



2013

ANNUAL REPORT

MARYLAND STATE POLICE

FORENSIC SCIENCES DIVISION

TABLE OF CONTENTS

Forensic Sciences Division Description	1
Director's Summary	2
Casework Summary	6
<u>Operational Services Branch</u>	
Crime Scene Section	10
Western Region Unit.....	10
Central Region Unit	10
Eastern Region Unit.....	10
Accomplishments.....	13
Goals	14
Forensic Support Services Section	15
Photography Unit.....	16
Central Receiving Unit	19
Administrative Support Unit.....	21
Computer Support Unit.....	21
Accomplishments.....	22
Goals	23
<u>Scientific Analysis Branch</u>	
Pattern Evidence Section	24
Latent Prints/Impressions Unit	25
Firearms/Toolmarks Unit.....	33
Accomplishments.....	40
Goals	41
Chemistry Section	42
CDS Units	43
CDS-Pikesville Unit.....	44
CDS-Berlin Unit	48
CDS-Hagerstown Unit.....	52
Toxicology Unit.....	56
Accomplishments.....	66
Goals	67
Biology Section	68
Biology Casework Unit.....	69
Biology Database Unit.....	74
Biology Technical Unit.....	79
Accomplishments.....	81
Goals	82
Trace Evidence Section	83
Trace Evidence Unit	83
Questioned Documents Unit.....	83
Accomplishments.....	88
Goals	89

FORENSIC SCIENCES DIVISION DESCRIPTION



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 two Sections comprised of seven Units. The Scientific Analysis Branch consists of four Sections comprised of eleven Units. The personnel within the Operational Services Branch and the Scientific Analysis Branch provide scientific support services to the law enforcement community.

The MSP-FSD operates under the following principles:

Core Values

Our dedication to integrity, fairness, and service ensures that our clients are always provided with reports and expert testimony that are ethical, reliable, and scientifically informative.

Mission Statement

- *To promote a healthy work environment.*
- *To meet the forensic science needs of Maryland and its citizens.*
- *To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.*
- *To minimize backlogs and turn around time.*
- *To operate in a planned, prepared, and proactive manner.*

Vision Statement

- *To respect, acknowledge, value, challenge, and retain our employees.*
- *To collaborate with other laboratories and agencies and maximize the forensic services available to Maryland and its citizens.*
- *To promote state of the science operations through continuing education and routine evaluation of current procedures.*
- *To eliminate backlogs and initiate cases upon submission.*
- *To maximize the public's return on investment by ensuring that sufficient resources are always available to the Forensic Sciences Division and that those resources are always procured in the most fiscally responsible manner possible.*

DIRECTOR'S SUMMARY

Teresa M. Long and Daniel E. Katz

Every year brings about new successes and new challenges and the Forensic Sciences Division (FSD) met both with the usual professionalism and determination in 2013. The year started by re-establishing our core values, mission statement, and vision statement. These ideals were introduced in 2013 and will be the basis of the FSD strategic plan in 2014. In this Director's Summary as well as in the achievements and goals depicted in this annual report, the information provided will be structured around the five prongs of the FSD Mission Statement.

To promote a healthy work environment.

With nearly 100 individuals working out of 3 different laboratories and 14 different crime scene offices, FSD's strongest asset is its employees. Job satisfaction needs to come from within by taking pride in your work, having a sense of urgency in your work, and recognizing how your work impacts others. However, it is also important that FSD ensures that the staff has opportunities to have their voices heard, to be recognized for their hard work, and to interact with one another and develop camaraderie. In 2013, FSD continued employee based programs such as employee of the month, town hall meetings, guest lectures, blood drives, the giving tree, holiday parties, and window decorating contests. Some new initiatives were introduced such as the National Forensic Science Week celebration, the family fun fair, and a flexible working schedule. The past year also saw the return of cost of living adjustments and commander's awards. These all contribute to a healthier work environment but more can be done. To this end, we will continue efforts in 2014 to address salary inequities, obtain sufficient IT support and hardware, and introduce new employee recognition programs.

To meet the forensic science needs of Maryland and its citizens.

As the Maryland State Police's Forensic Sciences Division we have a responsibility to all the citizens of Maryland. This is evident by the fact that 74% of the casework completed by the laboratory is for allied law enforcement agencies. It is critical that FSD continue to supply a wide range of forensic testing to our customers as well as pass on our knowledge and experience to colleagues and future practitioners.

A major forensic service was re-established in 2013, when with the assistance of the ATF lab and the Baltimore City PD lab FSD was able to bring back on-line the analysis of fire debris evidence. Our laboratory is grateful for the cooperative efforts shown by the ATF in training FSD's trace evidence examiners as well as both ATF's and Baltimore City's assistance in taking casework while the training was occurring. Being able to provide fire debris analysis is critical to supporting the work of the State Fire Marshal's Office.

Also in 2013, budget deficiency funds were used to purchase 7 new Crime Scene Section vans and 3 new Crime Scene Section SUVs. New vehicles were desperately needed as the old fleet had over 200,000 miles per vehicle and the vehicles were breaking down regularly. Such

occurrences resulted in delayed response times, as well as causing the technicians to have to work out of cars, limiting the amount of equipment and evidence they could transport. The new crime scene vehicles are a great source of pride and have also allowed for the Crime Scene Technicians to perform their jobs better.

In regards to supporting forensic science and the development of the next generation of forensic scientists, FSD hosted 45 interns from various academic facilities. These institutions included the George Washington University, Stevenson University, Towson University, University of Maryland – College Park, University of Baltimore, Stevenson University, Tiffin University (Ohio), West Virginia University, Washington College, Loyola University, Bridgewater College (VA), Marshall University, Penn State University, and Coventry University (United Kingdom).

FSD staff also shared their forensic expertise with numerous tour groups that ranged from high school students to foreign diplomats. In fact, in 2013 during National Forensic Science Week, FSD sponsored an outreach initiative that involved inviting investigators, prosecutors, defense attorneys, and judges from throughout the State to come to FSD for a tour and a question and answer session with our forensic scientists. Also, during National Forensic Science Week, fellow MSP employees were invited to the lab in an effort to promote MSP unity and educate our co-workers on the services FSD provides.

FSD continued to participate in various teaching activities that included allowing Stevenson University forensic science students to shadow forensic scientists in the laboratory, lecturing to candidate troopers at the MSP Academy, presenting at the MPCTC sponsored Fundamentals of Criminal Investigation course, and others. One especially noteworthy teaching endeavor involved members of the Crime Scene Section along with representatives from the different laboratory Units conducting a 2-week Basic Crime Scene Training program at FSD. The course was attended by approximately 20 individuals from allied agencies throughout the state and received very positive feedback.

To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.

The backbone of the FSD is our Quality Assurance program. FSD is both accredited by the American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB) and licensed by the State of Maryland Department of Health and Mental Hygiene Office of Health Care Quality. In 2013, FSD had on-site visits from both organizations and no findings were reported during either audit. Furthermore, we have multiple staff members who are ASCLD/LAB assessors and performed assessments of other laboratories throughout the United States.

In addition, after months of development, planning, and study, FSD implemented new policies to be in compliance with new ASCLD/LAB requirements regarding the traceability and uncertainty of measurements. Traceability of a measurement is required for all measurements where measurement uncertainty is estimated or where the measurement result has a significant impact on the final test result. Starting in 2014, an uncertainty of measurement statement will be included on all reports involving blood alcohol concentrations, weights of controlled dangerous substances (CDS), and the lengths of firearms.

To minimize backlogs and turn around times.

A comparison of the yearly annual reports from 2012 to 2013 show the laboratory both receiving and completing more cases in 2013. The number of cases received increased 5.8% (1,155 cases) and the number of cases completed increased 3.5% (679 cases). While the lab was able to improve productivity in 2013, the significant growth in case submissions resulted in the overall backlogs of the laboratory increasing. Efforts have been underway, and will continue in 2014, to increase production while ensuring that only cases that actually require testing are submitted.

Over the past six years, the Biology Section implemented both a case analysis strategy that maximized production and a submission policy that promoted more communication between laboratory personnel and submitting agencies. The results of these efforts were realized in 2013 when both the DNA casework backlog and turn around time reached all time lows. Similar approaches are currently underway in both the Latent Print / Impressions Unit and the CDS Units.

A major initiative in the Latent Print / Impressions Unit (LPIU) that started in 2013 and will continue into 2014 was the outsourcing of backlogged casework. It is anticipated that the latent print outsourcing project will result in approximately a 50% decrease in the LPIU casework backlog. The funding for this outsourcing project came from a FY13 budget deficiency award as well as from a competitive Coverdell grant.

In our CDS Units, initial efforts were made in 2013 to improve our relationships with our customers and to identify key points of contact in each of the many jurisdictions we serve. It is hoped that this will result in better communication about what cases should be submitted, what priority should be given to cases, and what cases that were submitted no longer need analysis. Furthermore, efforts began in 2013 to implement workflow changes in the CDS Units that include a more strategic distribution of work, standardizing analytical methods amongst the forensic scientists, and transitioning to electronic case notes. These efforts will continue into 2014 and it is anticipated that significant results will be seen by the end of the year.

While the new gun legislation in Maryland had a well publicized impact on the MSP Licensing Division, it should be noted that the rush to purchase firearms prior to the implementation of the law on October 1st resulted in astronomical submissions of shell casings to the Firearms / Toolmarks Unit (FATMU) for inclusion in the Statewide Shell Casing Repository. The impact of these submissions was felt by the entire FATMU as examiners had to take time away from casework to address the shell casing backlog. Thankfully, the submissions have drastically decreased since October 1st and three of the four lab technician positions created to address this issue have been filled with a fourth expected to be filled shortly. In addition, FATMU continues to use interns and is seeking to hire four temporary employees in 2014 to process shell casings.

In addition to these larger initiatives, FSD continues to do the little things every day that ensure we are able to provide our customers with the best service possible. Whether it is shifting work between locations, using contractual staff, securing grant funded overtime and outsourcing, or simply promoting the spirit of teamwork; FSD gets the job done.

To operate in a planned, prepared, and proactive manner.

A focal point going into 2013 was to make a commitment to running FSD more like a business. This may seem odd when discussing a non-profit government forensic laboratory, but we must always remember that the citizens of Maryland pay for our work with their taxes and we have a responsibility to them to maximize the return on their investment in us. It is crucial to set goals and objectives, develop plans to meet those goals and objectives, engage the staff to carry out the plans, monitor and assess performance metrics, and adjust the plans as needed. Furthermore, business decisions must be made to ensure that our operations are carried out in the most effective and efficient manner possible.

Waiting to react to a crisis almost always ends up costing more money, time, and energy than acting proactively. Some issues identified in 2013 that must be addressed in 2014 include the need for succession planning in the Latent Print / Impressions Unit, gaining more control of the FSD budget, improving IT resources, and developing customer working groups.

In conclusion, FSD continually strives to meet the needs of our clients in the law enforcement community and the court systems. The success of the Division is directly linked to the support provided by the Department and the tireless effort of all the dedicated FSD staff. With the retirement of Director Teresa Long, the FSD faces a change of leadership as 2013 ends. Due to the strong infrastructure and the exceptional quality assurance program that was established under former Director Long's leadership, the existing management team of Acting Director Dan Katz, Assistant Commander Captain Chris Finn, and Quality Assurance/Safety Manager Dr. Wanda Kuperus is ready to lead FSD into 2014 and beyond.

2013 FSD STATISTICAL SUMMARY

Crime Scenes Processed and Assisted

Crime Scene Region	Scenes Processed	MSP Scenes	Allied Agency Scenes	Scene Assists
Eastern	367	44%	56%	63
Western	290	75%	25%	27
Central	247	80%	20%	33
TOTALS	904	64%	36%	123

Laboratory Cases Received and Completed

Casework Type	Total Cases Received	MSP Cases Received	Allied Agency Cases Received	Cases Completed
Latent Prints/Impressions	1,363	24%	76%	1,418
Firearms/Toolmarks	676	31%	69%	805
CDS-Pikesville	8,471	26%	74%	8,333
CDS-Berlin	4,987	16%	84%	4,747
CDS-Hagerstown	3,600	38%	62%	3,175
Toxicology - Alcohol	734	31%	69%	691
Toxicology - Drugs	329	24%	76%	323
Biology	676	21%	79%	616
Trace Evidence	178	47%	53%	100
TOTALS	21,014	26%	74%	20,208

Laboratory Backlogs and Turn Around Times

Casework Type	Backlog (Cases)	Turn Around Time (Calendar Days)
Latent Prints/Impressions	1,414	298
Firearms/Toolmarks	526	344
CDS-Pikesville	1,606	71
CDS-Berlin	331	10
CDS-Hagerstown	483	18
Toxicology - Alcohol	102	22
Toxicology - Drugs	66	65
Biology	196	72
Trace Evidence	156	161

Operational Services Branch Annual Comparison

Section/Unit (<i>Action</i>)	2012	2013
Crime Scene (<i>Crime Scenes Processed</i>)	1,052	904
Photography (<i>Special Assignments</i>)	203	187
Photography (<i>Film Processed</i>)	115	296
Photography (<i>Prints Made</i>)	7,371	6,023
Central Receiving (<i>Forensic Cases Received</i>)	19,859	21,014
Central Receiving (<i>CDS Cases Destroyed</i>)	5,738	6,330

Scientific Analysis Branch Annual Comparison

Unit (<i>Action</i>)	2012	2013
Latent Prints/Impressions (<i>Cases Received</i>)	1,770	1,363
Latent Prints/Impressions (<i>Cases Completed</i>)	1,814	1,418
Latent Prints/Impressions (<i>MAFIS Case Hits</i>)	320	234
Latent Prints/Impressions (<i>Case Uploads to MAFIS</i>)	564	468
Latent Prints/Impressions (<i>Latent Print Uploads to MAFIS</i>)	1,087	935
Firearms/Toolmarks (<i>Cases Received</i>)	727	676
Firearms/Toolmarks (<i>Cases Completed</i>)	741	549
Firearms/Toolmarks (<i>Case Uploads to NIBIN</i>)	416	375
Firearms/Toolmarks (<i>Operation Test Shot Samples Completed</i>)	166	256
Firearms/Toolmarks (<i>Statewide Shell Casing Repository Samples Processed</i>)	32,972	31,369
CDS-Pikesville (<i>Cases Received</i>)	8,950	8,471
CDS-Pikesville (<i>Cases Completed</i>)	7,994	8,333
CDS-Berlin (<i>Cases Received</i>)	4,365	4,987
CDS-Berlin (<i>Cases Completed</i>)	4,684	4,747
CDS-Hagerstown (<i>Cases Received</i>)	2,105	3,600
CDS-Hagerstown (<i>Cases Completed</i>)	2,382	3,175
Toxicology (<i>Blood Alcohol Cases Received</i>)	845	734
Toxicology (<i>Blood Alcohol Cases Completed</i>)	877	691
Toxicology (<i>Blood Drug Cases Received</i>)	360	329
Toxicology (<i>Blood Drug Cases Completed</i>)	343	323
Biology Casework (<i>Cases Received</i>)	487	676
Biology Casework (<i>Cases Completed</i>)	496	616
Biology Database (<i>Total CODIS Hits</i>)	414	478
Biology Database (<i>Arrested/Charged CODIS Hits</i>)	45	88
Biology Database (<i>Convicted Offender Uploads to CODIS</i>)	6,848	4,752
Biology Database (<i>Arrested/Charged Uploads to CODIS</i>)	3,174	4,071
Biology Database (<i>Case Uploads to CODIS</i>)	801	886
Trace Evidence (<i>Cases Received</i>)	250	178
Trace Evidence (<i>Cases Completed</i>)	198	100

Quantity of Laboratory Submissions to FSD Ranked by MSP Installation

2013 Rank	2012 Rank	MSP Installation	Counties Served
1	1	MSP-Westminster	Carroll
2	2	MSP-JFK Highway	Cecil, Harford, Baltimore
3	3	MSP-North East	Cecil
4	6	MSP-Golden Ring	Baltimore
5	11	MSP-McHenry	Garrett
6	5	MSP-Bel Air	Harford
7	10	MSP-Prince Frederick	Calvert
8	7	MSP-Salisbury	Wicomico
9	7	MSP-Centerville	Kent, Queen Anne's
10	9	MSP-Easton	Caroline, Dorchester, Talbot
11	12	MSP-Frederick	Frederick
12	13	MSP-Glen Burnie	Anne Arundel
13	19	MSP-LaPlata	Charles
14	18	MSP-Cumberland	Allegany
15	14	MSP-Leonardtown	St. Mary's
16	21	MSP-Hagerstown	Washington
17	14	MSP-College Park	Prince George's
17	16	MSP-Berlin	Worcester
19	17	MSP-Rockville	Montgomery
20	20	MSP-Forestville	Prince George's
21	22	MSP-Princess Anne	Somerset
22	24	MSP-Waterloo	Howard
23	25	Office of State Fire Marshall	Statewide
24	26	MSP-Homicide	Statewide
25	23	MSP-CID	Statewide
26	4	MSP-DED	Statewide

Quantity of Laboratory Submissions to FSD Ranked by Allied Agency County

2013 Rank	2012 Rank	County
1	1	Worcester
2	2	Frederick
3	6	Wicomico
4	5	Charles
5	3	Harford
6	4	Howard
7	7	Cecil
8	9	Calvert
9	8	Allegany
10	12	Carroll
11	11	St. Mary's
12	13	Dorchester
13	10	Anne Arundel
14	14	Talbot
15	15	Baltimore
16	16	Prince George's
17	18	Baltimore City
18	20	Caroline
19	17	Queen Anne's
20	21	Kent
21	19	Washington
22	22	Montgomery
23	23	Somerset
24	24	Garrett
25	25	Statewide

CRIME SCENE SECTION

The Crime Scene Section (CSS) 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. The technicians work closely with criminal investigators, processing crime scenes and providing technical assistance, thereby allowing investigators the opportunity to conduct thorough investigations. The technicians are available to Maryland's law enforcement community twenty-four hours a day, seven days a week. The CSS also provides assistance to neighboring states upon request. The CSS is divided into three regional units, Western, Central, and Eastern. The Section is staffed by three Crime Scene Technician Supervisors and fifteen Crime Scene Technicians. There are five technicians assigned to each of the regions.

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 the Department's installations, but also for many of the local police and sheriffs' departments. These transports are to and from the Pikesville Laboratory as well as the two satellite laboratories located in Hagerstown and Berlin.

In addition to these duties, CSTs are responsible for managing and training 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 CSS also is key player in the FSD Disaster Identification Team (DIT), which is available to assist the Office of the Chief Medical Examiner in locating, marking, photographing, and identifying disaster victims.

The technical abilities and expertise of the CSSTs are often utilized for training. 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. During October, a two week Basic Crime Scene Training program was conducted for training new CSS personnel, as well as various law enforcement personnel from numerous allied departments.

Crime Scene Regional Units

Western Region Unit: Allegany, Frederick, Washington, Carroll, Howard, Montgomery and Garrett Counties

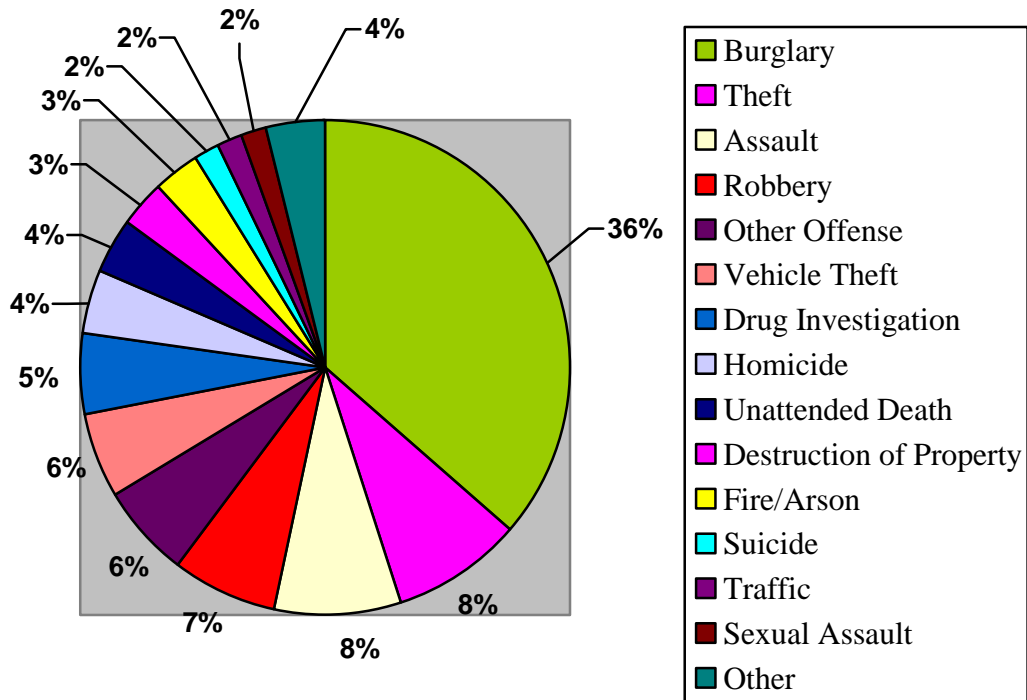
Central Region Unit: Harford, Baltimore, Cecil, Anne Arundel, Prince George's, Calvert, Charles and St. Mary's Counties, Maryland Port, and all DOC facilities located in Baltimore City

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

Total Number of Crime Scenes Handled in 2013 per Office

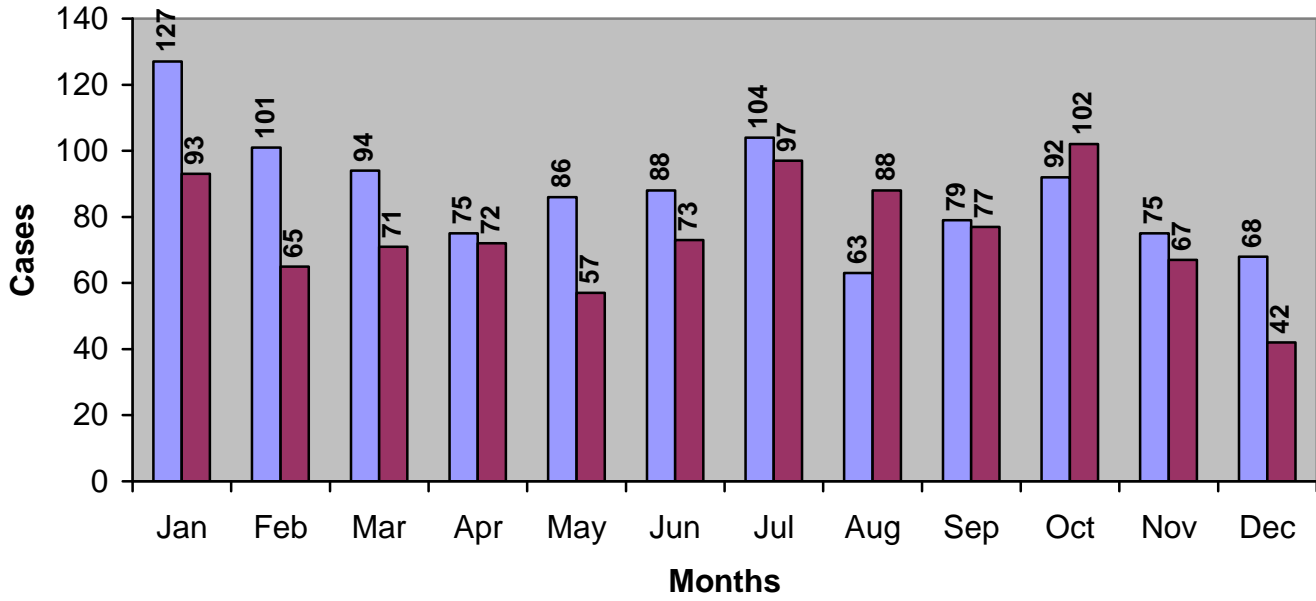
Crime Scene Office	Total Crime Scenes
North East	126
Easton	121
Prince Anne	109
Cumberland (C3I)	82
McHenry	82
Bel Air	64
Centreville	61
Salisbury	53
Frederick	46
Westminster	40
Hagerstown	37
Glen Burnie	36
Golden Ring	36
Pikesville	11
TOTAL	904

Total Number of Crime Scenes in 2013 per Crime Type



Total Number of Crime Scenes per Month

2012 = 1,052 2013 = 904



2013 CRIME SCENE SECTION ACCOMPLISHMENTS

- 1. To promote a healthy work environment.** The purchase of ten new crime scene vehicles not only provided the CSTs with vehicles they could rely upon, but also the CSTs have a new sense of pride driving the new vehicles with their distinctive and attractive markings. Backup cameras were also purchased for seven of the new vehicles to provide added safety for the CSTs when driving in reverse.
- 2. To meet the forensic sciences needs of Maryland and its citizens.** The new crime scene vehicles also allowed the CSTs to provide more reliable service to their clients and ensure that calls were handled in as timely a manner as possible. In 2013, numerous noteworthy homicide investigations reached a successful conclusion in court due to the diligent efforts of CSS personnel. Also, the CSS conducted a two week Basic Crime Scene Training program for new CSS personnel and various law enforcement personnel from allied agencies throughout Maryland. Personnel attending indicated this training increased their knowledge, skill, and abilities.
- 3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.** There were no findings during the annual ASCLD/LAB surveillance visit and the assessor was very complimentary in reference to the QA practices of the CSS. During the surveillance visit, seven of the 14 crime scene offices were toured and evaluated. Members of the CSS staff were responsible for transporting the assessor to all of the various sites and did so in a very professional and efficient manner. It should also be noted that CST Supervisor Kris Amspacker exemplified the importance of accreditation by being part of an assessment team for the Ventura (CA) Police Department.
- 4. To minimize backlogs and turn around time.** The Crime Scene Section continued to maintain a zero backlog.
- 5. To operate in a planned, prepared, and proactive manner.** A total of 104 CST evaluation forms were submitted by law enforcement personnel providing valuable feedback to the CSTs and their supervisors. These evaluations consistently were highly rated and praised CSS personnel for their exemplary service and performance. Areas of emphasis for training are always being evaluated and, as a result, the CSS manager and supervisors provided hands-on detailed training to staff on scale technical digital photography. Furthermore, a CSS discussion board was created on Google to facilitate communication between CSS staff to discuss best practices.

2014 CRIME SCENE SECTION GOALS

- 1. To promote a healthy work environment.**
 - To maintain equipment in the best condition possible and to replace all outdated/nonworking equipment to the extent that the Division budget will allow.
 - To encourage good safety practices with all Section personnel to include good driving habits.
 - To promote and embrace solidarity between the CSS personnel and the laboratory personnel.

- 2. To meet the forensic sciences needs of Maryland and its citizens.**
 - To continue to handle all calls for service in a professional manner and to always strive to do the best job possible to assist in any and all investigations.
 - To evaluate reasons for decreased calls for service and attempt to gain back any customers that may have been lost.

- 3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.**
 - To continue to strive to follow all sound quality assurance practices making sure that every aspect of the CSS operations, from the initial call for service to the technical and administrative reviews to the handling of all evidence, is done in such a manner that there can be no question as to the integrity of the investigation.
 - To encourage additional CSTs to become ASCLD/LAB assessors.

- 4. To minimize backlogs and turn around time.**
 - To continue to be a model of efficiency making sure that all cases are completed in a timely manner and there is no backlog.
 - To assist other FSD sections and units, however possible, during down time.

- 5. To operate in a planned, prepared, and proactive manner.**
 - To seek out any and all possible training to ensure that staff are kept up to date on the latest techniques and best practices.
 - To reinforce the following of standard operating procedures and to continually review and improve all aspects of CSS operations ensuring the effectiveness of the service provided.
 - To obtain “situational awareness” training for current CSTs and to implement such training for all newly hired CSTs.

FORENSIC SUPPORT SERVICES SECTION

The Forensic Support Services Section (FSSS) is the newest official Section at FSD although the Units that make up the FSSS have long been apart of the Division. The FSSS consists of the Photography Unit, the Central Receiving Unit, the Administrative Support Unit, and the Computer Support Unit. These units play such an important role in allowing the FSD to function as efficiently and effectively as possible, that it was decided they should have their own Section by which they can be identified.

All four of the FSSS units are located at the Forensic Sciences Division Pikesville Laboratory. The Photography Unit is supervised by one Forensic Photographer Supervisor and is staffed by one Forensic Photographer. 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, an Office Secretary III position (vacant), and a Research Statistician IV. The Computer Support Unit consists of three individuals from the IT Division who are assigned to FSD. This includes two IT Quality Assurance Specialists and one Computer Network Specialist II (vacant).

PHOTOGRAPHY UNIT

The Photography Unit provides photographic services to the Maryland State Police as requested through FSD management. In 2013, the Photography Unit completed converting all of the Department's sworn personnel to the new identification card. The process of converting the Department's civilian personnel was initiated in October.

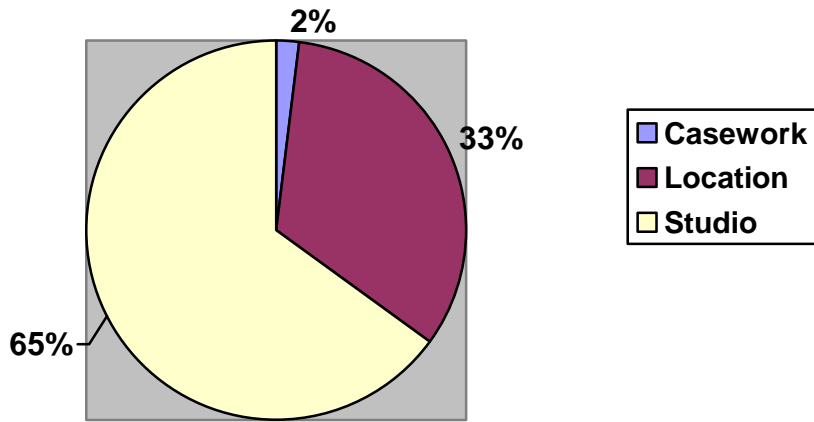
Duties within the Unit include the development and printing of images related to crime scenes and motor vehicle accidents for the Maryland State Police and other agencies. This Unit also serves as the VeriPic system administrator. Reprints or CDs are provided to various divisions and units throughout the Department upon request. Other duties include, but are not limited to, public relations photos, maintaining the digital Barrack Identification Photo System, and the support of other units within the Department.

Photography Unit personnel serve as members of the Disaster Identification Team and provide technical training in photography.

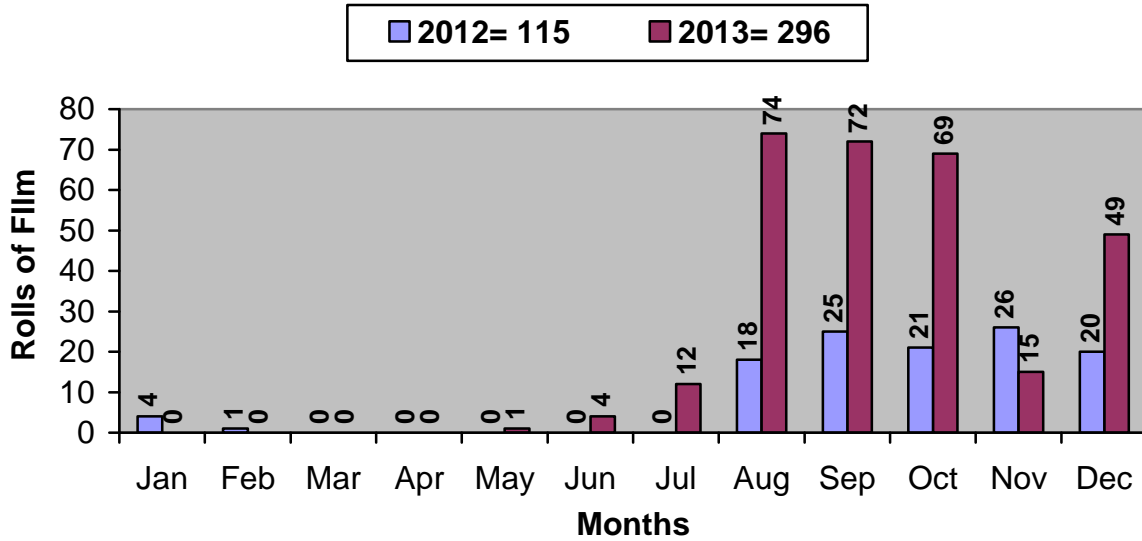
Photography Requests 2013

MSP Requestors	Requests
Forensic Science Division	23
Headquarters	33
Special Operations Division	9
Recruiting	1
Barracks	6
Training	6
Aviation	6
Portraits/FSD (<i>by # of days not requestors</i>)	103
TOTAL	187

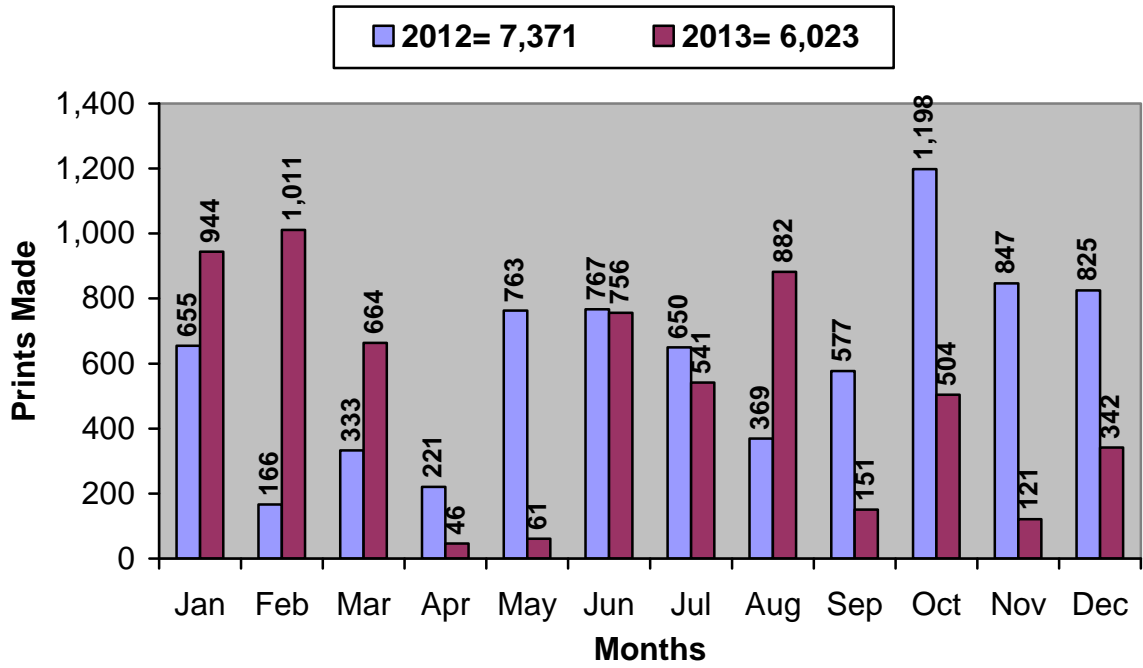
2013 Photo Requests per Request Type



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 Unit is composed of one Administrative Officer and three Inventory Control Specialists. The Unit reports directly to the FSD Assistant Commander.

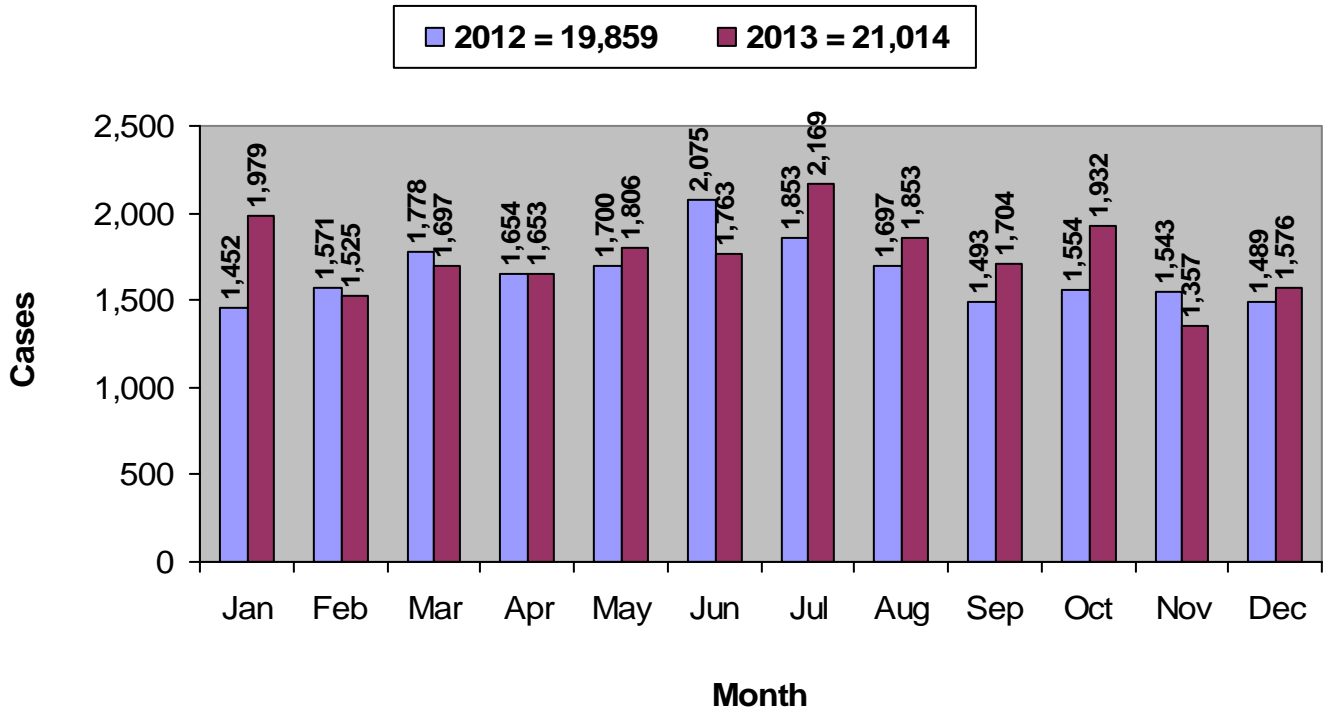
The CRU handles a large volume of various types of evidence such as swabs, sexual assault kits, soiled clothing, controlled dangerous substances, toxicology kits, guns, ammunition, fingerprint lift cards, fire debris cans, and questioned documents. The items are secured in the unit while awaiting analysis and again while pending return to the submitting agency. Personnel assigned to the unit ensure the integrity and protection of each item of evidence. Regularly scheduled inventories of the evidence within central receiving and the laboratory units are coordinated by CRU.

The CRU administers the Department's CDS destruction process. During the destruction process, Inventory Control Specialists randomly select a number of cases to be re-tested for quality control. The CRU also coordinates the local destruction of marijuana plants with the various installations within the Department.

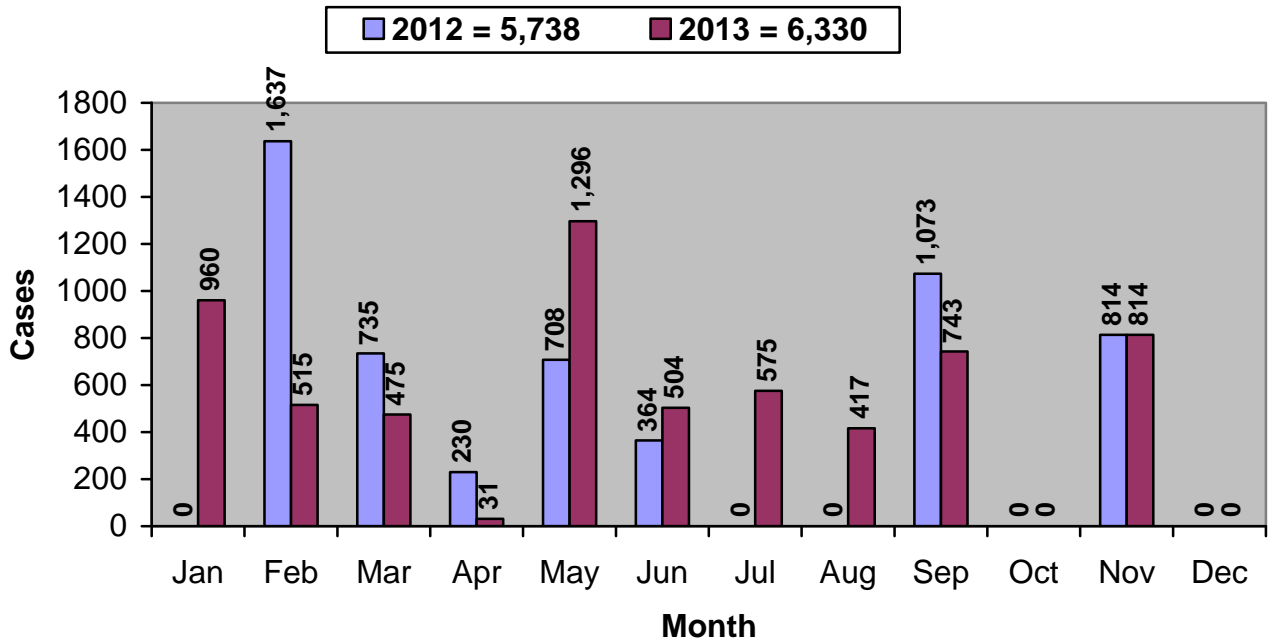
The CRU is responsible for archiving scientific analytical reports for all sections of the FSD and coordinates the transmittal of files to and from the State Records Management Center. The CRU also maintains Expunged records for the Division.

It should also be noted that CRU plays an essential role in the use of the Laboratory Information Management System (StarLIMS). In fact, the CRU supervisor functions as a StarLIMS Administrator and acts as the primary liaison between FSD end users and the project manager at StarLIMS.

Total Cases Received at FSD



Total CDS Cases Destroyed per Month



ADMINISTRATIVE SUPPORT UNIT

The Administrative Support Unit provides support throughout the FSD. Office management 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, logging and maintaining all submitted court summonses, logging and processing training requests, processing work and leave reports, recording meeting notes, and maintaining the Division's filing system. Also, the Research Statistician IV provides extensive monthly and annual case management statistics that management and supervisory staff use for making business decisions.

In addition to the FSD administrative staff, a contractual employee that is sub-contracted through LB & B Associates is assigned to provide security/receptionist coverage for the FSD front lobby security desk. This individual screens and logs all visitors, including personnel delivering evidence, and also monitors laboratory security cameras and corresponds with the Headquarters' Duty Officer and the Baltimore County Police Department regarding security issues.

COMPUTER SUPPORT UNIT

The Computer Support Unit is a group of IT Division (ITD) employees who are assigned to work out of FSD. As ITD is understaffed and is responsible for supporting the IT system of the entire Department, the ability to have these individuals on-site is essential. One of the IT Quality Assurance Specialists is the StarLIMS Administrator responsible for being the primary liaison between FSD end users and the developers and designers at StarLIMS. This individual not only troubleshoots daily StarLIMS issues but also provides the IT support as FSD continues to expand its use of StarLIMS. The other IT Quality Assurance Specialist works in support of the DNA Tracking System that is associated with the DNA Database samples that FSD receives from qualified convicted offenders and individuals charged and arrested with qualifying crimes. The Computer Network Specialist II position is currently vacant but is scheduled to be filled in February 2014. This position is responsible for installing and maintaining computer hardware and software as well as responding to web help desk tickets originating from FSD.

2013 FORENSIC SUPPORT SERVICES SECTION ACCOMPLISHMENTS

1. Promoting a healthy work environment. The Administrative Support Unit has been essential in providing the FSD staff with what they need to do their jobs in the field and in the laboratory. Furthermore, their knowledge and understanding of the inter-workings of the Division ensures that staff can depend on them to answer or get the answer to practically any job-related question. Also, the Photography Unit assisted in creating the 2014 MSP Safety Calendar. The calendar not only provides tips on safety for the Department, but also is a free schedule planner that staff can use to organize their workdays.

2. Meeting the forensic sciences needs of Maryland and its citizens. The Photography Unit did extensive testing on the cameras assigned to Crime Scene Section personnel to determine if it could be utilized to digitally capture fingerprints at crime scenes as governed by SWIGIT guidelines. The testing was completed and guidelines were implemented regarding the use of this specialized photography equipment. Another way that the FSSS impacted the ability to provide our clients with the best forensic services possible is the extensive work of the two StarLIMS Administrators. A major achievement of theirs was the successful implementation of a more efficient electronically based evidence inventory process that insures evidence security.

3. Maintain accreditation with ASCLD/LAB and compliance with oversight requirements. While oversight requirements are primarily focused on the operations in the field and in the laboratory, the FSSS plays an important role in documenting compliance. For example, the Computer Support Unit helped FSD re-design our webpage and post various documents including annual reports which are required to be posted as per the DNA Database statute. Furthermore, a major component of ISO 17025 is documentation of both staff meetings and an annual management review meeting. FSD meets this requirement thanks to the Administrative Specialist III who records the minutes for these meetings.

4. Minimize backlogs and turn around time. In order to minimize backlogs and turn around time a laboratory needs to have accurate backlog and turn around time statistics. The Research Scientist IV maintains these statistics allowing for analysis of trends and the capture of performance metrics. The Photography Unit has maintained a backlog of less than ten cases for most months while also eliminating the backlog of sworn staff who had not obtained their new identification cards. A conscious effort was made by CRU to closely monitor the number of appointments being scheduled for allied law enforcement agencies by adopting and implementing a new scheduling process. This process reduced the amount of time allied law enforcement personnel had to spend submitting evidence to CRU, which also afforded CRU personnel the opportunity to concentrate on preventing a backlog of StarLIMS case entries.

5. To operate in a planned, prepared, and proactive manner. In anticipation of the implementation of the new civilian identification card, the Photography Unit researched and implemented free appointment software that works with the Google system. CRU established a “self-service” appointment scheduler for internal FSD personnel needing assistance from the Unit improving efficiency. CRU also eliminated the use of an Excel case rejection database and a Qtel CDS casework database in favor of using StarLIMS. This consolidation of databases has made it easier to search for and track case information.

2014 FORENSIC SUPPORT SERVICES SECTION GOALS

1. Promoting a healthy work environment.

- The Photography Unit will once again work with the Department's Risk Manager to create the 2015 MSP Safety Calendar, which benefits every employee by providing them monthly safety tips.
- CRU anticipates modifying the hypodermic syringe policy so that requests initiated by law enforcement officers must have an accompanying letter from their respective State's Attorney's Office approving said requests. This will reduce the number of syringe submissions that do not meet the Division's requirements.

2. Meeting the forensic sciences needs of Maryland and its citizens.

- The Photography Unit will train the Office of the State Fire Marshal on the proper use of the newly acquired DSLR cameras.
- The StarLIMS Administrators will work with the CDS Units to implement full use of the CDS module in StarLIMS increasing efficiency and allowing for better electronic reporting.
- CRU will create and provide clearly defined procedures to law enforcement personnel so that they have a quick reference guide for handling evidence that is infrequently submitted to CRU to ensure the correct preservation of the items.

3. Maintain accreditation with ASCLD/LAB and compliance with oversight requirements.

- The StarLIMS Quality Assurance module will be implemented allowing for consolidation and organization of quality assurance records.

4. Minimize backlogs and turn around time.

- The newest release of StarLIMS will also be tested and implemented providing the staff with a more user friendly system.
- The Photography Unit will pursue helping the Latent Print Impressions Unit in regards to digital image capture in an effort to help address the latent print backlog.

5. To operate in a planned, prepared, and proactive manner.

- CRU plans to utilize the pre-logging functionality in StarLIMS to allow information from the submitting law enforcement officer's report to be downloaded into StarLIMS. This creates a more efficient and effective process by immediately populating fields in StarLIMS, reducing the need of CRU personnel to enter this information into the database.
- The Photography Unit plans to implement a new update in VeriPic. This new update has been tested and training has been developed for deployment that details the changes. The Unit will work closely with ITD to ensure a smooth implementation of this update.

PATTERN EVIDENCE SECTION

The Pattern Evidence Section (PES) is comprised of two units, the Latent Prints/Impressions Unit (LPIU) and the Firearms/Toolmarks Unit (FATMU). The section is responsible for performing the analysis of latent friction ridge impression, footwear, tire track, firearm, and toolmark 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 LPIU includes a Forensic Scientist Supervisor, one Forensic Scientist Advanced, three Forensic Scientists III, and one Forensic Scientist II. The FATMU is staffed with a Forensic Scientist Supervisor, one Forensic Scientist Advanced, two Forensic Scientists II (currently being reviewed for promotion to Forensic Scientists III), and four Laboratory Technicians I. Vacancies in the FATMU include one Forensic Scientist II and one Laboratory Technician I (hiring date early 2014).

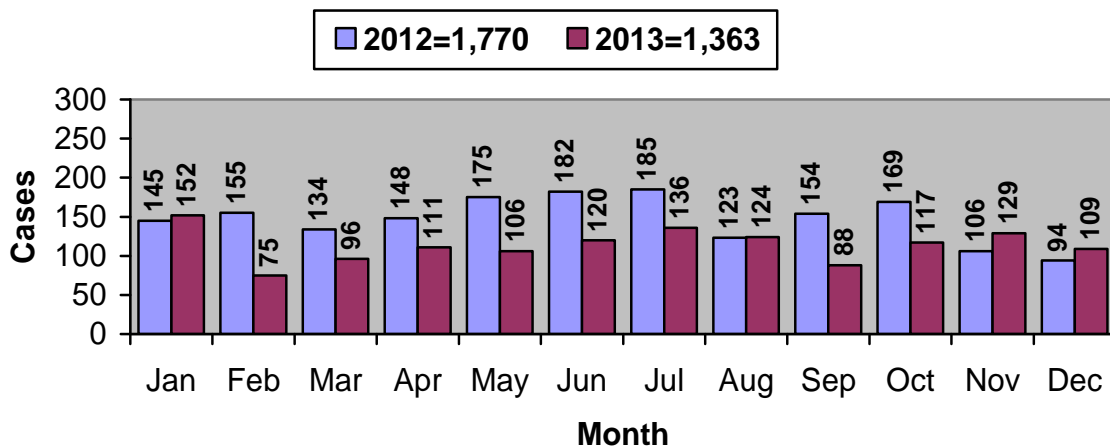
LATENT PRINTS/IMPRESSIONS UNIT

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 records developed friction ridge impressions using digital capture/photo processes as well as gel and adhesive lifts. Comparisons between unknown to known prints are conducted for purposes of determining if they originated from the same individual. 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.

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. Images are recorded with digital imaging devices such as scanners, digital cameras, and the Gel Lifter Scan instrument. 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 either an “identification” or “could have been made” determination is rendered, 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.

Casework

Total Cases Received



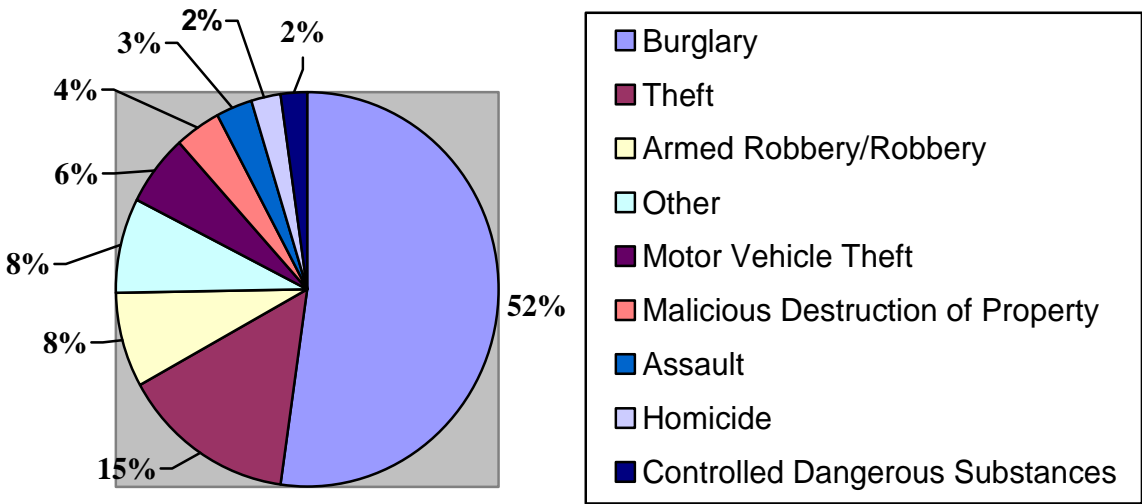
Total MSP Cases Received in 2013 per Installation

MSP Installation	Counties Served	Submissions
MSP-North East	Cecil	53
MSP-Easton	Talbot, Caroline, Dorchester	39
MSP-Westminster	Carroll	37
MSP-Bel Air	Harford	34
MSP-Centreville	Kent, Queen Anne's	19
MSP-Homicide	Statewide	17
MSP-Salisbury	Wicomico	16
MSP-Cumberland	Allegany	14
MSP-Frederick	Frederick	13
MSP-McHenry	Garrett	12
MSP-Leonardtown	St. Mary's	11
MSP-Prince Frederick	Calvert	11
MSP-Berlin	Worcester	8
MSP-Hagerstown	Washington	8
MSP-Princess Anne	Somerset	8
MSP-JFK Highway	Baltimore, Cecil, Harford	7
MSP-CED/DCNTF	Statewide	5
MSP-Glen Burnie	Anne Arundel	3
MSP-Golden Ring	Baltimore	3
MSP-LaPlata	Charles	3
MSP-CID	Statewide	2
MSP-College Park	Prince George's	2
MSP-DED	Statewide	1
MSP-Executive Protection	Statewide	1
MSP-Forestville	Prince George's	1
	TOTAL	328

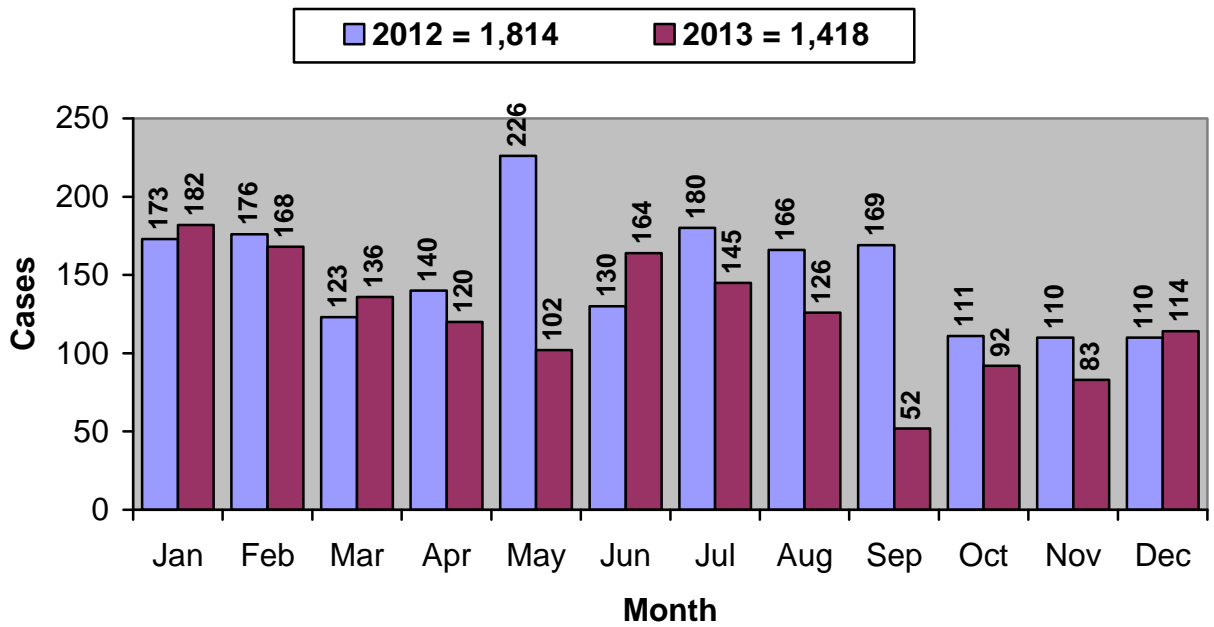
Total Allied Agency Cases Received in 2013 per County

County	Submissions
Wicomico	174
Worcester	133
Frederick	122
Dorchester	85
Carroll	72
St Mary's	71
Cecil	61
Talbot	49
Calvert	48
Washington	45
Queen Anne's	38
Allegany	35
Prince George's	21
Caroline	13
Kent	13
Anne Arundel	12
Charles	11
Somerset	10
Baltimore County	7
Baltimore City	7
Garrett	4
Harford	2
Out of State	2
TOTAL	1,035

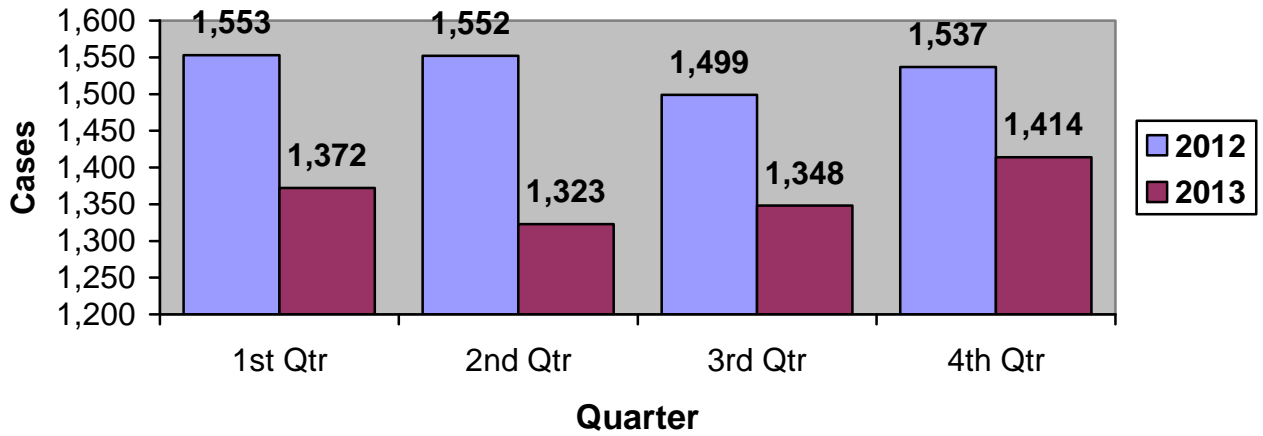
Total Cases Received in 2013 per Crime Type



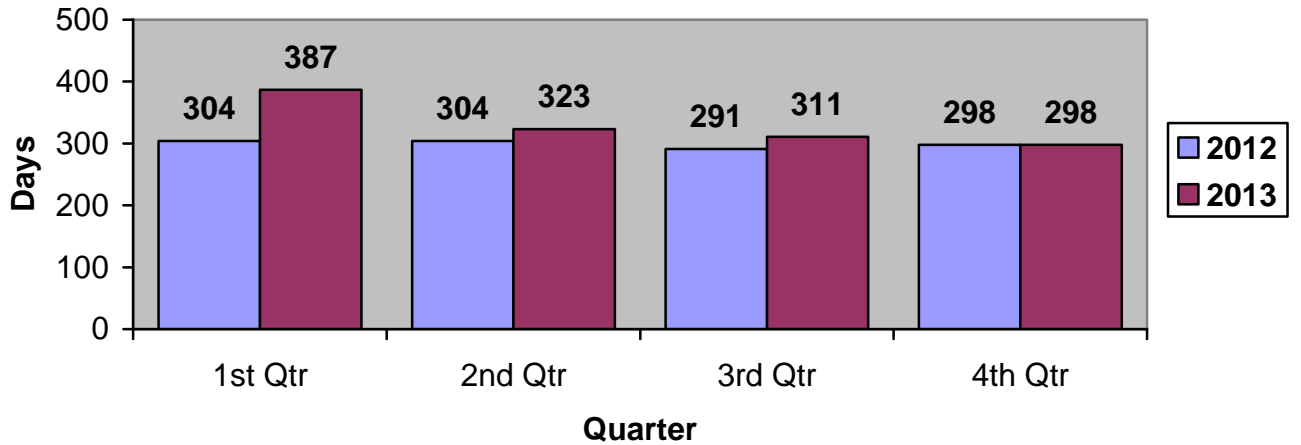
Total Cases Completed per Month



Ending Backlog per Quarter

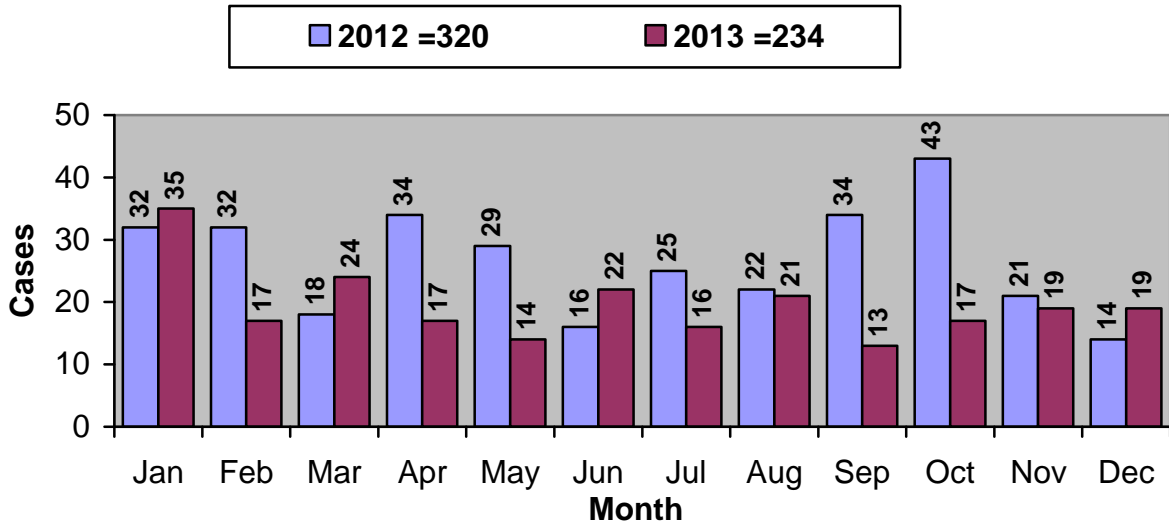


Average Turn Around Time per Quarter



MAFIS Database

Total MAFIS Case Hits Reported per Month



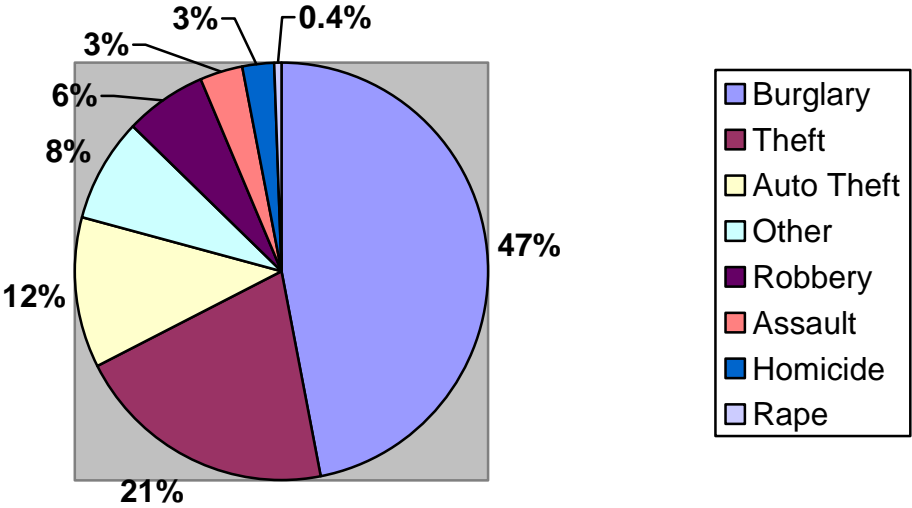
Total MAFIS Case Hits Reported in 2013 per County

County	Hits Reported
Wicomico	37
Frederick	32
Carroll	30
Cecil	20
Dorchester	18
Worcester	16
Washington	12
Allegany	9
Harford	8
Prince George's	8
Calvert	7
St Mary's	6
Baltimore City	5
Caroline	5
Anne Arundel	4
Queen Anne's	4
Kent	3
Somerset	3
Talbot	3
Baltimore Co.	2
Howard	1
Out of State	1
TOTAL	234

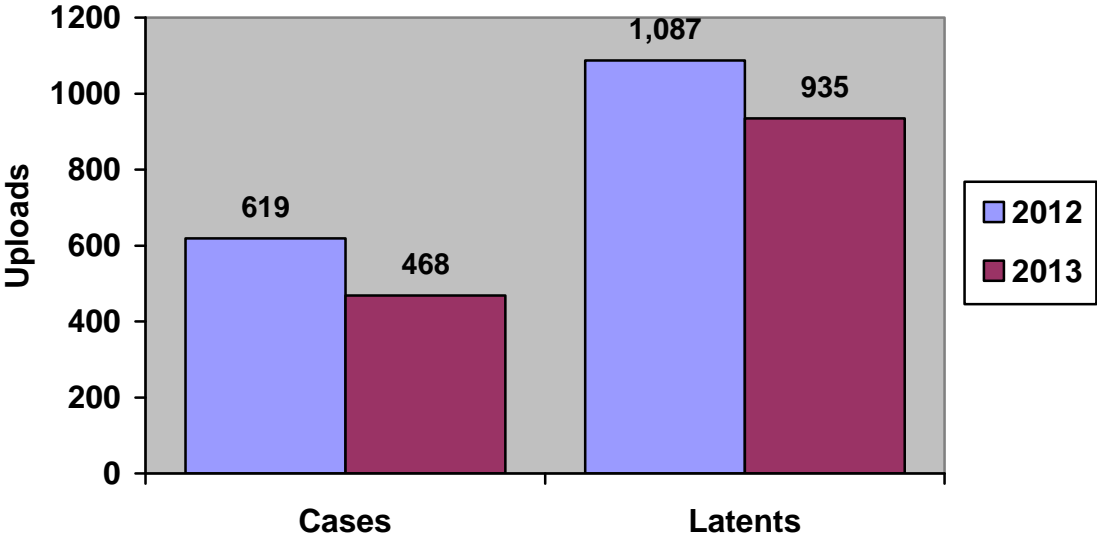
Total MAFIS Case Hits Reported in 2013 per Year of the Crime

Year of the Crime	Cases with Hits Reported
1974	1
1991	2
1992	1
1993	5
1994	3
1995	3
1996	5
1997	5
1998	1
1999	4
2000	5
2001	4
2002	10
2003	8
2004	3
2005	4
2006	4
2007	4
2008	6
2009	6
2010	11
2011	29
2012	54
2013	56
TOTAL	234

Total MAFIS Case Hits Reported in 2013 per Crime



Total Uploads to MAFIS per Year



FIREARMS/TOOLMARKS UNIT

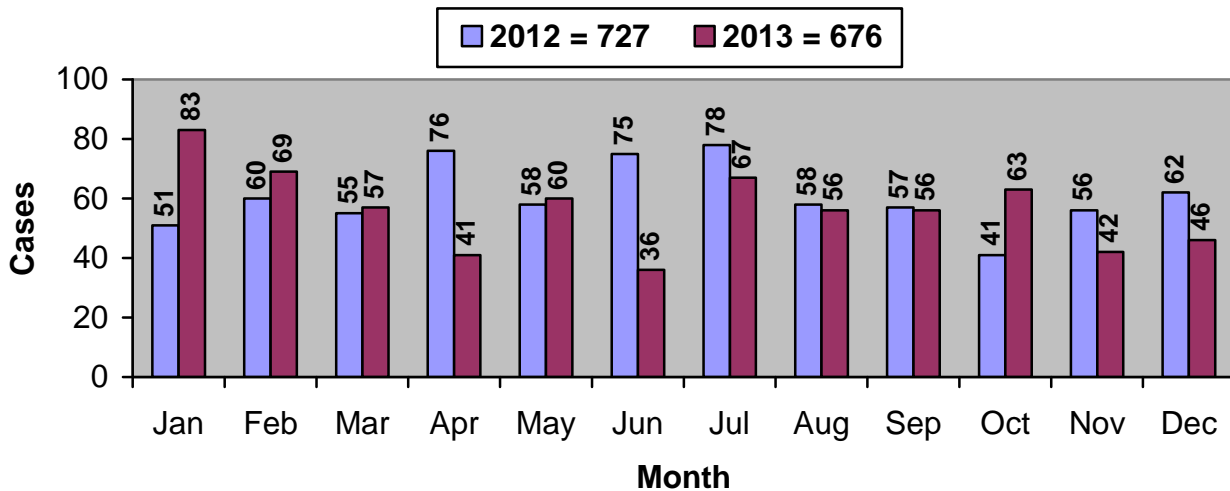
The Firearms/Toolmarks Unit (FATMU) provides microscopic, chemical and functional examination of firearms and firearm related evidence. Also, toolmark examinations, muzzle to distance determination, shot patterns, and serial number restorations. The FATMU follows all lab protocols in place to include having another second examiner verify possible identifications on the comparison microscope. Every case in the FATMU has administrative and technical review before being completed. The unit has implanted two programs to assist with reduction of turn around time for casework. These programs are Operation Test Shot (OTS) and Walk-In Test Fire (WITF). OTS involves supplying the allied law enforcement agencies with Forensic Buddy Systems (portable firearm canisters). The Forensic Buddy System enables the agencies to test fire handguns at their location and send fired bullets/cartridge cases in pristine condition to the FATMU. The fired cartridge cases, if eligible, will be entered into the National Integrated Ballistic Identification Network system (NIBIN). The WITF program involves allied law enforcement agencies bringing the firearms directly to the FATMU for functional examination allowing the representative to visually witness the test fire. This process aids in having that representative testify on behalf of the examiner on functionality.

The FATMU also provides a service to the Maryland Handgun Roster Board (HRB). The Board is responsible for evaluating new firearms for compliance with Maryland regulations and determining if they should be approved for sale in the state. In the year of 2013 FATMU examined sixty-five (65) firearms for the Board. The HRB normally convenes quarterly.

In accordance to the “Responsible Gun Bill Act of 2000” the FATMU is responsible for the tracking of cartridge case samples submitted from the purchase of new handgun sales in the state of Maryland. The unit verifies the submitter’s information and then enters the data into a database system.

Casework

Total Cases Received per Month



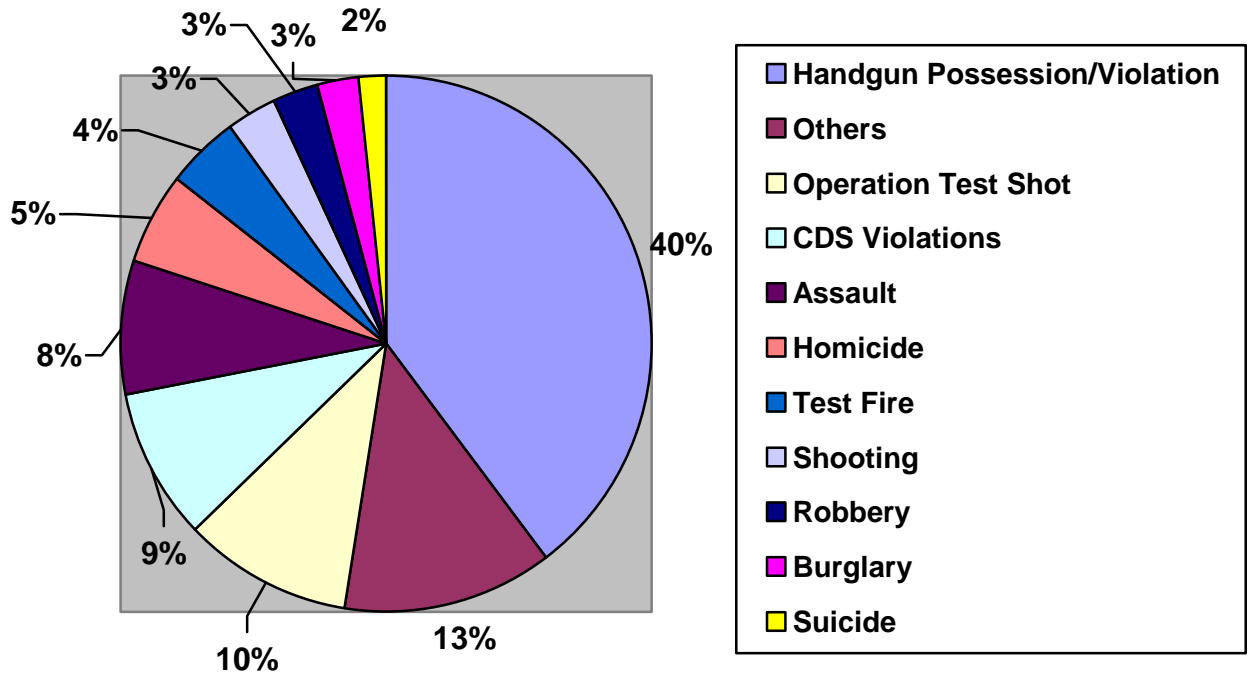
Total MSP Cases Received in 2013 per Installation

Installation	Counties Served	Submissions
MSP- Bel Air	Harford	20
MSP- JFK Highway	Cecil, Harford, Baltimore	20
MSP- Frederick	Frederick	19
MSP- Princess Anne	Somerset	15
MSP- LaPlata	Charles	13
MSP- Forestville	Prince George's	12
MSP- Easton	Caroline, Dorchester, Talbot	9
MSP- Waterloo	Howard	9
MSP- Cumberland	Allegany	8
MSP- Glen Burnie	Anne Arundel	8
MSP- Golden Ring	Baltimore	8
MSP- Hagerstown	Washington	8
MSP- Westminster	Carroll	8
MSP- College Park	Prince George's	7
MSP- McHenry	Garrett	7
MSP- North East	Cecil	7
MSP- Centreville	Kent, Queen Anne's	6
MSP- Prince Frederick	Calvert	6
MSP- Berlin	Worcester	5
MSP- Leonardtown	St. Mary's	5
MSP- Salisbury	Wicomico	5
MSP- Rockville	Montgomery	2
	TOTAL	207

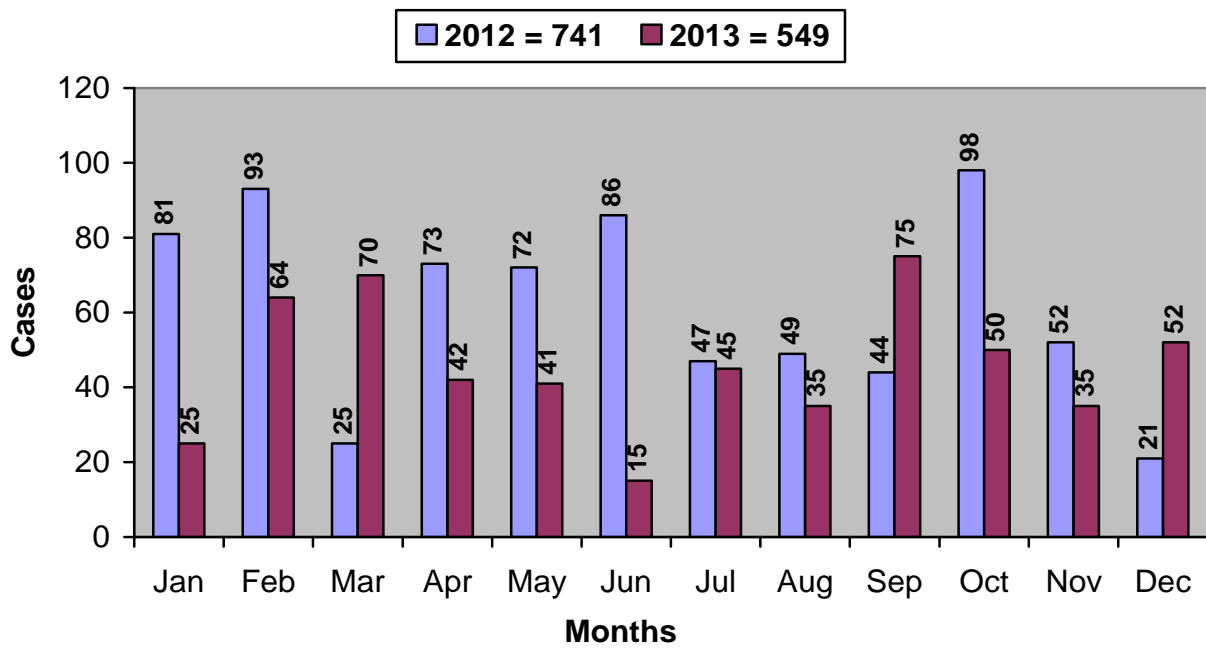
Total Allied Agency Cases Received in 2013 per County

County	Submissions
Anne Arundel	140
Harford	53
Cecil	41
Wicomico	40
Frederick	28
Worcester	26
Charles	23
Washington	20
Baltimore	12
Allegany	11
Carroll	10
Prince George's	8
Queen Anne's	7
Dorchester	7
Baltimore City	6
Unspecified	6
Somerset	5
Talbot	5
Howard	5
Calvert	5
Kent	4
Montgomery	3
Garrett	2
Caroline	1
St. Mary	1
TOTAL	469

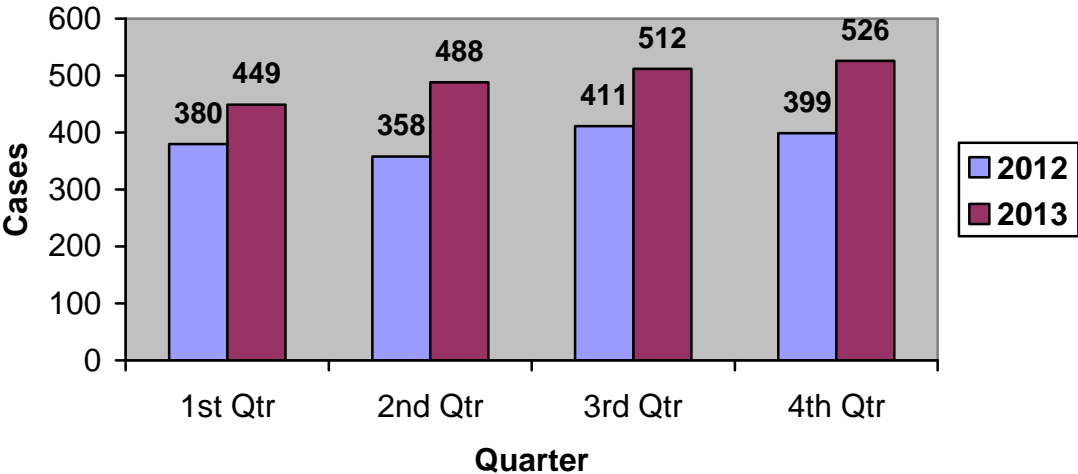
Total Cases Received in 2013 per Crime Type



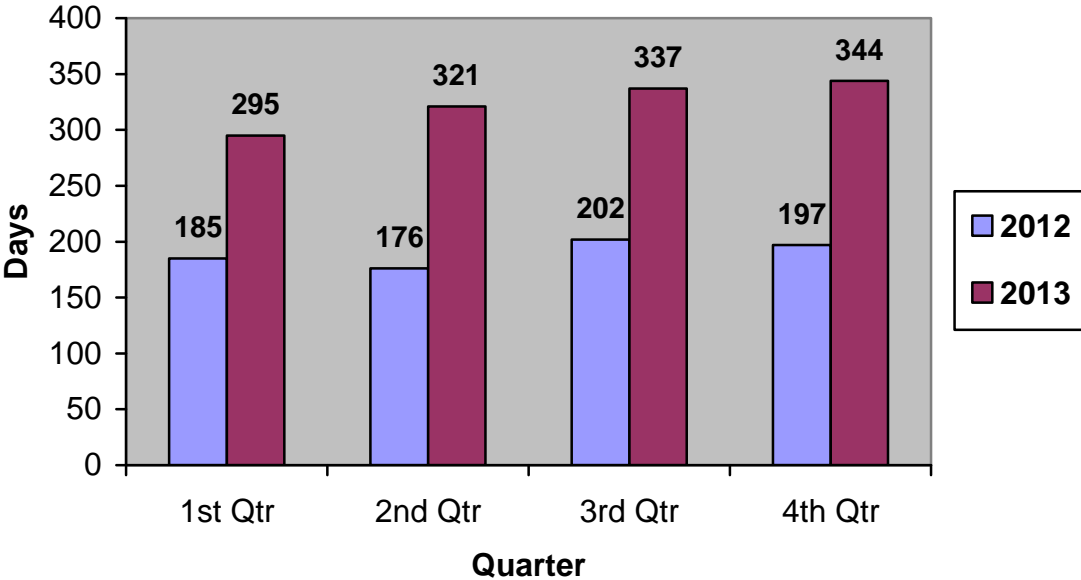
Total Cases Completed per Month



Ending Backlog per Quarter

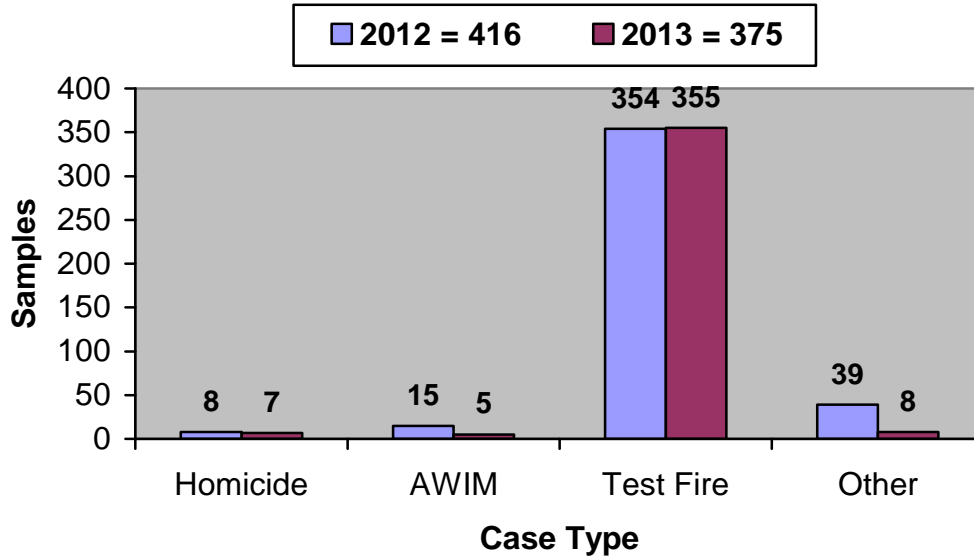


Average Turn Around Time per Quarter

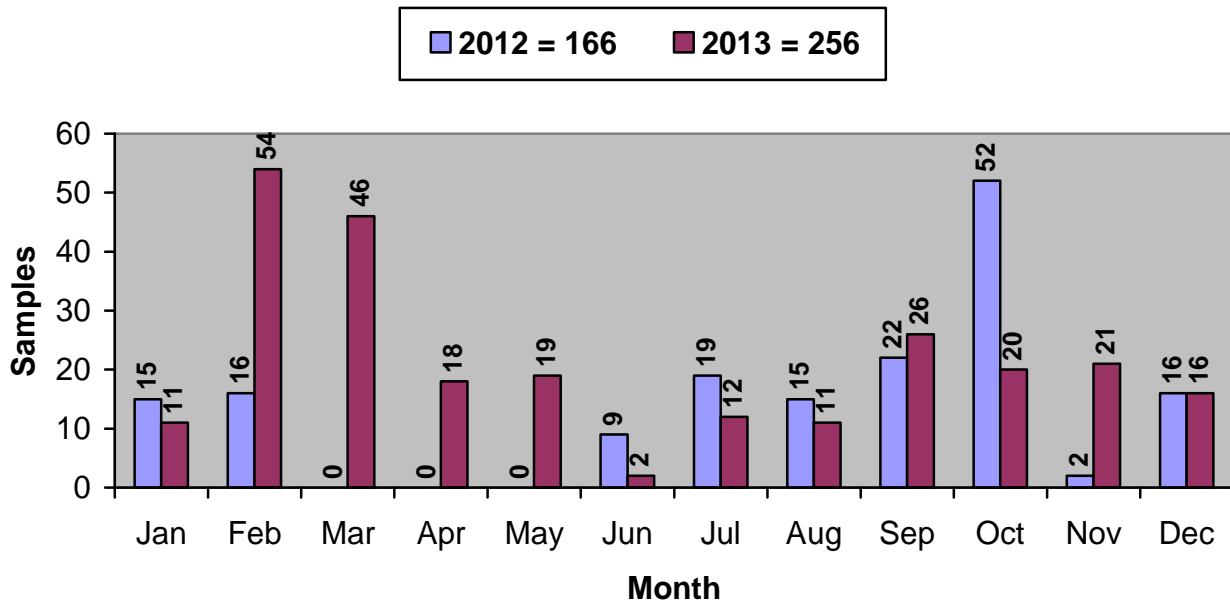


NIBIN Database

Uploads to NIBIN per Case Type

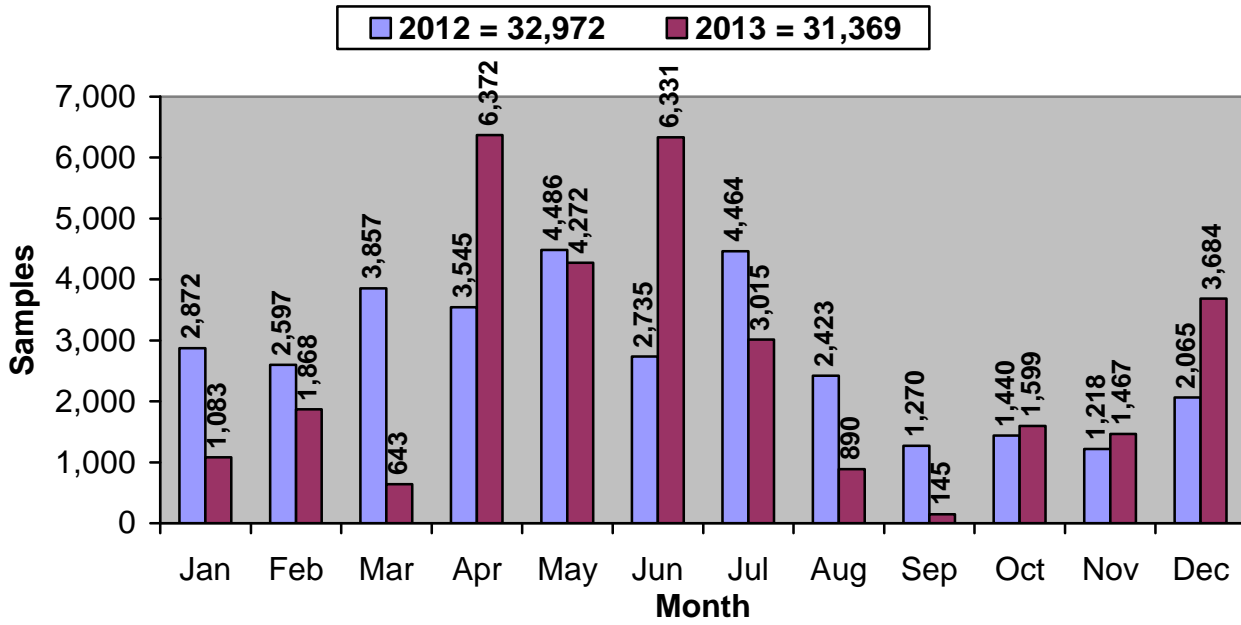


Operation Test Shot Samples Completed per Month



Statewide Shell Casing Repository

Shell Casings Processed per Month



2013 PATTERN EVIDENCE SECTION ACCOMPLISHMENTS

1. To promote a healthy work environment. Areas within the FATMU lab designated for the processing of the cartridge case shells received in support of the Statewide Shell Casing Repository were reorganized. Particular attention was given to relocating boxes with submissions as well as unopened packages received from gun dealers that were impeding the organization and safety within the work areas. Members of the Pattern Evidence Section also were instrumental in organizing some annual holiday season events. These included the giving tree program that adopts families for the holidays and the window-decorating contest that promotes holiday cheer as well as some friendly competition amongst the staff.

2. To meet the forensic science needs of Maryland and its citizens. Multi-year training programs for four trainees assigned to the section were completed in 2013 adding significantly to the ability of the section to attend to the needs of the FSD clients. Another effort to improve service to our clients involved FSD working with the Governor's Office of Crime Control and Prevention (GOCCP) to arrange for jurisdictions with high latent print casework submissions to piggy back off of our latent print casework outsourcing contract and implement direct outsourcing. By doing so, the Frederick County State's Attorney's Office, the Salisbury Police Department, and the Cecil County Executive's Office will be able to ensure quicker turn around times for their current latent print cases while not adding more cases to the LPIU backlog. Also of note was that the NIBIN system at FSD was upgraded to Brass Track, a more advanced next generation system. While not all of the firearms units in the state received the Brass Track upgrade, FSD made our system available to other contributing agencies.

3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements. To meet a new requirement to be implemented on January 1, 2014, the FATMU instituted testing to establish the uncertainty of measurement to be used when making critical forensic measurements associated with barrel and overall lengths of firearms. As the LPIU brought on outsourcing of casework, numerous quality assurance requirements were considered when choosing a contract lab and when reviewing casework produced by the contract lab.

4. To minimize backlogs and turn around time. Approximately \$385,000 was secured by FSD in 2013 to be used for outsourcing of latent print casework. This includes \$130,000 from a budget deficiency award, \$155,000 from a competitive Coverdell grant, and \$100,000 from GOCCP to support direct outsourcing. Also, in 2013 the FATMU received four Laboratory Technician positions to address the drastic increase in shell casing submissions associated with the unprecedented increase in firearms purchases due to the new gun legislation.

5. To operate in a planned, prepared, and proactive manner. A biweekly conference call schedule between the FSD and the Department of Public Safety and Correctional Services was created to address various issues with the Maryland Automated Fingerprint Identification System including connection speed and the implementation of the Cogent 6.1 software. The FATMU continued to increase the use of both the Operation Test Shot program and the Walk-In Test Fire program. Operation Test Shot allows agencies to do test fires themselves while the Walk-In Test Fire program allows agencies to witness test fires performed by FATMU staff so that they can testify to the firearm functionality themselves.

2014 PATTERN EVIDENCE SECTION GOALS

- 1. To promote a healthy work environment.**
 - To have members of the FATMU identified by Health Services undergo audio testing to assess any potential damaging impact from their work with shooting firearms.
 - To arrange for an experienced full time employee to transition to a part time contractual position so that she can split her time between work and caring for her children.

- 2. To meet the forensic science needs of Maryland and its citizens.**
 - To encourage clients to complete satisfaction surveys.
 - To increase the proficiency and productivity of newly trained Forensic Scientists through mentoring by experienced examiners.
 - To fill the FS II position in the FATMU that has been vacant for over a year.
 - To hire four temporary employees to process submissions to the shell casing repository.
 - To fill two LPIU Forensic Scientist positions that have been requested by MSP as an “Over the Target” budget item in support of implementing latent print operations at the Hagerstown laboratory.

- 3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.**
 - To perform thorough reviews of outsourced latent print casework and to identify any recurring trends to be addressed with the contract laboratory.
 - To monitor and enforce the training and proficiency testing requirements for Operation Test Shot participants.
 - To ensure the recalculation of the uncertainty of measurement associated with barrel and overall length measurements whenever a new measuring device is put into use.
 - To encourage additional Pattern Evidence Section members to become ASCLD/LAB assessors and to have the assessors go on assessments.

- 4. To minimize backlogs and turn around time.**
 - To evaluate and modify as needed current FATMU case management policies.
 - To research both external and internal resources for time and case management practices designed to optimize productivity, and implement as appropriate.
 - To strategically choose the latent print cases that are outsourced and to schedule outsourcing on a regular basis.
 - To evaluate working with the Photography Unit in regards to using their ability to provide digital image capture support in an effort to help address the latent print backlog.

- 5. To operate in a planned, prepared, and proactive manner.**
 - To expand the Operation Test Shot, Walk-In Test Fire, and Brass Track programs to further increase contributing agency participation.
 - To perform testing of the new Cogent 6.1 system in an effort to implement the system and take advantage of enhanced capabilities to search latent prints in cases where a suspect has not been identified.

CHEMISTRY SECTION

The Chemistry Section is responsible for performing Controlled Dangerous Substances (CDS) analysis on submitted evidence and Toxicology analysis of blood for alcohol and drugs. 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, and five Forensic Scientists III. 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, three Forensic Scientists III, and one contractual Inventory Control Specialist. The CDS-Hagerstown Unit operates out of the Hagerstown Regional Laboratory located at the MSP-Hagerstown Barrack.

The Toxicology Unit consists of one Supervisor 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 microscopy, color tests, microcrystalline tests, Gas Chromatography, Gas Chromatography/Mass Spectrometry, and Fourier Transform Infrared Spectrophotometry. Another important component of CDS analysis is obtaining accurate net and gross weights of the suspected CDS material through the use of analytical balances, benchtop balances, and bulk scales. Recent accreditation initiatives have focused on the use of proper sampling procedures, proper measurement of uncertainty calculations, and proper reporting of results.

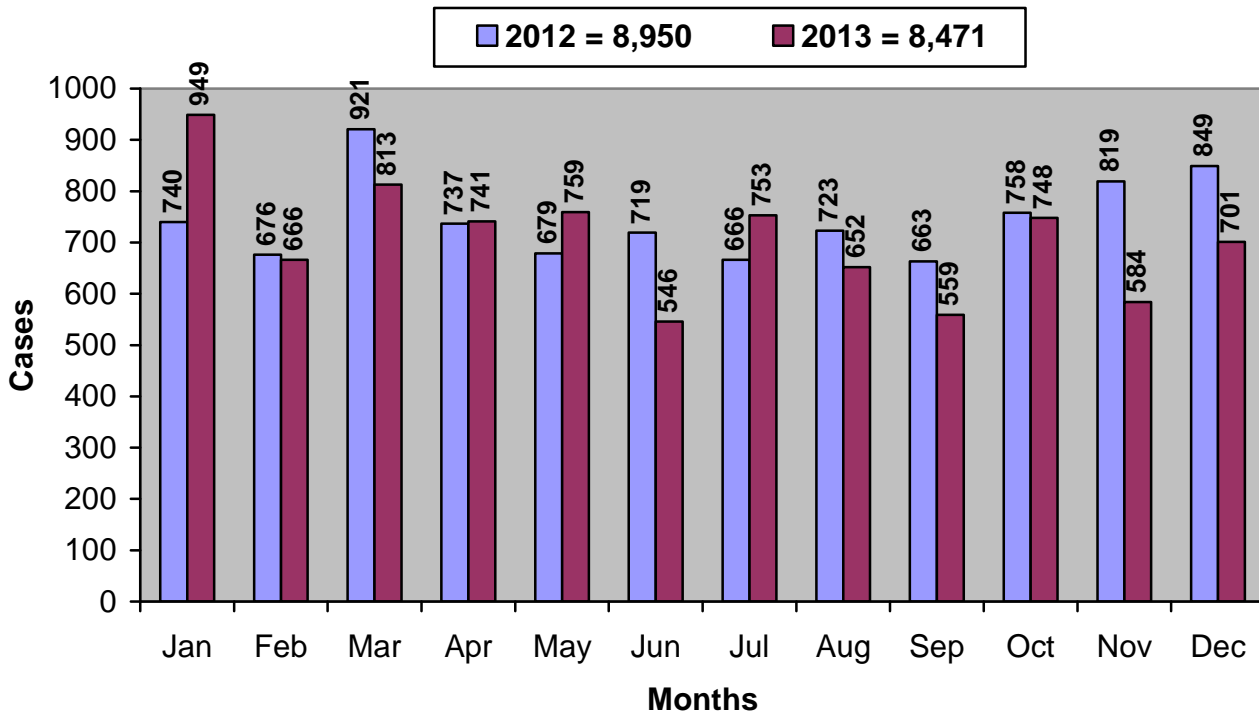
The CDS Units submit monthly reports to the National Forensic Laboratory Information System (NFLIS) that documents the type and number of drugs detected in casework. These reports provide the DEA with current and accurate trends that can be used by law enforcement and policy makers to address the nation's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

CDS-PIKESVILLE UNIT

The Pikesville CDS laboratory services primarily the Central Maryland counties including Baltimore City, Baltimore County, Harford County, Cecil County, Anne Arundel County, Prince George's County, St. Mary's County, Calvert County, Charles County, Howard County, and Frederick County.

Casework

Total Cases Received per Month



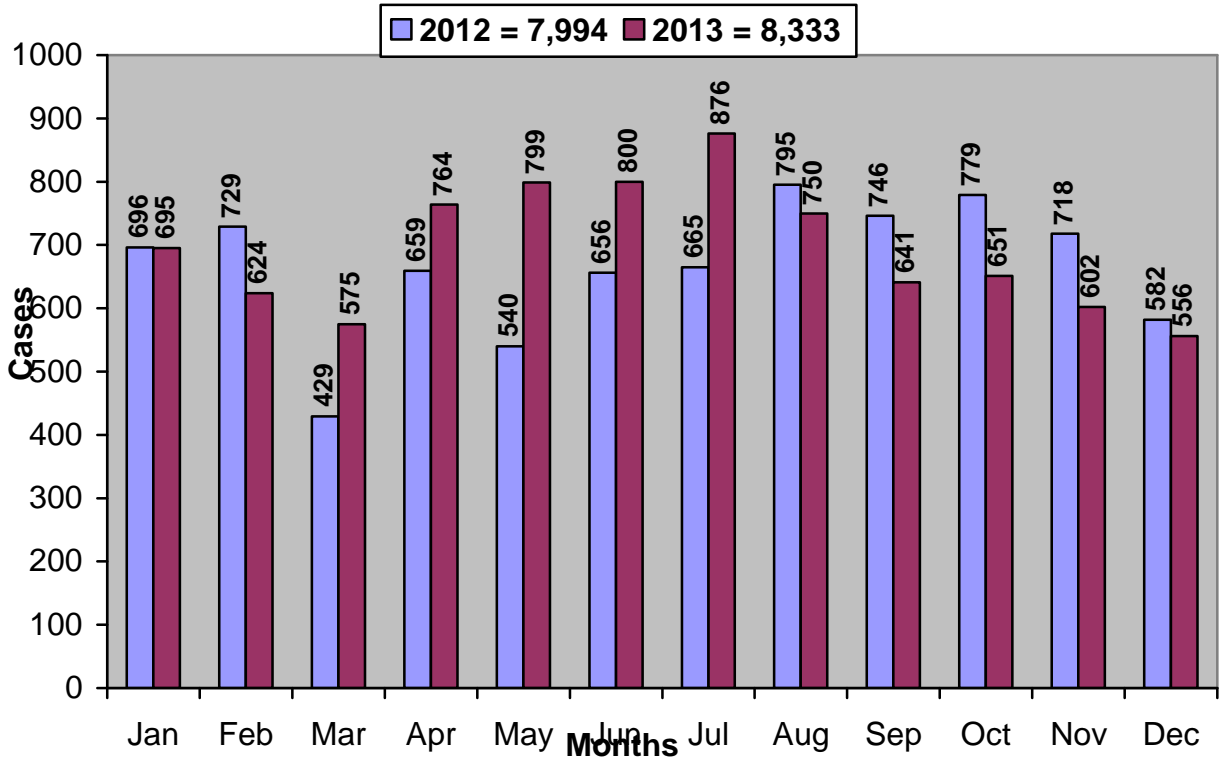
Total MSP Cases Received in 2013 per Installation

MSP Installation	Counties Served	Submissions
MSP-JFK Highway	Cecil, Harford, Baltimore	388
MSP-Golden Ring	Baltimore	261
MSP-North East	Cecil	257
MSP-Prince Frederick	Calvert	257
MSP-Glen Burnie	Anne Arundel	207
MSP-LaPlata	Charles	188
MSP-Bel Air	Harford	172
MSP-Leonardtown	St. Mary's	156
MSP-College Park	Prince George's	139
MSP-Forestville	Prince George's	104
MSP-Waterloo	Howard	83
MSP-Westminster	Carroll	11
MSP- McHenry	Garrett	1
	TOTAL	2,224

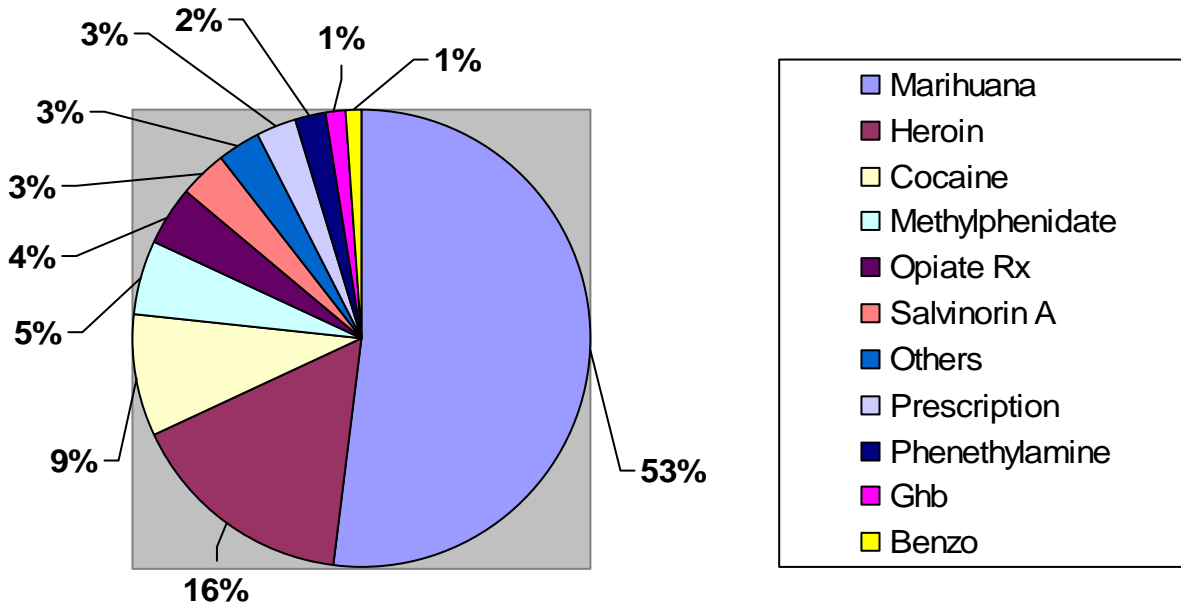
Total Allied Agency Cases Received in 2013 per County

County	Submissions
Charles	1,102
Howard	1,048
Calvert	769
Harford	747
Frederick	668
Cecil	563
St. Mary	465
Baltimore City	253
Prince George's	205
Baltimore	188
Anne Arundel	187
Montgomery	28
Queen Anne's	17
Allegany	2
Carroll	2
Dorchester	1
Garrett	1
Wicomico	1
TOTAL	6,247

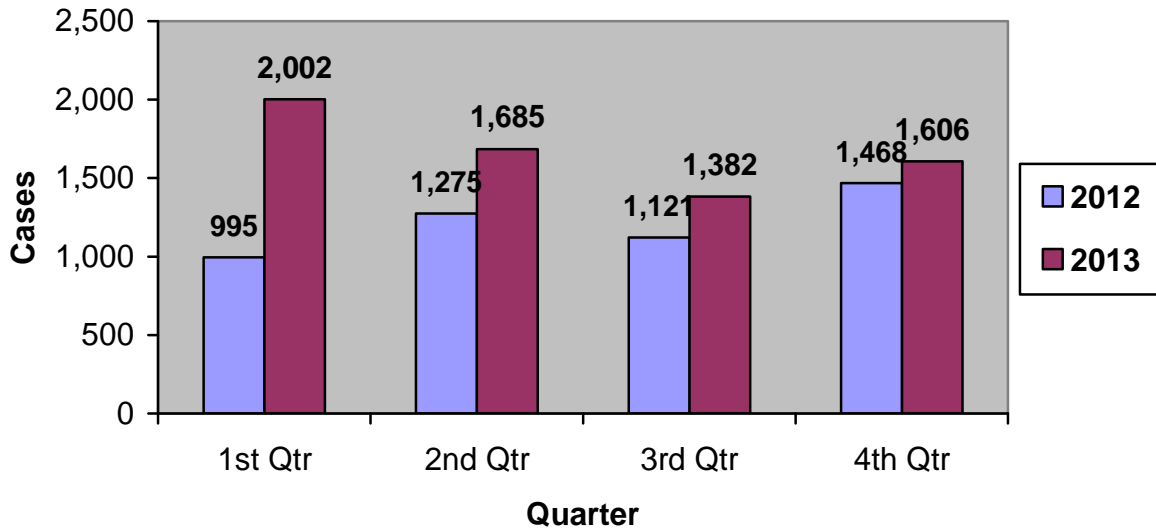
Total Cases Completed per Month



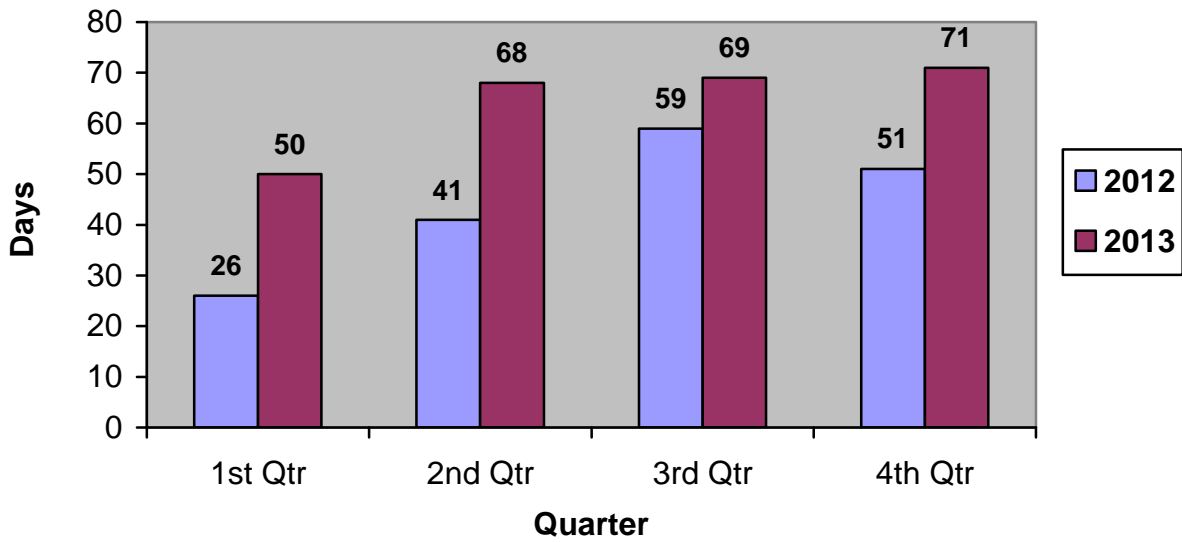
Total Analyses Reported in 2013 per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



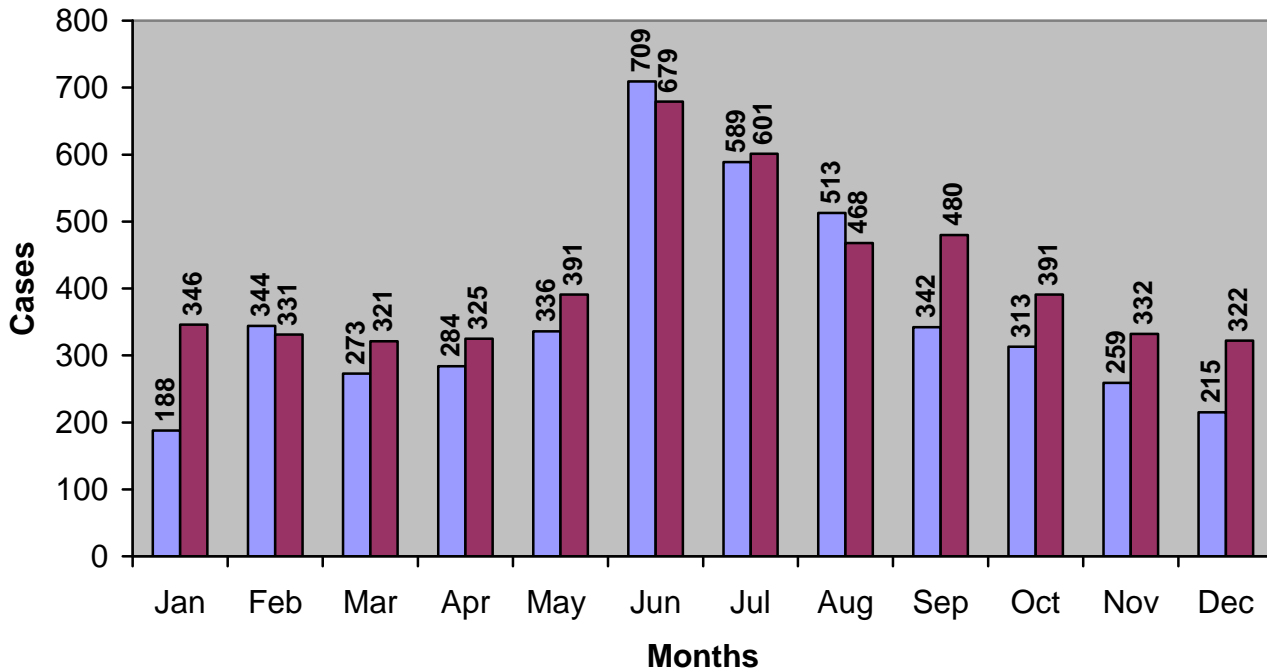
CDS-BERLIN UNIT

The CDS-Berlin laboratory services primarily the Eastern Maryland counties including Caroline County, Dorchester County, Kent County, Queen Anne's County, Somerset County, Talbot County, Wicomico County, and Worcester County. It should be noted that Berlin also took on a significant caseload this year from Cecil County.

Casework

Total Cases Received per Month

2012 = 4,365 2013 = 4,987



Total MSP Cases Received in 2013 per Installation

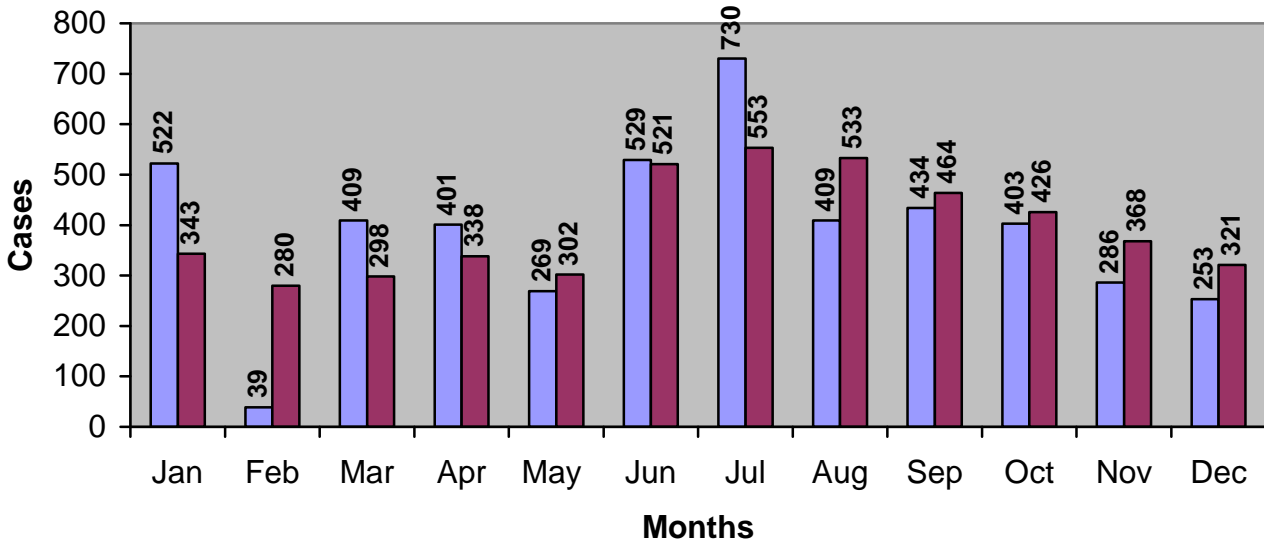
MSP Installation	Counties Served	Submissions
MSP-Salisbury	Wicomico	238
MSP-Centerville	Kent, Queen Anne's	205
MSP-Berlin	Worcester	135
MSP-Easton	Caroline, Dorchester, Talbot	161
MSP-Princess Anne	Somerset	78
	TOTAL	817

Total Allied Agency Cases Received in 2013 per County

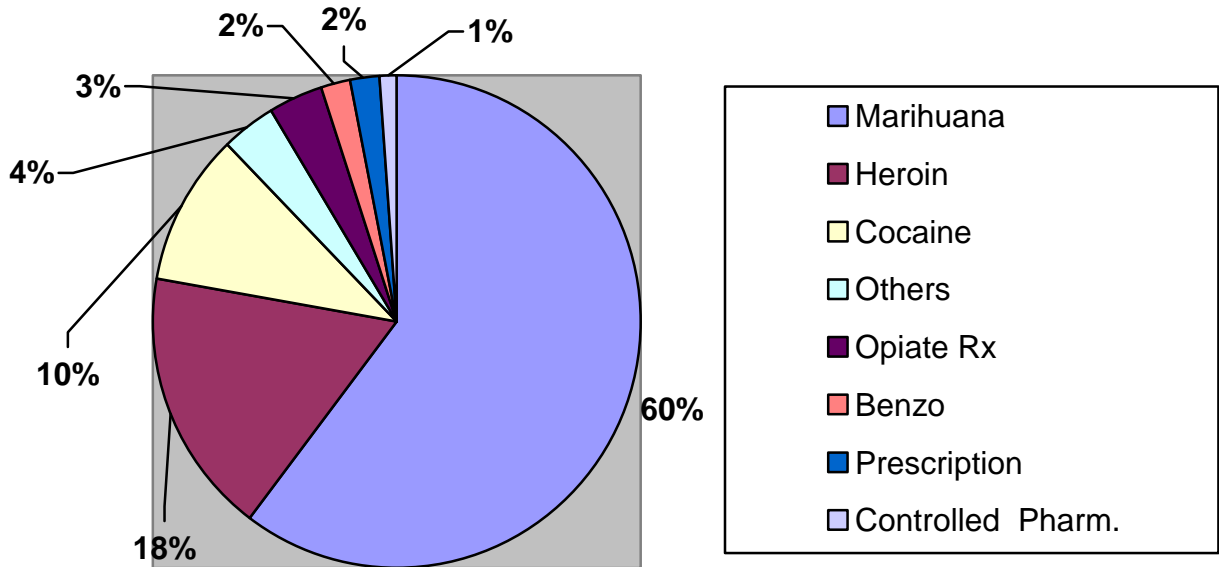
County	Submissions
Worcester	1,497
Wicomico	968
Dorchester	375
Talbot	334
Caroline	249
Cecil	223
Queen Anne's	196
Kent	185
Somerset	141
Charles	1
Washington	1
TOTAL	4,170

Total Cases Completed per Month

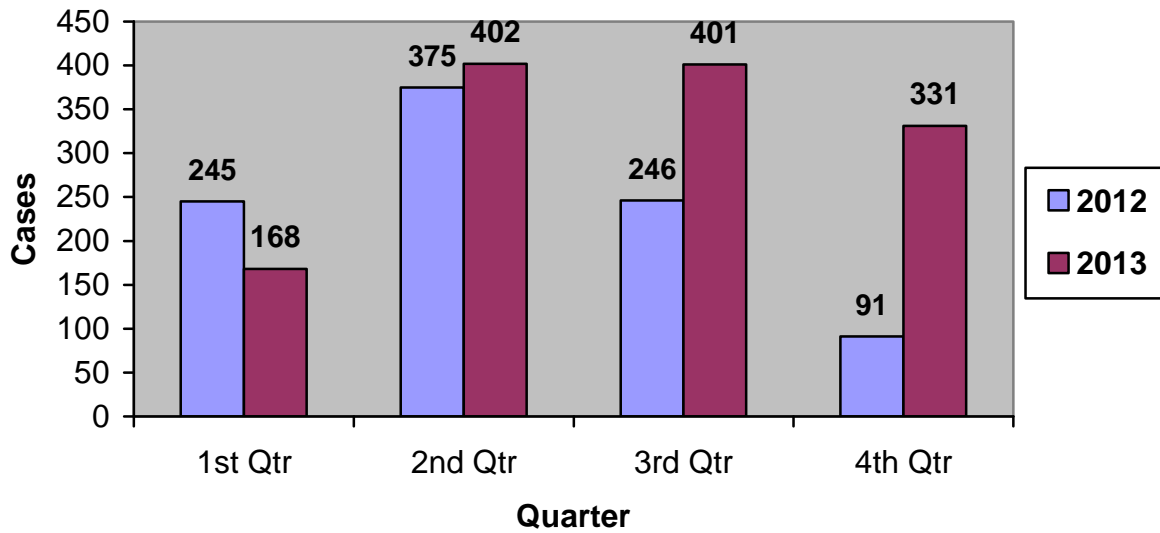
2012 = 4,684 2013 = 4,747



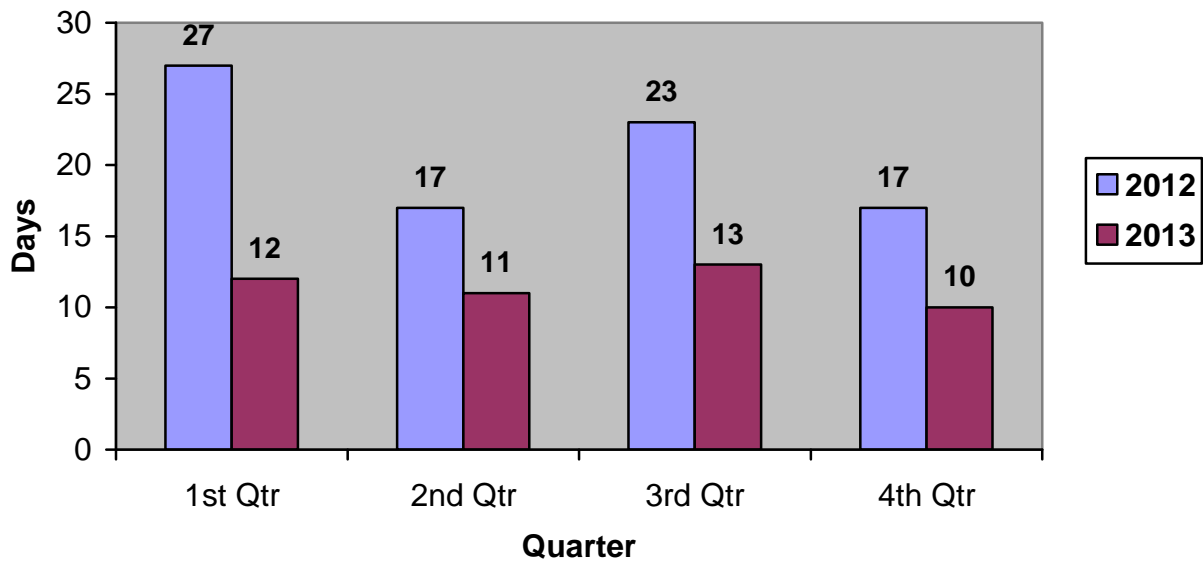
Total Analyses Reported in 2013 per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter

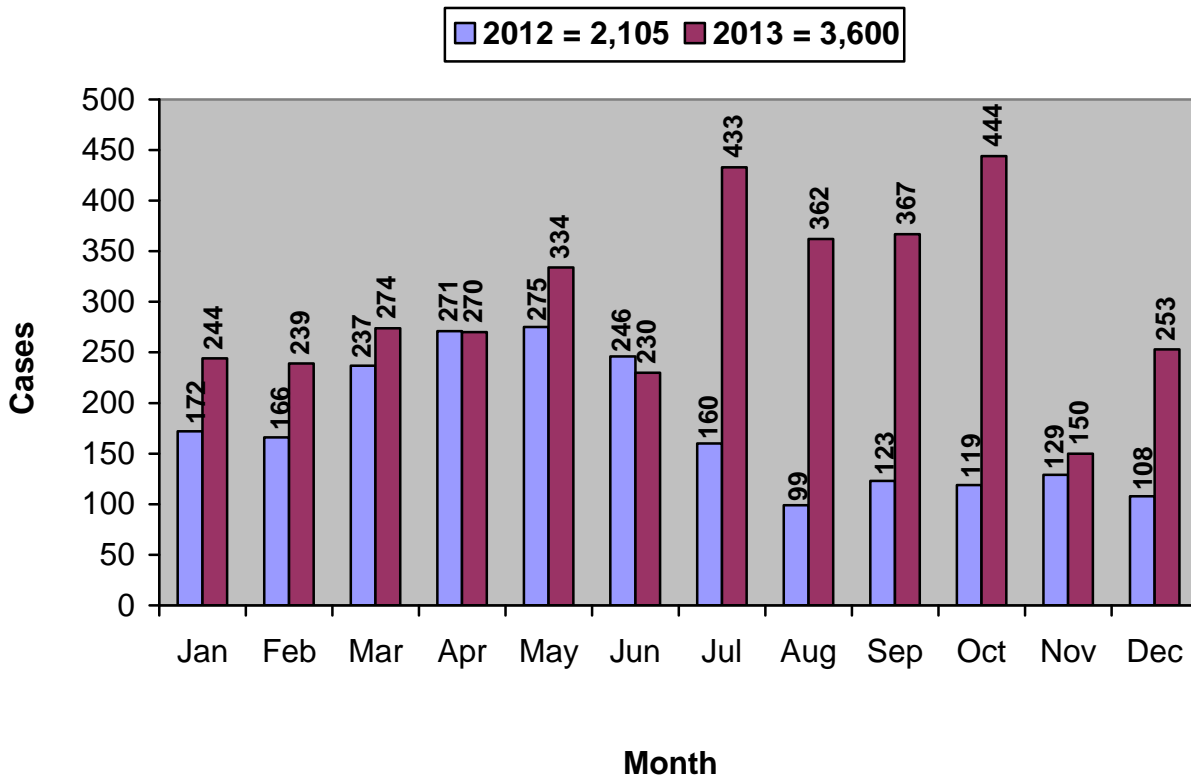


CDS-HAGERSTOWN UNIT

The Hagerstown CDS laboratory services primarily the Western Maryland counties including Washington County, Carroll County, Allegany County, Garrett County, Montgomery County, and Frederick County. It should be noted that Hagerstown also took on a significant caseload from Harford County this year.

Casework

Total Cases Received per Month



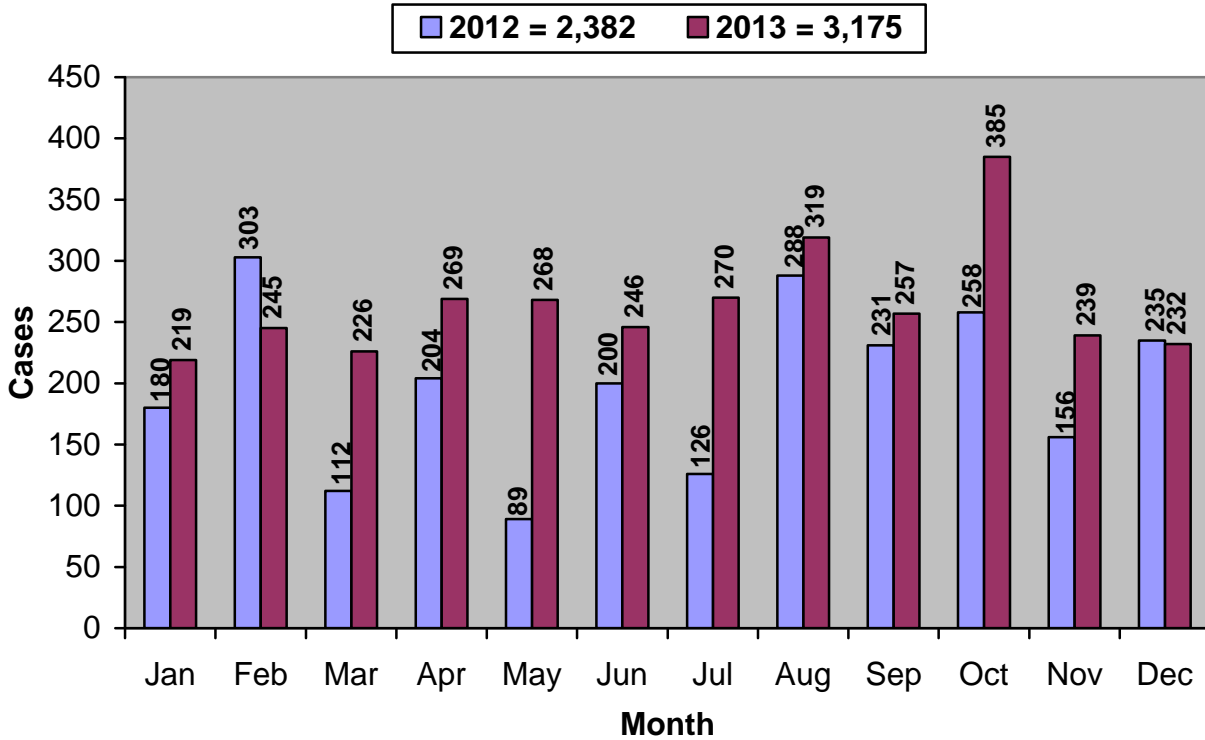
Total MSP Cases Received in 2013 per Installation

MSP Installation	Counties Served	Submissions
MSP-Westminster	Carroll	480
MSP-McHenry	Garrett	255
MSP-Cumberland	Allegany	154
MSP-Frederick	Frederick	165
MSP-Hagerstown	Washington	142
MSP-Rockville	Montgomery	125
MSP-Bel Air	Harford	33
MSP-JFK Highway	Cecil, Harford, Baltimore	26
	TOTAL	1,380

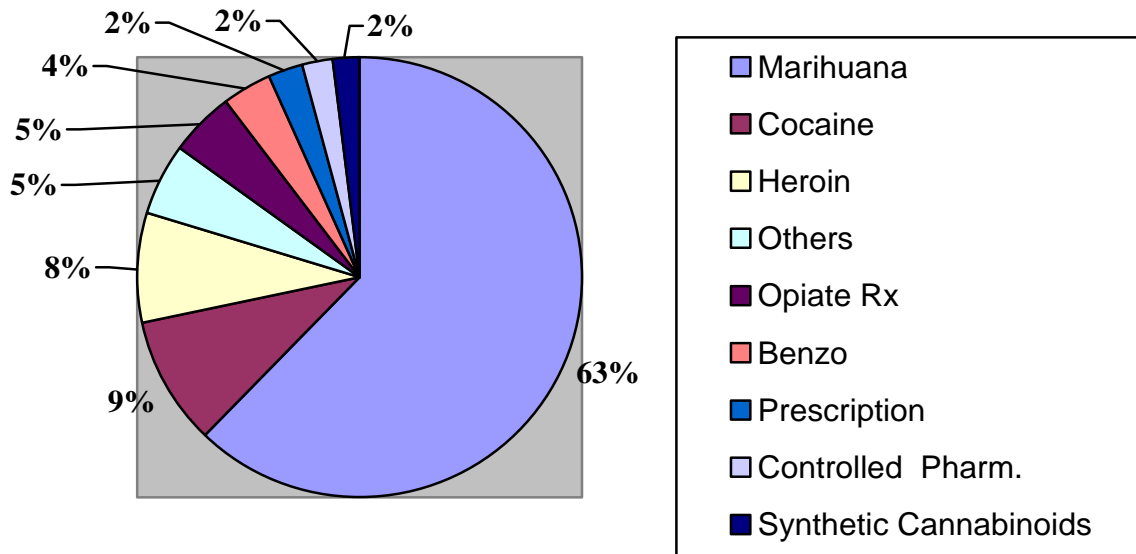
Total Allied Agency Cases Received in 2013 per County

County	Submissions
Frederick	648
Allegany	601
Carroll	494
Harford	343
Garrett	68
Washington	63
Anne Arundel	2
Howard	1
TOTAL	2,220

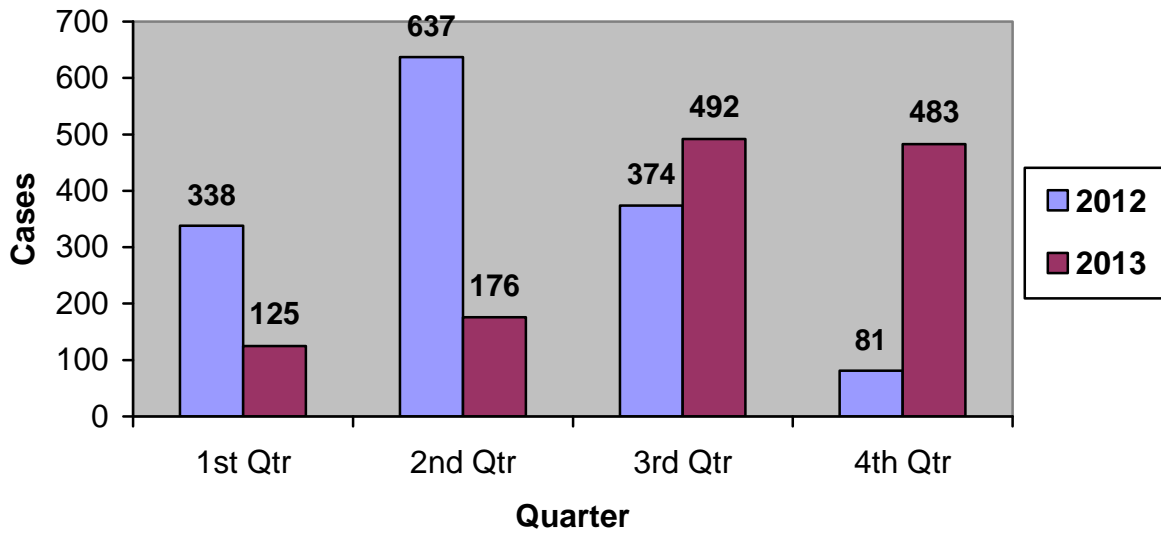
Total Cases Completed per Month



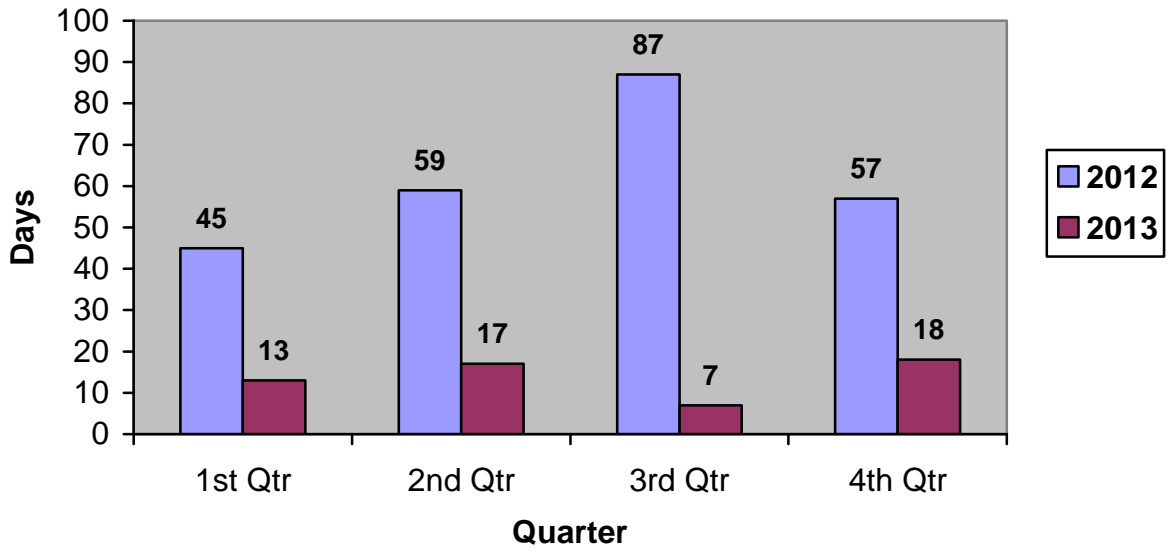
Total Analyses Reported in 2013 per Drug Type



Ending Backlog per Quarter



Average Turn Around Time per Quarter



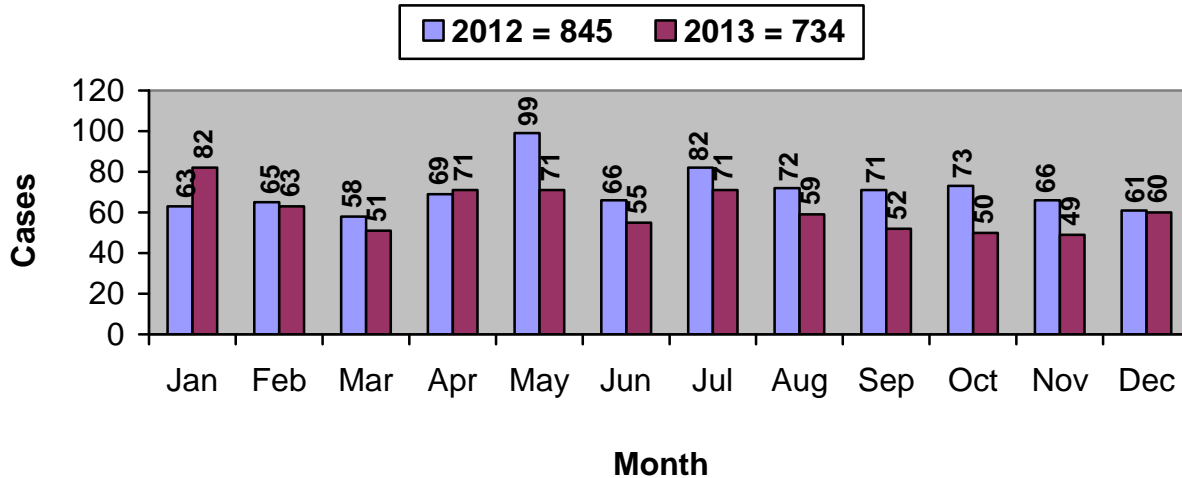
TOXICOLOGY UNIT

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 by the State of Maryland, Office of the Chief Medical Examiner 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.

Blood Alcohol Casework

Total Blood Alcohol Cases Received per Month



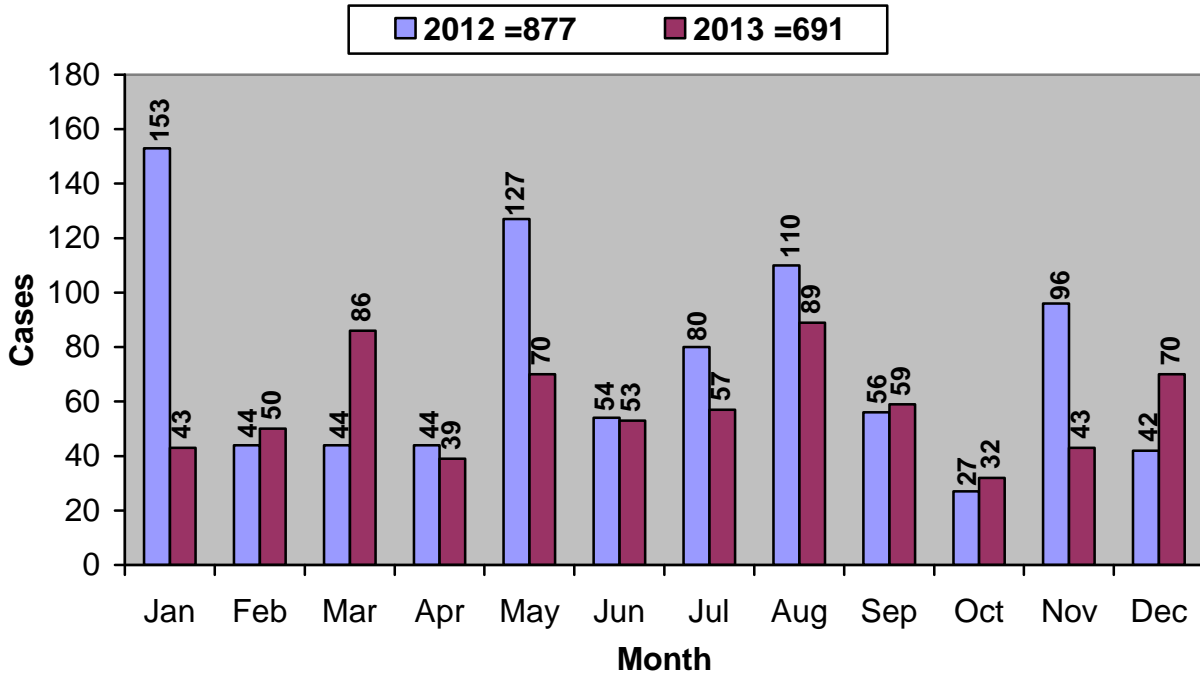
Total MSP Blood Alcohol Cases Received in 2013 per Installation

MSP Installation	Counties Served	Submissions
MSP- Frederick	Frederick	29
MSP- Hagerstown	Washington	18
MSP- Bel Air	Harford	16
MSP- Golden Ring	Baltimore	16
MSP- Easton	Caroline, Dorchester, Talbot	14
MSP- LaPlata	Charles	13
MSP- Forestville	Prince George's	12
MSP- Westminster	Carroll	12
MSP- Salisbury	Wicomico	11
MSP- Centreville	Kent, Queen Anne's	10
MSP- College Park	Prince George's	10
MSP- Rockville	Montgomery	10
MSP- Glen Burnie	Anne Arundel	8
MSP- Leonardtown	St. Mary's	8
MSP- Cumberland	Allegany	7
MSP- JFK Highway	Cecil, Harford, Baltimore	6
MSP- Princess Anne	Somerset	6
MSP- Berlin	Worcester	5
MSP- McHenry	Garrett	4
MSP- Prince Frederick	Calvert	4
MSP- Waterloo	Howard	4
MSP- North East	Cecil	3
	TOTAL	226

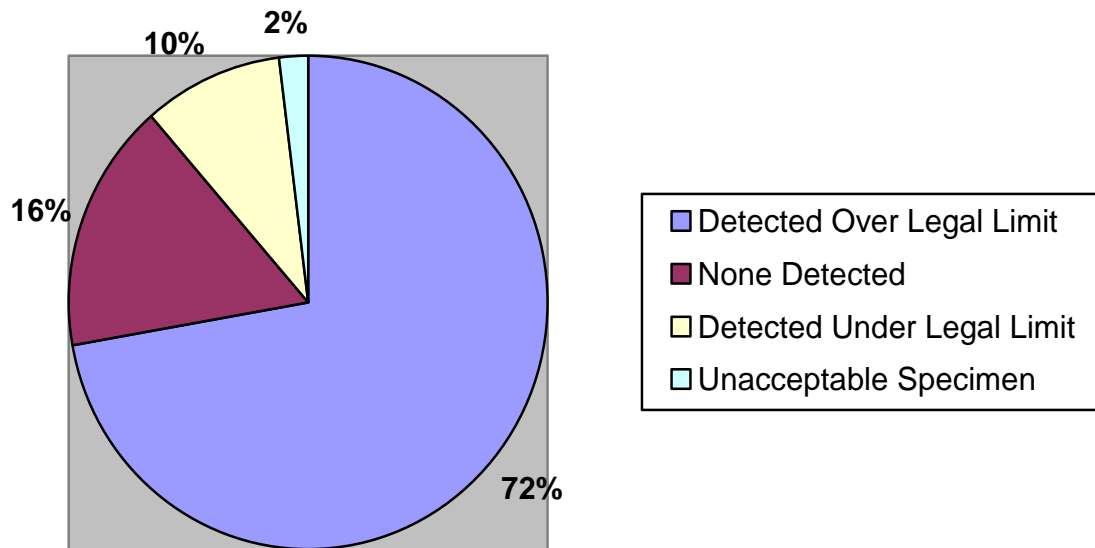
Total Allied Agency Blood Alcohol Cases Received in 2013 by County

County	Submissions
Baltimore	88
Montgomery	83
Anne Arundel	50
Prince George's	37
Washington	27
Howard	26
Frederick	23
St. Mary's	23
Statewide	21
Calvert	20
Worcester	17
Baltimore City	15
Harford	15
Carroll	14
Wicomico	13
Allegany	6
Charles	6
Cecil	5
Garrett	5
Queen Anne's	5
Caroline	2
Dorchester	2
Kent	2
Talbot	2
Somerset	1
TOTAL	508

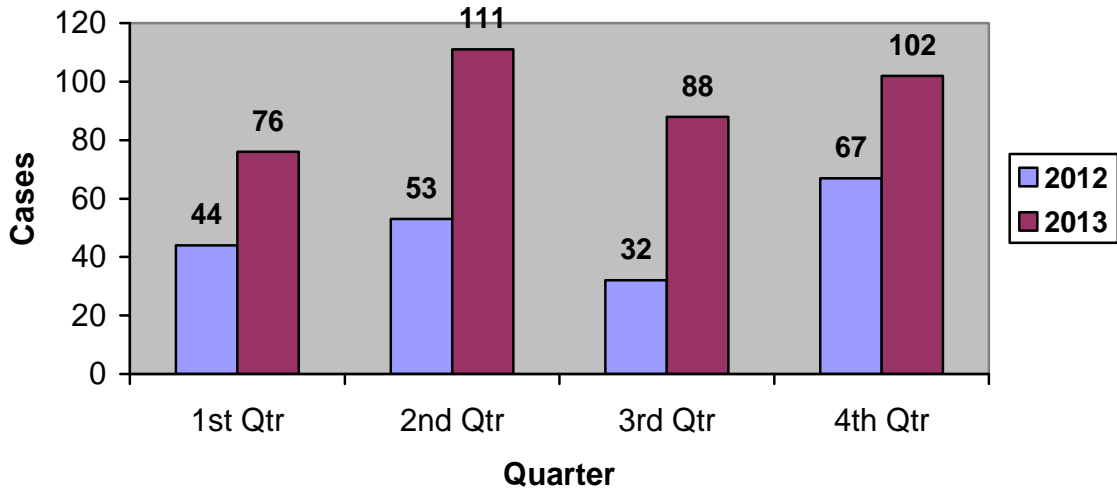
Total Blood Alcohol Cases Completed per Month



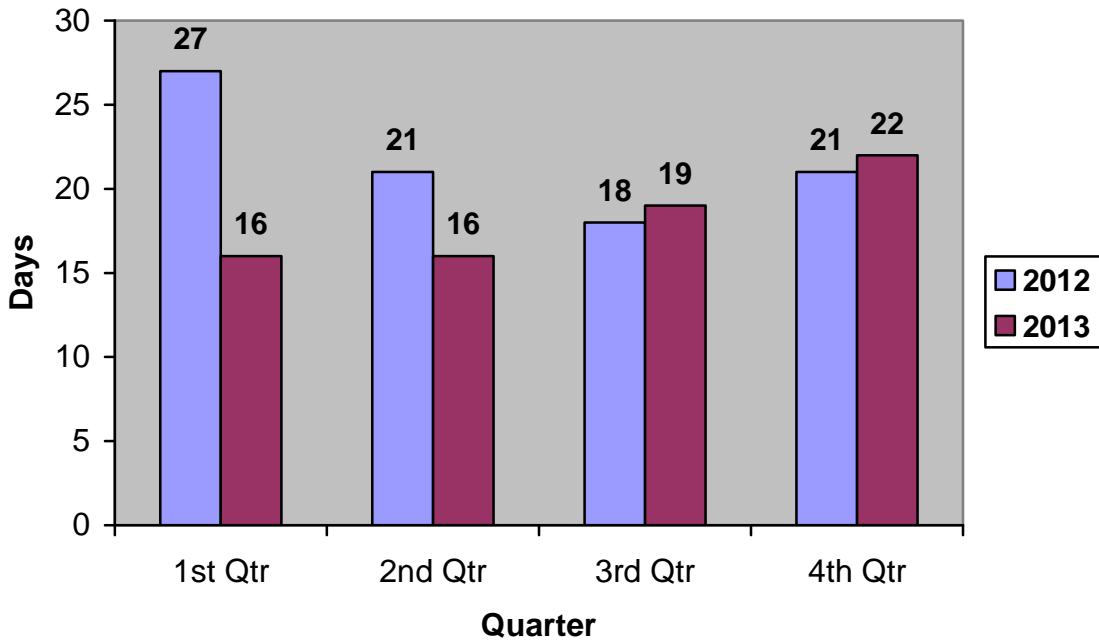
Blood Alcohol Cases Reported in 2013 per Detection Level



Blood Alcohol Cases - Ending Backlog per Quarter

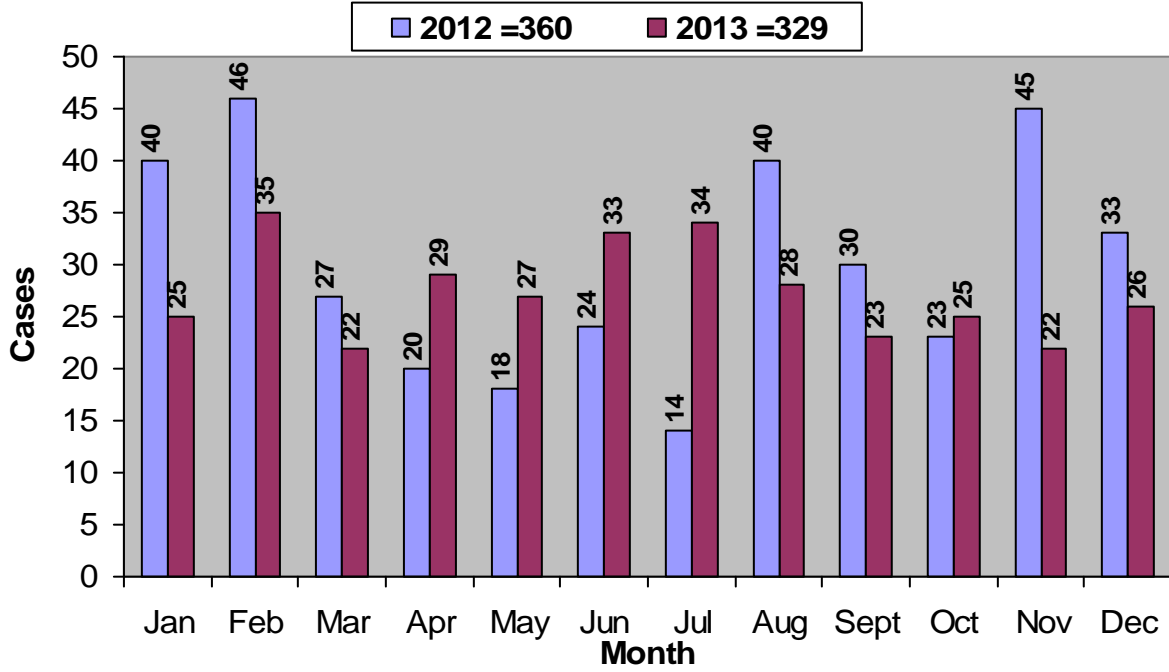


Blood Alcohol Cases - Average Turn Around Time



Blood Drug Casework

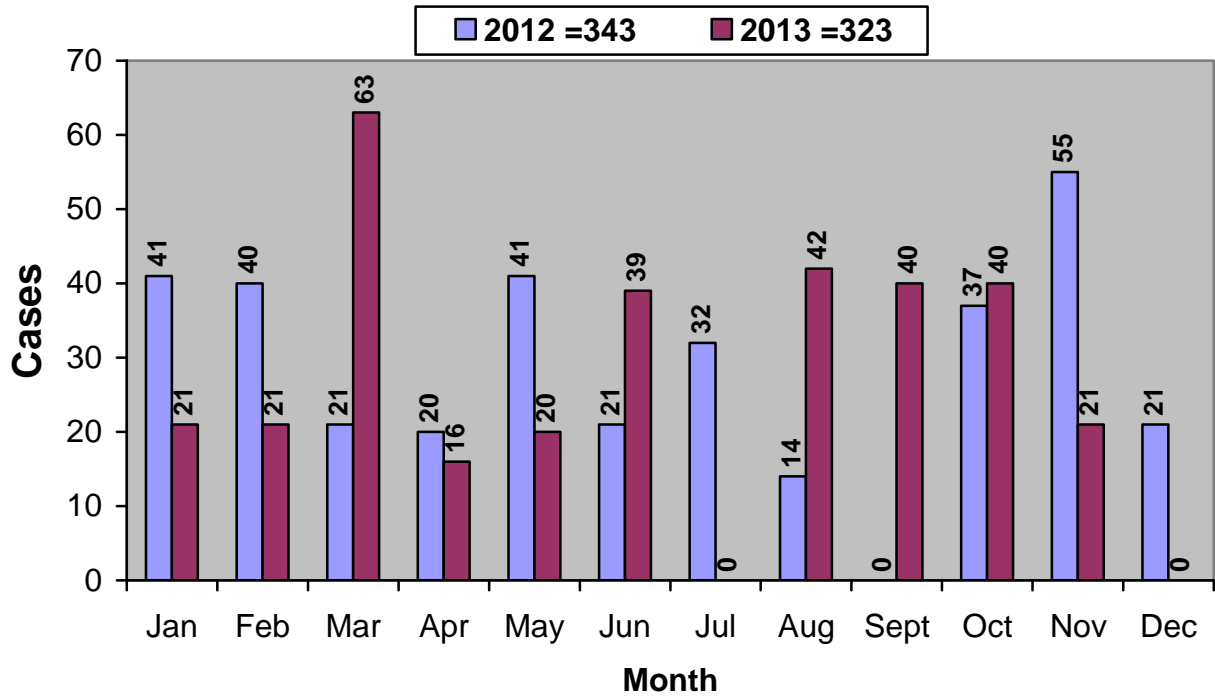
Blood Drug Cases Received



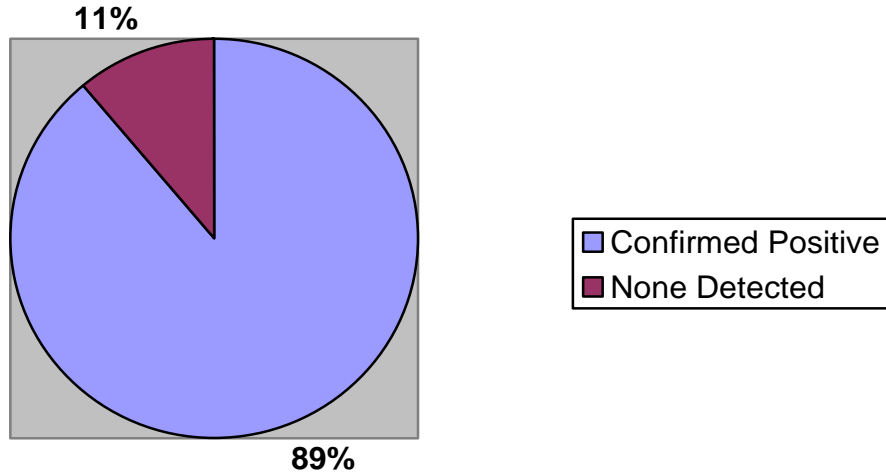
Total Blood Drug Cases Received in 2013

County / Agency	Submissions
Maryland State Police	78
Baltimore County	61
Montgomery County	52
Anne Arundel County	31
Frederick County	14
Harford County	14
Prince George's County	13
Howard County	12
Calvert County	11
Maryland Transportation Authority	7
Univ. of MD PD	7
Worcester County	7
Washington County	7
St Mary's County	4
In-house	3
Allegany County	2
Cecil County	2
Charles County	1
Caroline County	1
Wicomico County	1
Talbot County	1
TOTAL	329

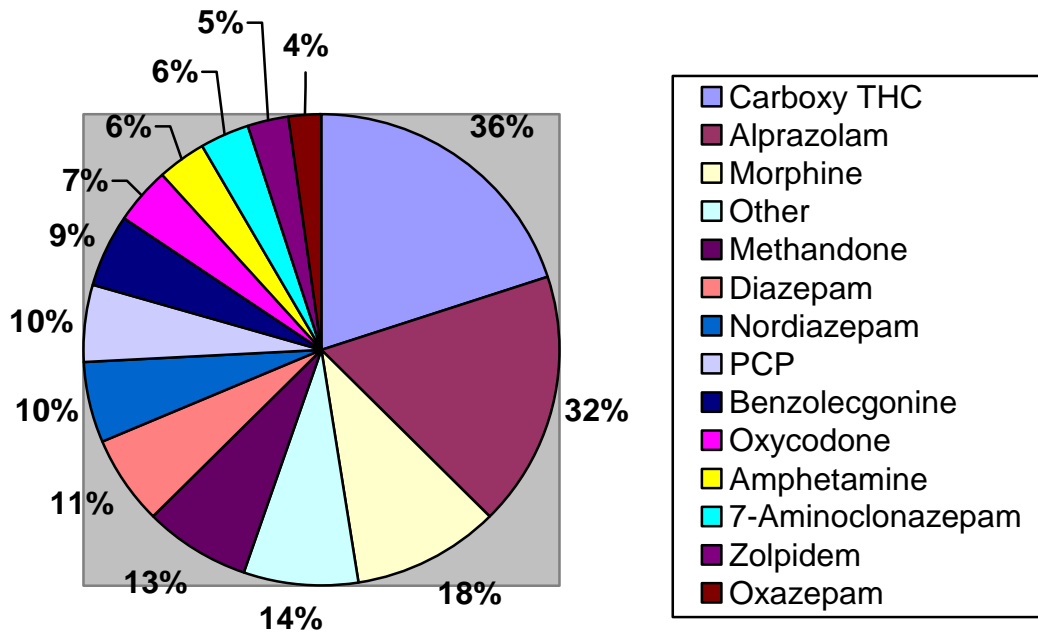
Blood Drug Cases Completed



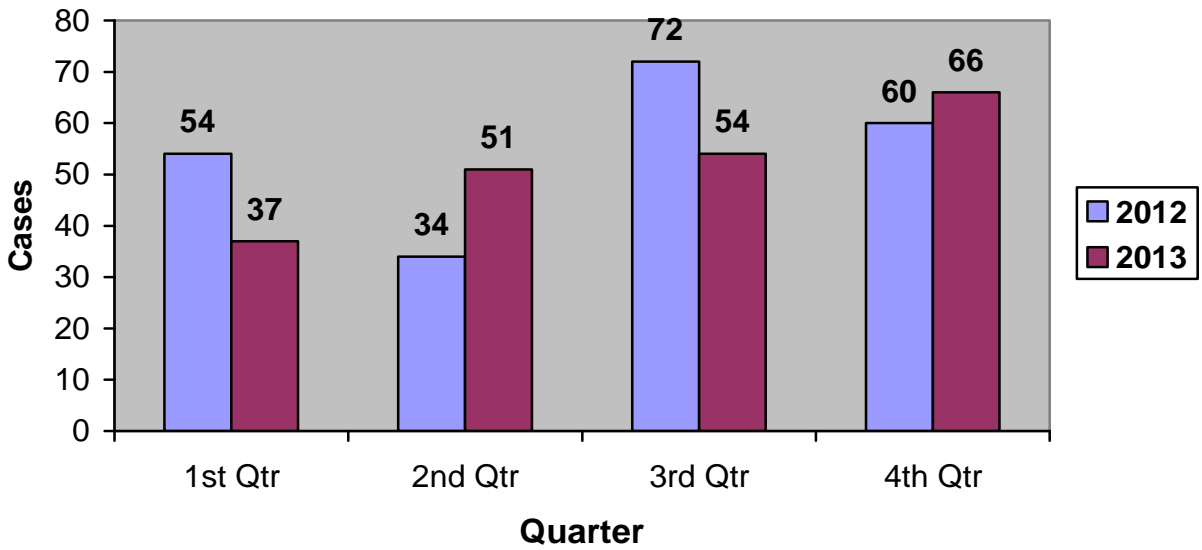
Percentage of Blood Drug Cases Reported in 2013
Yielding Positive Results



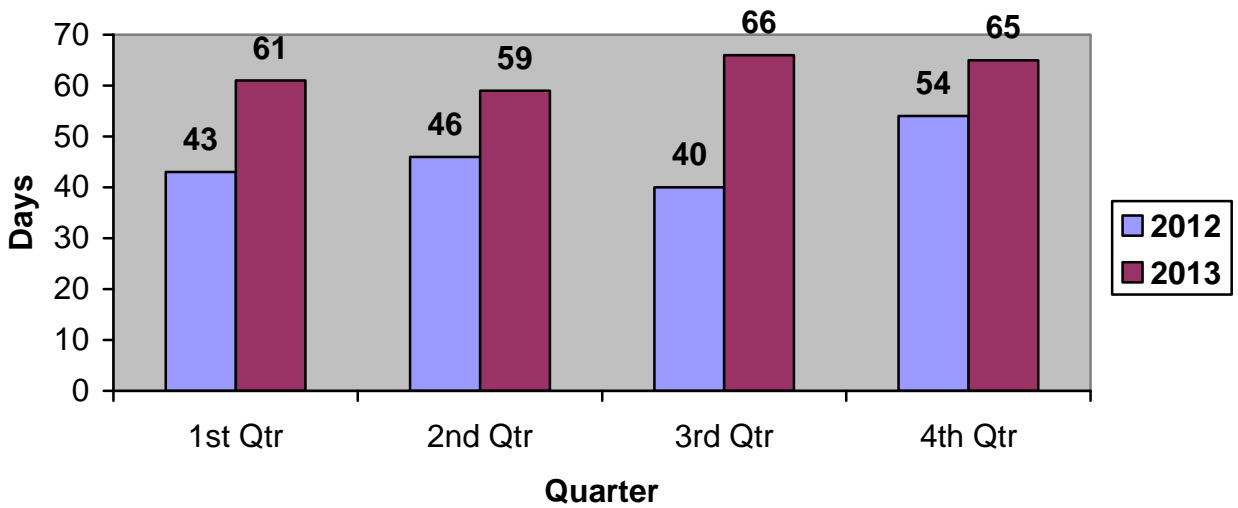
Percentage of Blood Drug Cases Reported in 2013
Yielding Positive Results per Drug Type



Blood Drug Cases - Ending Backlog per Quarter



Blood Drug Cases - Average Turn Around Time



2013 CHEMISTRY SECTION ACCOMPLISHMENTS

- 1. To promote a healthy work environment.** A CDS Google website was designed and implemented to allow discussions between CDS forensic scientists, the three different CDS labs, the Central Receiving Unit, and management. The site allows for sharing of documents or links as well as scheduling of events that affect the CDS Units. The Toxicology Unit was able to add a Toxicology Supervisor position which will allow them to have a three person unit in the future rather than a two person unit. This improved infrastructure should provide a stable environment as the Toxicology Unit takes on new challenges in the future.
- 2. To meet the forensic science needs of Maryland and its citizens.** The CDS Units have continued to develop testing procedures for the new generation of synthetic cannabinoids (K2, Spice) and synthetic cathinones (Bath Salts). Methods have been added for AKB48, AKB48-5fluor,1,4-Butanediol, 2C-B, 2C-C, 2C-E, 2C-I, HU210, JWH-200, JWH-201, JWH-302, and 4-methylmethcathinone. The Toxicology Unit developed and implemented a method that permits better detection of Buprenorphine (Suboxone, Temgesic, Buprenex). Improved confirmation testing methods for oxycodone, nordiazepam, and clonazepam were also implemented.
- 3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.** The Chemistry Section performed studies to determine the uncertainty of measurement associated with both the reporting of blood alcohol results and CDS weight results. This implementation ensures compliance with ISO and ASCLD/LAB requirements.
- 4. To minimize backlogs and turn around time.** CDS case submissions increased by 10.6% from 15,420 cases in 2012 to 17,058 cases in 2013. The largest impact was CDS submissions to the Pikesville Unit from Cecil and Harford Counties. Efforts to address this increase in submissions focused on developing better communication with clients in hopes of reducing the number of unnecessary submissions and identifying submissions that no longer need analysis. It should be noted that while the overall backlog increased because of the jump in submissions, the number of cases completed increased by a very impressive 7.9% from 15,060 cases in 2012 to 16,255 cases in 2013. The increase in completed cases can be attributed to the hard work of the staff as well as to efforts to redistribute cases within the Pikesville Unit and to transfer cases Pikesville to Berlin and Hagerstown for analysis. The satellite laboratories were able to take on these additional cases as their turn around times dropped significantly in 2013. The Hagerstown laboratory turn around time decreased from 57 days at the end of 2012 to 18 days at the end of 2013 while the Berlin laboratory turn around time decreased from 17 days at the end of 2012 to 10 days at the end of 2013.
- 5. To operate in a planned, prepared, and proactive manner.** Both short term and long term action plans were devised to address the overwhelming submissions being received by the Pikesville laboratory and will be the basis of a continued effort going forward. In 2013, the FSD CDS Units led an initiative with the Department of Health and Mental Hygiene to create a CDS user's group. This group has started to meet on a regular basis and allows for sharing of best practices between colleagues from different labs in Maryland. The Toxicology Unit also focused on their future by working with the State Highway Administration to obtain federal funds to purchase a LC/MS. This instrument promises great benefits to the Toxicology Unit in the future.

2014 CHEMISTRY SECTION GOALS

1. To promote a healthy work environment.

- The Pikesville CDS Unit will start monthly staff meetings with management in an effort to improve communication within the unit and with management.
- New all-in-one computers will be purchased for CDS scientists to use in the laboratory facilitating the transition from hard copy case notes to the use of StarLIMS worksheets.
- Two CDS support positions will be filled in response to the MSP “Over the Target” budget request. A permanent Inventory Control Specialist position will be filled in the Hagerstown laboratory ensuring the ongoing support of the current contractual Inventory Control Specialist. A Laboratory Technician position will also be filled and assigned to the Pikesville CDS Unit to perform administrative and support functions.
- The Toxicology Unit will fill the vacant Forensic Scientist position offsetting the manpower loss associated with the retirement of the Chemistry Manager who acts as the Toxicology Technical Leader.

2. To meet the forensic science needs of Maryland and its citizens.

- Two additional CDS Forensic Scientists will be filled in response to the MSP “Over the Target” budget request.
- The CDS Units will continue to develop additional detection methods for newly introduced synthetic cannabinoids and cathinones.
- The LC/MS will be received and validated by the Toxicology Unit resulting in efficiency improvements as well as the expansion of testing capabilities.

3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.

- Both the CDS Units and the Toxicology Unit will recalculate the measurement of uncertainty associated with drug weights and blood alcohol concentrations any time a new measuring device is put into use.

4. To minimize backlogs and turn around time.

- The action plans already developed to address backlogs and turn around time in the Pikesville CDS Units will be carried out and monitored.
- Additional backlog reduction initiatives will be pursued by the CDS Units including the application of improved chromatographic methods to reduce testing time; the use of the full CDS StarLIMS module eliminating double recording of findings and streamlining the use of the review and reporting processes; and the validation and implementation of a new compound microscope with digital imaging to promote more use of microcrystalline tests in place of instrumental analysis.

5. To operate in a planned, prepared, and proactive manner.

- Each CDS Unit will establish a Client Working Group with stakeholders from their most challenging jurisdiction. Business rules will be established to ensure that all parties know what is expected of each other.
- The Toxicology Unit will work closely with the new DRE state coordinator to secure political and financial support for the needs of the unit.

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, and two Forensic Scientists III. 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, four Forensic Scientists III (one of which is currently a vacant position), one Forensic Scientist I, and one Laboratory Technician I.

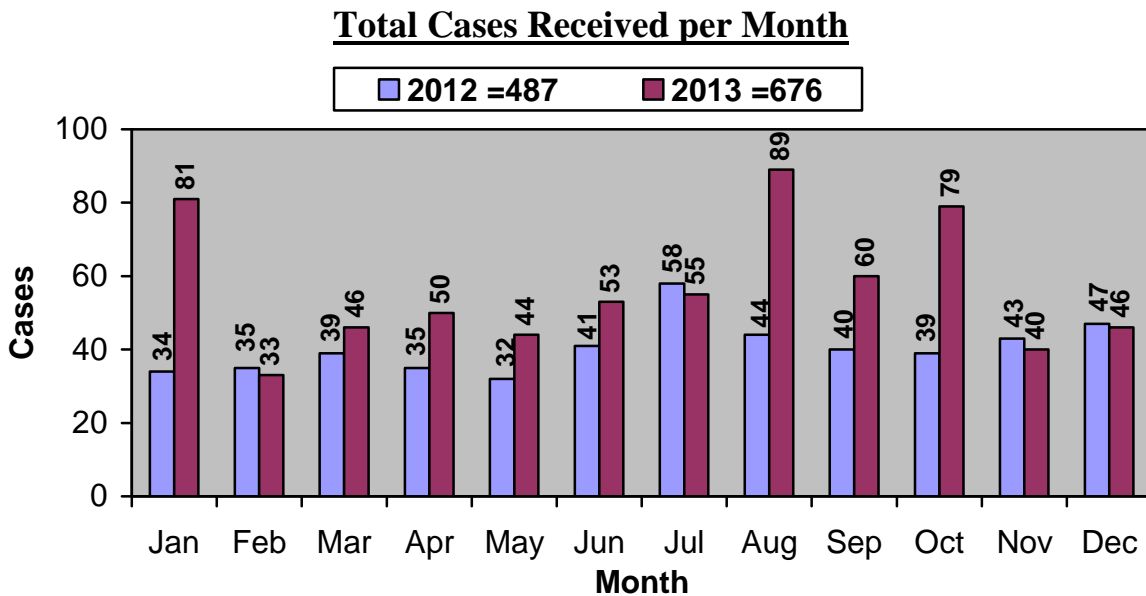
The Technical/Validation Unit is staffed by four scientists including one Forensic Scientist Supervisor (Technical Leader), one Forensic Scientist Advanced, and two Forensic Scientists III, (one of which is currently a vacant position).

BIOLOGY CASEWORK UNIT

The Trial Casework Sub-Unit is part 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 sub-unit has the main responsibility of assigning, analyzing, and reviewing these cases for those agencies serviced by the MSP-FSD Biology Section. While the primary responsibility of this sub-unit is cases with pending trial dates, it 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 also part 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 sub-unit is responsible for handling high-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



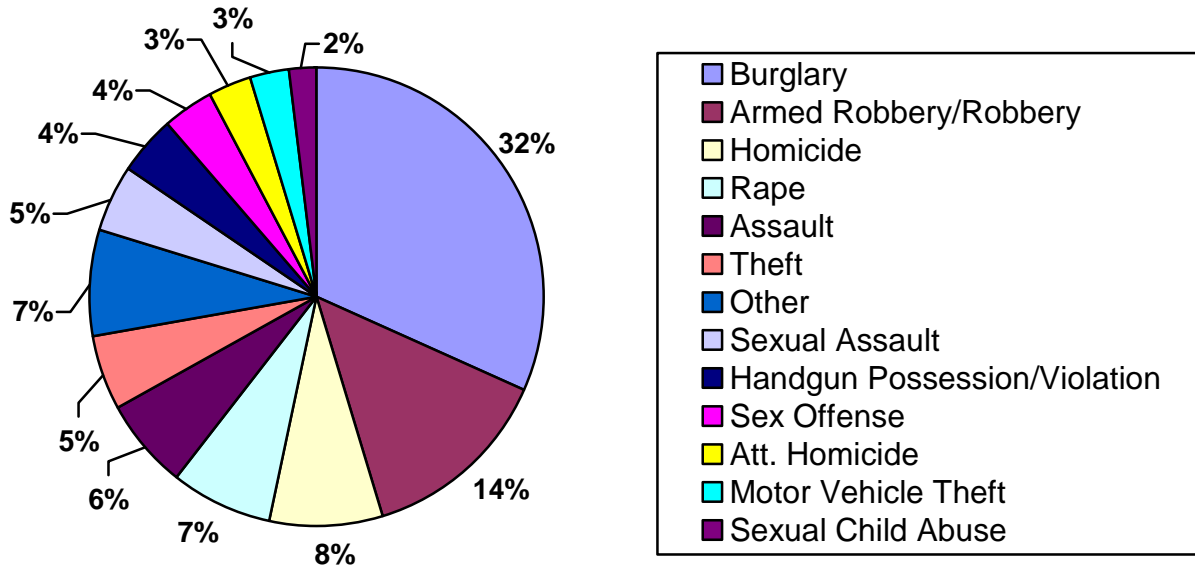
Total MSP Cases Received in 2013 per Installation

MSP Installation	Counties Served	Submission
MSP-Easton	Dorchester, Caroline, Talbot	27
MSP-Centerville	Queen Anne's, Kent	18
MSP-Homicide	Statewide	17
MSP-CED	Statewide	14
MSP-Frederick	Frederick	10
MSP-Princess Anne	Somerset	10
MSP-North East	Cecil	7
MSP-Berlin	Worcester	6
MSP-Salisbury	Wicomico	6
MSP-Westminster	Carroll	6
MSP-Centerville	Kent	5
MSP-Bel Air	Harford	4
MSP-CID	Statewide	4
MSP-McHenry	Garrett	3
MSP-Forestville	Prince George's	2
MSP-Glen Burnie	Anne Arundel	2
MSP-College Park	Prince George's	1
MSP-Cumberland	Allegany	1
MSP-Hagerstown	Washington	1
MSP-JFK Highway	Cecil, Harford, Baltimore	1
MSP-Leonardtown	St. Mary's	1
MSP-LaPlata	Charles	1
	TOTAL	142

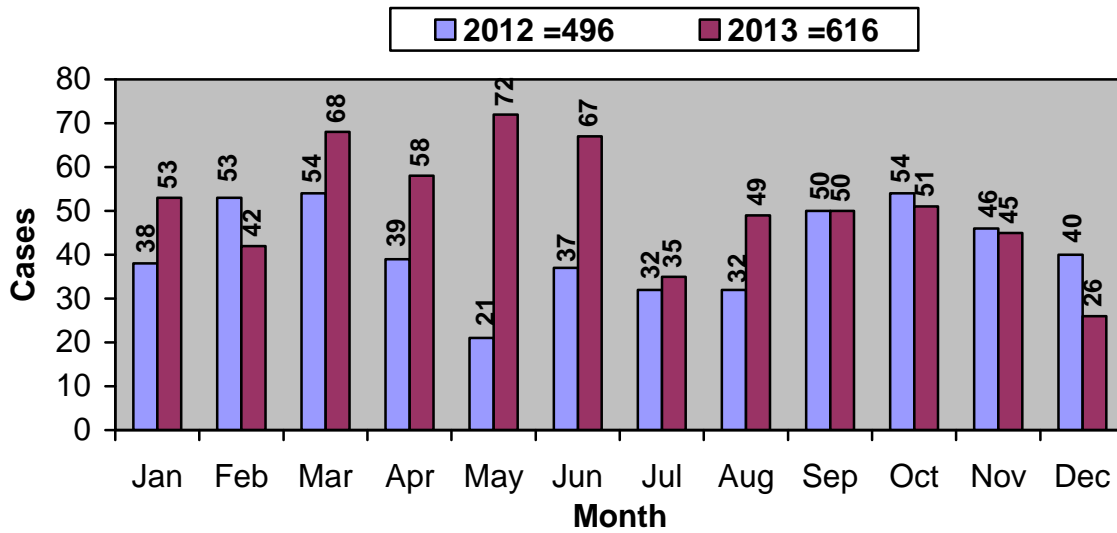
Total Allied Agency Cases Received in 2013 per County

County	Submissions
Charles	86
Wicomico	72
Frederick	69
Harford	46
Worcester	37
Anne Arundel	31
Cecil	30
Washington	29
Carroll	22
Dorchester	21
Prince George's	17
Allegany	15
Calvert	14
St. Mary's	12
Kent	8
Talbot	6
Caroline	5
Queen Anne's	5
Somerset	5
Statewide	4
TOTAL	534

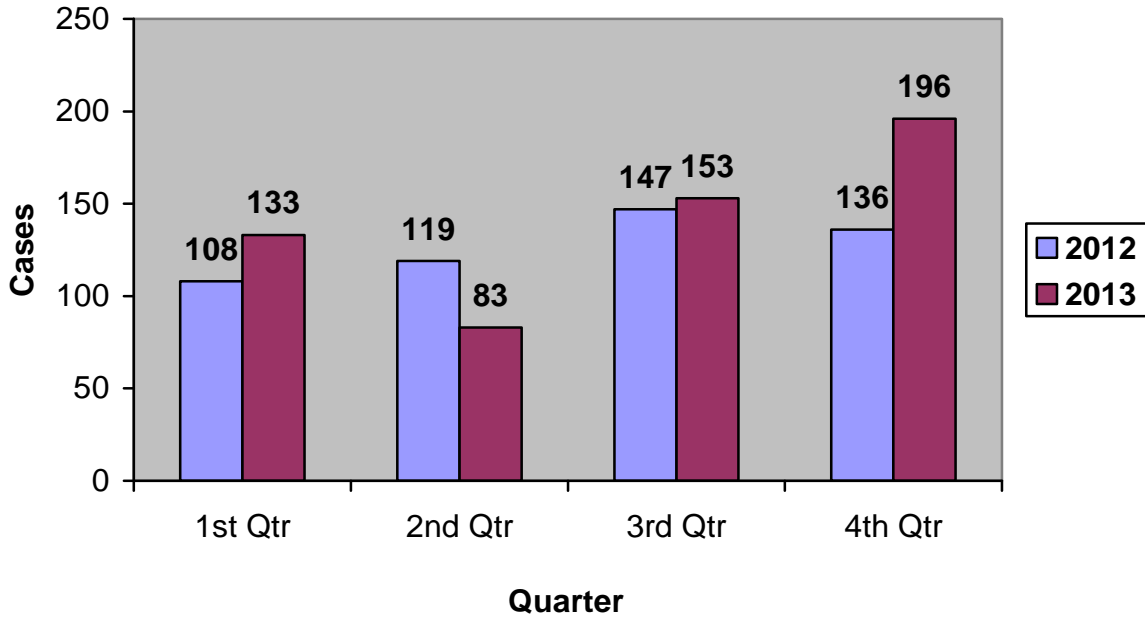
Total Cases Received in 2013 per Crime Type



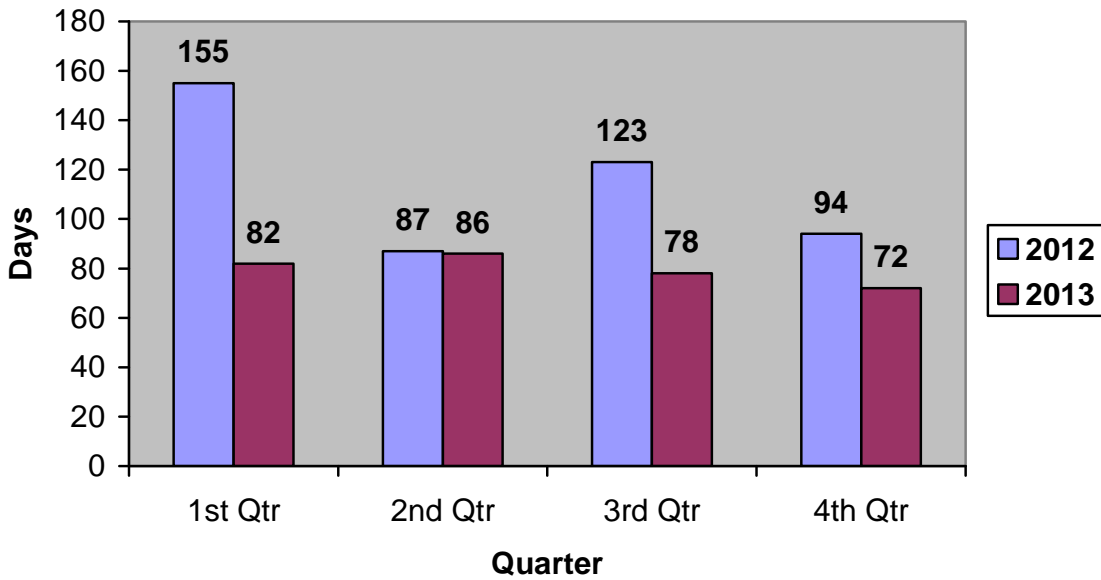
Total Cases Completed per Month



Ending Backlog per Quarter



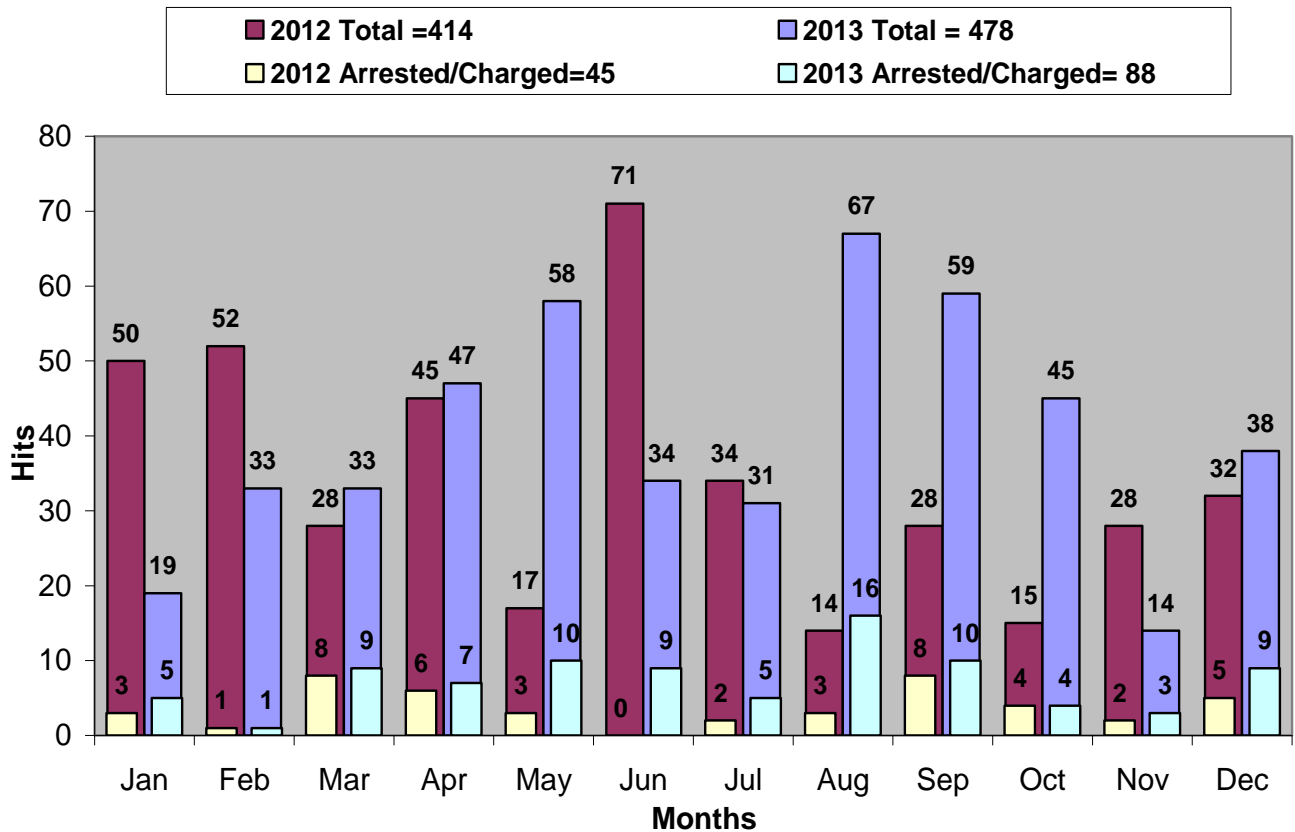
Average Turn Around Time per Quarter



BIOLOGY DATABASE UNIT

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

Total Hits Reported by Month



Total Hits in 2013

Hits Reported	
Maryland Offender/Arrestee Hits	285
Maryland Case Hits	478

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.

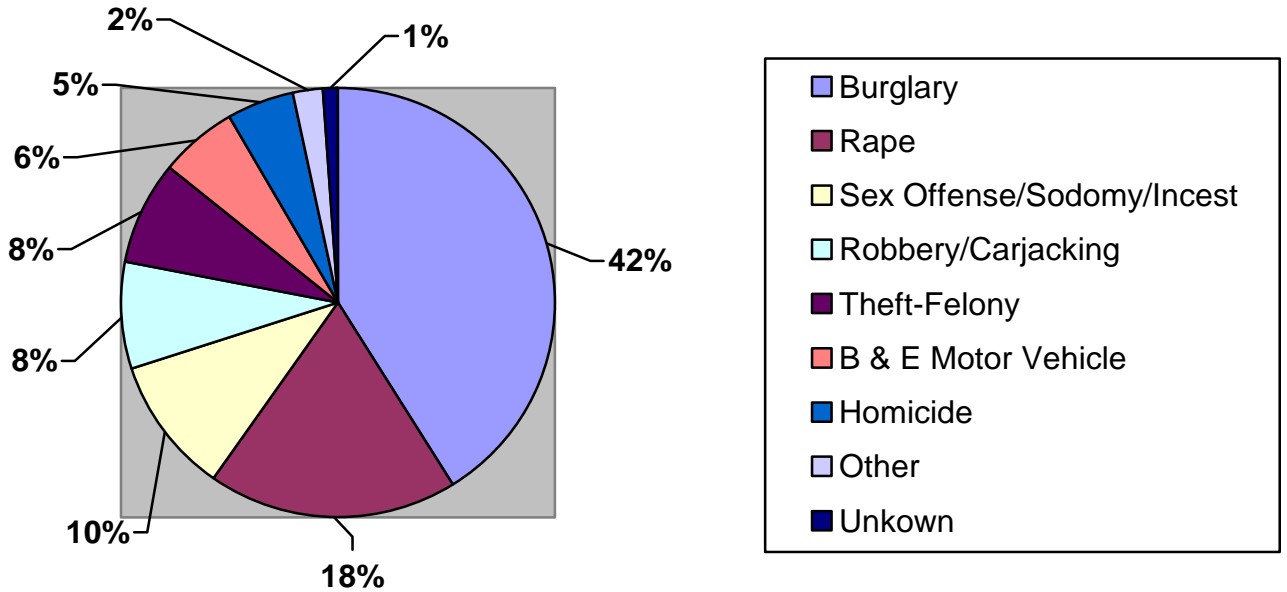
Total Maryland Case Hits in 2013 by County

Maryland County	Hits
Baltimore City	127
Anne Arundel	103
Montgomery	79
Baltimore	36
Prince George's	25
Charles	23
Frederick	15
Cecil	12
Howard	10
Washington	7
Queen Anne's	6
Wicomico	6
Caroline	5
Harford	5
Talbot	4
Calvert	3
Carroll	3
Dorchester	3
Worcester	3
Allegany	2
Somerset	1
TOTAL	478

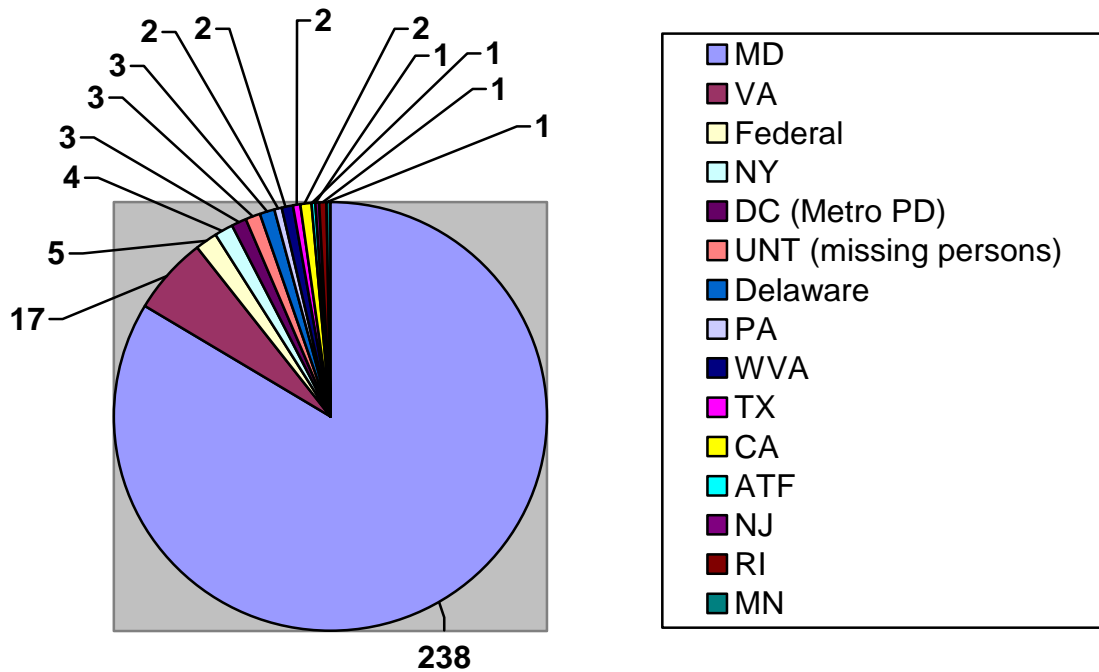
Total Maryland Case Hits in 2013 by Crime Year

Crime Year	Hits
1981	2
1983	5
1987	1
1988	1
1990	1
1991	1
1993	3
1994	4
1996	1
1997	1
1998	1
1999	3
2001	7
2002	2
2003	3
2004	9
2005	3
2006	2
2007	14
2008	7
2009	28
2010	51
2011	65
2012	157
2013	97
Unknown	9
Total	478

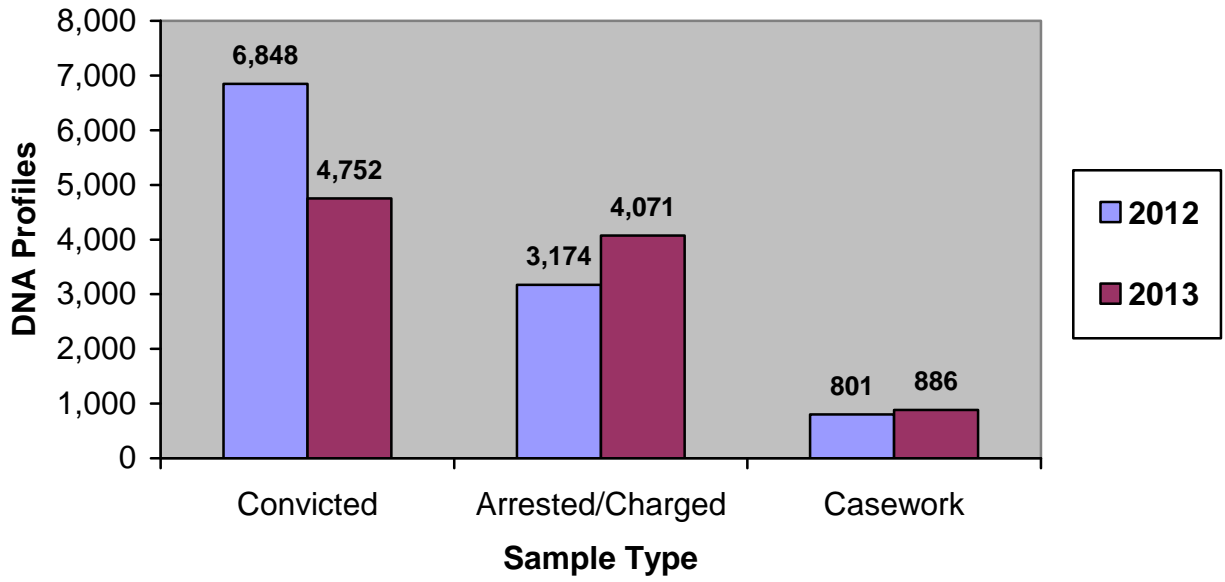
Total Maryland Case Hits in 2013 per Crime Type



Total Maryland Offender/Arrestee Hits in 2013 per Jurisdiction of Crime



Total DNA Profiles Uploaded to CODIS per Sample Type



BIOLOGY TECHNICAL UNIT

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

New Technologies Implemented in 2013

In 2013 the Technical Unit completed several new validation studies and implemented them, or will have them implemented in 2014.

Technology	Benefit
Y-STR	In some sexual assaults with low levels of sperm identified, sexual assaults committed by azoospermic or vasectomized males, or body fluid mixtures lacking semen, autosomal STR analysis may result in a sample in which a male contributor cannot be identified or distinguished due to low sensitivity or preferential amplification of the abundant female contribution. Y-STR analysis specifically targets DNA on the male-specific Y chromosome even in the presence of an overwhelming amount of female DNA, thereby allowing such types of evidence to be analyzed. Additionally, samples with more than one male contributor may be suitable for Y-STR testing to assist in the possibility of exclusions when autosomal results are complex.
Automated Differential Extraction	This procedure reduces the analyst hands-on time needed to process differential samples and utilizes column technology which has already been shown to remove inhibitors and help downstream analysis of samples.
Complex mixture interpretation	A new tool was created to assist analysts in determining a minimum or finite number of contributors to complex mixtures. Such information is critical in further analyzing the complex mixture for making conclusions of inclusion or exclusion. A new tool was created to model the possible genotypes, and to provide weight to a statement of inclusion, of the significant contributor to complex mixtures. Prior to the implementation of this tool some complex mixtures have been declared inconclusive due to lack of an applicable model and statistical calculation.

Training Completed in 2013

Training included the use of the new automated differential extraction technology and the completion of casework training for DNA analysis.

Analyst	New Field of Competency
All qualified DNA casework analysts	Automated differential extraction
Jessi Brown	DNA casework
Amanda High	DNA casework
Molly Rollo	DNA casework

2013 BIOLOGY SECTION ACCOMPLISHMENTS

- 1. To promote a healthy work environment.** To maintain positive morale and motivate all analysts within the section, monthly casework statistics that reflect the group's accomplishments are now posted for all to see.
- 2. To meet the forensic science needs of Maryland and its citizens.** The Biology Section provided assistance to the Office of the Attorney General in their preparation to argue the Alonzo King case before the US Supreme Court regarding the constitutionality of Maryland's arrestee law in February of 2013. In June 2013, The US Supreme Court ruled that collection at time of arrest was constitutional and in turn FSD would continue to maintain database samples from both convicted offender as well as individuals arrested and charged. It should be noted that all database samples analyzed by FSD were done so exclusively in-house in 2013. Also of note, the DNA database produced three hits in 2013 between unidentified human remains and a Maryland offender. These were all sent to University of North Texas for analysis. The remains were from the following counties: Baltimore, Baltimore City, and Washington DC.
- 3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.** A tracking worksheet of all the laboratory QA/QC duties was instituted to ensure that processes are monitored. The Biology Section performed an internal audit against the FBI DNA Quality Assurance Standards (QAS) and had no findings. An MOU to participate in the Potomac Region Auditing Group was organized for signature that would ensure FSD's ability to obtain external DNA audits every two years in exchange for performing an audit of another regional lab. The DNA Technical Leader of the Biology Section continued to be an active member of the Scientific Working Group for DNA Analysis Methods and ensure that FSD has input in their associated guidelines.
- 4. To minimize backlogs and turn around time.** In 2013, an all time high of 676 cases were received into the laboratory for analysis, which is a 39% increase from the 487 cases received in 2012. A total of 616 cases were completed in-house in 2013. This is a 24% increase from the 496 that were completed in 2012. While the ending backlog for 2013 was 196 cases, it should be noted that the casework unit hit an all time low of 83 cases in June 2013. Also in 2013, the casework unit reached all time lows in turn around time for in-house casework (42 days) and overall turn around time for in-house and outsourced casework (72 days). In 2013, the database unit received 5,228 offender samples and 10,129 arrestee samples and expunged 4,212 arrestee samples. Currently, there is no backlog of database samples to be analyzed and entered into CODIS. Moreover, arrestee samples were analyzed with an 8 day turn around time and offender samples were analyzed with a 10 day turn around time.
- 5. To operate in a planned, prepared, and proactive manner.** The validation and training unit completed validations for Y-STR testing, the use of robotics for differential extractions, and new complex mixture interpretation methods. Three individuals completed their training and were successfully qualified as DNA casework analysts. In the casework unit, the efficiency of case processing was improved by implementing a more strategic approach for casework assignments. In the database unit, the weekly rotation of duties amongst the database staff has proven very efficient and fruitful.

2014 BIOLOGY SECTION GOALS

1. To promote a healthy work environment.

- New and creative ways of motivating staff will be evaluated in hopes of bringing to surface the importance of their work and instilling pride and ownership in their daily functions.

2. To meet the forensic science needs of Maryland and its citizens.

- Implement the recently validated Y-STR DNA analysis so that cases that may require this type of analysis can also be fulfilled in-house rather than outsourcing them in totality.
- Complete all cases remaining that were submitted in 2013 by the end of September 2014.
- Ensure that all offenders and arrestee samples continue to be entered into CODIS in a timely fashion while multiple searches are run every week.
- Fill the existing vacancy in the Technical Unit and the existing vacancy in the Database Unit during the first quarter of 2014.

3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.

- Receive and perform an external FBI QAS audit in support of the new Potomac Region Auditing Group MOU.
- Perform validation, write SOPs, and train analysts in support of the platform shift associated with the CODIS core loci change. Since this will be a major change to the current procedures the entire platform will be re-evaluated by both ASCLD/LAB assessors and FBI QAS auditors.

4. To minimize backlogs and turn around time.

- Reduce the casework backlog by approximately 15% while continuing to handle a potential increase of cases submitted to the lab and at the same time maintain the low in-house and total turnaround times.
- Continue to analyze all database samples in-house with a zero backlog.

5. To operate in a planned, prepared, and proactive manner.

- Assess the effectiveness of already implemented strategies such as bi-weekly case assignments in maintaining a fully assigned casework backlog, and if necessary, establish and implement new strategies.
- Tracking of case statistics during occurrences where exceptions are made to in-house business rules will help evaluate if similar exceptions should be made in the future in order to improve efficiency.
- In order to be ready for the anticipated 2016 required implementation of the new CODIS core loci, evaluation of new technologies and funding plans will begin in early 2014.

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 sub-units, Trace Pattern, Trace Chemistry and Trace Biology. The Trace Evidence Section consists of one Forensic Scientist Supervisor, one Forensic Scientist Advanced, one Forensic Scientist III, and one Forensic Scientist II.

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.

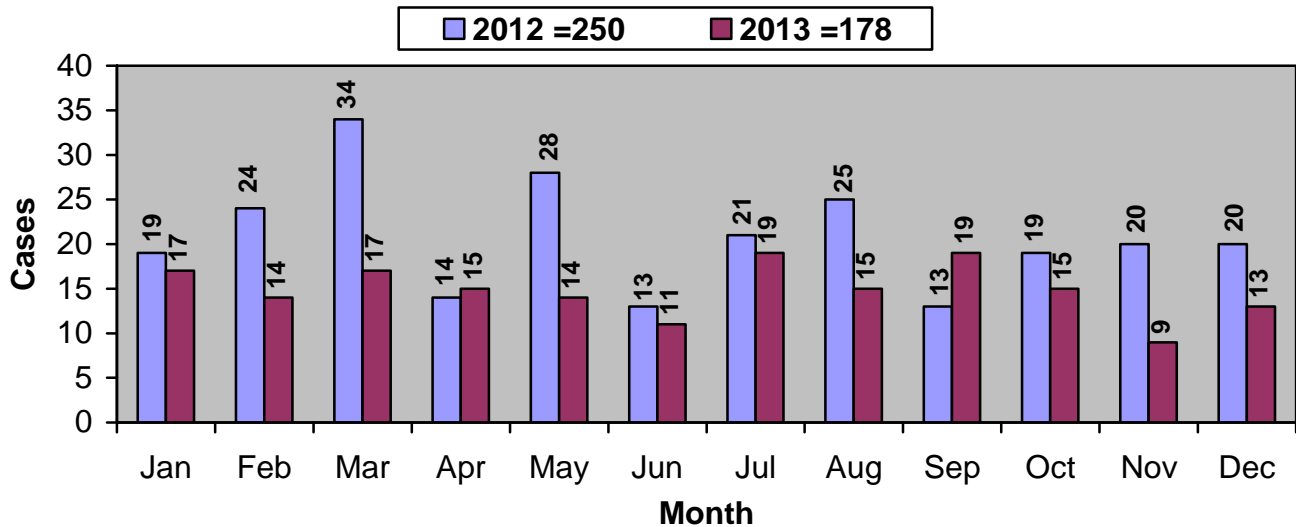
The Trace Biology Sub-Unit examines biological evidence in support of the operations of the Biology Section. The main area of analyses is with hair examinations to determine species (animal or human) and growth phase for further DNA profiling. This sub-unit is developing advanced biological screening 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 as well as on 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 2013 per Installation

Installation	Counties Served	Submissions
MSP - McHenry	Garrett	4
MSP - Princess Anne	Somerset	3
MSP-CID Homicide	Statewide	3
MSP -North East	Cecil	2
MSP -Centreville	Montgomery	2
MSP-CID	Statewide	2
MSP -Golden Ring	Baltimore	1
MSP Homicide	Statewide	1
MSP -Bel Air	Harford	1
MSP Easton	Caroline, Dorchester, Talbot	1
MSP Frederick	Frederick	1
MSP Glen Burnie	Anne Arundel	1
	TOTAL	22

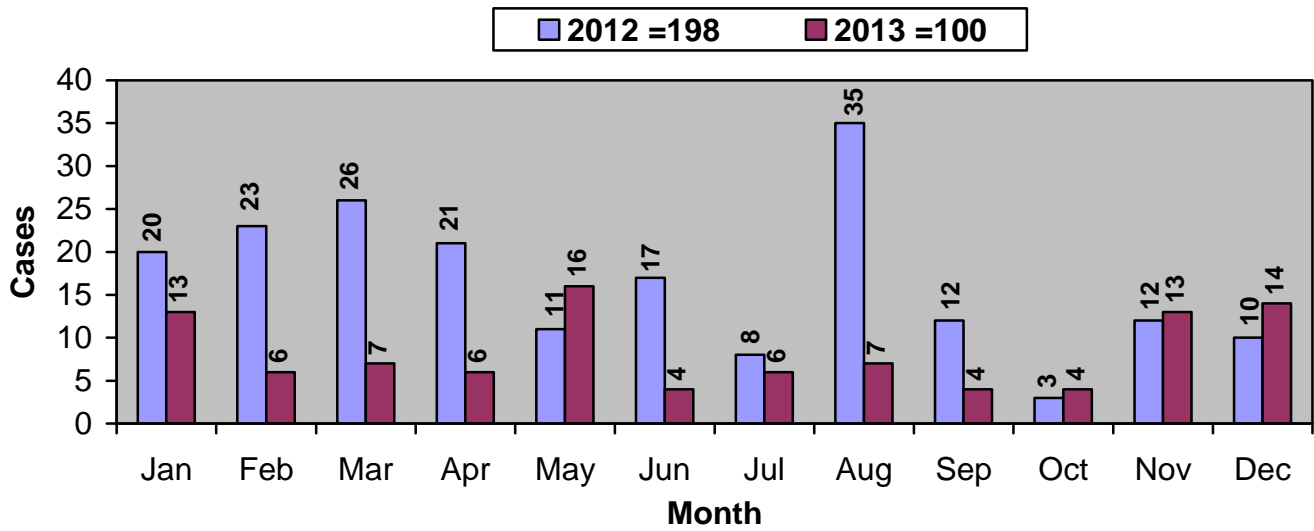
OSFM Cases Received in 2013 per OSFM Region

Region	Counties Served	Submissions
OSFM - Lower Shore	Dorchester, Somerset, Wicomico, Worcester	23
OSFM - Southern	Calvert, Charles, St. Mary's	15
OSFM - Metro	Carroll, Frederick, Howard	10
OSFM - Western	Allegany, Garrett, Washington	5
OSFM - North East	Harford, Cecil	5
OSFM - Upper Shore	Caroline, Kent, Queen Anne's, Talbot	3
	TOTAL	61

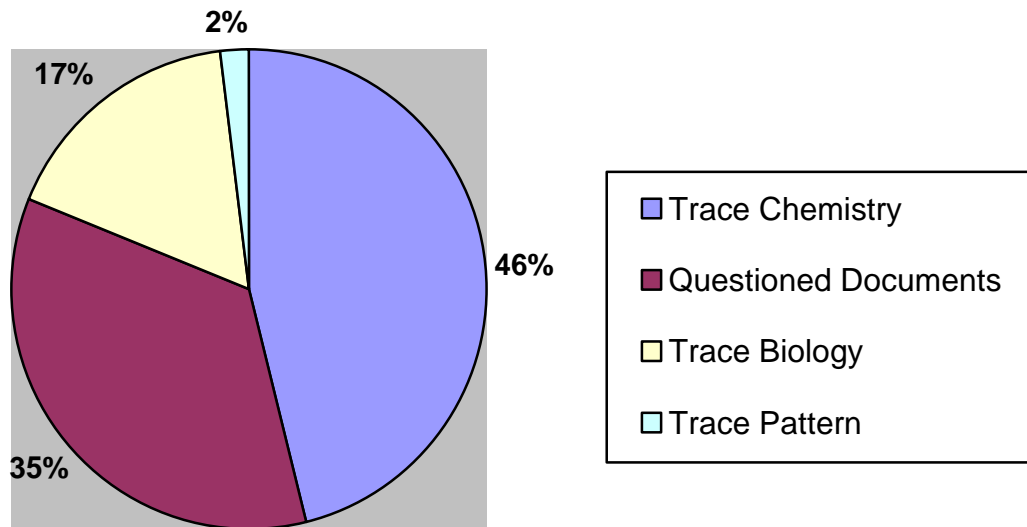
Allied Agency Cases Received in 2013 per County

County	Submissions
Anne Arundel	32
Howard	9
Prince George's	9
Baltimore	6
Cecil	5
Montgomery	4
Baltimore City	3
Frederick	3
Worcester	3
Charles	2
Harford	2
Somerset	2
Washington	2
Wicomico	2
Unknown	2
Allegany	1
Baltimore County	1
Calvert	1
Carroll	1
Dorchester	1
Garrett	1
Queen Anne's	1
St. Mary's	1
Out of state	1
TOTAL	95

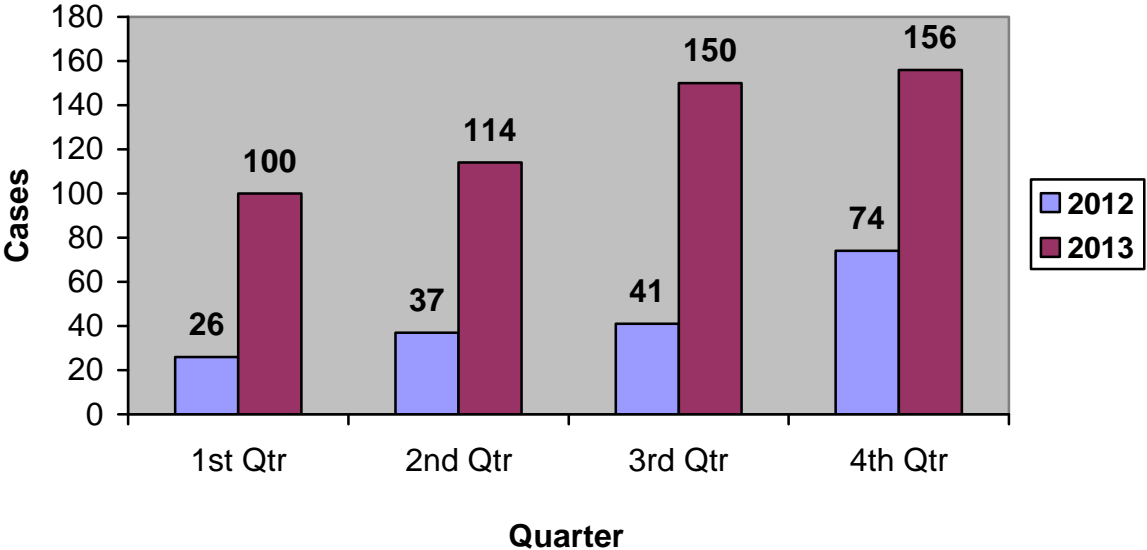
Total Cases Completed per Month



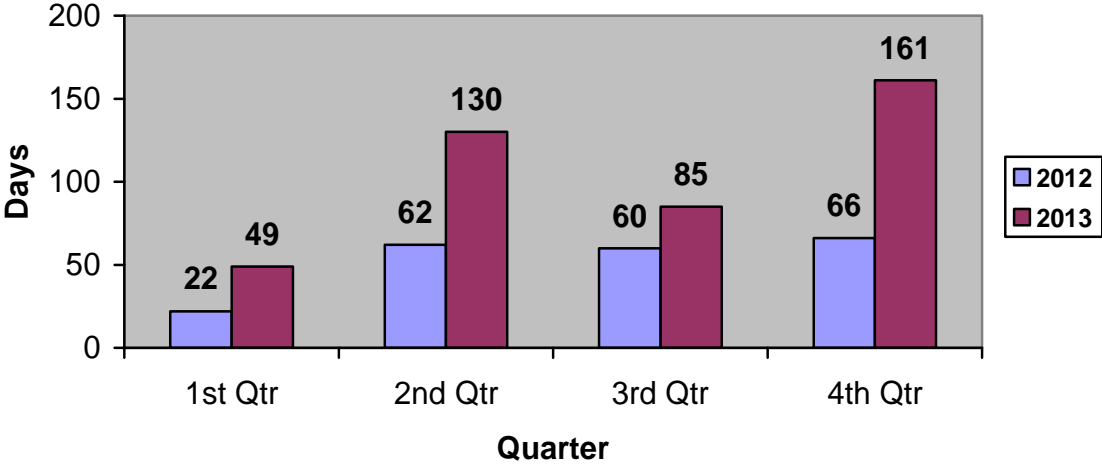
Cases Completed by Sub-Unit



Ending Backlog per Quarter



Average Turn Around Time per Quarter



2013 TRACE EVIDENCE SECTION ACCOMPLISHMENTS

- 1. To promote a healthy work environment.** The Trace Evidence Section is the laboratory's smallest section consisting of two of the FSD's smallest units. Since it is such a small group of people, there has been constant communication between its members concerning work conditions and health/leave concerns providing an excellent support network for one another. In 2013, the Trace Evidence Section continued its practice of taking on interns to lessen the non-case workload on its employees.
- 2. To meet the forensic science needs of Maryland and its citizens.** A Forensic Scientist Supervisor and a Forensic Scientist II continued to receive training by the ATF laboratory in Fire Debris Analysis until May 2013. This type of analysis accounts for approximately 75% of the Trace caseload. The supervisor has achieved competency and is now doing fire debris analysis. The FS II is anticipated to start independent casework in early 2014. In addition, the Forensic Scientist III hired in 2013 completed her training and received a competency certificate to perform Fire Debris Analysis.
- 3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.** The Questioned Documents SOP was updated and revised in 2013 to provide thorough documentation of the procedures utilized by the Questioned Documents Unit. Similarly, along with re-establishment of Fire Debris Analysis, Trace Evidence Unit took that opportunity to revise the Fire Debris Analysis SOP upon consultation with representatives from the ATF. Also, in support of the sub-contracting of Fire Debris Analysis, MOUs detailing the Quality Assurance expectations of both parties were established. The Trace Evidence Section continued to use trace examiners from Baltimore City and Baltimore County to technically review casework in which FSD only has one qualified examiner, and all necessary quality assurance documentation required of those reviews were obtained.
- 4. To minimize backlogs and turn around time.** While the Fire Debris Training was occurring, the Trace Evidence Unit suspended analysis of Fire Debris casework and contracted with the Baltimore City and ATF laboratories to analyze some of this casework. Those outside laboratories performed a total of 41 case analyses. Although, the Trace Evidence Section was unable to perform Fire Debris casework for nearly a year, the caseload was strategically managed to minimize problems with investigations or court dates during that time.
- 5. To operate in a planned, prepared, and proactive manner.** Since the FSD has only one Questioned Documents examiner, the Trace Evidence Section has begun the training of a Forensic Scientist II in Questioned Document analysis. This training is anticipated to take approximately two years. The Trace Evidence Section also arranged for the donation and transfer of used equipment (GRIM 3, Microspectrophotometer, and Phase Contrast Microscope) from the Baltimore County lab to FSD. A GRIM 3 will allow the Trace Evidence Section to add glass analysis while the other instruments are upgrades from models currently owned by FSD.

2014 TRACE EVIDENCE SECTION GOALS

1. To promote a healthy work environment.

- The Trace Evidence Section will continue to maintain close communication amongst its personnel and seek ways to improve the working atmosphere in the laboratory.
- The Trace Biology Sub-Unit will continue to work together with the Biology Section to assess new Trace Evidence procedures that may prove beneficial to supporting Biology casework.

2. To meet the forensic science needs of Maryland and its citizens.

- A long-term plan will be developed to ensure that at least one forensic scientist is trained and competent in each of the trace evidence sub-disciplines offered by FSD.
- Training in Fiber and Textile analysis will commence in early 2014. Training will include in-house, external, and online events.

3. To maintain accreditation with ASCLD/LAB and compliance with all oversight requirements.

- The Trace Evidence Section will continue to use SWGMAT, ASTM, and ASCLD/LAB publications as references and guidelines in its analyses.
- Prior to implementing the new equipment received from the Baltimore County lab, the necessary validation, SOP revisions, and training will be performed.

4. To minimize backlogs and turn around time.

- The Trace Evidence Section will evaluate each casework analysis requested and assign a priority status in order to minimize backlogs and turn around time.
- The Fire Debris casework backlog will be reduced by 50% by the end of 2014, as there will be three analysts on staff actively performing fire debris analysis.

5. To operate in a planned, prepared, and proactive manner.

- The Trace Evidence will do an evaluation of previous casework requests to determine how many cases of each trace evidence sub-discipline were requested over the past several years. Following this data gathering, business decisions will be made in regards to which sub-disciplines should continue to be offered and which are not cost efficient to provide.

2013 Employee of the Month Recipients

Month	Award Recipient
January	Mekonnen Damessa
February	No Award
March	Annie Wright
April	No Award
May	Jenn Jeudy & Joe Harant
June	Valerie Imschweiler
July	Argi Magers
August	Mitch Dinterman, Cathy Savage, & Jessica Taylor
September	Tiffany Keener
October	Cindy Dill
November	Vonzella Johnson
December	Kris Amspacker and Mike Jones

2013 Commander's Award Recipients

**Lindsey Schultz
Alex Mankevich
Larry Ches
Zach Suber**

We are serious scientists...



...but we know how to have fun too!



Farewell to FSD

As I retire at the end of 2013, I can't help but to look back on the over 32 years I've worked for the Maryland State Police. Starting as a Forensic Chemist-I working off a six month grant program and ending as the Laboratory System's Director has been quite the trip. It is with fond memories that I recall those first years in Building A working in the Trace Evidence/Serology Unit and learning about forensics. I had a great mentor in Ms. Rose Lanzetta and even today her wise words still come to mind. She is just one of the many co-workers that I've met along the way and have grown to consider a friend over these years. I will miss everyone immensely.

During my time at the laboratory, I was so fortunate in my career to be given the opportunity for continual training and growth. Most of you have heard me say that I've never been bored and I wasn't! I have survived the Departmental changes of 11 Superintendents, 5 Governors, and the Division's three different locations. The on-the-job training was mostly received in classes given at the FBI's Training Academy at Quantico, Virginia. Being from Maryland was opportune in that we were often invited to fill in last minute openings and lucky for me I was able to take advantage of these opportunities. Later, in order to meet federal standards and to keep up with the changing technologies, I went back to graduate school, while working full-time, to receive a Masters degree. Now most of the job applicants have Master degrees in Forensic Science. The technologies have progressed since my first days from ABO blood typing with its discriminating power of every other person to the more accurate, more sensitive, almost individualizing DNA STR testing of today. The DNA database has gone from its first 1994 version of collections from those convicted of rape and sexual assault offenses to a challenge heard by the 2013 Supreme Court and included several expansions of those individuals from whom samples can be collected.

In my days, the laboratory has gone from hand written passed down instructions to formal standards of procedures. Accreditation was first acquired in 2000 and was advanced to the International ISO level in 2010. Being involved in these processes, have been valued experiences and has led to personal growth as well as improvement in laboratory services.

My job with the Crime Laboratory also led to my wonderful marriage to my partner in crime, the then Crime Scene Technician Steve Long. And my FSD family has been witness to the birth and growth of my treasured daughter, Hannah. Sharing mine and everyone's life experiences has been very special. It is important to recognize that our achievements not only speak well of us, but they speak well of those persons and forces seen, unrecognized, and unnoticed that have been active in our lives. Thanks and much gratitude to all those that I've had the pleasure to work beside.

Terry



**Thank you Terry for all you have done to make the MSP-FSD what it is today!
You will be truly missed!**