *(Cases Completed)*	4,772	5,101
CDS-Hagerstown *(Cases Received)*	2,737	2,754
CDS-Hagerstown *(Cases Completed)*	2,851	2,705
Toxicology *(Blood Alcohol Cases Received)*	750	827
Toxicology *(Blood Alcohol Cases Completed)*	813	778
Toxicology *(Blood Drug Cases Received)*	314	346
Toxicology *(Blood Drug Cases Completed)*	332	324
Biology Casework *(Cases Received)*	395	416
Biology Casework *(Cases Completed)*	562	449
Biology Database *(Total CODIS Hits)*	408	431
Biology Database *(Arrested/Charged CODIS Hits)*	67	80
Biology Database *(Convicted Offender Uploads to CODIS)*	9,587	5,866
Biology Database *(Arrested/Charged Uploads to CODIS)*	6,030	4,327
Biology Database *(Case Uploads to CODIS)*	745	795
Trace Evidence *(Cases Received)*	251	225
Trace Evidence *(Cases Completed)*	247	240

GRANT FUNDING SUMMARY

ACTIVE GRANTS:

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 to support DNA casework operations. In 2011, a total of 190 cases were outsourced for DNA testing; 11 training events were attended; 18 replacement computers, 3 microscopes, and 1 thermal cycler were purchased; and 105 hours of overtime were worked.

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

Start date: 10/01/2010
End date: 03/31/2012
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 to support DNA database operations. In 2011, supplies were purchased including STR kits, polymer, size standard, formamide, buffer, sample plates, pipette tips, sealing tape, and a capillary array. These supplies were used to analyze in-house 1,974 database samples.

NIJ FY11 DNA Backlog Reduction Program: 2011-DN-BX-K452

Start date: 10/01/2011
End date: 03/31/2013
Amount: $758,796
This grant was entitled FY2011 DNA Backlog Reduction Program – Maryland State Police. This grant includes funding for both DNA casework and DNA database operations. In 2011, all grant special conditions were removed, a batch of 44 cases were outsourced for DNA testing, an order was placed for FlexiCapture software, and 1 training event was attended.

Coverdell FY11 Formula Grant: CFSI-2011-1006

Start date: 10/01/2011
End date: 09/30/2012
Amount: $37,067
This grant is entitled Pattern Evidence Section / CDS Enhancement. The Pattern Evidence related funds are budgeted for the purchase of equipment for the Firearms / Toolmarks Unit including laptop computers with docking stations, micrometers, shooting glasses, ear muffs, a diagonal cutter, a reloader, and a borescope. The CDS related funds are budgeted for the hire of a contractual Inventory Control Specialist to work in the CDS-Hagerstown Unit. In 2011, a candidate for the Inventory Control Specialist position was identified.

GRANTS CLOSED IN 2010:

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 encompassed the MSP Cold Case Unit, the Anne Arundel State's Attorney's Office, and the MSP Forensic Sciences Division. The funds were used for 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. A total of 93 cold cases were DNA tested from which 37 DNA profiles were entered into CODIS resulting in 11 CODIS hits. This grant is now 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 Training funds in this grant were used for 61 training events and dues payment to 4 different professional organizations. The Overtime funds in this grant were used for the completion of 148 overtime hours resulting in the completion of 132 CDS cases. The grant is now 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 was broken down into outsourcing, travel, equipment, texts, and indirect costs. A total of 93 cases were DNA tested; 11 individuals traveled to training; and 8 replacement computers, 3 mobile lab tables, 14 pipettes, 6 microcentrifuges, 2 UV crosslinkers, 1 vortex, 1 UV meter and 5 new texts were purchased. This grant is now closed.

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 was broken down into outsourcing, testimony for outsourced casework, overtime for forensic scientists, a contractual Inventory Control Specialist position, and indirect costs. A total of 77 cases were DNA tested, 141 hours of overtime were completed, and the Inventory Control Specialist worked 1,399 hours. This grant is now closed.

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. The funds were used for the outsourcing of DNA cases, the testimony of outsourced DNA cases, overtime for forensic scientists to prepare and review outsourced DNA casework, and a contractual Paralegal II position to assist with DNA Database sample collections. A total of 167 DNA cases were tested, 3 testimonies were given, 353.5 hours of overtime were completed, and the Paralegal II worked 1,137 hours. The grant is now closed.

Coverdell FY10 Formula Grant: CFSI-2010-1902

Start date: 10/01/2010
End date: 11/30/2011
Amount: $129,853
This grant was entitled Latent Print and Impression / QD / Photography / Server Enhancement. The Latent Print and Impression funds in this grant were used for a gel lift scanner with a supply of gel lift cards. The QD funds in this grant were used for a Video Spectra Comparator. The Photography funds in this grant were used for a new computer workstation, a collapsible background, and various lights accessories. The Server funds in this grant were used for new servers to store and backup StarLIMS data. The grant is now closed.

Coverdell FY10 Competitive Grant: CFSI-2010-1408

Start date: 10/01/2010
End date: 11/30/2011
Amount: $78,750
This grant was entitled Crime Scene / CDS / StarLIMS Enhancements. The crime scene related funds in this grant were used for Crime Scene Technicians to perform 417 hours of overtime to assist the Pattern Evidence Section with 30 latent print cases and 269 firearm cases as well as for additional equipment for the Crime Scene Unit. The CDS related funds in this grant were used for a contractual Inventory Control Specialist who worked 618 hours in the CDS-Hagerstown Unit and replacement computer CPUs for the entire Chemistry Section. The StarLIMS related funds in this grant were used to purchase additional barcode printing and scanning hardware for StarLIMS applications. The grant is now closed.

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, Central, and Eastern. 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 three Inventory Control Specialists. The Administrative Support Unit is supervised by one Administrative Specialist III and is staffed by one Administrative Specialist II and one Services Specialist.

CRIME SCENE UNIT

The Crime Scene Unit is responsible for processing crime scene evidence to include identifying, collecting, preserving, photographing, sketching, storing and transporting 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 Controlled Dangerous Substance (CDS) evidence for analysis to the Pikesville Laboratory and the two satellite laboratories located in Hagerstown and Berlin.

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.

The technical abilities and expertise of the CSU technicians are often utilized for activities other than criminal investigations. They 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 October and November of this year a two week Basic Crime Scene Training program was introduced for the training of new personnel. This training program was developed by the Crime Scene Unit with plans to provide the training to allied departments throughout the State in the near future.

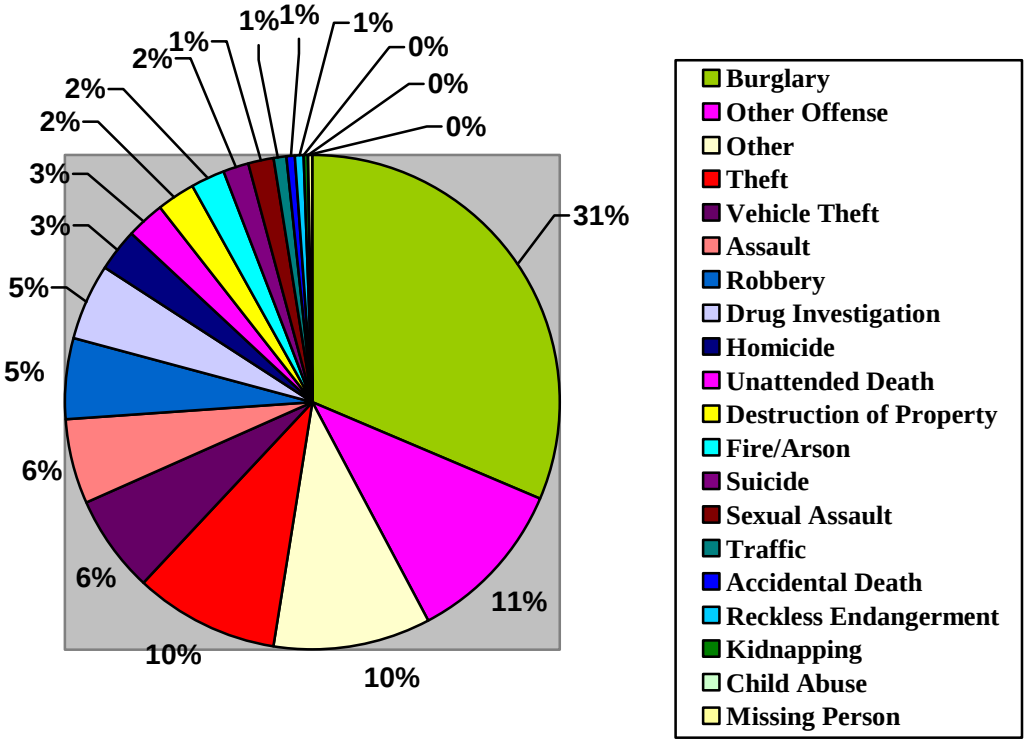
CSU Geographical Areas of Responsibility

Western Region:	Allegany, Frederick, Washington, Carroll, Howard, Montgomery and Garrett Counties
Central Region:	Harford, Baltimore, Cecil, 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, Queen Anne's, Talbot, Caroline, Dorchester, Wicomico, Somerset and Worcester Counties

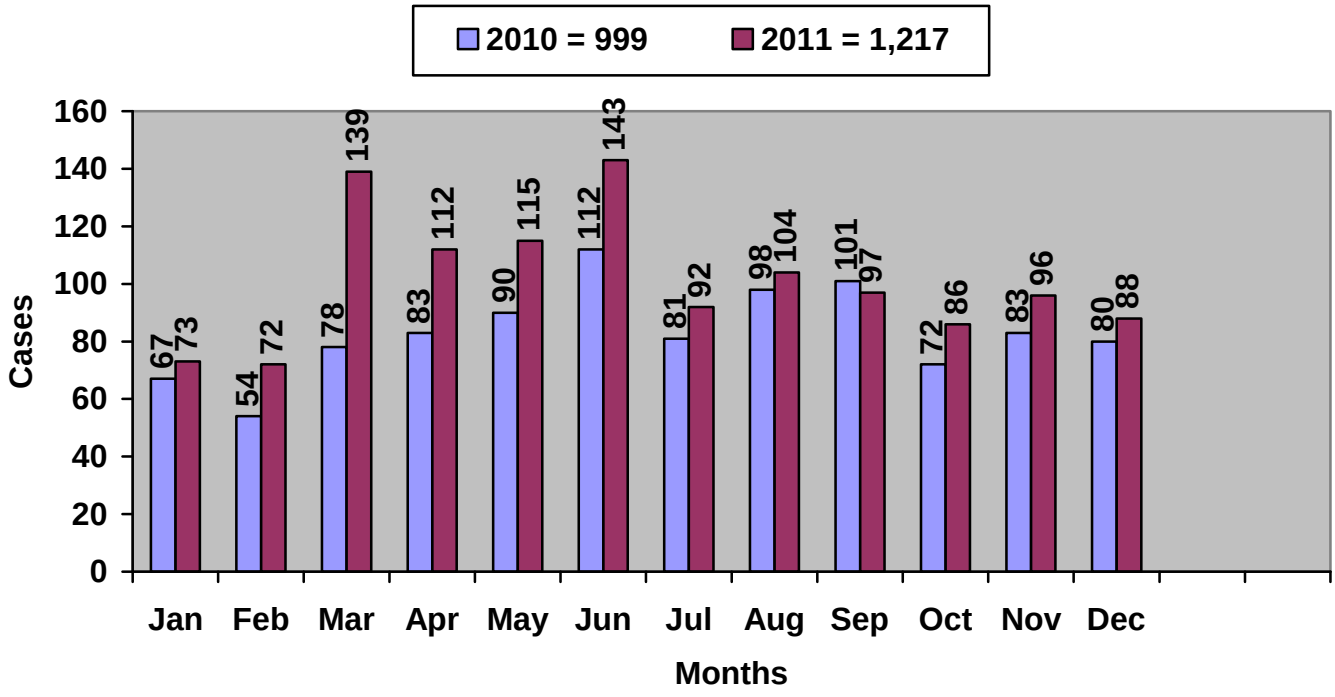
Total Number of Cases Handled in 2011 per Office/Installation

Crime Scene Office	Total Number of Cases
Westminster	177
Easton	166
McHenry	162
Northeast	113
Cumberland (C3I)	85
Hagerstown	74
Centreville	73
Frederick	73
Bel Air	72
Salisbury	71
Golden Ring	50
Glen Burnie	48
Princess Anne	33
Pikesville	20
TOTAL	**1,217**

Total Number of CSU Cases in 2011 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. In 2011, the Photography Unit finished the implementation of the Department's new digital photography data management system, VeriPic.

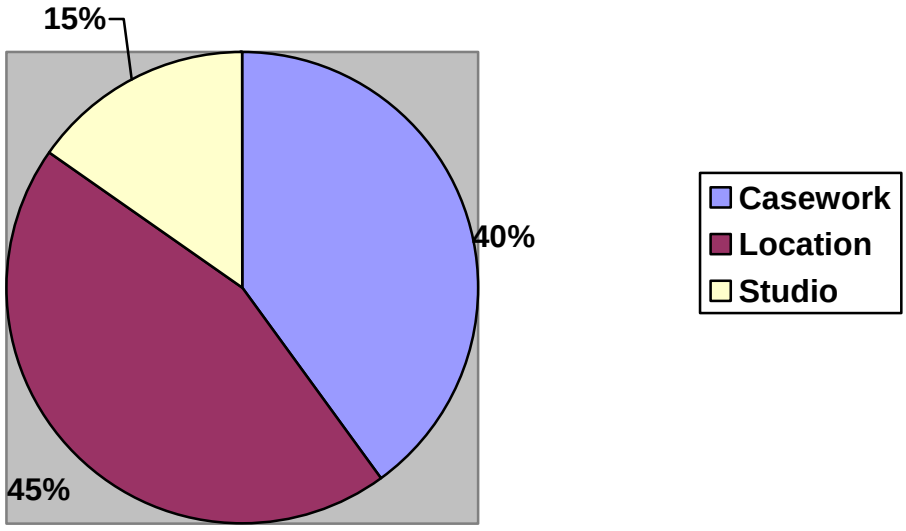
Duties within the unit include the development and printing of images for the Maryland State Police and other agencies related to criminal and motor vehicle accidents. This unit also serves as the VeriPic system administrator. Reprints or CDs are made via requests through various other divisions/units 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.

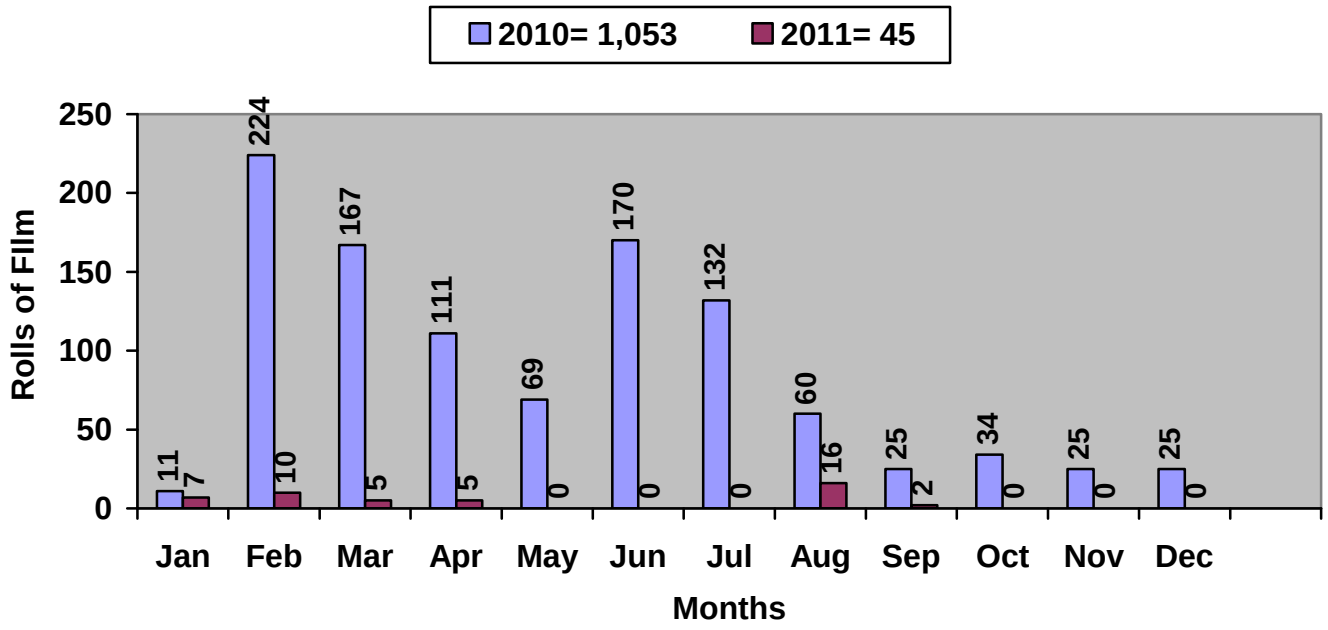
Photography Requests 2011

MSP Requestors	Requests
Forensic Science Division	43
Headquarters	24
Special Operations Division	7
Recruiting	4
Barracks	3
Training	4
Aviation	0
TOTAL	**84**

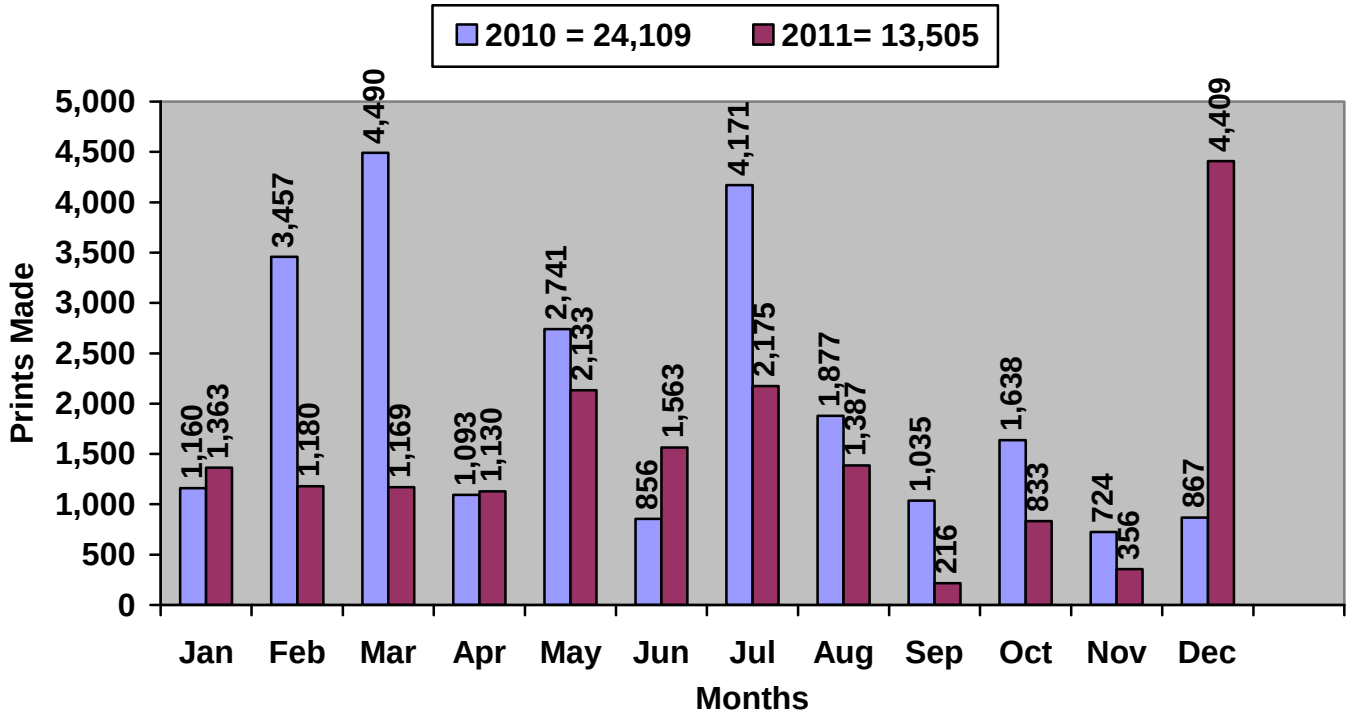
2011 Total Photo Requests per Request Type



Total Film Processed



Total Prints Made



CENTRAL RECEIVING UNIT

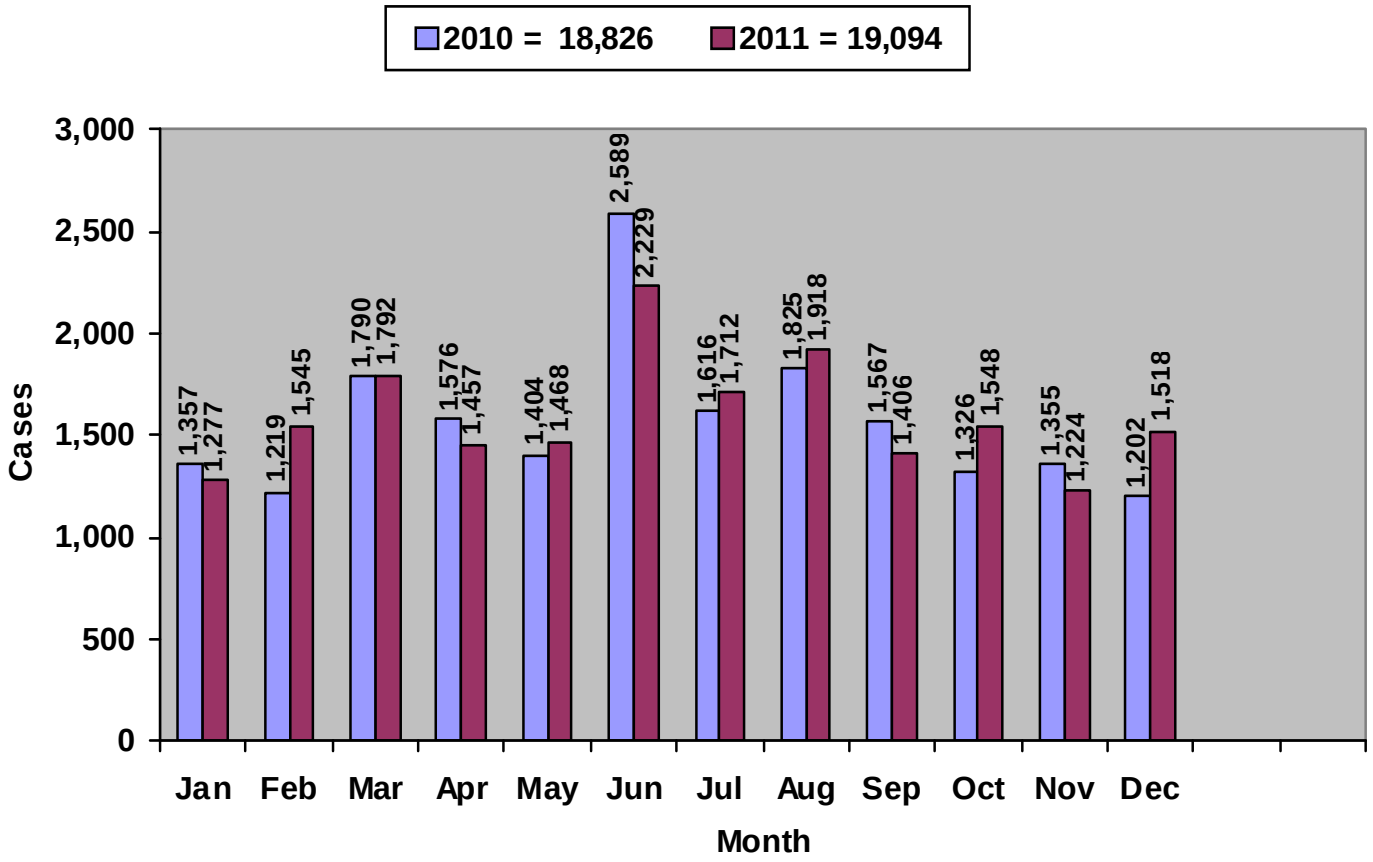
The Central Receiving Unit (CRU) functions as a liaison between the FSD and agencies submitting evidence for scientific analysis and CDS destruction.

The CRU handles a large volume of various types of evidence such as control swabs, guns, bullets, soiled clothing, controlled dangerous substances, blood tubes, fingerprint lift cards and questioned documents. The items are secured in the unit while awaiting analysis and again while pending return to the submitting agency. Personnel assigned to the unit ensure the integrity and protection of each item of evidence. All evidence submitted to CRU is entered into and tracked by the StarLIMS Laboratory Information Management System.

The CRU administers the Department's CDS destruction process which involves the gathering of CDS for destruction, transport of CDS to the destruction facility, and documentation of the destruction. During the destruction process Inventory Control Specialists randomly select a number of cases to be re-tested for quality control. The CRU also coordinates local destruction of marijuana plants with the various Maryland State Police installations.

The CRU is responsible for archiving scientific analytical reports for all sections of the FSD and coordinates the transmittal of files to and from the State records Management Center. The CRU also maintains expunged records for the Division.

Total Cases Received at FSD



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, maintaining service agreement contracts, processing invoices, back-up processing of ID cards, logging and maintaining all submitted court summonses, logging and processing training requests, processing work and leave reports, typing various technical manuals, and maintaining the Departmental filing system.

This year the FSD welcomed a new contractual employee that is sub-contracted through LB & B Associates. This employee provides 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 2011

1. The Photography Unit completed the development of a new Department Identification System that will be used to produce a more secure identification card for all Department employees. This project included the procurement of computer, printer and software products and a complete back-up of all historic photo files. The Photography Unit worked closely with the Information Technology Division to accomplish this goal in time for the conversion process to begin in late January 2012.
2. During 2011 the Crime Scene Unit assisted with the reduction of backlogged cases in both the Firearms/Tool Marks Unit and the Latent Print/Impressions Unit. Crime Scene Unit personnel were trained in firearms safety and function testing as well as additional methods in latent print processing in order to analyze cases in these disciplines. The acceptance of these additional duties is a true testament to the dedication of the Crime Scene Unit personnel which processed approximately 500 backlogged cases between the two units.

3. The Administrative Services Unit has continued to proactively plan and implement recruitment strategies to maintain near zero vacancies. This directly results in the various sections being fully staffed adding to their ability to maintain case loads. In addition, the Administrative Services Unit reached out beyond the division and assisted with sworn recruitment oral interviews and coordinated internal applicant backgrounds to reduce the workload on the Sworn Recruitment/Selection and Applicant Background Units of the Human Resources Division. This demonstrates this Unit's philosophy of working as team to overcome difficult challenges.

OPERATIONAL SERVICES BRANCH GOALS FOR 2012

1. The Photography Unit strives to transition the Department to the new secure identification card for all Department employees. The transition will begin by converting all sworn personnel and then transition to converting all civilian personnel. In addition, formal portraits of all employees will be taken at the time of transition.

2. With the conversion to Forensic Release 4 of the StarLIMS system, the Central Receiving Unit strives to complete the process of implementing an inventory process through bar coding all evidence. The conversion to this will eliminate duplication of efforts throughout the laboratory and will increase productivity.

3. The Crime Scene Unit strives to expand its in-house Basic Crime Scene School to include offering training to other allied agencies.

PATTERN EVIDENCE SECTION

The Pattern Evidence Section (PES) is comprised of two units, the Latent Prints/Impressions Unit (LP/IU) and the Firearms/Toolmarks Unit (FATMU). The section is responsible for performing the analysis of firearm, toolmark, latent friction ridge impression, footwear, and tire track related evidence associated with criminal casework. The overall operations of the Pattern Evidence Section are overseen by one Forensic Scientist Manager. Current staffing of the LP/IU includes a Forensic Scientist Supervisor, one Forensic Scientist Advanced, two Forensic Scientists III, two Forensic Scientists I, and two contractual employees. The FATMU is staffed with a Forensic Scientist Supervisor, one Forensic Scientist Advanced, one Forensic Scientist III, two Forensic Scientists I, and one Lab Technician I.

In 2011, each of the PES Units gained two Forensic Scientist I trainees. In order to train the new staff as thoroughly and efficiently as possible, significant amounts of time and resources are required. To facilitate the estimated two year training process one examiner assigned to the FATMU was promoted to a Forensic Scientist Advanced to serve as the Firearms/Toolmarks Training Coordinator. The PES Manager is filling the role of Latent Print/Impressions Training Coordinator. Using industry standard models they developed a training manual tailored to meet the specific needs of the Maryland State Police. In an effort to optimize the training, several federally funded external resources were identified as potential means of supplementing the in-house training. While these external training programs are competitive, both units were successful in their solicitations for acceptance to them. In addition to budgetary benefits gleaned from using federal programs, they enhance the training experience for the trainees and reduce the amount of direct attention required by unit staff.

The LP/IU completed draft versions of revised technical operating procedures. The new procedures represent substantive changes in the manner in which the unit will operate. One pre-implementation step already adopted is the use of standardized documentation forms. This was a recommendation offered during the 2011 ASCLD/LAB accreditation assessment. Automation tools were used to simplify the use of the forms and a model terminology document was created to complement them. When demonstrated to examiners from other agencies interest was expressed in making them available for use by the general community. It is anticipated that following administrative reviews, the new policies will be implemented in early 2012.

In 2011 the FATMU restructured the technical operating procedures that it had been operating under. Previous procedures had been adopted from the Association of Firearm and Toolmark Examiners (AFTE). It was recognized that modifications were necessary to more accurately manage the operational needs of the FATMU. These changes provided the FATMU with well structured policies that meet both the agency as well as accreditation requirements.

Coverdell Grant funds were used to provide support to both PES Units. Under the grant, members of the FSD Crime Scene Unit performed duties ordinarily performed by experts assigned to the units. This assistance permitted the qualified forensic scientist to concentrate on comparison examinations. Assistance included performing routine firearm functionality examinations following the Forensic Buddy Program procedures and the completion of evidence processing for the recovery of latent print impressions.

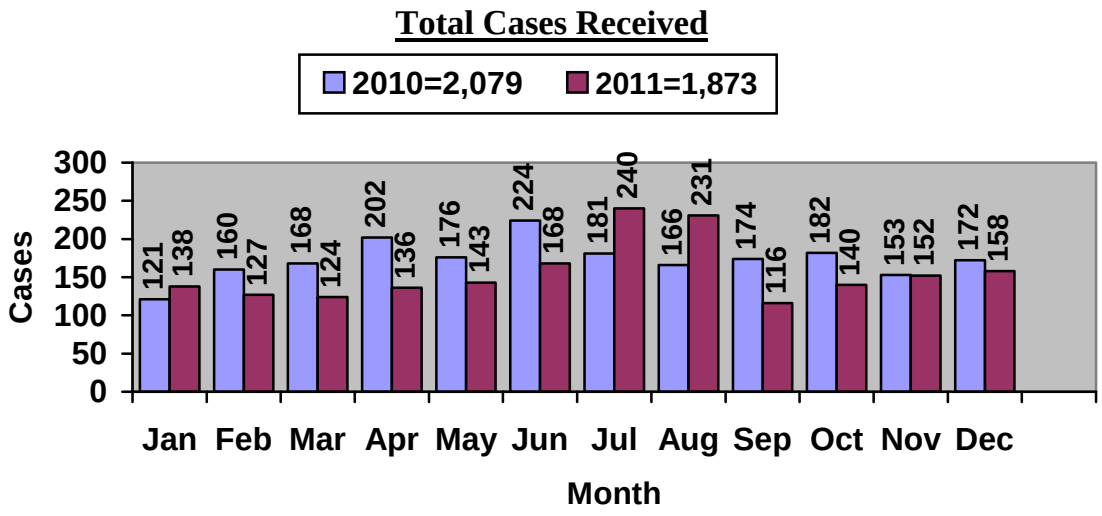
Additional measures to help address the escalating backlog of cases in the LP/IU were implemented in 2011. Recognizing that examinations of shoe print or tire track (SP/TT) impressions can be particularly demanding in terms of the time and effort required to complete them, and weighing that against the often limited probative value they provide, examinations of this nature are no longer accepted routinely. If other forensic evidence is available in the case it must be considered first and the SP/TT evidence will be examined only if it is considered to be essential given the results of the other evidentiary examinations. Also, latent print examinations are now routinely completed in stages intended to provide investigators with information supporting their task while limiting the scope of the work performed by the LP/IU analyst. Lastly, the temporary assignment of light duty MSP personnel permitted the unit to conduct inquiries on the need to complete examinations on over 900 backlogged cases. This effort resulted in the identification of a minimum of 159 requests which no longer required analysis.

LATENT PRINTS/IMPRESSIONS UNIT

The Latent Prints Sub-Unit performs examinations of latent friction ridge impressions. Various methods utilizing chemicals, powders, and illumination techniques are used for the detection of latent prints. The Unit photographs developed friction ridge impressions using both digital and conventional capture/photo processes. Comparisons between known to unknown prints are conducted for purposes of determining if they originated from the same individual. An evaluation or conclusion is reached and supporting documents and notes are retained. In cases where an identification is effected a second examiner performs an independent verification. Any unidentified latent prints meeting the system requirements are searched through the Maryland Automated Fingerprint Identification System (MAFIS) and when warranted against the FBI database (IAFIS). An official report is issued on all case requests. All case files are administratively and technically reviewed by a qualified independent examiner. Examiners complete an annual external proficiency test administered by Collaborative Testing Services and receive yearly discipline oriented training as per ASCLD/LAB and agency Quality Assurance requirements.

The Impressions Sub-Unit is responsible for examinations of footwear and tire track evidence. Various powders, chemicals, and photography are used for the proper recovery of this impression evidence. Photographs are taken both conventionally with silver based methods and with digital imaging. An analysis and comparison is performed as required for these sub-disciplines. Any footwear images that are suitable are entered and searched through the SICAR database. Tire track images can also be searched in SICAR using the tire tread guide software. In cases where the examiner determines that the known shoe or tire potentially made the questioned impression a second examiner performs an independent verification. All notes, photos, reports and case file contents are reviewed through an administrative and technical review process. Examiners complete an annual external proficiency test administered by Collaborative Testing Services and receive yearly discipline oriented training as per ASCLD/LAB and Quality Assurance requirements.

Casework



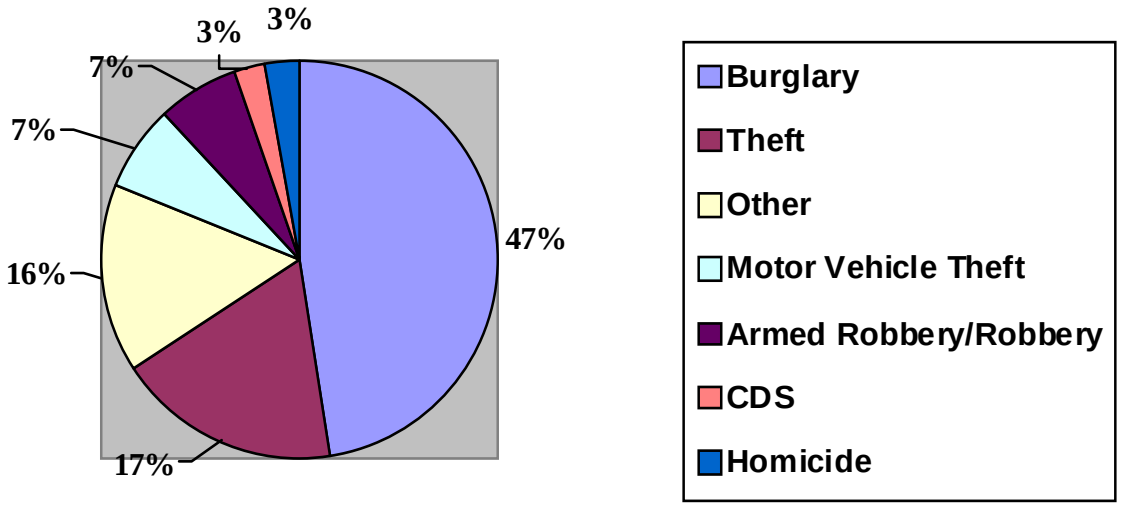
Total MSP Cases Received in 2011 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Northeast	Cecil	94
MSP-Westminster	Carroll	94
MSP-Easton	Caroline, Dorchester, Talbot	57
MSP-Bel Air	Harford	40
MSP-Homicide	Statewide	31
MSP-McHenry	Garrett	23
MSP-Berlin	Worcester	22
MSP-Princess Anne	Somerset	18
MSP-Centerville	Kent, Queen Anne's	18
MSP-Hagerstown	Washington	14
MSP-College Park	Prince George's	13
MSP-Cumberland	Allegany	13
MSP-Frederick	Frederick	13
MSP-Golden Ring	Baltimore	13
MSP-JFK Highway Cecil	Cecil, Harford, Baltimore	12
MSP-Salisbury	Wicomico	11
MSP-Prince Frederick	Calvert	10
MSP-CID	Statewide	7
MSP-Glen Burnie	Anne Arundel	7
MSP-Leonardtown	St. Mary's	6
MSP-DED/WINIF	Statewide	3
MSP-Forestville	Prince George	2
MSP-Rockville	Montgomery	2
MSP-Waterloo	Howard	2
MSP-DED/QUADTF	Statewide	1
MSP- LaPlata	Charles	1
	TOTAL	**526**

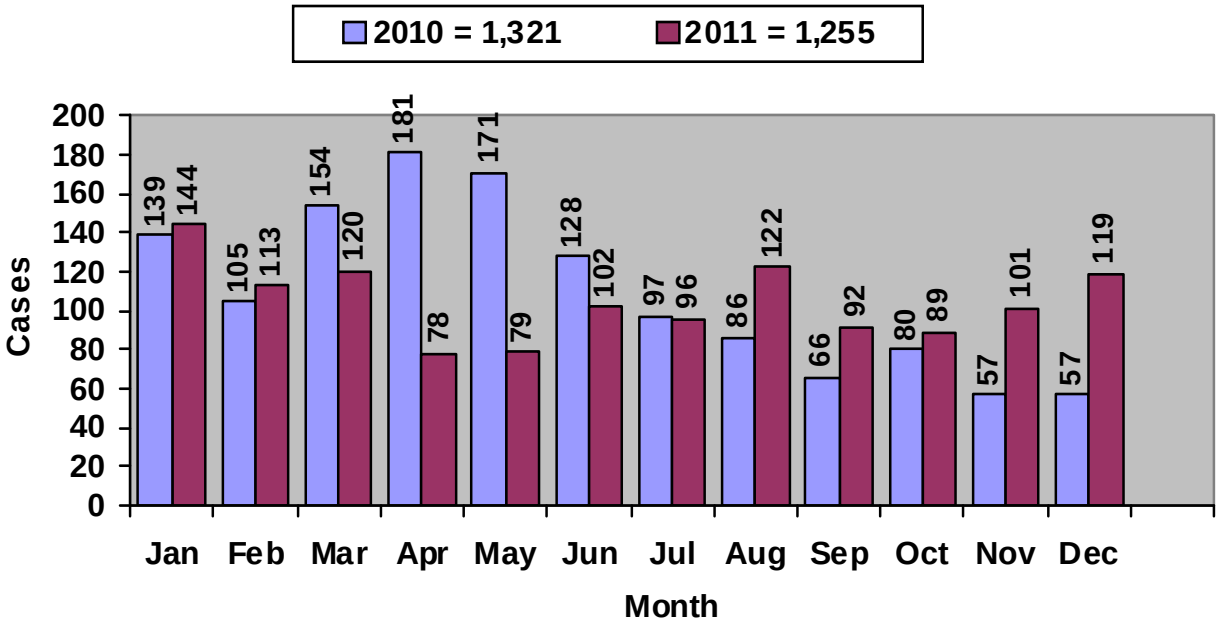
Total Allied Agency Cases Received in 2011 per County

Counties/Jurisdictions	Submissions
Frederick	263
Worcester	184
Wicomico	162
Carroll	123
Dorchester	116
Cecil	100
Washington	100
Allegany	62
Queen Anne's	51
Talbot	41
Prince George's	33
Anne Arundel	20
Baltimore	20
Caroline	20
Kent	14
Somerset	12
Baltimore City	8
Harford	5
Charles	2
St Mary's	2
Statewide	2
Calvert	1
Garrett	1
Montgomery	1
Other	4
TOTAL	**1,347**

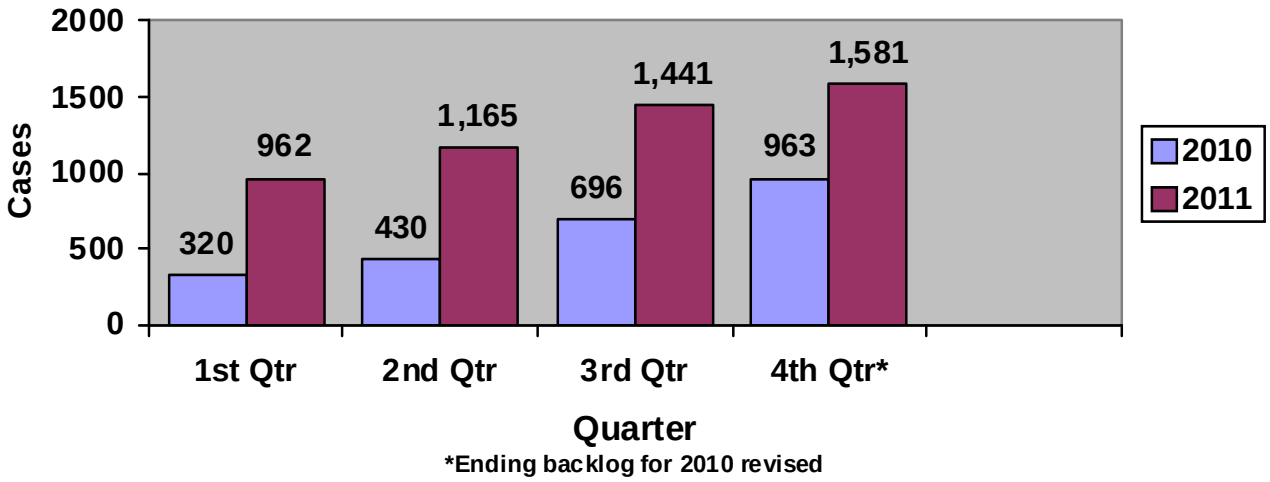
Total Cases Received in 2011 per Crime Type



Total Cases Completed per Month

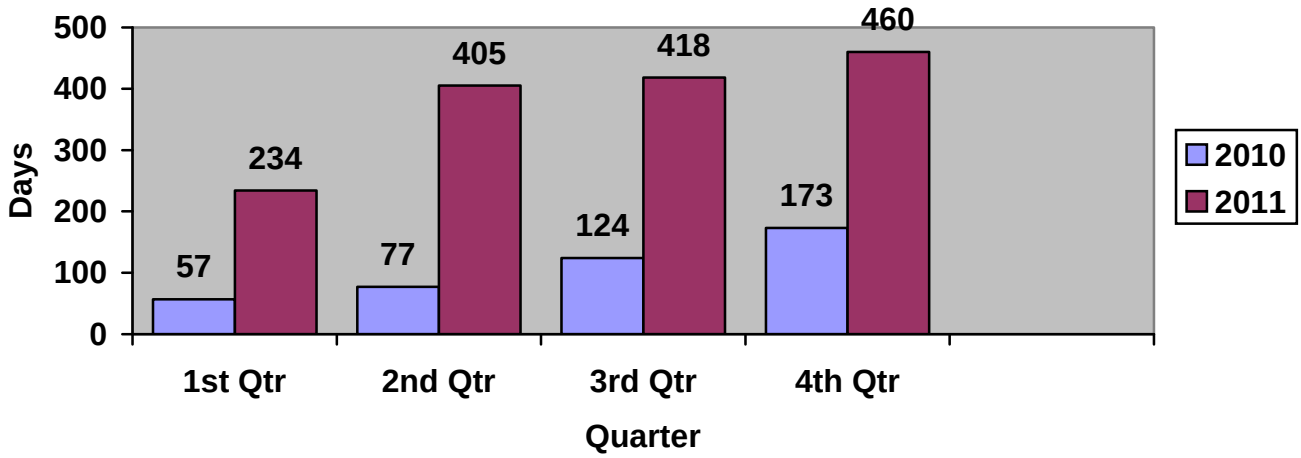


Ending Backlog per Quarter



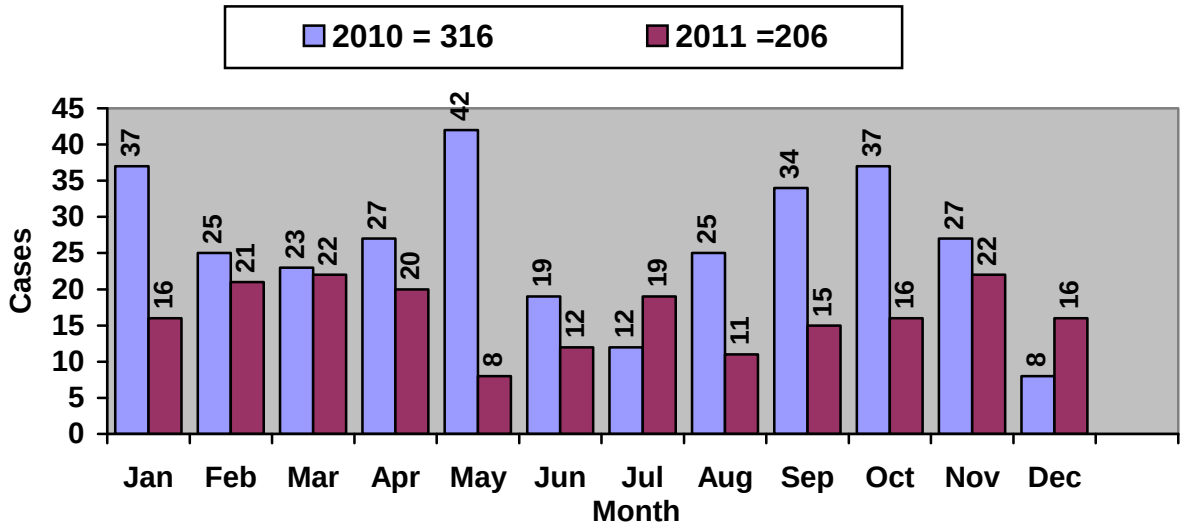
*Ending backlog for 2010 revised

Average Turn Around Time per Quarter



MAFIS Database

Total MAFIS Hits Reported per Month



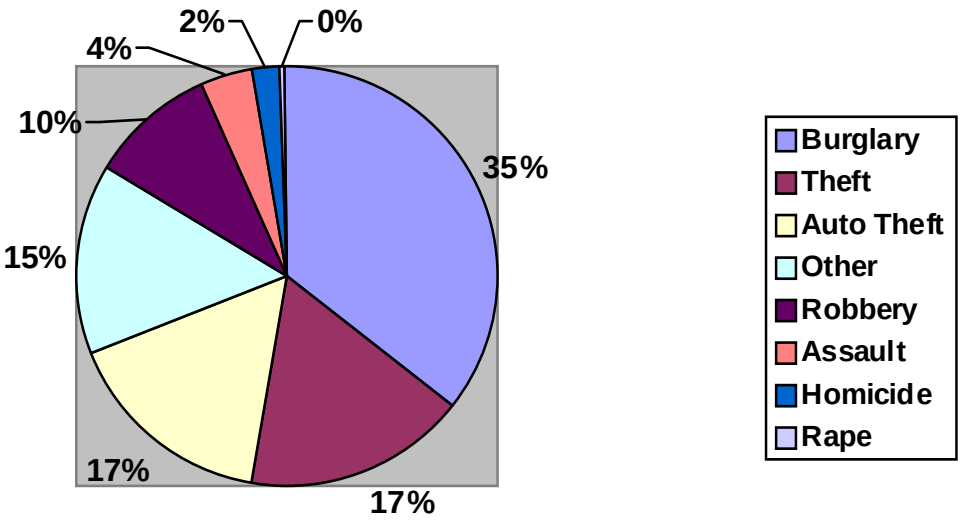
Total Allied Agency MAFIS Hits Reported in 2011 per County

County	Hits Reported
Frederick	33
Wicomico	26
Carroll	25
Cecil	21
Harford	15
Allegany	13
Washington	10
Worchester	10
Dorchester	8
Baltimore	7
Caroline	6
Prince George	5
Anne Arundel	4
Queen Anne's	4
Somerset	4
Talbot	4
Baltimore City	3
Calvert	3
Garrett	2
Charles	1
St. Mary's	1
Westminster	1
TOTAL	**206**

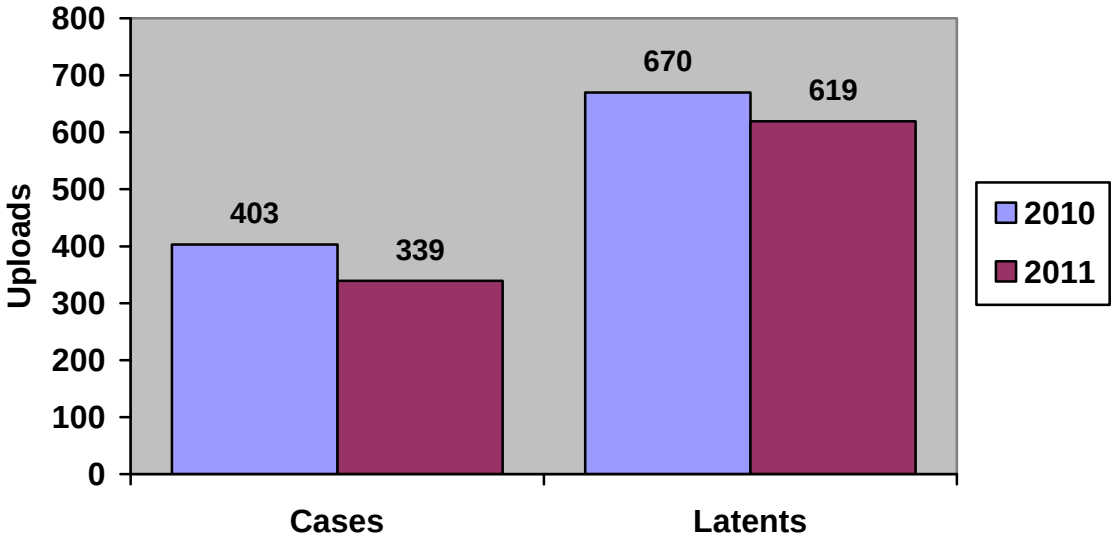
Total MAFIS Hits Reported in 2011 per Year of the Crime

Year of the Crime	Cases with Hits Reported
1990	2
1991	1
1993	1
1994	3
1995	4
1996	8
1997	3
1998	1
1999	2
2000	5
2001	10
2002	11
2003	5
2004	14
2005	11
2006	5
2007	11
2008	8
2009	7
2010	46
2011	48
TOTAL	**206**

Total MAFIS Hits Reported in 2011 per Crime



Total Uploads to MAFIS per Year



Training and Validation

Forensic Scientist	Training In Progress
FS I Heather Charron	Latent Print Examiner Trainee (2 year program) • 2011 Spring Continuing Education for Forensic Professionals Program by West Virginia University o Digital imaging o Simultaneous impressions o ACE-V o Intro to Footwear Impression Evidence • Online training classes o Science of Fingerprints o Ethics in Forensic Science o Automated Fingerprint Identification Systems o Roles in Forensic Science o The Sociological Perspective o Perspectives in Expert Testimony • NFSTC Latent Print Examiner Training o 10 weeks at NFSTC • Various in house training over a two year period
FS I Stephanie Roberg	Latent Print Examiner Trainee (2 year program) • 2011 Spring Continuing Education for Forensic Professionals Program by West Virginia University o Digital imaging o Simultaneous impressions o ACE-V o Intro to Footwear Impression Evidence • Online training classes o Science of Fingerprints o Ethics in Forensic Science o Automated Fingerprint Identification Systems o Roles in Forensic Science o The Sociological Perspective o Perspectives in Expert Testimony • NFSTC Latent Print Examiner Training o 10 weeks at NFSTC • Various in house training over a two year period

New Technology Implemented in 2011	Expected Benefits
Amino Acid Standard	Validation completed. Expected to provide an accurate gauge of the potency of working chemical solutions.

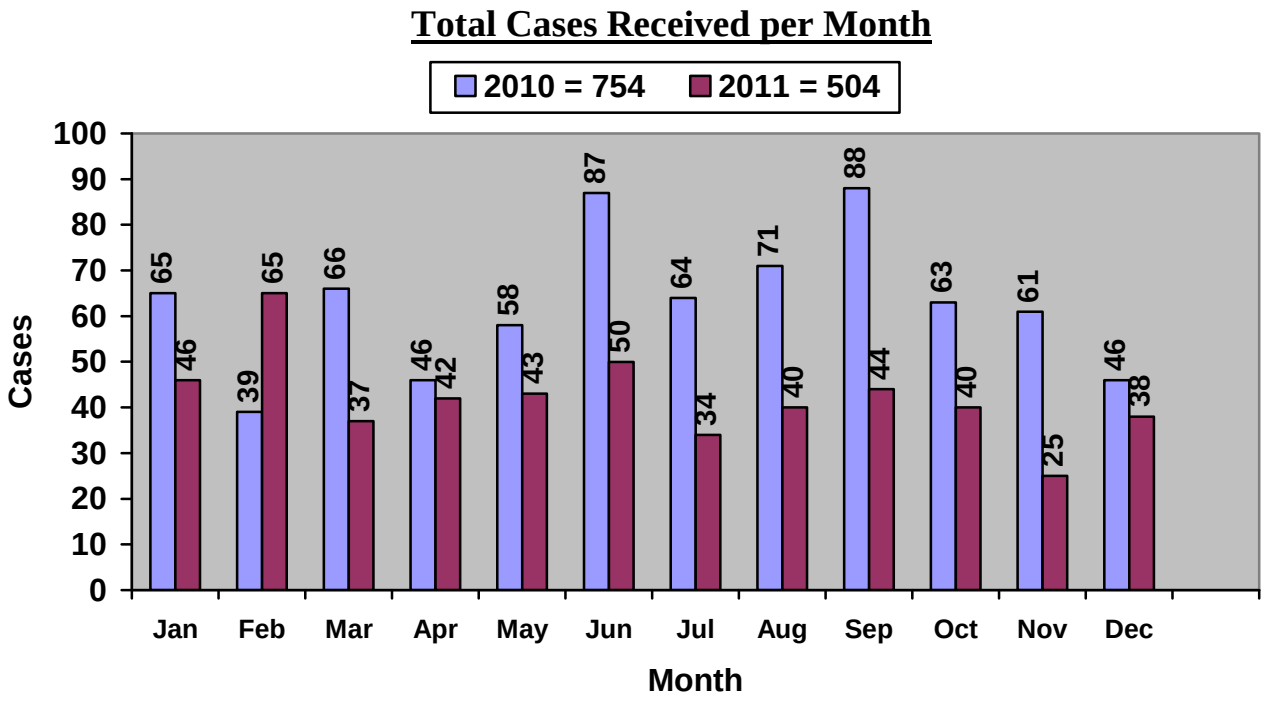
FIREARMS/TOOLMARKS UNIT

The FATMU has the responsibility of conducting microscopic, chemical and functional examinations on firearms and toolmarks. Analyses include direct comparisons, distance determinations, and serial number restorations. All potential matches associated with direct comparisons are verified under the comparison microscope by a second qualified examiner. Furthermore, after the completion of each case an independent administrative and technical review is performed by another qualified examiner prior to issuing a report.

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 entered and searched against existing records. The system is used as an investigative tool through the detection of cartridge cases that are determined to have been fired from the same firearm.

In addition to the NIBIN database, Maryland law requires FSD to maintain a database of fired cartridge case samples from all new handguns purchased within the state. This database, the Maryland Integrated Ballistic Identification System (MD IBIS) is managed and housed along with the submitted samples in the FATMU.

Casework



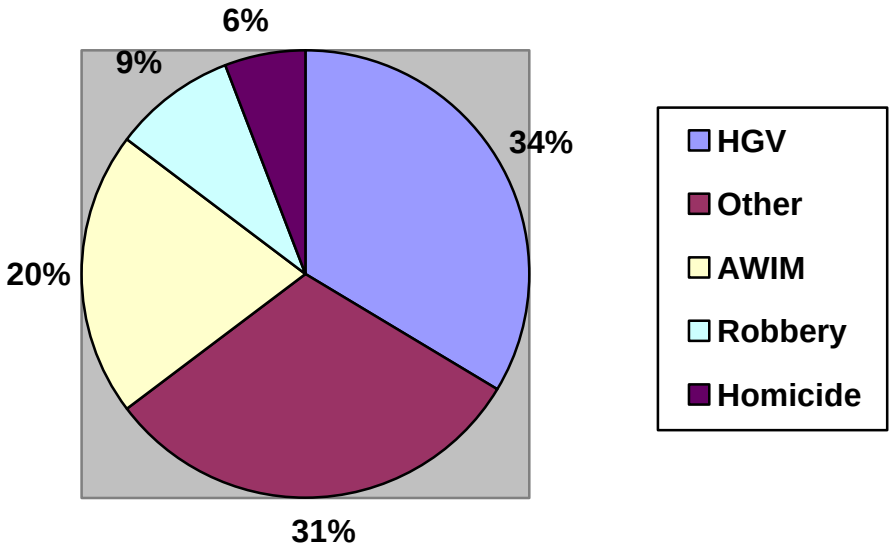
Total MSP Cases Received in 2011 per Barrack

Agency	Counties Served	Submissions
MSP-CID	Statewide	35
MSP-DED/WINIF	Statewide	26
MSP-JFK Highway	Cecil, Harford, Baltimore	17
MSP-EASTON	Caroline, Dorchester, Talbot	14
MSP-Princess Anne	Somerset	14
MSP-Homicide	Statewide	12
MSP-Centerville	Kent, Queen Anne's	11
MSP-Westminster	Carroll	10
MSP-Berlin	Worcester	8
MSP-Golden Ring	Baltimore	8
MSP-Rockville	Montgomery	8
MSP-Forestville	Prince George's	7
MSP-Salisbury	Wicomico	7
MSP-College Park	Prince George's	6
MSP-Cumberland	Allegany	6
MSP-GLEN BURNIE	Anne Arundel	6
MSP-Hagerstown	Washington	6
MSP-Leonardtown	St. Mary's	6
MSP-Northeast	Cecil	6
MSP-Prince Frederick	Calvert	6
MSP-Bel Air	Harford	5
MSP-Frederick	Frederick	4
MSP-LaPlata	Charles	4
MSP-McHenry	Garrett	4
MSP-C3In	Statewide	1
MSP-Waterloo	Howard	1
	TOTAL	**238**

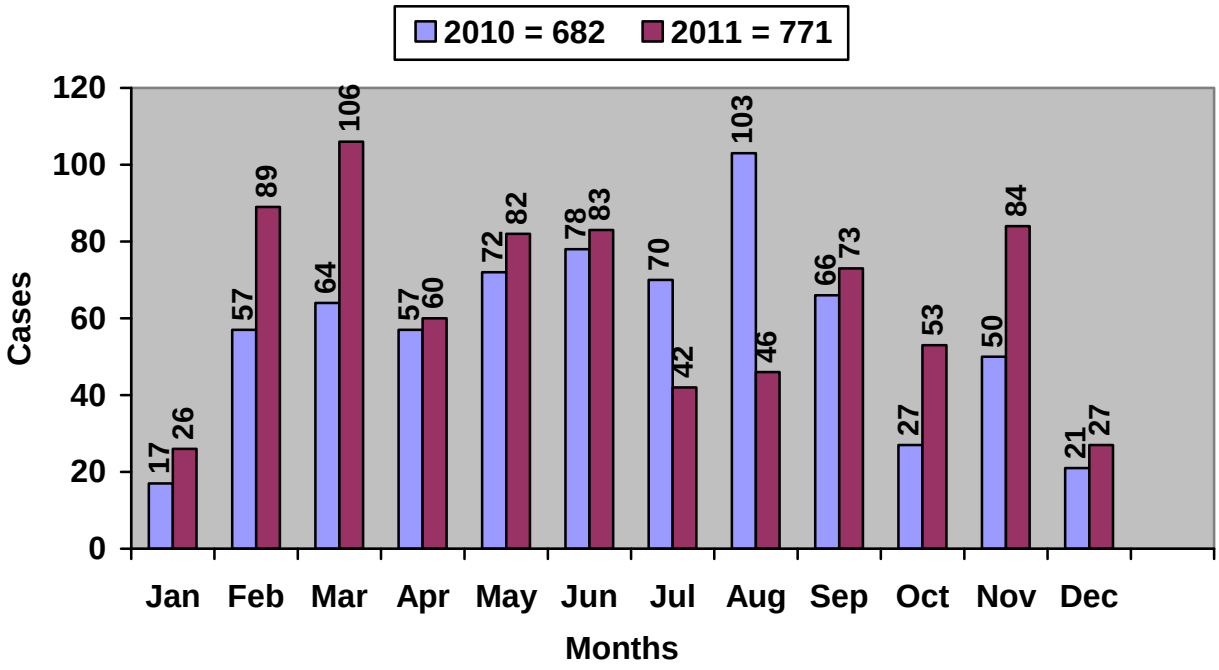
Total Allied Agency Cases Received in 2011 per County

County	Submissions
Anne Arundel	99
Wicomico	36
Frederick	27
Statewide	22
Washington	13
Harford	11
Charles	8
Cecil	8
Worcester	7
Carroll	7
Prince George's	6
Dorchester	5
Somerset	3
Queen Anne's	3
Howard	3
Caroline	2
Allegany	2
Kent	1
Calvert	1
Baltimore	1
Other	1
TOTAL	**266**

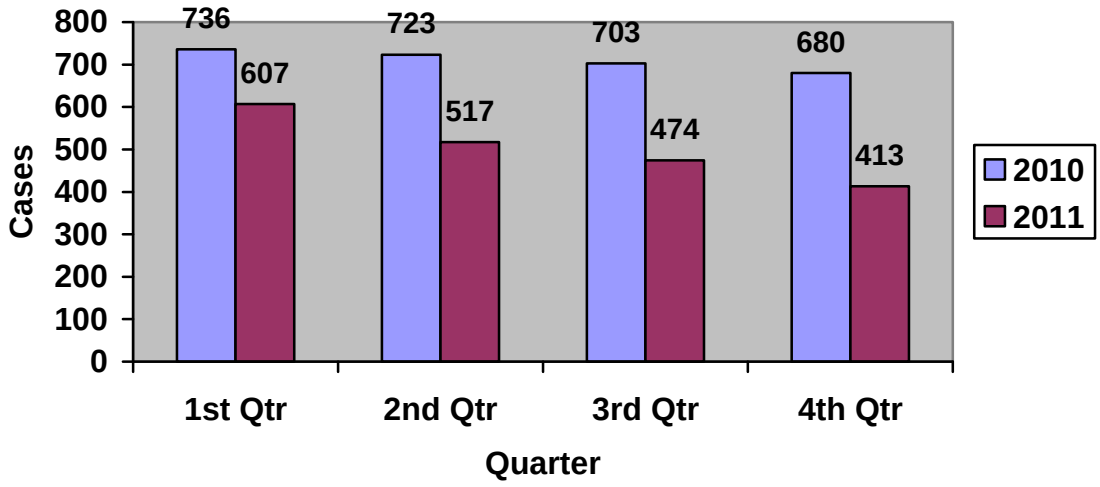
Total Cases Received in 2011 per Crime Type



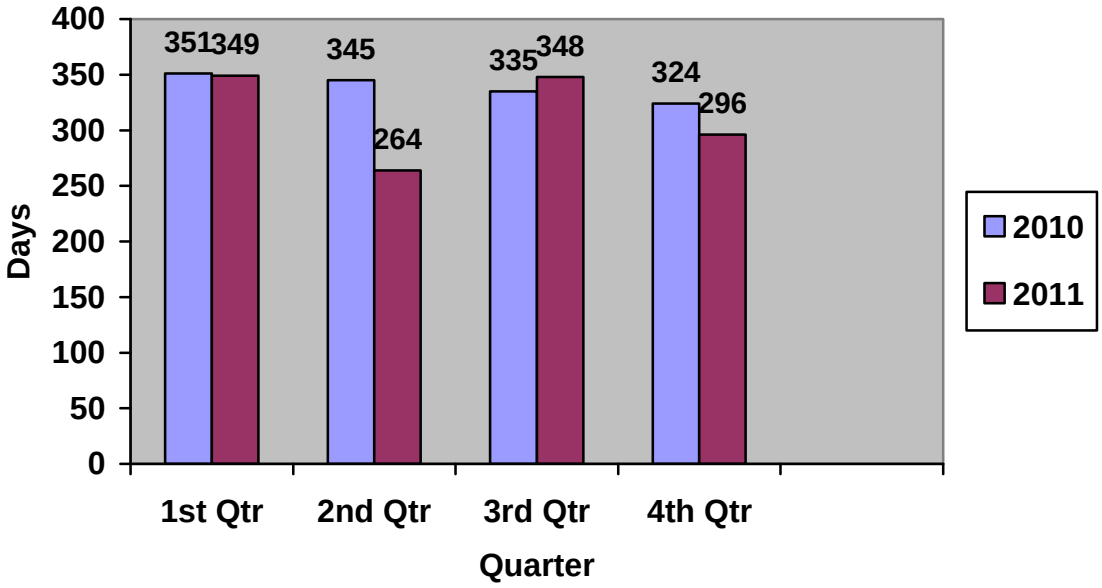
Total Cases Completed per Month



Ending Backlog per Quarter

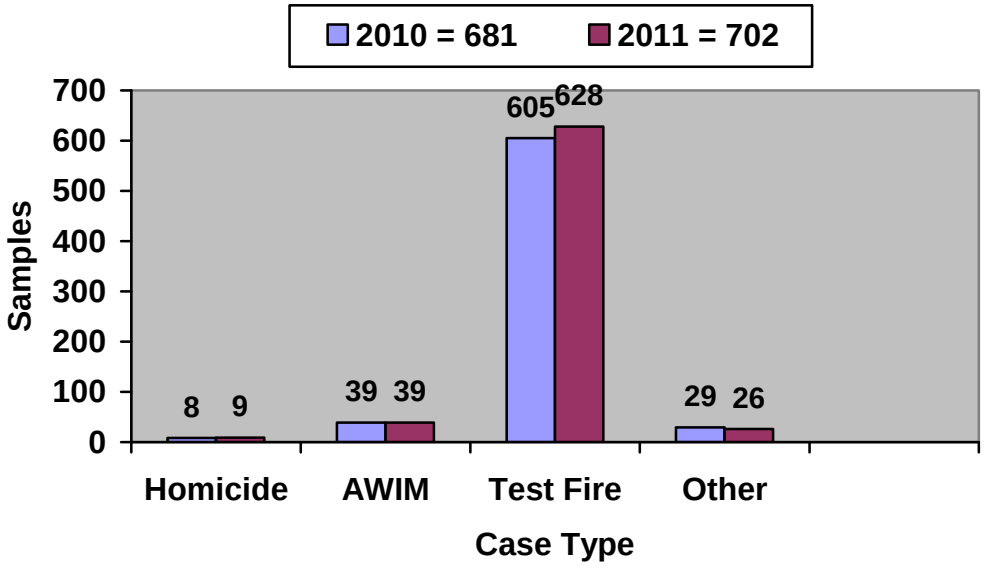


Average Turn Around Time per Quarter

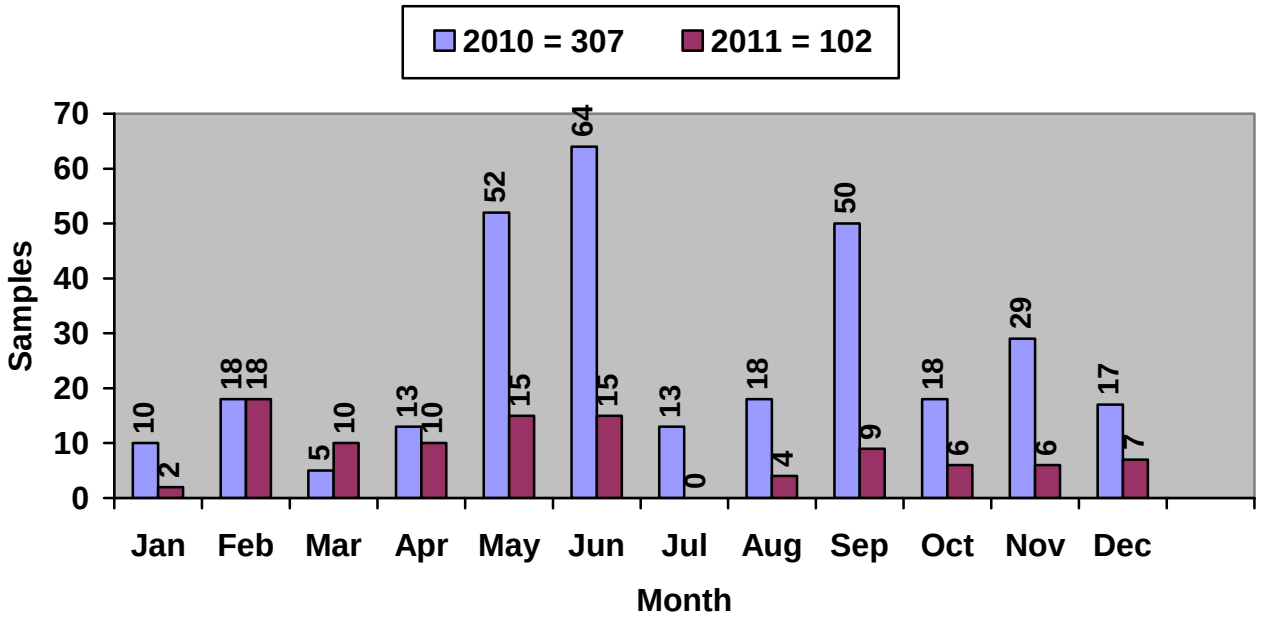


NIBIN/MD IBIS Databases

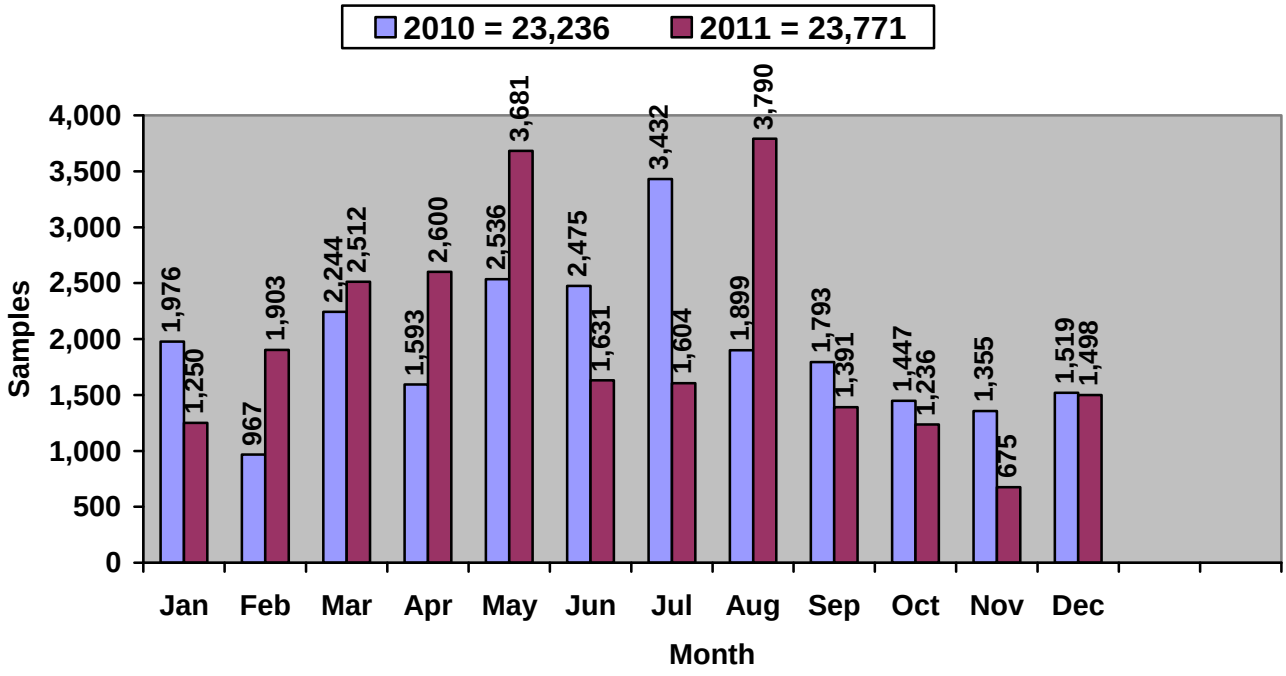
Uploads to NIBIN per Case Type



Operation Test Shot Samples Received per Month



MD IBIS Samples Received per Month



Training and Validation

Forensic Scientist	Training In Progress
FS I Jessie Campbell	Firearms/Toolmarks Examiner Trainee (2 year program) • Eastern Regional Firearm and Toolmark Examiner training conference hosted by ATF • IBIS cartridge case acquisition hosted by ATF • NIJ Firearm Examiner Online Training o Fourteen modules • Various in house training over a two year period
FS I Dorothy Vernoy	Firearms/Toolmarks Examiner Trainee (2 year program) • Eastern Regional Firearm and Toolmark Examiner training conference hosted by ATF • IBIS cartridge case acquisition hosted by ATF • NIJ Firearm Examiner Online Training o Fourteen modules • ATF National Firearms Examiners Academy o Nineteen weeks at ATF • Various in house training over a two year period

PATTERN EVIDENCE SECTION ACCOMPLISHMENTS IN 2011

1. Forensic Scientists I, Jessie Campbell and Dorothy Vernoy were hired as trainees in firearm and toolmark examination. Forensic Scientists I, Heather Charron and Stephanie Roberg were hired as trainees in friction ridge examination. All have successfully completed their probationary periods and are advancing well with their instruction program. Training manuals for each unit were updated or created as necessary. This met a 2011 goal included in the last annual report.

2. Both units assigned to the Pattern Evidence Section rewrote/updated their standard operating procedures. This met a 2011 goal included in the last annual report.

3. Modified case submission policies and workflow within the Pattern Evidence Section have been implemented. The use of light duty personnel, and support provided by members of the MSP Crimes Scene Unit assisted in managing case backlogs. Further case support was provided through the expansion of Operation Test Shot to the Calvert County and Frederick County Sheriffs Offices. This met a 2011 goal included in the last annual report.

PATTERN EVIDENCE SECTION GOALS FOR 2012

1. To identify and implement measures intended to assist in the backlog reduction process. Examples under consideration include the following. Instituting a Walk-In Test Fire program that processes simple test fire cases the same day rather than adding the cases to the backlog. Identifying a process to effectively triage case submissions directing attention to those in which the exam has influence on the investigation and those that can be deferred until necessary for prosecution. Attempt to create awareness on the part of investigators as to when the submission of evidence for expert analysis may or may not be appropriate.

2. To continue the training of the two Forensic Scientists I as latent print examiners and the two Forensic Scientists I as firearms and toolmark examiners. To have all trainees successfully meet the requirements necessary to qualify for promotion to Forensic Scientists II in 2012.

3. To conduct a review of case submissions for entry into the NIBIN system. The review is to identify and address gaps expected to exist between the number of cases being investigated by agencies throughout the state which qualify for NIBIN entry and the number actually being submitted. Once identified, an outreach program will be pursued and additional locations will be selected to include in Operation Test Shot.

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, four Forensic Scientists III, 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, three Forensic Scientists III, 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 and three Forensic Scientists III. 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 UNITS

In order to confirm the presence of Controlled Dangerous Substances (CDS) in a sample, several different types of analysis are performed in the CDS Units, including color tests, microcrystalline tests, Gas-Chromatography-Mass Spectrometry, and Fourier Transform Infrared Spectrophotometry.

A new challenge for the CDS Units has emerged with two new categories of drugs that surfaced this year, synthetic cannabinoids (i.e. "K2", "Spice") and synthetic cathinones (i.e. "bath salts"). Initially marketed as legal drugs and sold via the internet or in novelty shops, abuse became prevalent which led to emergency scheduling by the State of Maryland and the DEA. Analyses for a number of these compounds have been successfully developed and implemented.

The CDS Units submit monthly reports to the National Forensic Laboratory Information System (NFLIS) that documents the type and number of drugs detected in casework. These reports provide the DEA with current and accurate trends that can be used by law enforcement and policy makers to fight the nation's drug problem.

Training and Validation

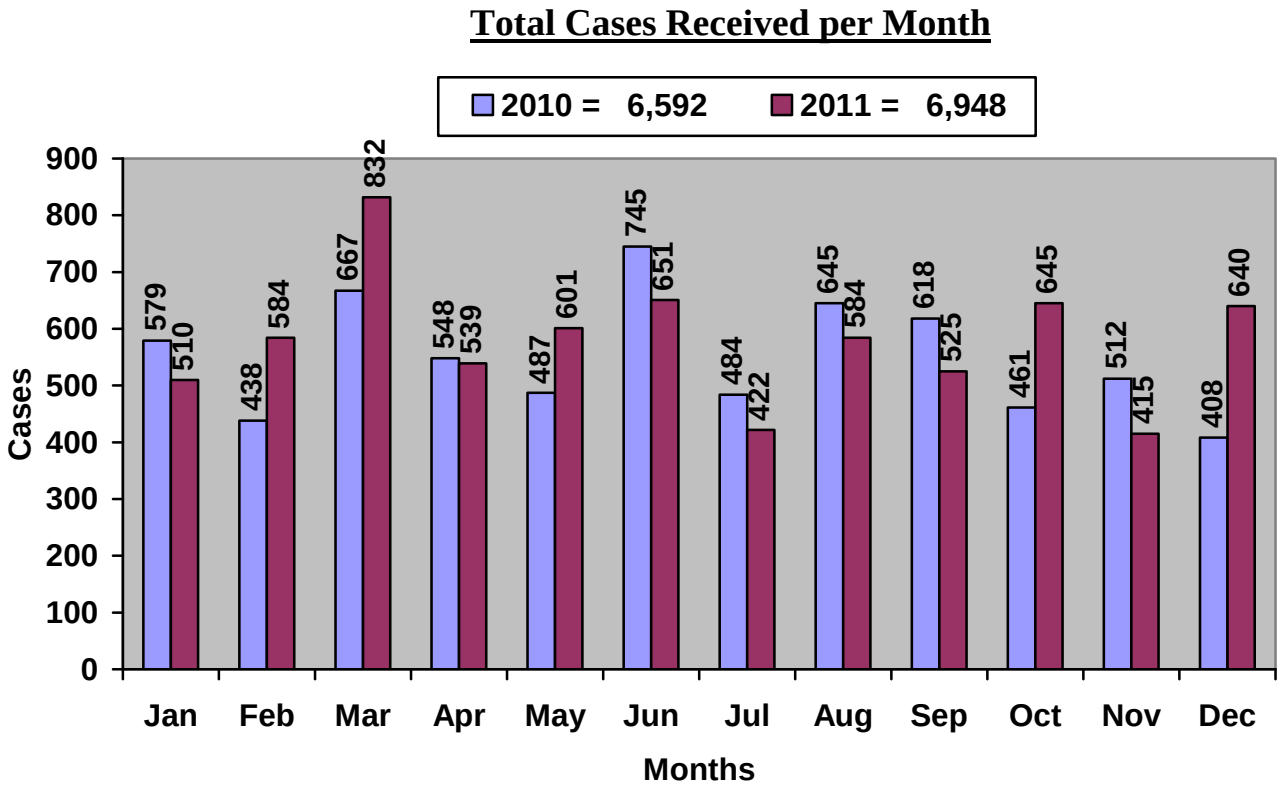
Forensic Scientist	Competency Certification
Natasha Conklin	Certified CDS Chemist
S. Marie Duket	Certified CDS Chemist

New Technologies Implemented in 2011	Expected Benefits
New analysis methods for synthetic cannabinoid compounds (K2, Spice)	Improved detection of scheduled drugs
New methods for synthetic cathinone compounds (Bath Salts)	Improved detection of scheduled drugs

CDS–PIKESVILLE UNIT

The CDS-Pikesville Unit is responsible for the analysis of illicit drugs and pharmaceuticals and provides expert testimony as to the findings. The Pikesville Lab services the central Maryland counties. A backlog of over 1300 cases at the beginning of the year was daunting, but with a fully trained staff and their persistence, the backlog was reduced to 512 cases by years end. This was no small feat considering monthly submissions averaged around 570 cases. The hard-working staff is to be commended for a productive year.

Casework



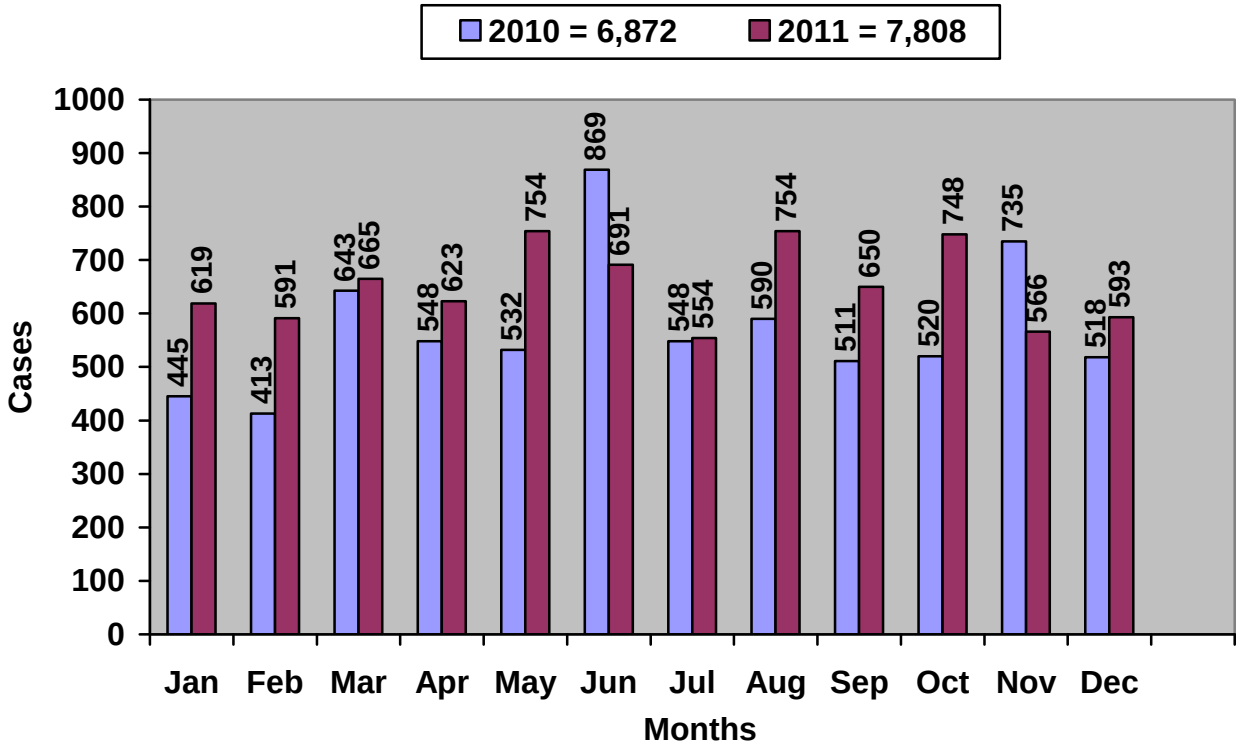
Total MSP Cases Received in 2011 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Glen Bernie	Anne Arundel	214
MSP-Prince Frederick	Calvert	207
MSP-Leonardtown	St. Mary's	204
MSP - Bel Air	Harford	177
MSP-JFK Highway	Cecil, Harford, Baltimore	165
MSP-Golden Ring	Baltimore	135
MSP-College Park	Prince George's	123
MSP-La Plata	Charles	117
MSP-Easton	Caroline, Dorchester, Talbot	84
MSP - Waterloo	Howard	66
MSP-CID	Statewide	22
MSP-CEC	Statewide	10
MSP-DED	Statewide	7
	TOTAL	**1,531**

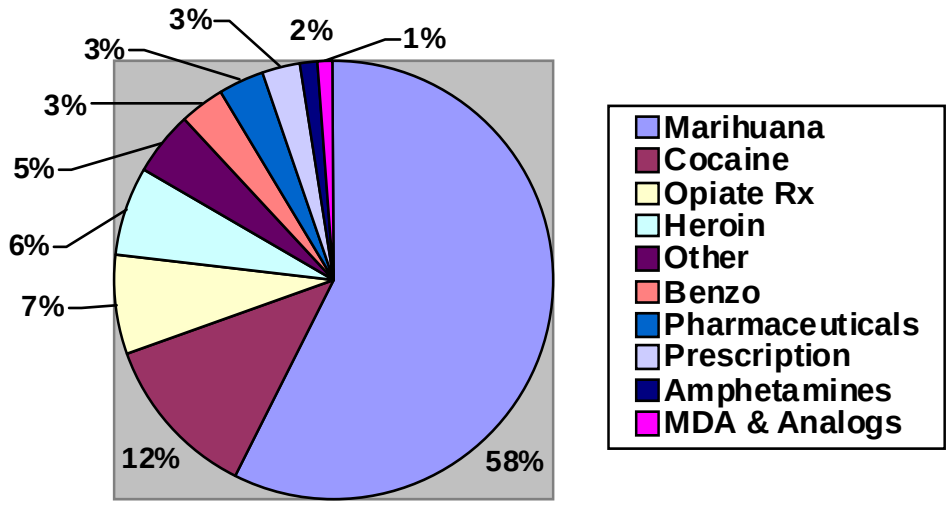
Total Allied Agency Cases Received in 2011 per County

Counties	Submissions
Howard	1,134
Harford	1,109
Frederick	903
Charles	763
Calvert	563
St. Mary's	262
Baltimore City	173
Anne Arundel	155
Prince George's	154
Baltimore County	148
Cecil	22
Queen Anne's	13
Montgomery	10
Carroll	4
Washington	2
N/A	2
TOTAL	**5,417**

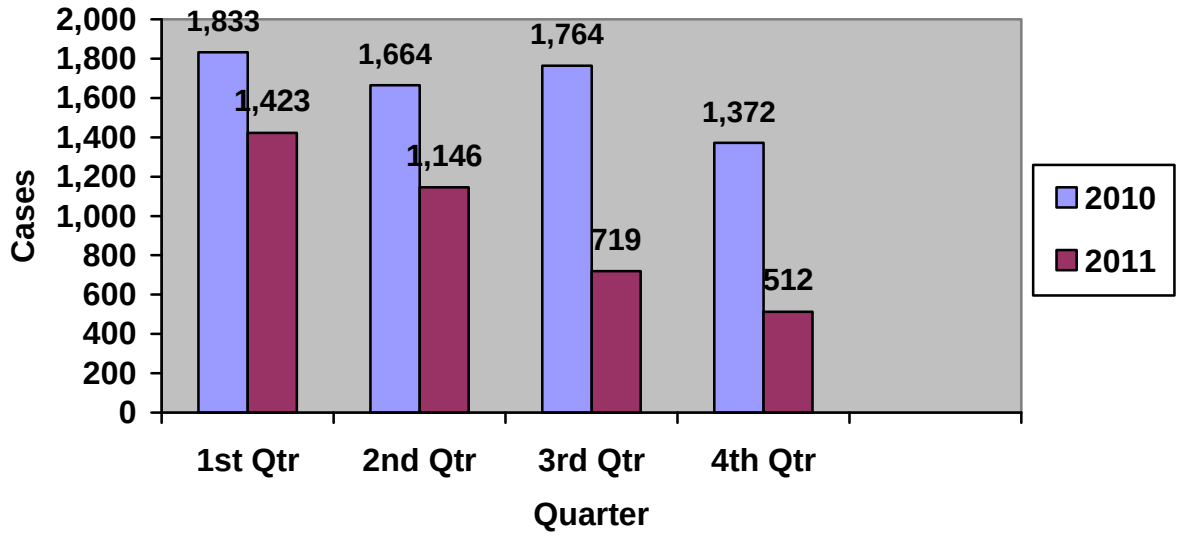
Total Cases Completed per Month



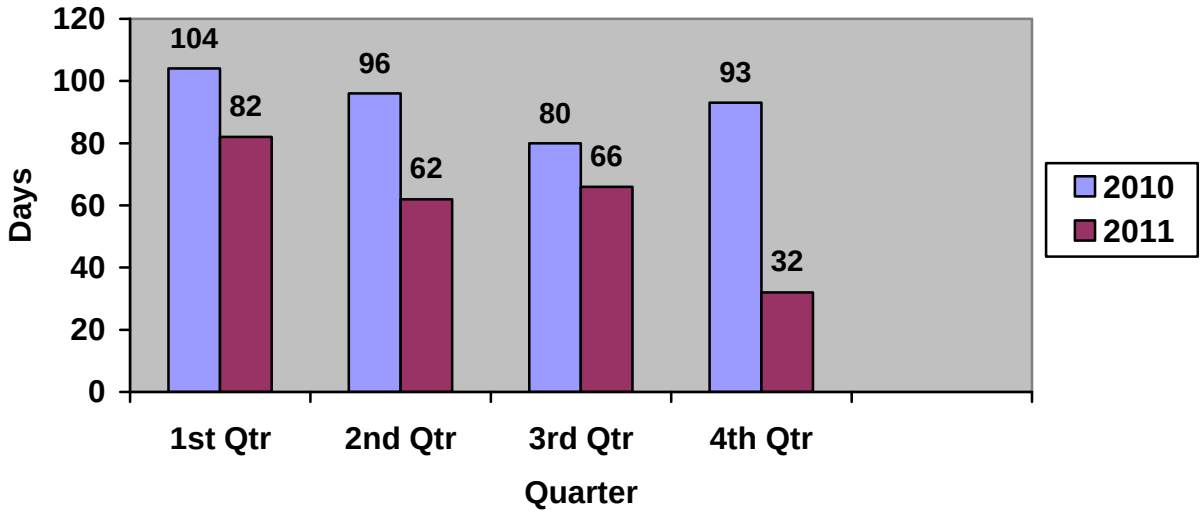
Total Analyses Reported in 2011 per Drug Type



Ending Backlog per Quarter



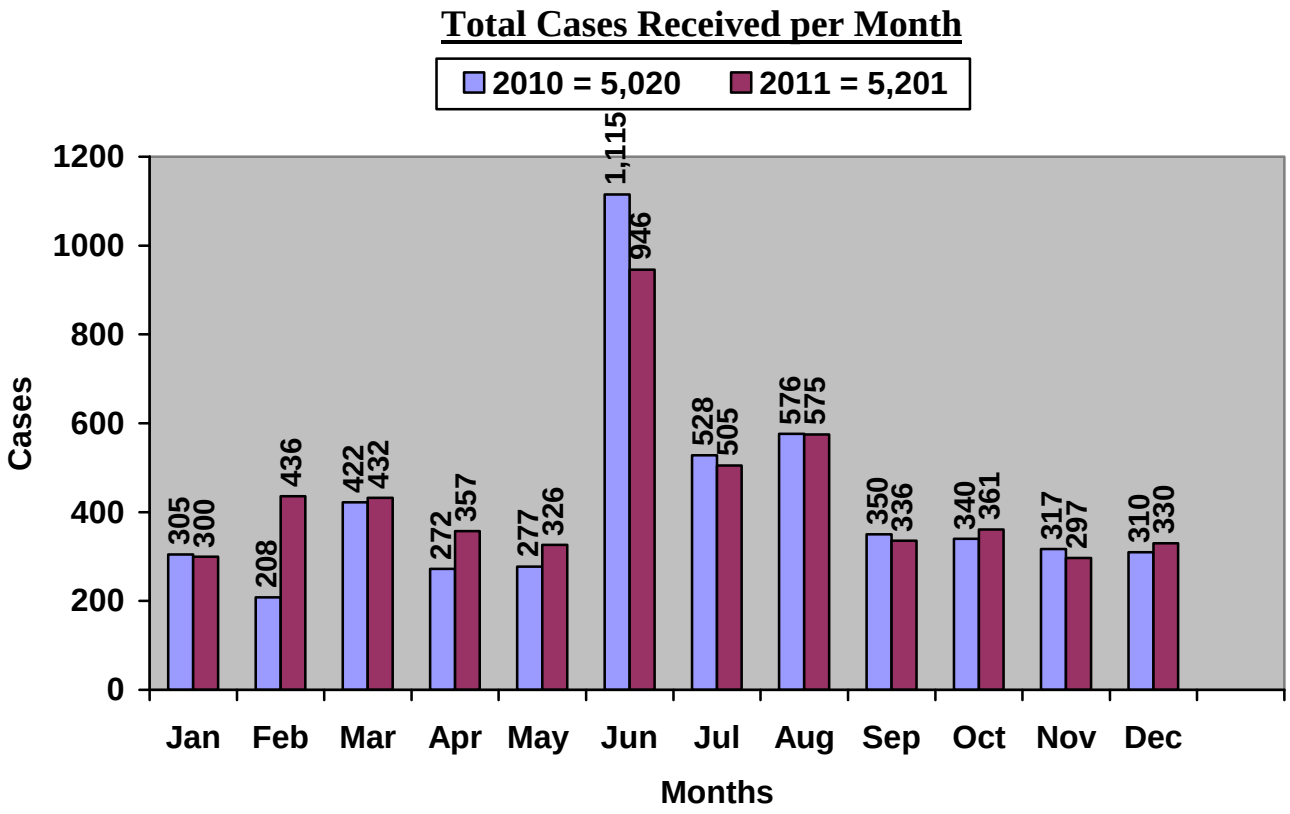
Average Turn Around Time per Quarter



CDS-BERLIN UNIT

The CDS-Berlin Unit is responsible for analyzing cases submitted from the Eastern Shore of Maryland for the presence or absence of CDS. The Berlin lab analyzed cases from nine counties during 2011: Cecil, Caroline, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester County. Historically, Cecil County submissions have been handled by the CDS-Pikesville Unit, but in 2011 the CDS-Berlin Unit was able to reduce their backlog to a level where they could provide some relief to the Pikesville lab by taking on Cecil County cases. This reallocation of work to Berlin was greatly appreciated and helped the CDS-Pikesville Unit significantly reduce its backlog. Cecil County casework will return to Pikesville in 2012. Also, the Berlin lab was the first of the CDS Units to be exposed to the problem of synthetic cathinones and cannabinoids. These substances became prevalent on the Ocean City boardwalk being sold as bath salts and incense. The lab worked with local agencies and the state police in order to establish a protocol for seizing these substances and addressing this safety concern.

Casework



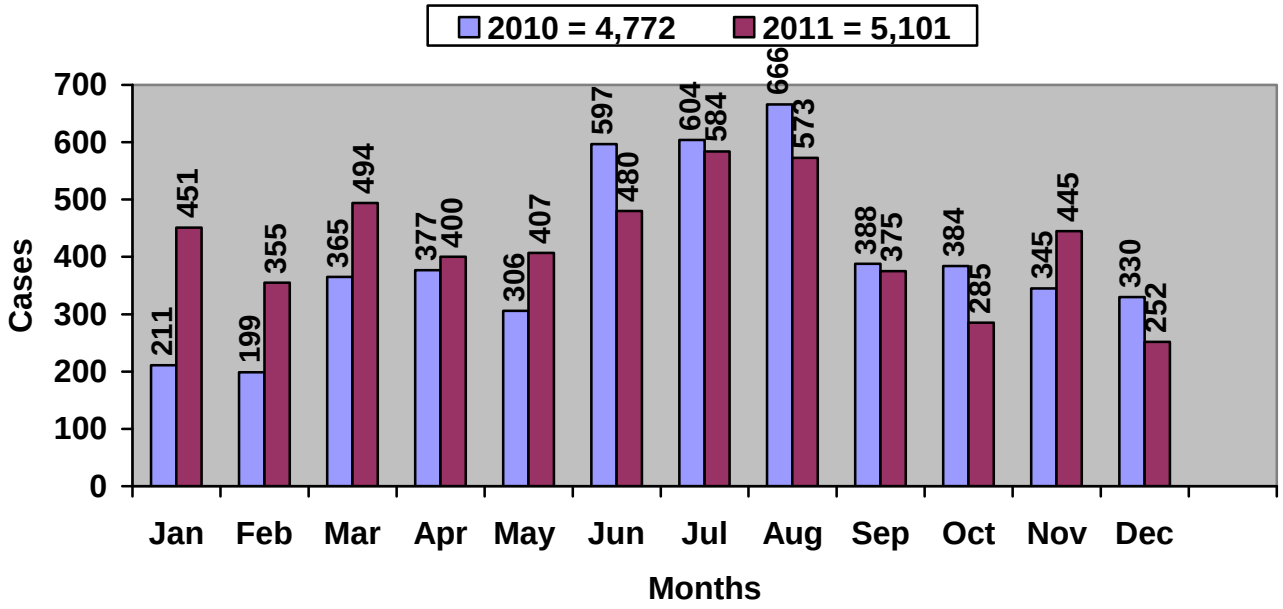
Total MSP Cases Received in 2011 per Barrack

MSP Installation	Counties Served	Submissions
MSP-DED	Statewide	315
MSP-Salisbury	Wicomico	213
MSP-Berlin	Worcester	204
MSP-Centerville	Kent, Queen Anne's	179
MSP-North East	Cecil	142
MSP-JFK Highway	Cecil, Harford, Baltimore	139
MSP-Easton	Caroline, Dorchester, Talbot	119
MSP-Princess Anne	Somerset	62
	TOTAL	**1,373**

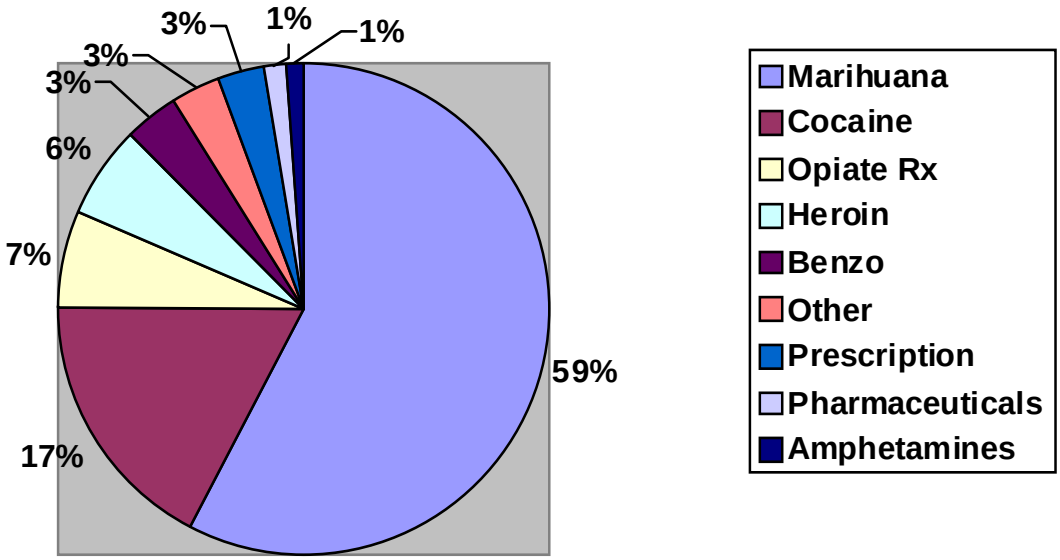
Total Allied Agency Cases Received in 2011 per County

Counties	Submissions
Worcester.	1,406
Cecil	686
Wicomico	670
Dorchester	294
Talbot	236
Caroline	158
Queen Anne's	145
Kent	133
Somerset	100
TOTAL	**3,828**

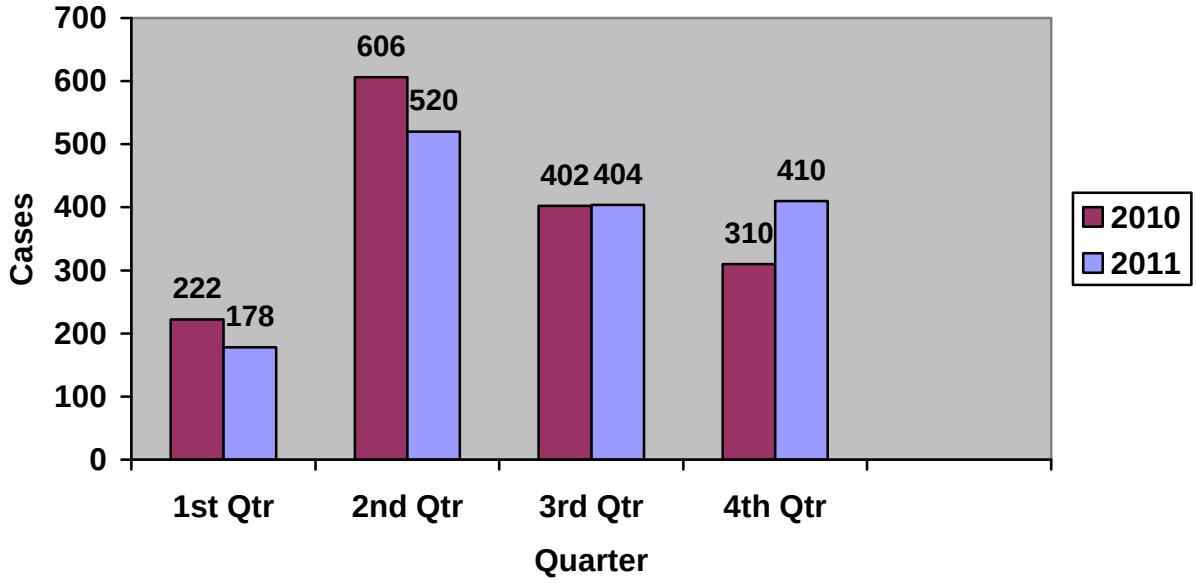
Total Cases Completed per Month



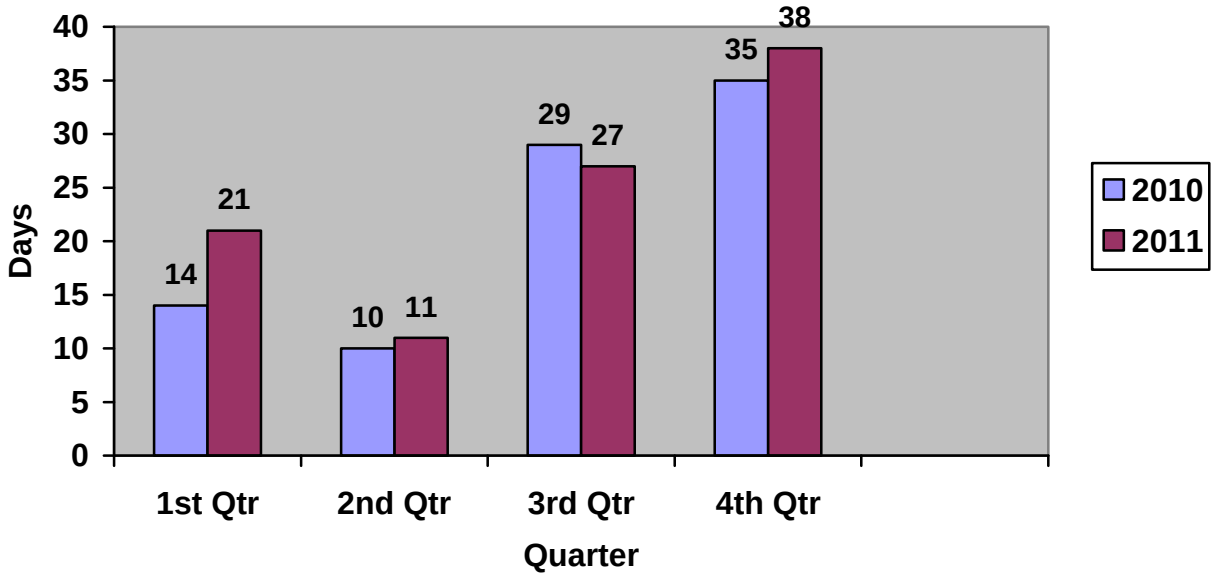
Total Analyses Reported in 2011 per Drug Type



Ending Backlog per Quarter



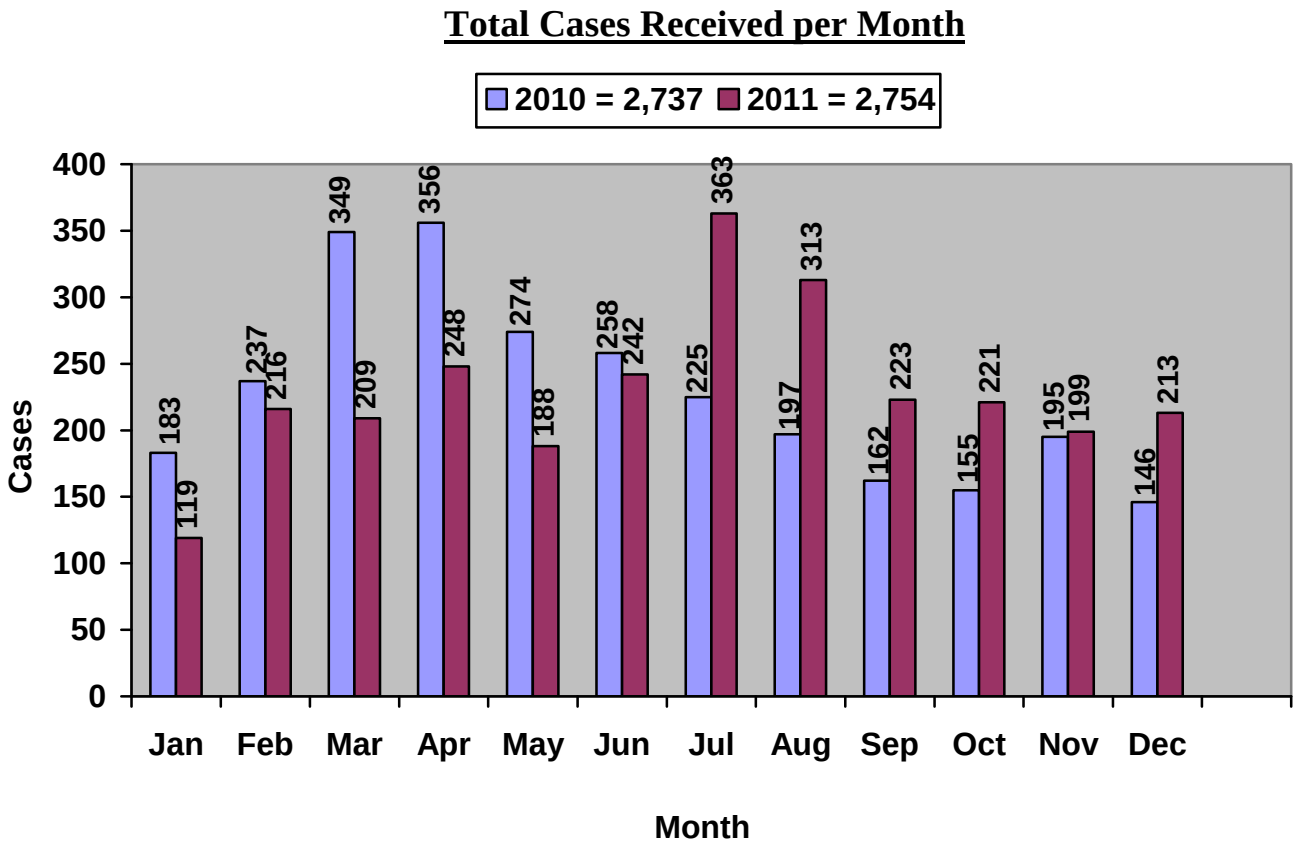
Average Turn Around Time per Quarter



CDS-HAGERSTOWN UNIT

The CDS-Hagerstown Unit provides the Western Maryland Region with drug analyses. The clients that submit evidence include various local, state and federal agencies from Allegany, Carroll, Garrett, Frederick, Montgomery and Washington Counties. The current laboratory has been serving the Western Maryland region with drug analysis for the past 16 years. Since the laboratory opened, over 36,000 drug cases have been analyzed. A new Hagerstown barrack is projected to be operational in March 2012. The new laboratory is going to be located on the second floor of the barrack and will contain sections for not only drug analysis, but also latent prints and crime scene. The space will be roughly six times larger than the current lab providing the CDS-Hagerstown Unit with a state of the art laboratory and the ability to expand staff and technology in the future.

Casework



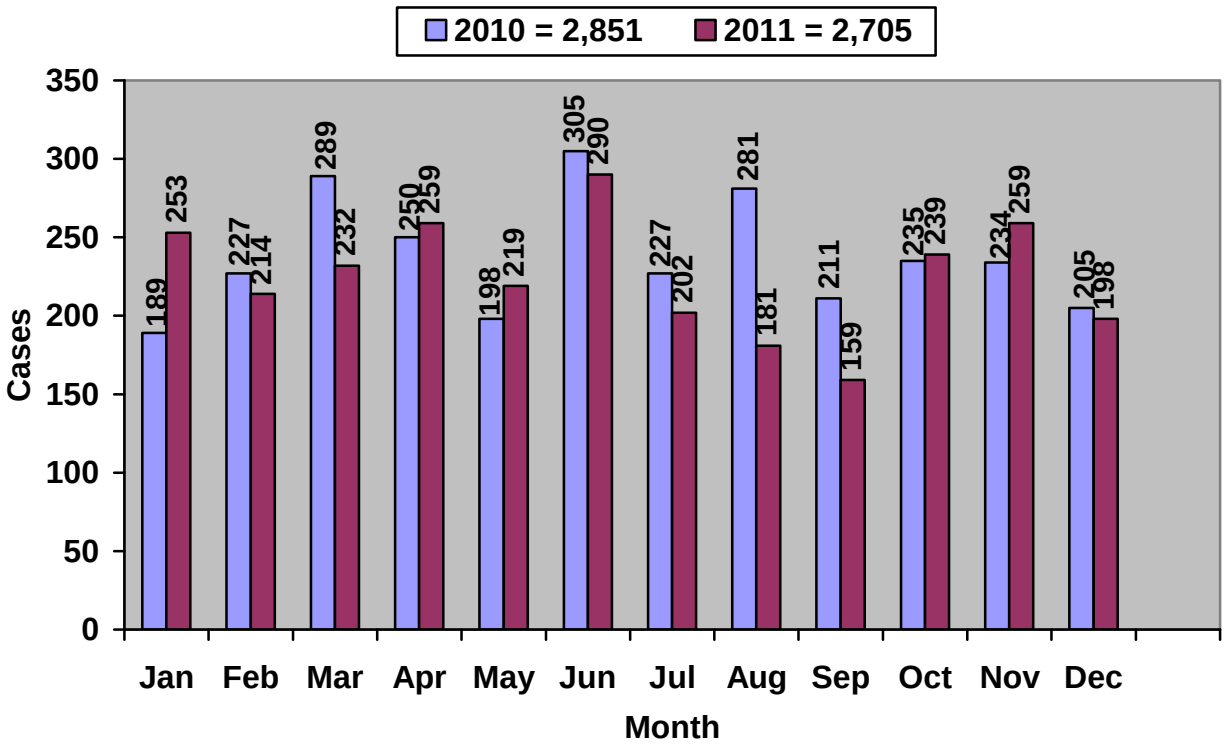
Total MSP Cases Received in 2011 per Barrack

MSP Installation	Counties Served	Submissions
MSP-Westminster	Carroll	471
MSP-McHenry	Garrett	235
MSP-Frederick	Frederick	198
MSP-Rockville	Montgomery	177
MSP-Hagerstown	Washington	97
MSP-Cumberland	Allegany	91
	TOTAL	**1,269**

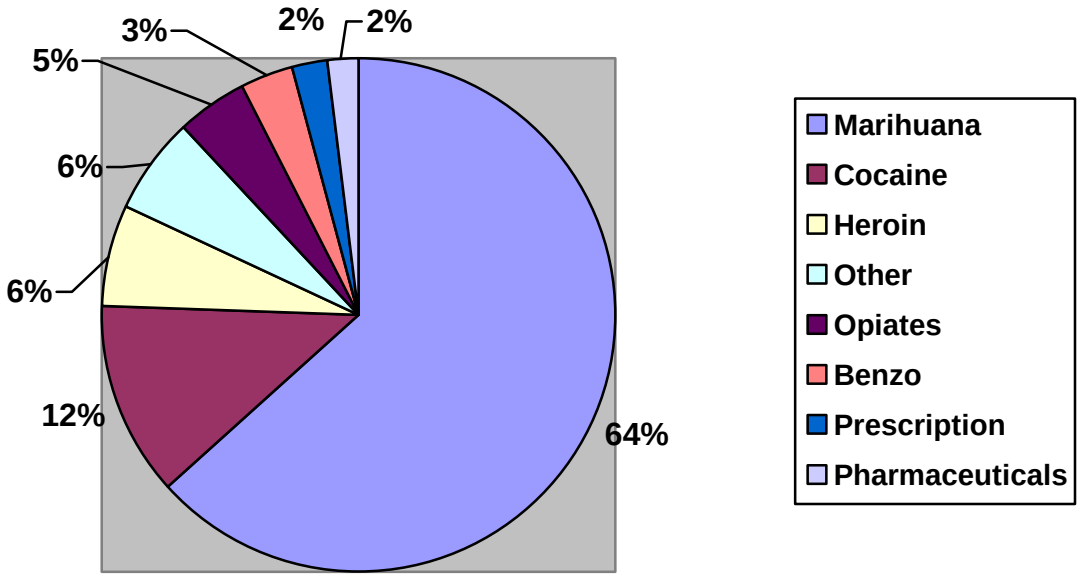
Total Allied Agency Cases Received in 2011 per County

Counties	Submissions
Allegany	700
Carroll	428
Frederick	215
Garrett	85
Washington	46
Montgomery	11
TOTAL	**1,485**

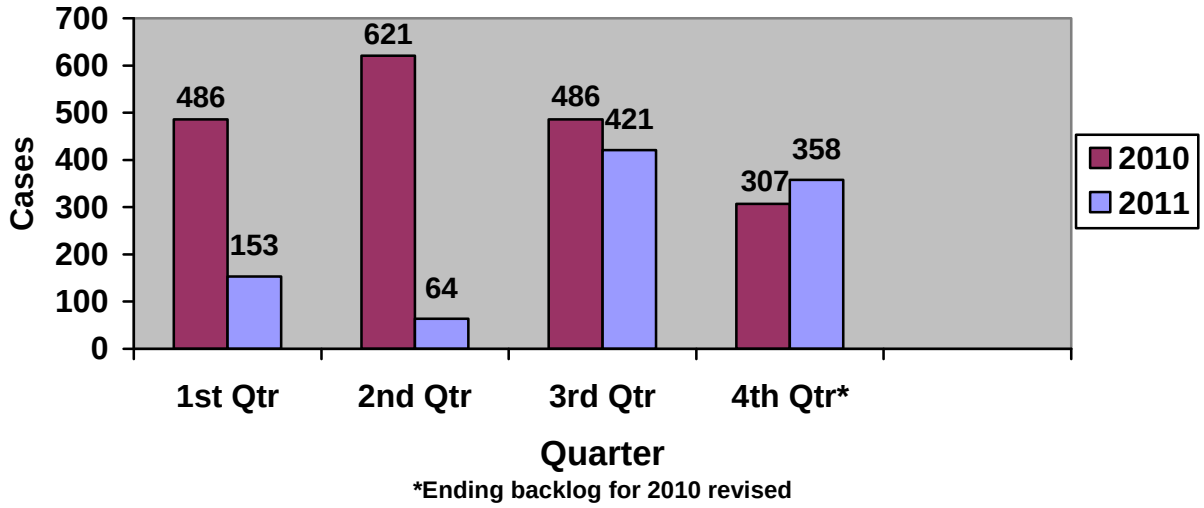
Total Cases Completed per Month



Total Analyses Reported in 2011 per Drug Type

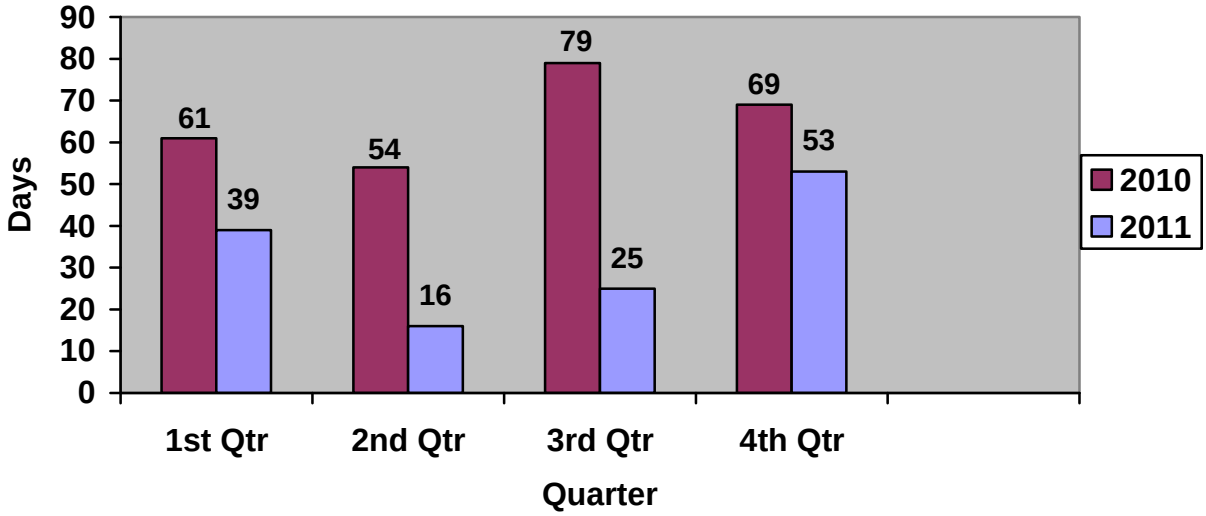


Ending Backlog per Quarter



*Ending backlog for 2010 revised

Average Turn Around Time per Quarter



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. Testing is performed 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. These important services assist police and prosecutors in obtaining the forensic evidence needed to prosecute impaired drivers in court.

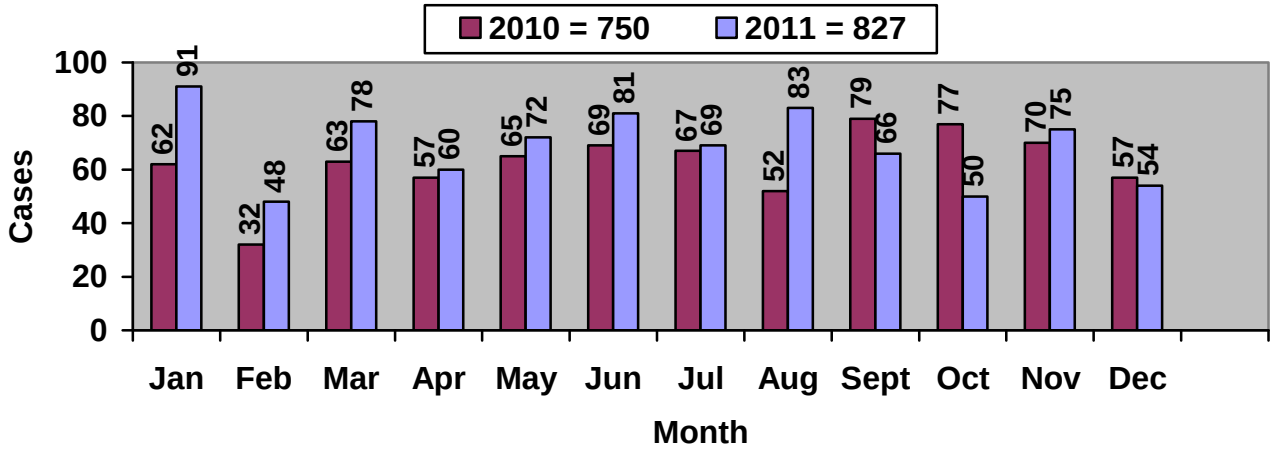
The Toxicology Unit is the only laboratory within the state approved to analyze blood samples for alcohol and drugs in cases related to DWI arrests. Specimens submitted for testing are collected by certified medical personnel at the direction of authorized police personnel. Blood is collected when a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

Training and Validation

New Technologies Implemented in 2011	Expected Benefits
New instrumentation for the analysis of Alcohol in blood	Improved efficiency and verification of data
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

Blood Alcohol Casework

Blood Alcohol Cases Received



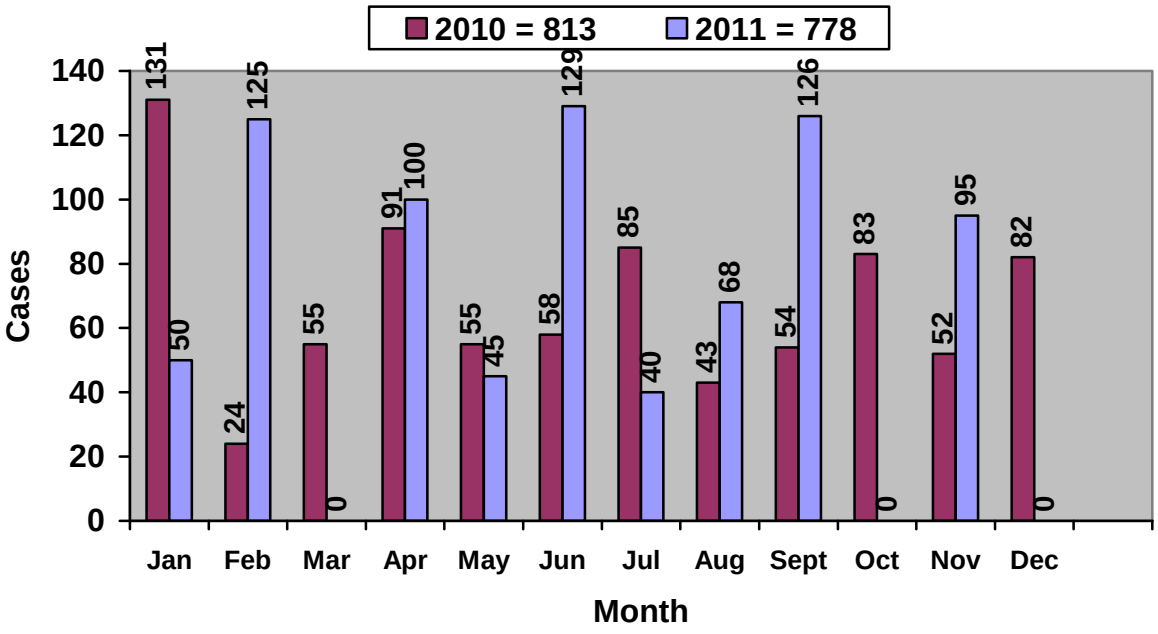
Total MSP Blood Alcohol Cases Received in 2011 per Barrack

MSP Installation	Counties Served	Submissions
MSP- Golden Ring	Baltimore	33
MSP- Frederick	Frederick	26
MSP- Forestville	Prince George's	26
MSP- Bel Air	Harford	22
MSP- Hagerstown	Washington	18
MSP- College Park	Prince George's	17
MSP- Westminster	Carroll	15
MSP- Easton	Caroline, Dorchester, Talbot	15
MSP- Centreville	Kent Queen Anne's	14
MSP- Rockville	Montgomery	12
MSP- JFK	Cecil, Harford, Baltimore	12
MSP- Glen Burnie	Anne Arundel	12
MSP- Leonardtown	St. Mary's	9
MSP- Waterloo	Howard	8
MSP- Princess Anne	Somerset	8
MSP- Northeast	Cecil	8
MSP- Berlin	Worcester	8
MSP- Prince Frederick	Frederick	7
MSP- LaPlata	Charles	7
MSP- Cumberland	Allegany	6
MSP- Salisbury	Wicomico	5
MSP- McHenry	Garrett	5
	TOTAL	**293**

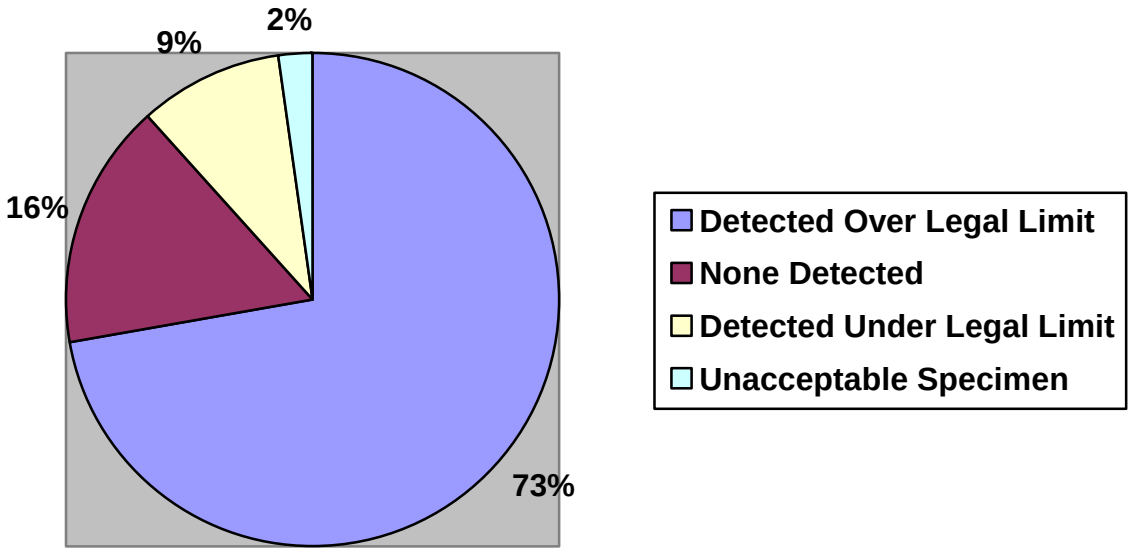
Total Allied Agency Blood Alcohol Cases Received in 2011 by County

Counties	Submissions
Baltimore	112
Montgomery	82
Anne Arundel	59
Prince George's	44
Howard	26
Frederick	22
Washington	21
Harford	18
Carroll	17
Baltimore City	16
Calvert	16
St. Mary's	16
Statewide	15
Worcester	12
Charles	11
Cecil	10
Wicomico	9
Dorchester	8
Garrett	7
Allegany	6
Queen Anne's	3
Caroline	2
Talbot	2
TOTAL	**534**

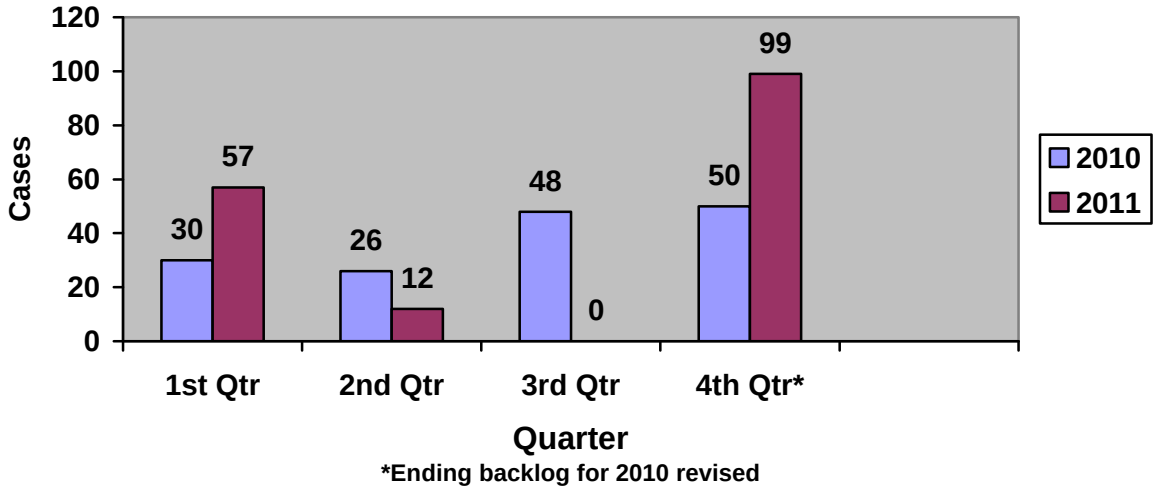
Blood Alcohol Cases Completed



Blood Alcohol Cases Reported in 2011 per Detection Level

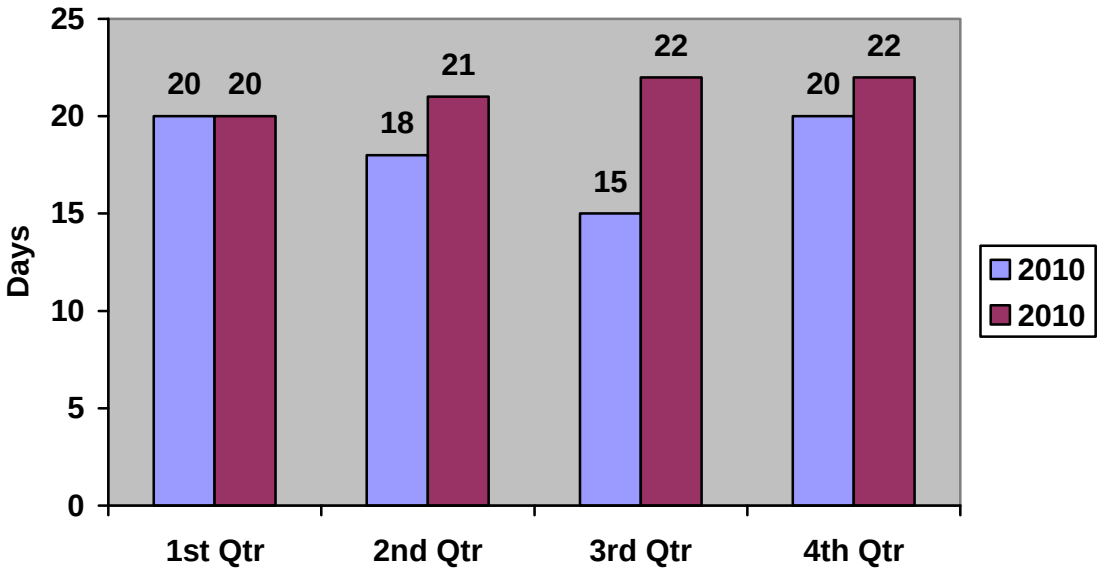


Blood Alcohol Testing - Ending Backlog per Quarter



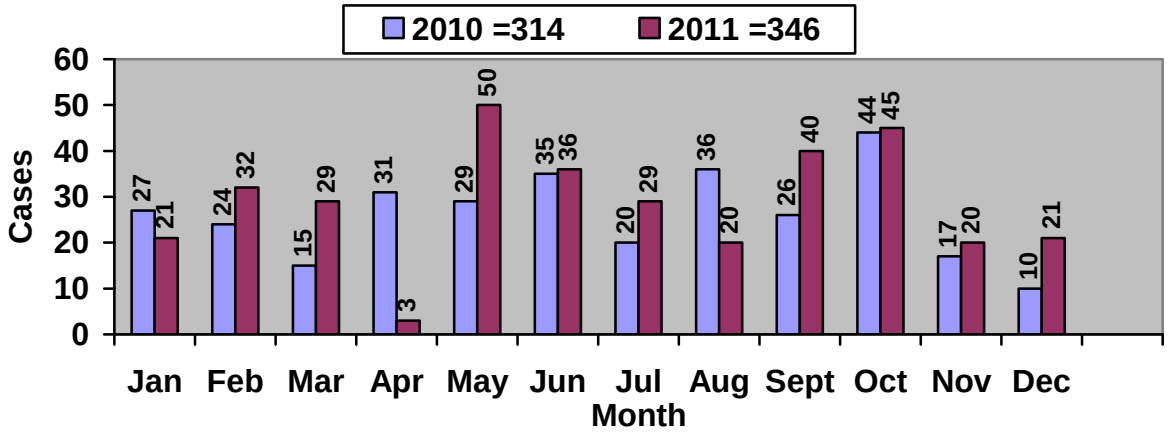
*Ending backlog for 2010 revised

Blood Alcohol Testing - Average Turnaround Time



Blood Drug Casework

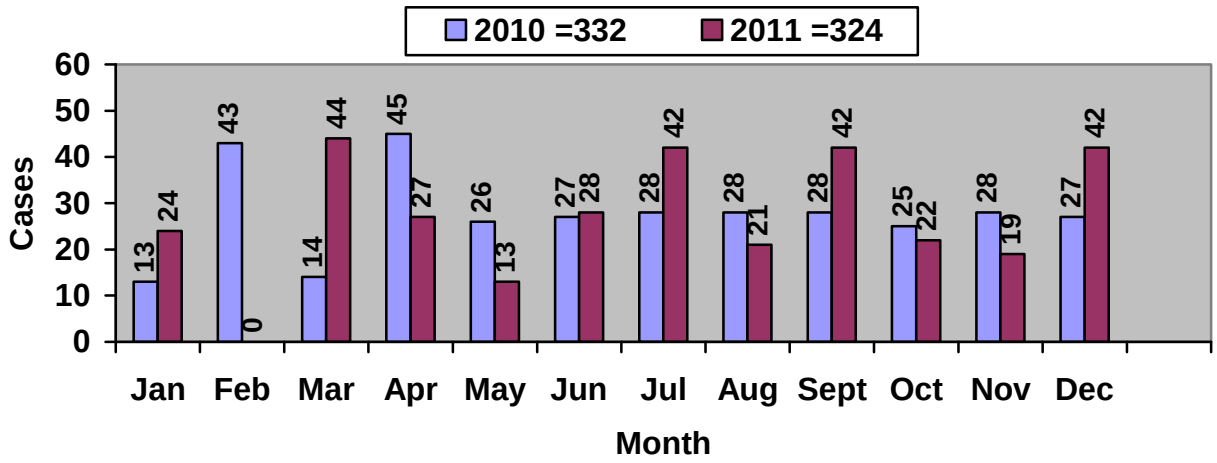
Blood Drug Cases Received



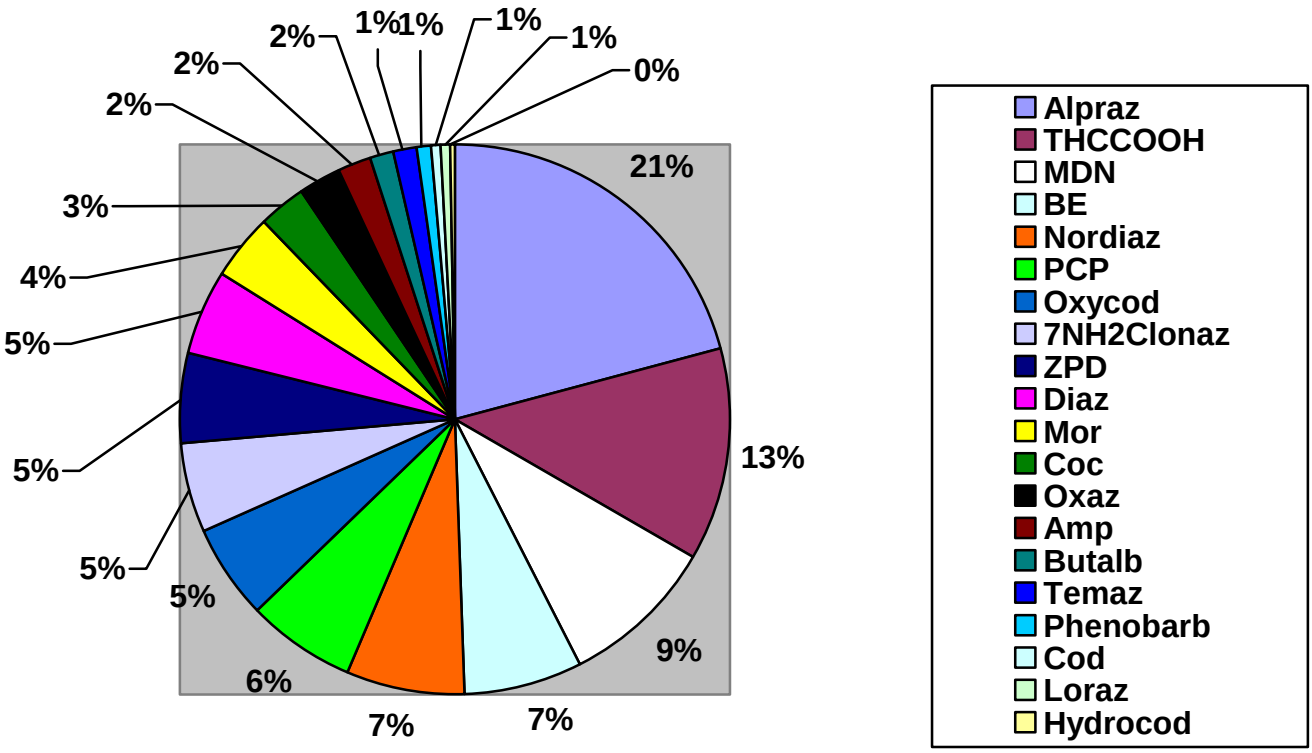
Total Blood Drug Cases Received in 2011 by County

County / Agency	Submissions
Maryland State Police	109
Baltimore County	52
Montgomery County	48
Anne Arundel County	25
Prince George's County	14
Harford County	14
Calvert County	13
Carroll County	13
Frederick County	13
Maryland Transportation Authority	10
Howard County	6
Unknown	6
Washington County	5
Cecil County	4
Wicomico County	4
Kent County	3
Baltimore City	2
Charles County	2
Allegany County	1
Talbot County	1
Worcester County	1
TOTAL	**346**

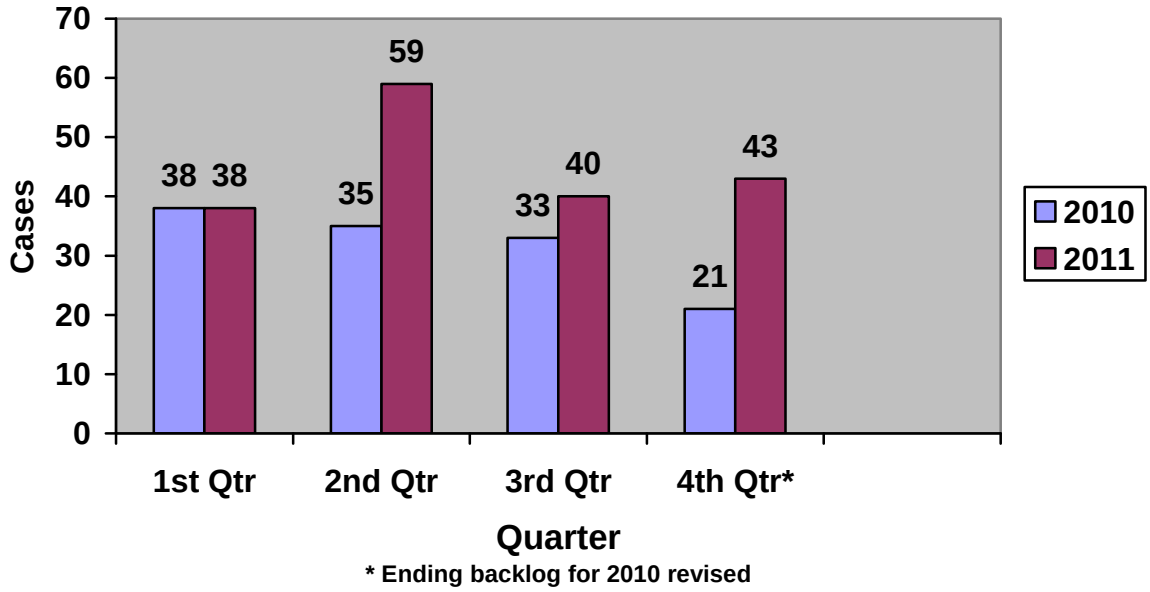
Blood Drug Cases Completed



Blood Drug Cases Reported in 2011 per Drug Detected

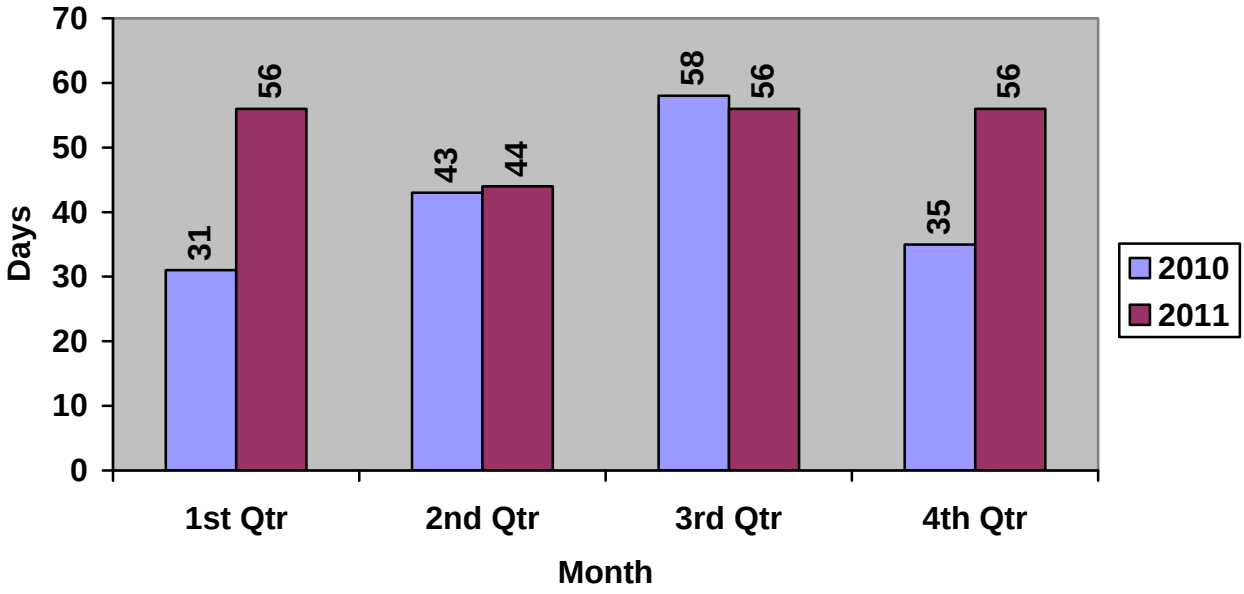


Blood Drug Cases
Ending Backlog per Quarter



* Ending backlog for 2010 revised

Blood Drug Testing
Average Turn Around Time



CHEMISTRY SECTION ACCOMPLISHMENTS IN 2011

1. The CDS Units have made substantial progress in reducing case backlog during 2010 and 2011. End of year case backlog was reduced from 2,626 cases (2009) to 1,990 cases (2010), and to 1,280 cases (2011); a reduction of 51% from 2009 to 2011. Of particular note is the Berlin lab's caseload where 5,201 cases were received in 2011. The staff in Berlin completed 5,101 cases in 2011 and successfully reduced the case backlog to 410 cases at the end of year. The workload was successfully managed despite interruptions for improvements to the barrack facility. The CDS-Pikesville Unit has completed efforts to rebuild the staff with training and certification of two Scientists. The Pikesville Unit was able to complete 7,808 cases (up from 6,872 in 2010) while training additional Scientists. The case backlog in the Pikesville lab was reduced from over 1,300 cases to 512 cases by the end of the year. The Hagerstown-CDS Unit has successfully managed their 2011 caseload while preparing for relocation to the new barrack. 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 developed testing procedures for the new generation of synthetic cannabinoids (K2, Spice) and synthetic cathinones (Bath Salts). The DEA has issued emergency scheduling for a number of these compounds and testing for JWH-018, JWH-073, JWH-200, HU-210, MDPV, Mephedrone, Methedrone, and similar compounds has been developed in the CDS Units

3. The Toxicology Unit made several technological advances in 2011. These included adding Zolpidem (Ambien) to the list of tested drugs in blood, improving the method for detecting oxycodone (Oxycontin) during the initial (screening) testing protocol, and implementing an improved confirmation testing method for benzodiazepines. Also, the Toxicology Unit installed and validated new instrumentation for the analysis of blood samples for alcohol. This new technology utilizes dual chromatography columns to simultaneously perform two alcohol determinations and verify quantifications.

CHEMISTRY SECTION GOALS FOR 2012

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 laboratory relocation is projected to occur in March 2012. The first floor will consist of the new barrack. The second floor will contain a classroom, fire marshal's office, 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 will continue in order to provide the staff with appropriate environments to perform their important work. Improvements made in the past two years include the addition of a new instrumentation room, structural redesign of the laboratory hoods, and a building wide mold removal project. Upcoming enhancements to the Berlin lab will include the removal of asbestos floor tiles and modifications to the alarm system. While several of these projects result in temporary shutdowns of the lab, the preparation and dedication of the staff consistently minimizes affects on productivity.

2. The CDS units will pursue the development of testing procedures for new synthetic cannabinoids and synthetic cathinones as they are continually introduced into the clandestine market. There are hundreds of these synthetic compounds so when one is deemed illegal the suppliers simply switch to another one that has not yet been banned.

3. The Toxicology Unit will expand their testing menu to include analysis for buprenorphine (Suboxone).

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

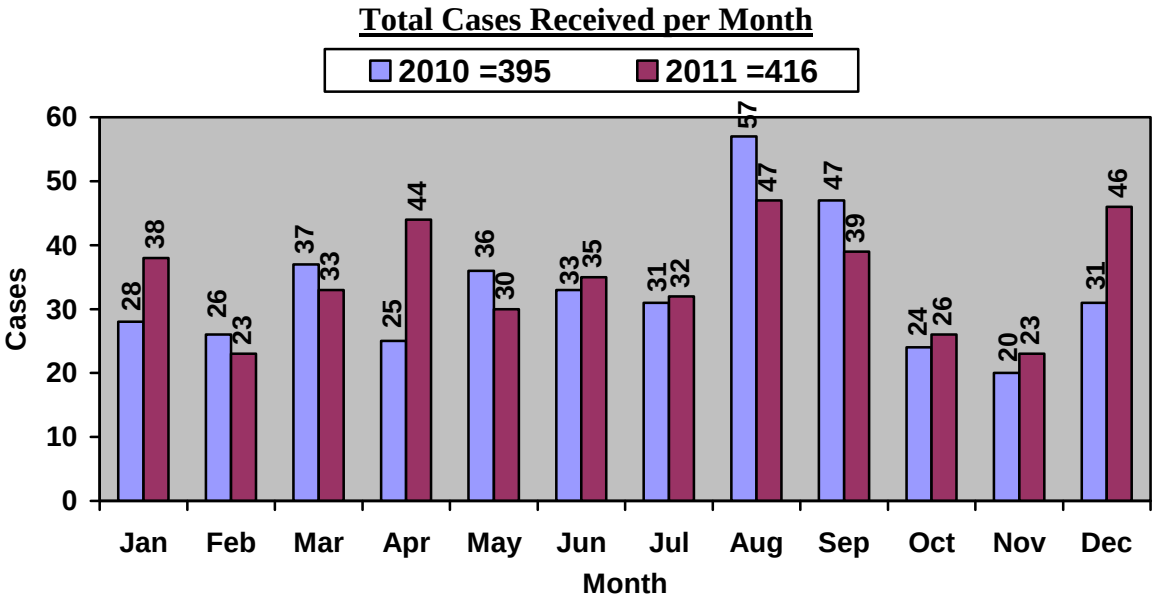
The Technical/Validation Unit is staffed by four scientists including one Forensic Scientist Supervisor (Technical Leader), one Forensic Scientist Advanced, two Forensic Scientists III.

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



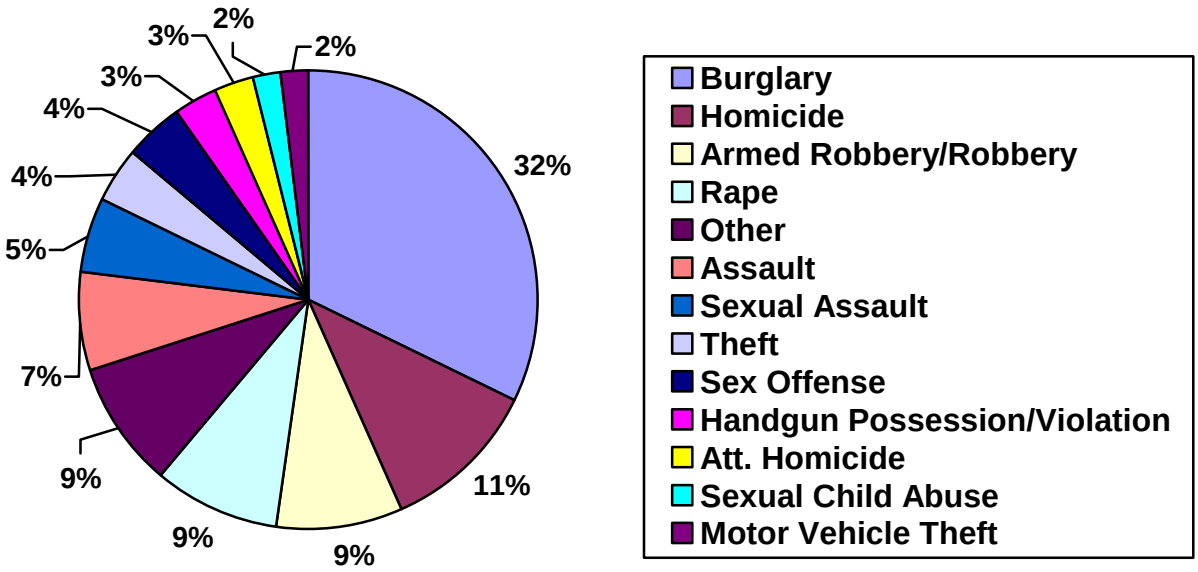
Total MSP Cases Received in 2011 per Barrack

MSP Installation	Counties Served	Submission
MSP-Easton	Caroline, Dorchester, Talbot	17
MSP-Homicide	Statewide	12
MSP-CID	Statewide	10
MSP-Northeast	Cecil	10
MSP-Westminster	Carroll	9
MSP-Golden Ring	Baltimore	5
MSP-Prince Frederick	Calvert	5
MSP-Bel Air	Harford	4
MSP-Salisbury	Wicomico	4
MSP-Centerville	Kent, Queen Anne's	4
MSP-McHenry	Garrett	3
MSP-Frederick	Frederick	2
MSP-Berlin	Worcester	2
MSP-Cumberland	Allegany	2
MSP-Princess Anne	Somerset	2
MSP-College Park	Prince George's	1
MSP-Hagerstown	Washington	1
MSP-Legislative Security Section	Statewide	1
MSP-Leonardtown	St. Mary's	1
MSP- LaPlata	Charles	1
	TOTAL	**96**

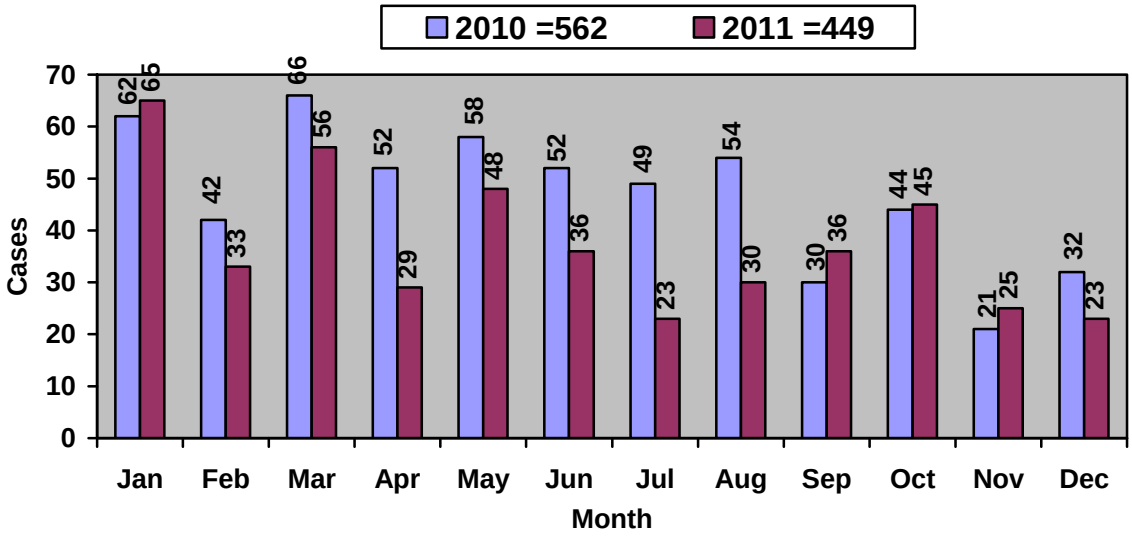
Total Allied Agency Cases Received in 2011 per County

County	Submissions
Frederick	61
Wicomico	47
Harford	40
Cecil	21
Charles	20
Dorchester	17
Prince George's	17
Worcester	14
Anne Arundel	13
Queen Anne’s	13
Allegany	10
Carroll	10
St. Mary's	5
Talbot	5
Calvert	4
Caroline	4
Kent	4
Somerset	4
Statewide	4
Washington	4
Garrett	1
Montgomery	1
Out of State	1
TOTAL	**320**

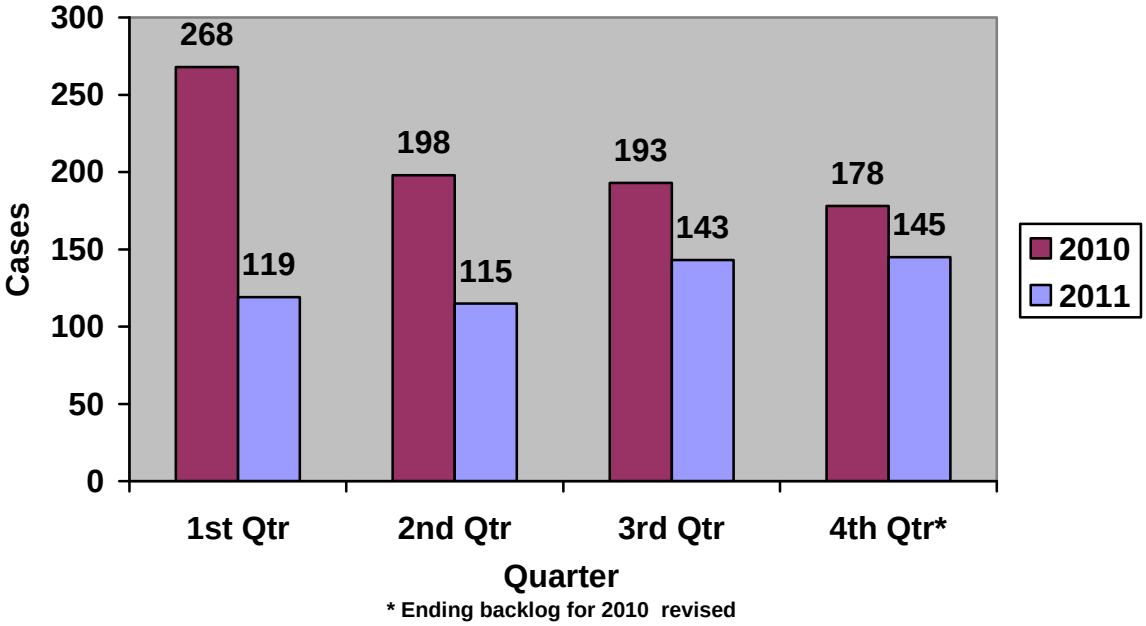
Total Cases Received in 2011 per Crime Type



Total Cases Completed per Month

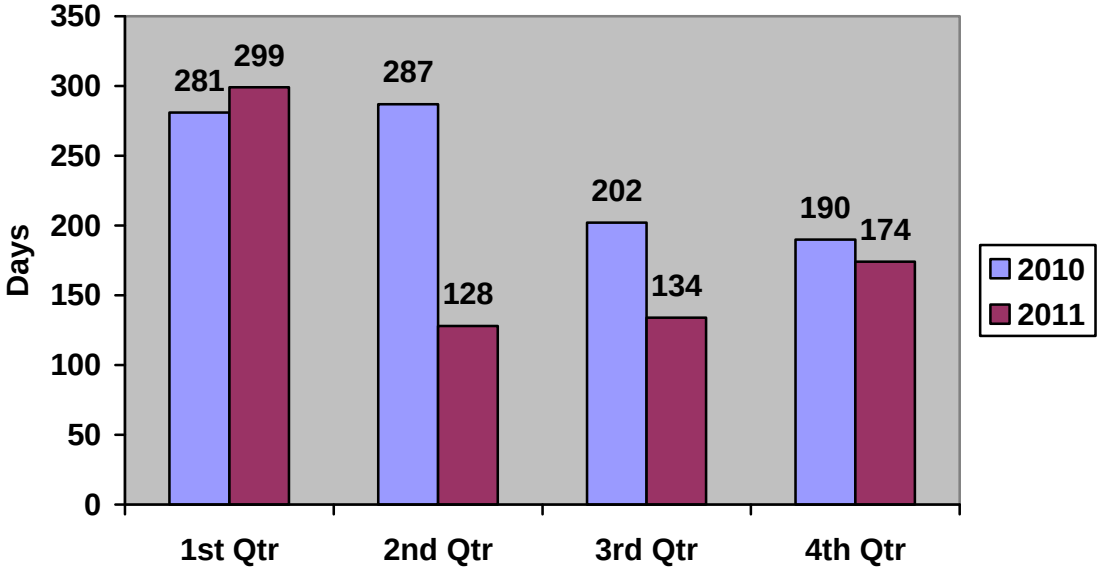


Ending Backlog per Quarter



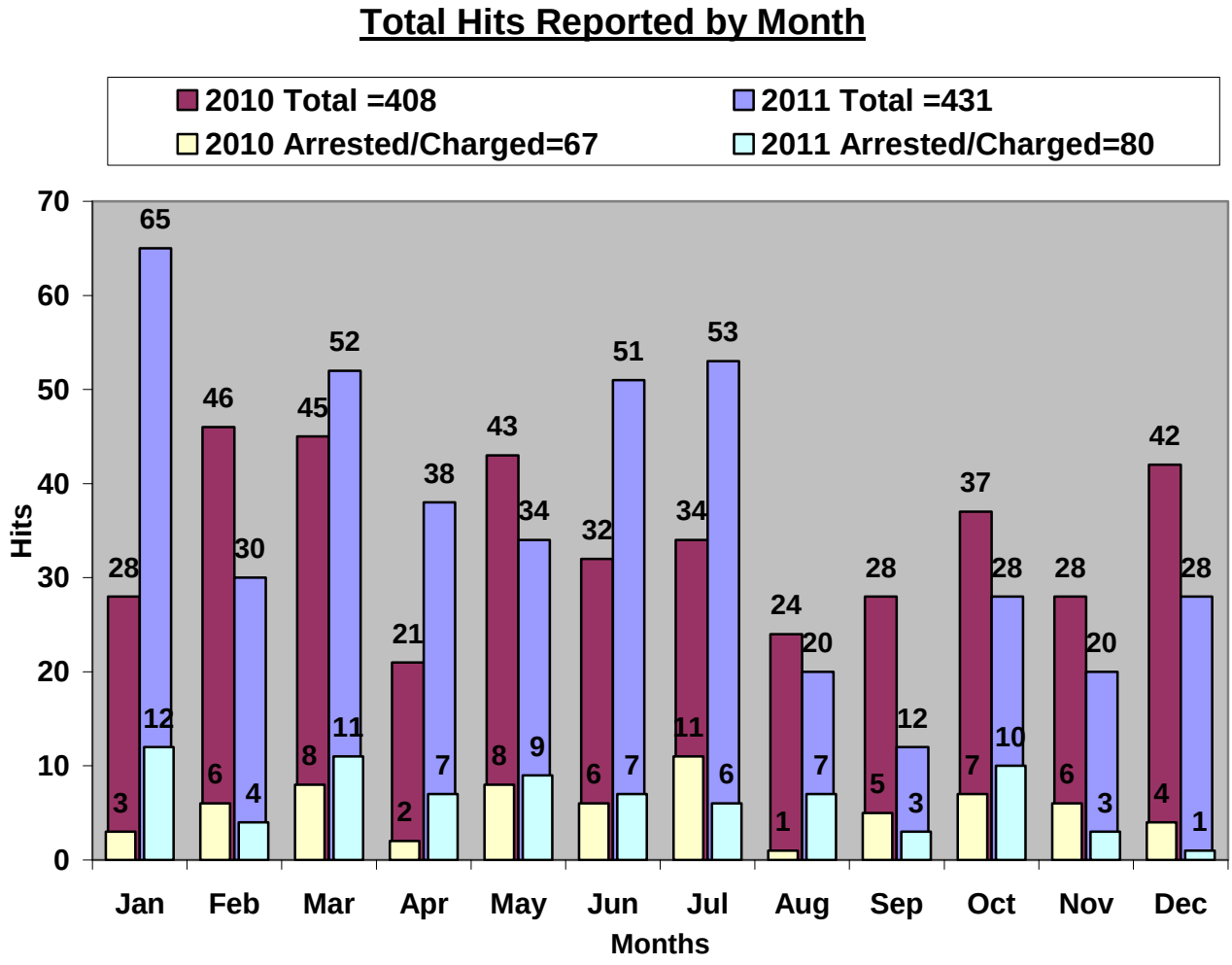
* Ending backlog for 2010 revised

Turnaround Time of Cases Completed per Quarter



BIOLOGY DATABASE UNIT

The DNA Database Unit is responsible for overseeing the collection of 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.



Note – 431 hits are reported here although 412 hits were reported in 2011 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).

Total Hits in 2011

	Number of Hits Reported
Maryland Offender/Arrestee Hits	273
Maryland Case Hits	431

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.

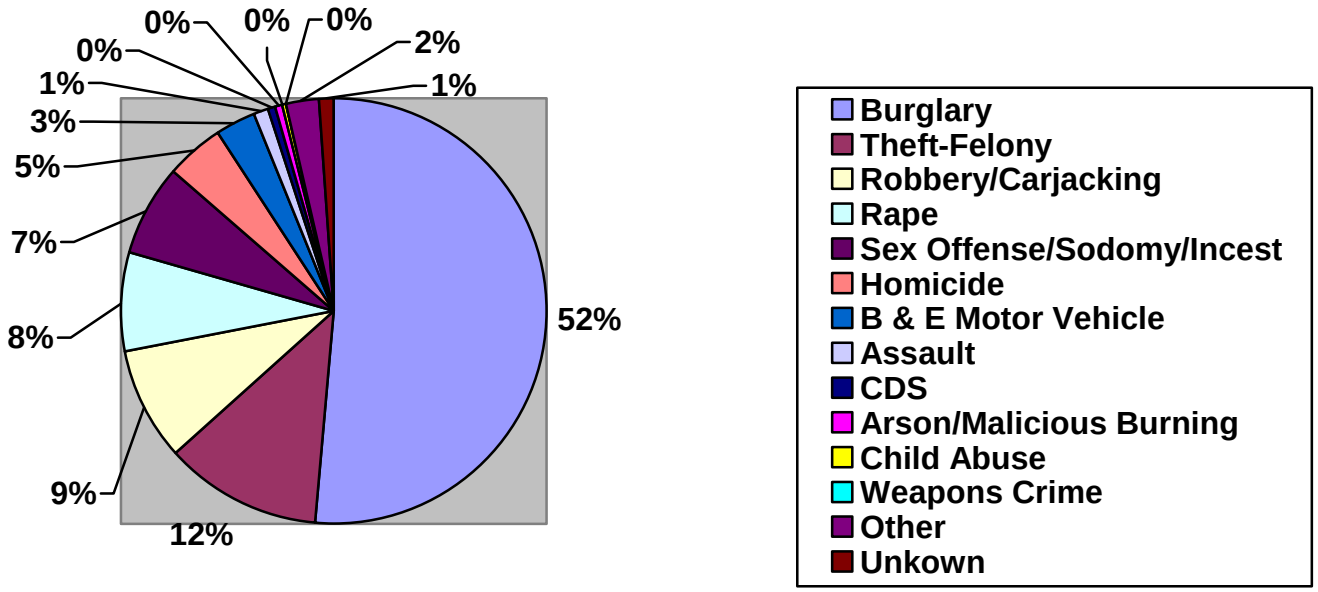
Total Maryland Case Hits in 2011 by County

Maryland County	Hits
Anne Arundel	143
Montgomery	70
Baltimore City	57
Baltimore	35
Prince George's	26
Howard	17
Frederick	17
Washington	12
Worchester	9
Wicomico	9
Harford	7
Cecil	6
Talbot	6
Charles	5
Queen Anne's	3
Carroll	2
Dorchester	2
Somerset	2
Allegany	1
Caroline	1
Calvert	1
TOTAL	**431**

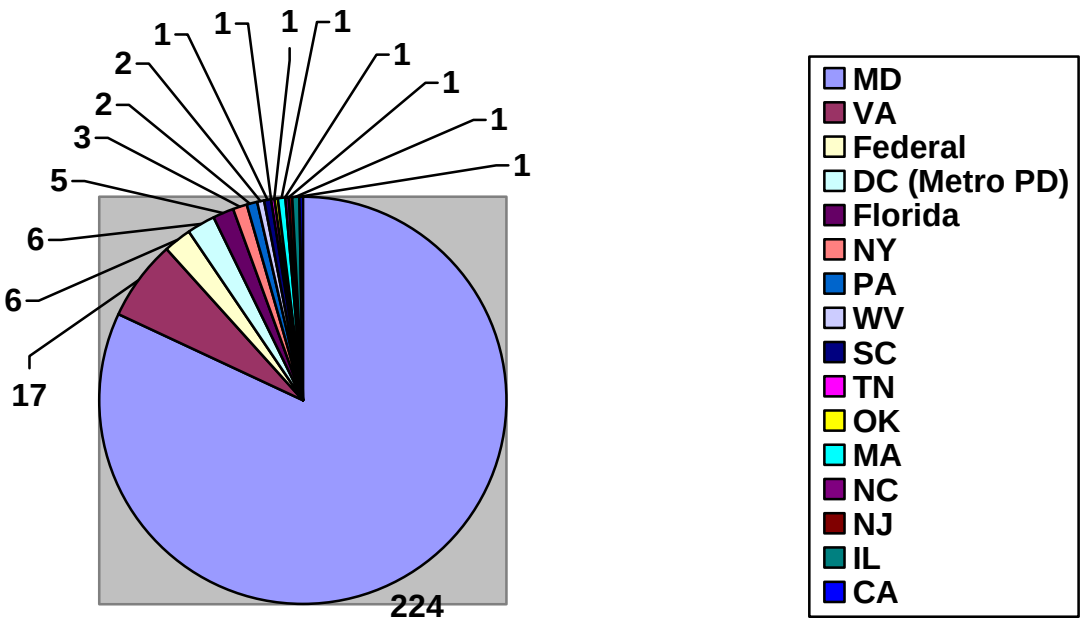
Total Maryland Case Hits in 2011 by Crime Year

Crime Year	Hits
1975	1
1977	1
1978	1
1983	1
1985	1
1987	1
1989	1
1991	2
1994	1
1995	2
1997	1
1998	6
1999	1
2000	4
2001	4
2002	5
2003	4
2004	5
2005	4
2006	11
2007	23
2008	30
2009	92
2010	136
2011	39
Unknown	54
Total	**431**

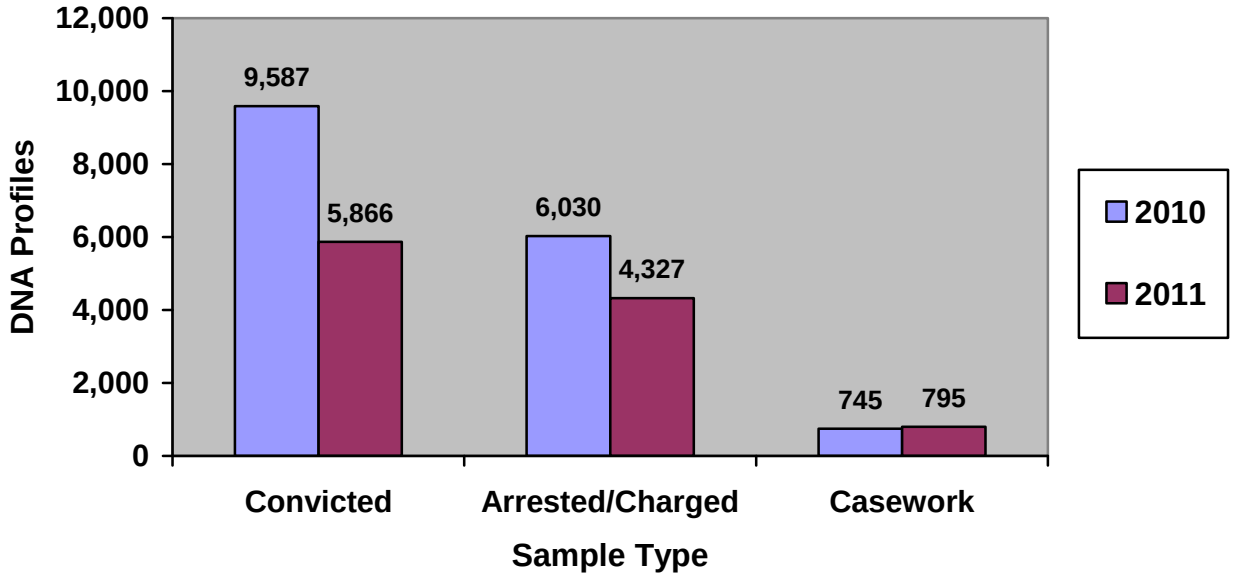
Total Maryland Case Hits in 2011 per Crime Type



Total Maryland Offender/Arrestee Hits in 2011 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.

The main validation focus for the Technical Unit in 2011 was the implementation of a system for allowing for a rapid DNA analysis process for databasing. Training included the use of the new in-house database technologies and the completion of casework training for DNA analysis.

Training and Validation

Forensic Scientist	Competency Certification
Courtney Ganter	Use of in-house databasing system including the use of the expert system; DNA casework
Timothy Graham	Use of in-house databasing system with manual analysis
Michelle Groves	Robotics for DNA casework; Use of in-house databasing system including the use of the expert system
Devon Hall	Use of in-house databasing system including the use of the expert system; DNA casework
Amanda High	Use of in-house databasing system including the use of the expert system
Kelly Knight	DNA casework
Sara Lee	Use of in-house databasing system including the use of the expert system; DNA casework
Michael Whitmore	Use of in-house databasing system as a technician

New Technologies Implemented in 2011	Expected Benefits
Robotic Processing and Use of Identifiler Direct Amplification Kit for the In-house Analysis of DNA Database Samples.	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 database samples in-house, reducing the time from receipt to upload.
ABI 3730 for the In-house Analysis of DNA Database Samples.	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.
GMID-X for the In-house Analysis of DNA Database Samples.	"Expert System" software for the review of database samples without human intervention. Use of this software will reduce the time necessary to analyze database samples prior to upload to the national database.

BIOLOGY SECTION ACCOMPLISHMENTS IN 2011

1. The casework backlog was reduced approximately 19% in 2011 from a starting backlog of 178 cases in January, 2011 to an ending backlog of 145 cases in December, 2011. After achieving a 16% reduction by the end of 2009 and a 51 % reduction by the end of 2010, the casework unit surpassed its original goals and has continued to make the backlog reduction a tremendous success. This great success could not have been accomplished without the assistance of direct outsourcing, in-house outsourcing, and in-house casework. Direct outsourcing has continued to demonstrate success throughout 2011 with 260 cases directly outsourced from the agencies to the contract lab with close oversight from our Casework Unit. In addition, the number of homicide cases within the working casework backlog decreased by 64% in 2011 from a starting amount of 50 homicide cases in January, 2011 to an ending number of 18 homicide cases in December, 2011. Furthermore, at the beginning of January, 2011, there were 42 cases which still remained in the casework backlog that were received into the laboratory before 2010. At the end of December 2011, there were only 5 cases that remained in the backlog that were received in the laboratory before 2011. The success of the Biology Casework Unit is evident in the fact that it now maintains a fully assigned casework backlog.

2. The Technical Unit successfully implemented the in-house platform for the analysis of database samples including the training of the database staff and implementation of an Expert System for the automated analysis of DNA profiles. Validations have been completed for a technology to determine the quantity of male DNA present in samples to better assist the casework analysts in down-stream processing decisions. The unit was selected to assist a forensic reagent manufacturer with the alpha testing phase of an enhanced male specific DNA test kit. The Technical Leader has been an invited guest speaker on the topic of DNA mixture analysis at several forensic labs and professional seminars across the country and was asked to be an author of a chapter on DNA Mixture Interpretation for the Elsevier Encyclopedia of Forensic Sciences.

3. The database-collections unit received over 10,000 arrestee samples and expunged over 5,200 of those samples in 2011. Over 4,000 arrestee samples were imported into CODIS. Over 6,000 offender samples were received and more than 5,800 offender samples were imported into CODIS. The database staff was able to maintain a zero to minimal backlog of offender and arrestee samples needing to be reviewed and sent for analysis while continuing to trouble shoot the various challenges in implementing the arrestee collection law. Since January 2009 when the arrestee collection law went into effect samples from individuals charged and arrested with violent crimes had been outsourced to a contract lab for analysis. However, in June of 2011 the database unit made the successful transition of bringing the analysis of these samples in house. In order to accomplish this, the database staff underwent training and utilized technology that could accommodate this high throughput process including the use of an expert system to assist in the review process. Maryland had over 400 hits for 2011 including over 80 arrestee hits. To date over 2400 hits have been released and over 98,000 Convicted Offender samples and 14,000 arrestee samples have been entered in CODIS.

BIOLOGY SECTION GOALS FOR 2012

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 the ability to maintain a fully assigned casework backlog throughout 2012 while implementing processes to reduce the number of cases directly outsourced.

2. In 2012, the Technical Unit will be implementing the technology to determine the quantity of male DNA present in samples into the casework protocol and training the current staff on its use. Additionally, alternative technologies will be investigated that may present better separation of mixed DNA samples providing for more complete interpretations of sexual assault evidence samples. As advanced technologies become available, the unit will also be validating the use of Y-STR analysis for male specific examinations as a supplement to traditional DNA analysis. The Technical Leader has several more DNA mixture presentations scheduled in 2012 across the country.

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 data feeds between the Courts and FSD. This year the database unit will make the transition of having all database samples (arrestee and convicted offender) processed using in-house analysis. This will improve turn around time of database samples as well as provide long term cost savings. The Database unit will continue to improve communication and training of DNA Database collectors state wide so that the collection process of all the database samples runs as smooth as possible. We will also continue to work with the sex offender registry to ensure that all qualifying samples are collected and received by the laboratory.

TRACE EVIDENCE SECTION

The Trace Evidence Section (TES) consists of two units, the Trace Evidence Unit and the Questioned Documents Unit. The Trace Evidence Unit is sub-divided into three subunits, Trace Pattern, Trace Chemistry and Trace Biology. The Trace Evidence Section consists of one Forensic Scientist Supervisor, a Forensic Scientist Advanced, two Forensic Scientists III and a Forensic Scientist I.

TRACE EVIDENCE 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 Fracture Matches; Lamp Examinations; Nature of Damage (including Direction of Force, Fabric Separation and general sustained damage); Cordage, Knots and Ligatures; and Plastic Bag comparisons.

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 and Adhesives; Soil Anomalies; and miscellaneous liquids, powders and solids.

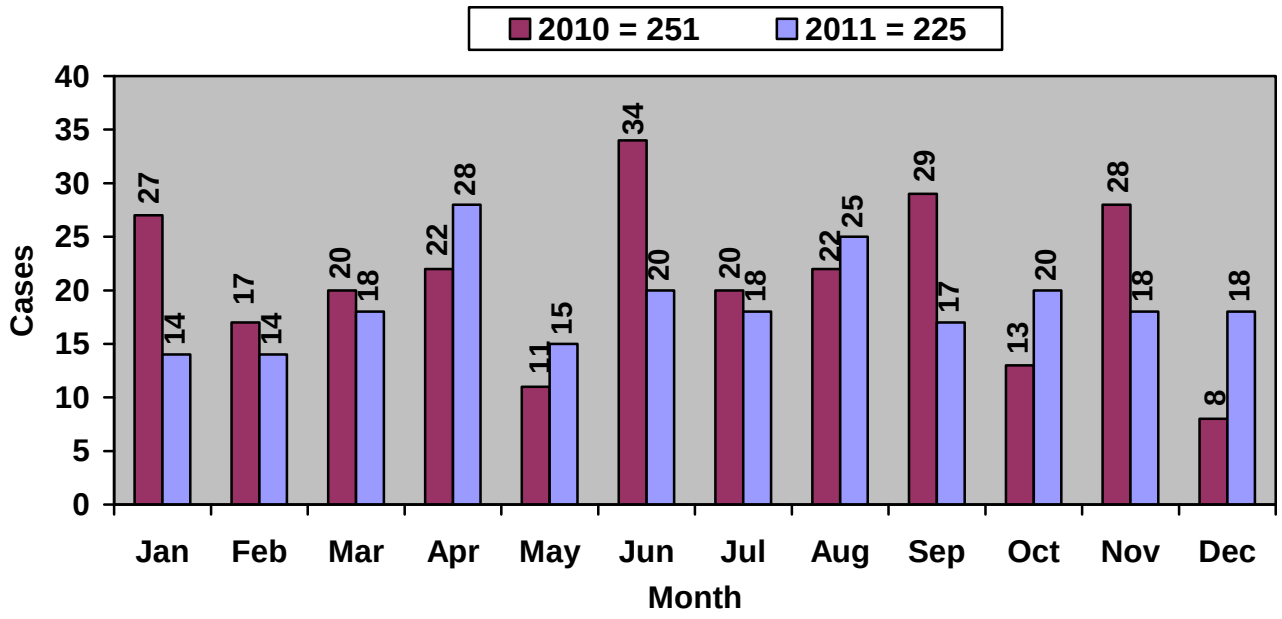
The Trace Biology Sub-Unit examines biological evidence in support of the operations of the Biology Section. The main area of analyses is with hair examinations to determine species, body area, root shape, and growth phase for further DNA profiling. This subunit is developing advanced biological screening protocols in an effort to analyze biological material (both animal and plant) that is not currently possible.

QUESTIONED DOCUMENTS UNIT

The Questioned Documents Unit performs analyses and comparisons on handwriting, hand printed and machine printed materials. This unit also performs examinations of torn, charred and obliterated paper, indented writing cases and comparisons of fractured items.

Casework

Total Cases Received per Month



MSP Cases Received in 2011per Barrack

Barrack	Counties Served	Submissions
MSP - Easton	Caroline, Dorchester, Talbot	7
MSP-CID	Statewide	5
MSP – College Park	Prince George's	3
MSP - Bel Air	Harford	2
MSP – Glen Burnie	Anne Arundel	1
MSP - Homicide	State-Wide	1
MSP - Mc Henry	Garrett	1
	TOTAL	**20**

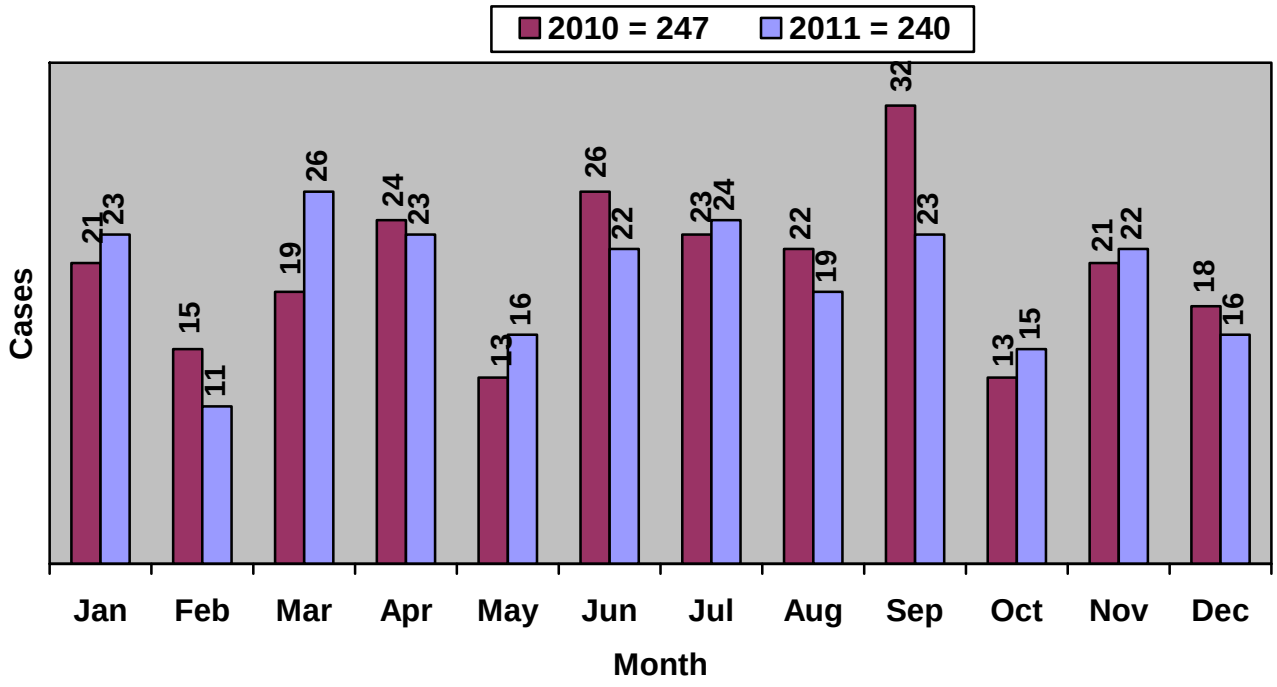
OSFM Cases Received in 2011 per OSFM Region

Region	Counties Served	Submissions
OSFM – Lower Shore	Dorchester, Somerset, Wicomico, Worcester	22
OSFM – Southern	Calvert, Charles, St. Mary's	13
OSFM – Metro	Carroll, Frederick, Howard	12
OSFM – Upper Shore	Caroline, Kent, Queen Anne's, Talbot	9
OSFM – North East	Harford, Cecil	8
OSFM – Western	Allegany, Garrett, Washington	7
OSFM - Headquarters	Prince George's, Anne Arundel, Baltimore, Montgomery	1
	TOTAL	**72**

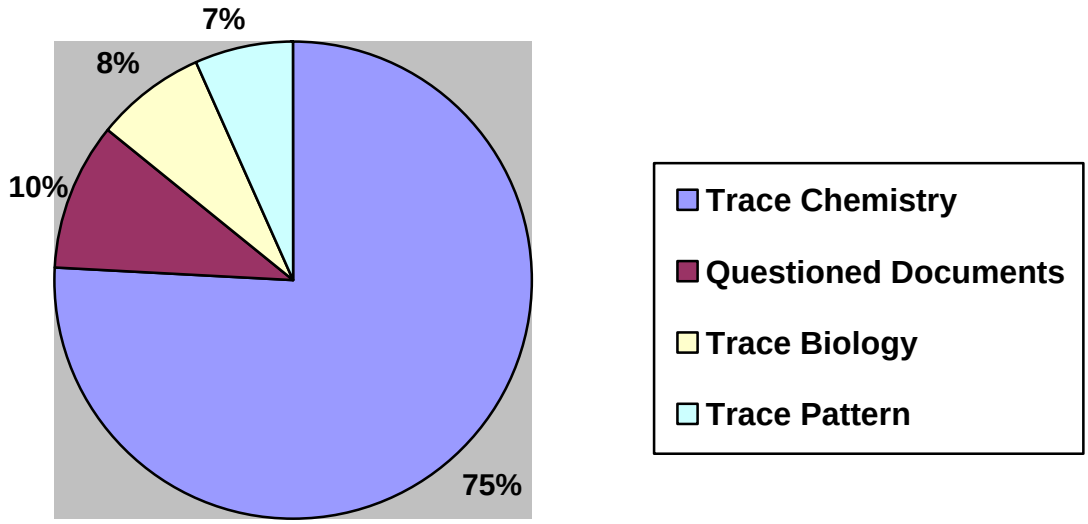
Allied Agency Cases Received in 2011 per County

Counties	Submissions
Anne Arundel	47
Baltimore	22
Howard	11
Montgomery	9
Worcester	8
Harford	5
Frederick	5
Calvert	4
Wicomico	3
Washington	3
Queen Anne's	3
Charles	3
Prince George's	2
Statewide	1
Somerset	1
Out of State	1
Garrett	1
Cecil	1
Carroll	1
Baltimore City	1
Allegany	1
TOTAL	**133**

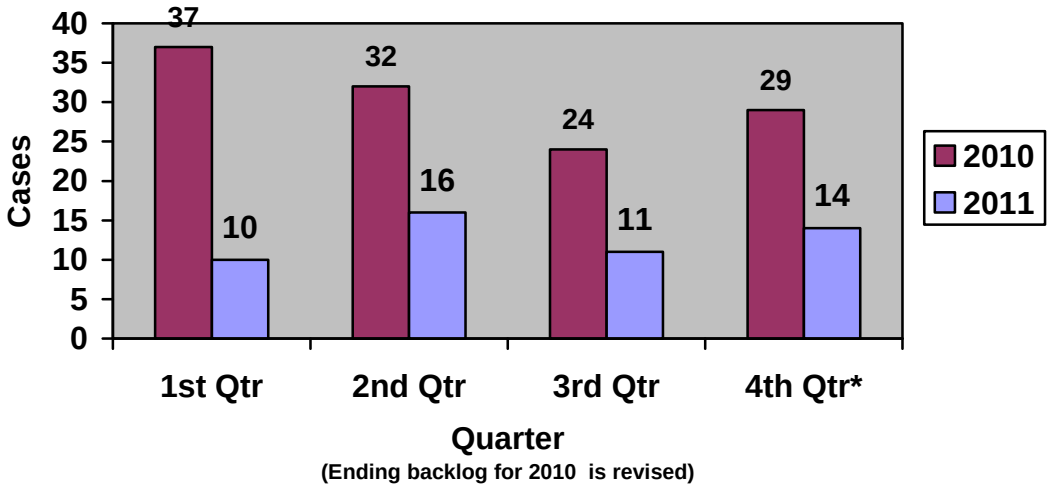
Total Cases Completed per Month



Cases Completed by Sub-Unit

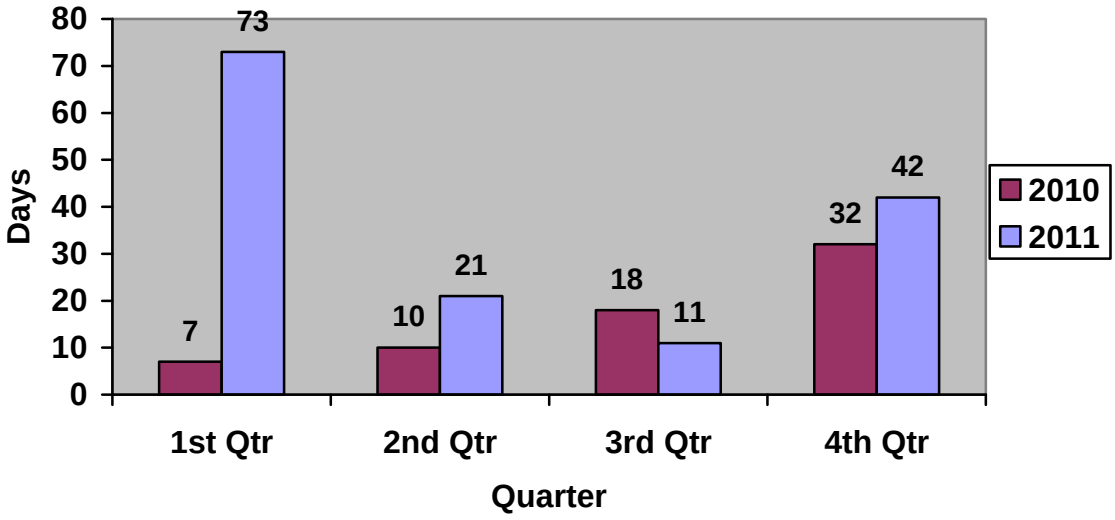


Ending Backlog per Quarter



(Ending backlog for 2010 is revised)

Average Turn Around Time per Quarter



Training and Validation

New Technologies Implemented in 2011	Expected Benefits
Scanning Electron Microscope with Energy Dispersive Spectrometer (SEM/EDS)	The ability to view very small evidence and determine its elemental composition.
Foster and Freeman Video Spectral Comparator (VSC) 5000	The ability to detect document forgery or tampering.

Forensic Scientist	Competency Certification
Salvatore Bianca	Fibers
Andreana Dimakakos	Fracture Matches; Soil
Joseph Harant	General Unknowns; Paint
Diane Lawder	Fracture Matches
Holetheia Rene	Hair Evaluations for DNA Analysis

TRACE EVIDENCE SECTION ACCOMPLISHMENTS IN 2011

1. Instrumentation was brought on-line that provided the TES with additional capabilities. The Trace Evidence Unit staff completed a thorough and well designed validation of the JEOL JSM-6490V Scanning Electron Microscope with Oxford INCA Energy 250 Energy Dispersive Spectrometer. This instrument allows for the visualization and the determination of elemental composition of extremely small evidence samples such as paint chips, glass particles and unknown substances. The Questioned Documents Unit Forensic Scientist Advanced completed a validation/performance check on a Foster and Freeman Video Spectral Comparator (VSC) 5000. This instrument replaces an outdated VSC 1 and is a forensic imaging system for examining documents of all types. It will assist in the detection of document forgery or tampering and can be used to reveal a variety of security features by using various lighting sources and filters.

2. The Trace Evidence Section was able to share a Forensic Scientist I with the Forensic Biology Section. This part time Trace Evidence examiner was assigned to the Trace Evidence Biology subunit and has successfully completed training and achieved competency in Hair Evaluation for DNA Analysis.

3. The senior MSP Trace Evidence examiners successfully trained less experienced MSP Trace Evidence examiners in areas of analysis including Fracture Matches, Soil, Microscopy, Low Explosives, Paint, and Hair Evaluation for DNA. It should also be noted that two Trace Evidence examiners from Baltimore City Police Department were included in the Paint and Fracture Match training programs.

TRACE EVIDENCE SECTION GOALS FOR 2012

1. While there currently is at least one forensic scientist trained and competent in each of the thirteen sub-disciplines offered by the Trace Evidence Unit, a major goal of the unit is to establish a succession plan that will ensure that at least two forensic scientists are trained and competent in each sub-discipline. To that end, training schedules have been developed that provide for all required training to be completed in 2012. Training will include in-house training, external training, and online training.

2. The Trace Evidence Biology Sub-Unit has completed preliminary SOPs on Wood and Bone and is to continue working on Plant and Animal material analysis SOPs. In conjunction with developing these new SOPs, methods will be validated and staff will be trained.

3. FSD has only one Questioned Documents examiner. A working agreement has been in effect for several years that allows the work performed by the FSD Questioned Documents examiner to be technically reviewed by the Baltimore City Police Department Questioned Documents examiner. Similarly casework performed by the Baltimore City Police Department Questioned Documents examiner is technically reviewed by the FSD Questioned Documents examiner. While this reciprocal relationship has been very beneficial, it is prudent that FSD develop a second Questioned Documents examiner so that this unit can be self sufficient. Therefore, cross-training of a Trace Unit Forensic Scientist by the FSD Questioned Documents examiner will begin in 2012.