2015

ANNUAL REPORT

MARYLAND STATE POLICE

FORENSIC SCIENCES DIVISION

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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 thirteen 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 informative, ethical, reliable, and scientifically valid.

Mission Statement

The mission of the Forensic Sciences Division is to serve as the model laboratory for the analysis of forensic evidence in the State of Maryland by employing the following elements:

- Promotion of employee morale through a respectful and unified work environment.
- Meeting the forensic science needs of Maryland and its citizens.
- Maintaining ISO 17025 accreditation and compliance with all oversight requirements.
- Minimizing backlogs and turn around time.
- Operating 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 the 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 FSD and that those resources are always procured in the most fiscally responsible manner possible.

DIRECTOR'S SUMMARY

Daniel E. Katz

I hope it is clear to everyone that the Forensic Sciences Division (FSD) has a plan in place to consistently achieve our mission and ultimately reach our vision. If it is not clear, please refer to the 2013 and 2014 Director's Summaries for a reminder. It should also be evident, as you review the 2015 FSD Annual Report, that FSD had a very successful year. The number of backlogged FSD cases at the end of 2015 (1,440 cases) compared to the number of backlogged FSD cases at the end of 2014 (2,764 cases) represents a 48% reduction. The average FSD turn around time at the end of 2015 (94 days) versus the average FSD turn around time at the beginning of 2015 (113 days) corresponds to a 17% decrease. MAFIS hits and CODIS hits have increased 60% and 38% over the past year respectively. On top of all that, in 2015 FSD hosted visits from Vice President Biden and Governor Hogan, expanded latent print operations to the Hagerstown laboratory, and underwent a successful reaccreditation assessment by the American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB).

With such a successful year, it would be easy to become complacent; but there are always changes to be made, and it is imperative that we continue to plan for the future with the same sense of urgency that we would if the year had been less successful. While FSD is often thought of as a single entity, it is critical to remember that FSD is actually made up of many individual units, each of which faces different challenges. Therefore, to meet our mission and vision as a whole, we need each unit to assess their unique circumstances and manage change within their unit accordingly. I would like to take this opportunity to highlight some examples of how different FSD Units embraced change in 2015.

Solving Problems with Change

Problems usually do not fix themselves, but rather require a change in approach. In 2015, the Crime Scene Section (CSS) faced significant staffing problems as they started the year with six of the eighteen (33%) Crime Scene Technician positions vacant. This meant that the Crime Scene Technicians were on-call more often and the Crime Scene Technician Supervisors had to also be included in the on-call rotations. The reduction in manpower also meant that the geographical distribution of the Crime Scene Technicians was more sparse, often presenting challenges to respond to crime scenes and transport evidence within the timeframe to which our customers had become accustomed. While three additional Crime Scene Technicians were added throughout the year, three vacancies remain frozen with no ability to fill them in the near future. Since the CSS resources will continue to be limited, an alternative solution was sought out. Grant funds were obtained for three contractual employees to function as Evidence Transport Technicians. These individuals will take over evidence transport duties from the Crime Scene Technicians in 2016, which will allow the CSS to focus their resources solely on crime scene response. Furthermore, by dedicating a single individual to each region with no other responsibilities besides transporting evidence, it will be possible to have evidence transports occur on a daily basis, reducing the time it takes to get evidence to the laboratory for analysis.

Improving Operations with Change

A not-so-wise man once said, "We will continue to do it this way because that is the way we have always done it." As scrutiny of forensic science has increased in recent years, there has been a new focus on implementing best practices. We must consistently evaluate our methodologies, and if there is a better way to do the job, then it is our responsibility to make changes. So despite the Controlled Dangerous Substances (CDS) Unit ending 2015 with an all-time low backlog and turn around time, it was recognized that changes were still warranted. A decision was made for the CDS Unit to be the first laboratory unit at FSD to process casework entirely within StarLIMS. While the Crime Scene Section has been fully using StarLIMS for several years, up until now StarLIMS was only used in the laboratory to track evidence and create certain reports. As a result of extensive preparation in 2015, the CDS Unit will transition to full use of StarLIMS in 2016. Not only will this ultimately result in a paperless operation for the CDS Unit, but it will pave the way for other laboratory units to benefit more from StarLIMS. Benefits that will be realized include:

- *A better product for our customers* - The ability to pre-log evidence, track case progress, and retrieve reports through an internet portal will provide a more organized and efficient process for investigators and attorneys.
- *A better case management system* - The ability to interact with customers through an internet portal will allow for better communication of the customer's needs and eliminate testing cases that are already dismissed or pled.
- *A more efficient laboratory* – The ability to auto-populate reports and organize case files electronically will streamline laboratory operations.
- *An enhanced quality assurance program* – The ability to electronically record data and to interface laboratory equipment will remove the potential for transcription errors. The structure of an electronic review process will increase the efficacy of the administrative and technical reviews.

Adapting to External Change

Often, changes occur that you have no control over but have a distinct impact on you. When this happens, it is important to look for any positives associated with that change and take advantage of the situation. In 2015, the Maryland General Assembly repealed §5-131 of the Public Safety Article which required that a shell casing from every handgun sold in Maryland be submitted to the Maryland State Police for entry into a database. For the past 15 years, FSD dedicated extensive resources to ensure compliance with this law. In total, the Firearms and Toolmarks Unit (FATMU) received, processed, and stored over 325,000 shell casings. Then on October 1, 2015, it was over. It was difficult at first to accept that a program that our FATMU staff had been so invested in was deemed expendable, but it turns out that there is a silver lining to the story. When discussing the program with legislators it was stressed that if the law was repealed the five technicians associated with the program should not be eliminated. The legislature honored that request, and as a result, FSD has been able to benefit by reallocating various duties to these technicians. The benefits to the FATMU involve allowing the technicians to take over many tasks from the forensic scientists so that they can dedicate their time to casework analysis. For example, after the technicians took over NIBIN imaging duties analysts were able to quickly

close a large number of cases for which analysis had been completed but remained open because NIBIN entries had not yet been performed. The freeing up of these technicians did not just benefit the FATMU though. Two of the technicians were reassigned to other parts of the laboratory that needed additional support, namely the Biology and Chemistry Sections. Also, three of the technicians took on tour duties while another took on intern duties, both of which benefit FSD as a whole.

In conclusion, change can be scary, but most often change is positive and should be welcomed. I personally am very excited about the recent changes to the Management Team that include the additions of Theresa DeAngelo as Quality Assurance / Safety Manager and First Sergeant Laura Beck as Assistant Commander. I have great confidence in both of them as well as Deputy Director Dr. Wanda Kuperus, and together we will strive to continue to guide FSD in the right direction. While leadership is important, the FSD staff is the heart of the operation, and none of FSD's successes are possible without them. I am so very proud of the men and women of FSD who continue to exhibit the exceptional work ethic and dedication that allows us to accomplish so much year after year. Whether it is the Biology Section's well-oiled casework machine reducing its turn around time for the eighth consecutive year or the Toxicology Unit's hard luck skeleton crew working their tails off to just make sure court dates are met, the effort level is truly inspiring. I personally cannot wait to expand on this year's successes and see what change 2016 brings!

STATISTICAL SUMMARY

Crime Scenes Processed and Assisted

Crime Scene Crime Region	Scenes Processed		MSP Scenes		Allied Agency Scenes		Scene Assists	
	2014	2015	2014	2015	2014	2015	2014	2015
Eastern	303	314	45%	46%	55%	54%	34	25
Western	238	216	70%	68%	30%	32%	22	23
Central	224	166	73%	71%	27%	29%	26	56
Totals	**765**	**696**	**61%**	**59%**	**39%**	**41%**	**82**	**104**

Laboratory Cases Received and Completed

Unit	Cases Received		MSP Cases Received		Allied Agency Cases		Cases Completed	
	2014	2015	2014	2015	2014	2015	2014	2015
Latent Prints/Impressions	1,085	1,167	22%	18%	78%	82%	1,827	1,658
Firearms/Toolmarks	684	660	25%	24%	75%	76%	488	812
CDS-Pikesville Lab	7,462	2,873	28%	23%	72%	77%	7,874	3,407
CDS-Berlin Lab	4,634	2,623	26%	21%	74%	79%	4,900	2,718
CDS-Hagerstown Lab	3,611	1,159	32%	28%	68%	72%	4,140	1,310
CDS-Allied*	--	2,257	--	16%	--	84%	--	2,324
Toxicology - Drivers (Alcohol & Drugs)	1,066	1,098	32%	29%	68%	71%	971	857
Biology- Submitted	542	643	18%	13%	82%	87%	628	597
Biology- Direct Outsourcing	223	370	6%	2%	94%	98%	173	319
Trace Evidence	147	134	69%	59%	31%	41%	274	144
Questioned Documents	34	39	21%	21%	79%	79%	37	38
Totals	**19,488**	**13,023**	**28%**	**23%**	**72%**	**77%**	**21,312**	**14,184**

*CDS-Allied = Forensic Scientists hired by allied agencies or other governmental entities who are authorized to perform CDS analysis in FSD facilities under the provisions provided for in a Memorandum of Understanding. Prior to 2015, data for this group were combined with the CDS Units in which the work was performed.

Laboratory Backlogs and Turn Around Times

Casework Type	Pending Caseload (Cases)[1]	Backlog (Cases pending >30 days)[1]	2015 Turn Around Time (Calendar Days)[2]	4th Quarter Turn Around Time (Calendar Days)[3]
Latent Prints/Impressions	281	196	321	115
Firearms/Toolmarks	567	529	284	244
CDS-Pikesville	179	32	60	26
CDS-Berlin	114	1	18	19
CDS-Hagerstown	88	7	42	45
CDS-Allied	249	71	45	40
Toxicology	466	331	74	60
Biology-Submitted	156	93	67	66
Biology-Directly Outsourced	157	146	116	121
Trace Evidence	19	19	125	84
Question Documents	18	15	130	200
Totals	2,294	1,440	94	58

1. Number of cases as of 12/31/15.
2. Average turn around time for cases completed throughout the calendar year.
3. Average turn around time for cases completed during the 4th quarter.

Operational Services Branch Annual Comparison

	2012	2013	2014	2015
Crime Scene Section				
Crime Scene (Crime Scenes Processed)	1,052	904	765	696
Central Receiving Unit				
CDS cases submitted for destruction	5,738	6,330	7,650	9,025
Forensic Cases Received	19,859	21,127	19,488	13,023
Photography Unit				
Special Assignments	203	187	257	193
VeriPic/Color Film Rolls Processed	115	296	173	306
Color Prints	7,371	6,023	7,133	3,771
ID Cards	--	--	--	642

Scientific Analysis Branch Annual Comparison

Unit (*Action*)	2013	2014	2015
Latent Prints/Impressions			
Cases Received	1,363	1,085	1,167
Cases Completed	1,418	1,827	1,658
MAFIS Latent Hits	234	309	494
Case Uploads to MAFIS	468	555	704
Latent Print Uploads to MAFIS	935	1,282	1,832
Firearms/Toolmarks			
Cases Received	676	684	660
Cases Completed	549	488	812
Case Uploads to NIBIN	375	331	595
Operation Test Shot Samples Completed	256	132	424
MSRD Samples Processed	31,369	68,883	16,168
CDS			
Pikesville *(Cases Received)*	8,471	7,462	2,873
Pikesville *(Cases Completed)*	8,333	7,874	3,407
Berlin *(Cases Received)*	4,987	4,634	2,623
Berlin *(Cases Completed)*	4,747	4,900	2,718
Hagerstown *(Cases Received)*	3,600	3,611	1,159
Hagerstown *(Cases Completed)*	3,175	4,140	1,310
Allied* *(Cases Received)*	--	--	2,257
Allied *(Cases Completed)*	--	--	2,324
Toxicology			
Cases Received	1,063	1,066	1,098
Cases Completed	1,014	971	857
Biology			
Submitted Casework *(Cases Received)*	676	542	643
Submitted Casework *(Cases Completed)*	616	628	597
Direct Outsourcing Casework *(Cases Received)*	113	223	370
Direct Outsourcing Casework *(Cases Completed)*	98	173	319
Database *(Total CODIS Hits)*	478	623	857
Database *(Arrested/Charged CODIS Hits)*	88	104	139
Database *(Convicted Offender Uploads to CODIS)*	4,752	3,569	3,533
Database *(Arrested/Charged Uploads to CODIS)*	4,071	4,144	3,524
Database *(Case Uploads to CODIS)*	886	954	1,065
Trace Evidence			
Cases Received	146	147	134
Cases Completed	65	274	144
Question Documents			
Cases Received	32	34	39
Cases Completed	35	37	38

*CDS-Allied = Forensic Scientists hired by allied agencies or other governmental entities who are authorized to perform CDS analysis in FSD facilities under the provisions provided for in a Memorandum of Understanding. Prior to 2015, data for this group were combined with the CDS Units in which the work was performed.

Quantity of Laboratory Submissions to FSD Ranked by MSP Installation

2015 Rank	2014 Rank	MSP Installation	Counties Served
1	1	MSP-CID/CED	Statewide
2	6	MSP-North East	Cecil
3	11	MSP-Easton	Caroline, Dorchester, Talbot
4	7	MSP-Prince Frederick	Calvert
5	4	MSP-Salisbury	Wicomico
6	26	MSP-DED/C3I	Statewide
7	10	MSP-Centerville	Kent, Queen Anne's
8	3	MSP-Westminster	Carroll
9	9	MSP-Frederick	Frederick
10	14	MSP-Glen Burnie	Anne Arundel
11	5	MSP-McHenry	Garrett
12	21	MSP-Cumberland	Allegany
13	2	MSP-JFK Highway	Cecil, Harford, Baltimore
14	8	MSP-Golden Ring	Baltimore
15	13	MSP-LaPlata	Charles
16	15	MSP-Hagerstown	Washington
17	16	MSP-Berlin	Worcester
18	22	Office of State Fire Marshall	Statewide
19	12	MSP-Bel Air	Harford
20	20	MSP-Leonardtown	St. Mary's
21	18	MSP-College Park	Prince George's
22	23	MSP-Princess Anne	Somerset
23	24	MSP-Waterloo	Howard
24	19	MSP-Forestville	Prince George's
25	17	MSP-Rockville	Montgomery
26	25	MSP-Homicide	Statewide
27	27	MSP-CVED	Statewide
28		MSP-ASED	Statewide
29		MSP-CIS	Statewide

Quantity of Laboratory Submissions to FSD Ranked by Allied Agency County

2015 Rank	2014 Rank	County
1	2	Frederick
2	6	Wicomico
3	3	Charles
3	4	Harford
5	1	Worcester
6	8	Calvert
7	7	Cecil
8	5	Howard
9	9	Statewide
10	13	Dorchester
11	12	St. Mary's
12	10	Carroll
13	14	Talbot
14	15	Anne Arundel
15	11	Allegany
16	17	Baltimore
17	25	Montgomery
18	16	Prince George's
19	18	Washington
20	21	Kent
21	20	Queen Anne's
21	19	Caroline
22	22	Somerset
23	23	Garrett
24	24	Baltimore City

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. Crime Scene Technicians (CSTs) work closely with criminal investigators, processing crime scenes and providing technical assistance, thereby allowing investigators the opportunity to conduct thorough investigations. 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 overall operations of the Crime Scene Section are overseen by the Section Manager. Current staffing of the CSS includes three Regional Supervisors and twelve Crime Scene Technicians. When fully staffed, there are five technicians assigned to each of the regions.

Most of the evidence examined by the FSD is transported by CSTs. 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. The CSS also is a 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 CSTs 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.

A large volume of Technician Evaluation Forms were submitted by law enforcement personnel, providing valuable feedback to the CSTs and their supervisors. These evaluations were consistently highly rated and praised CSS personnel for their exemplary service and performance. Areas of emphasis for training are always being evaluated.

CRIME SCENE REGIONAL UNITS

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

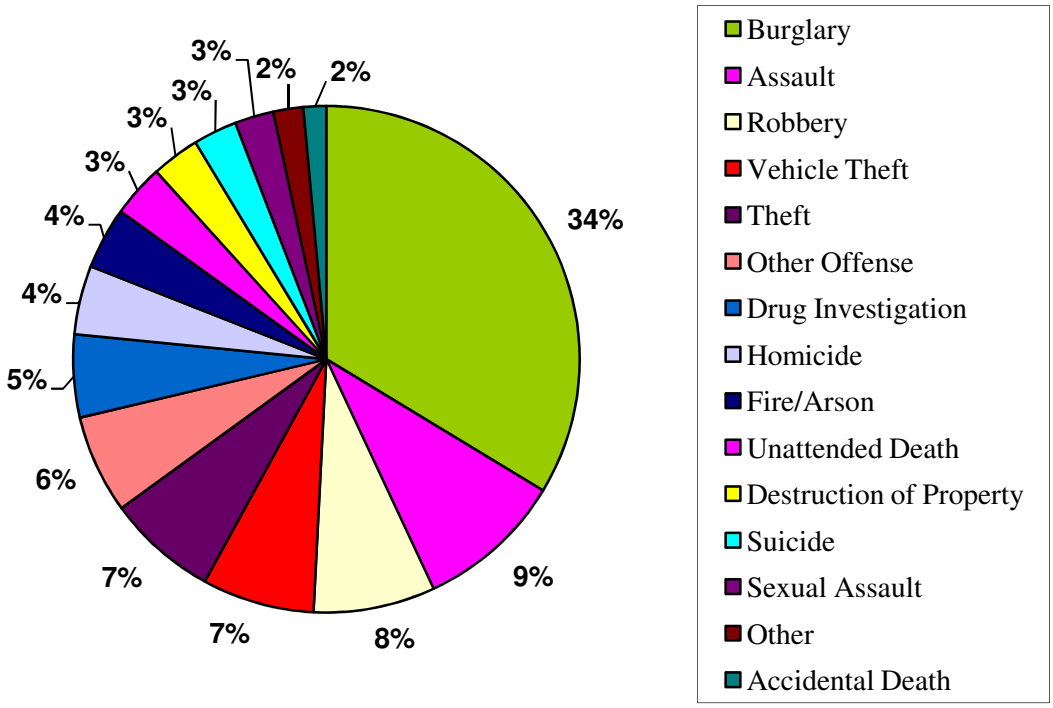
Central Region Unit: Harford, Baltimore, Cecil, Anne Arundel, Prince George's, Calvert, Charles and St. Mary's Counties, Maryland Port, and all DOC facilities located in Baltimore City

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

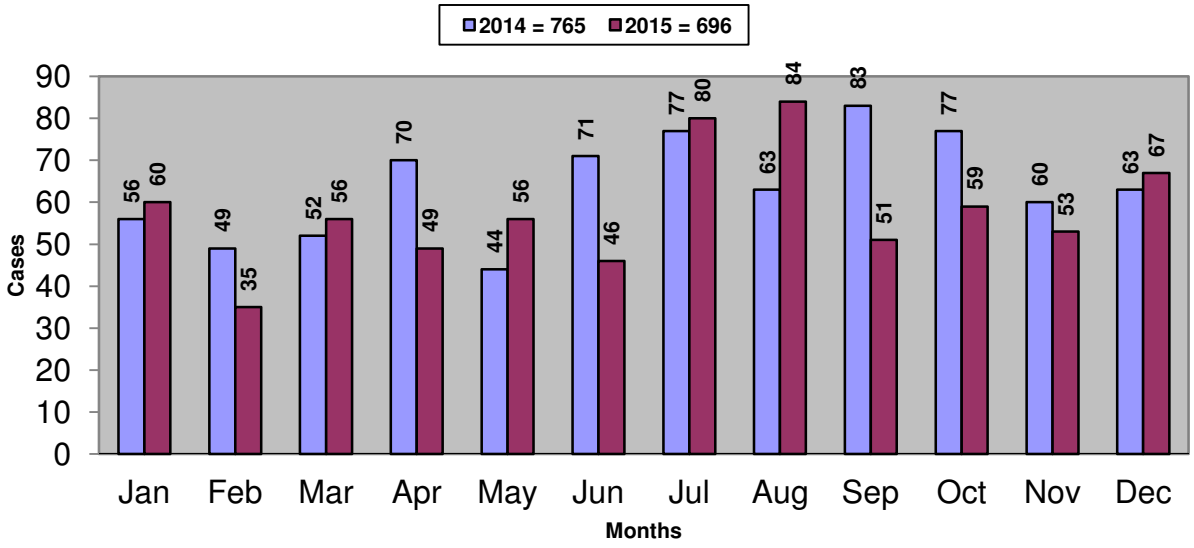
Total Number of Crime Scenes Handled in 2015 per County

Crime Scene Office	Total Crime Scenes
Allegany	110
Wicomico	94
Cecil	68
Carroll	56
Caroline	38
Queen Anne's	37
Somerset	33
Worcester	30
Garrett	29
Dorchester	28
Kent	24
Baltimore	23
Frederick	23
Washington	17
Anne Arundel	16
Talbot	16
Harford	14
Baltimore City	10
Howard	7
Calvert	6
St. Mary's	6
Prince George's	5
Charles	4
Montgomery	1
Other	1
TOTAL	**696**

Crime Scenes in 2015 per Crime Type



Number of Crime Scenes per Month in 2015



NOTEWORTHY CASES

In July 2015, CSS personnel responded to a commercial burglary scene. The business burglarized was a gun retailer. Suspect(s) in the case had broken the front display window and wedged through the metal bars secured in the window. Suspected blood and latent prints were observed on the display window near the damage. A latent lift that was collected from the window and DNA evidence collected from the point of entry led to the identification of the culprit. The case is awaiting trial.

In July 2015, CSS personnel executed a search warrant on a vehicle involved in a drive-by shooting where the victim, who was sitting in the rear of the vehicle, was shot through the calf. There were five bullet holes in the vehicle, with only one projectile being collected. An unknown driver and front passenger were reported to be in the vehicle with the victim when the shooting occurred. The vehicle was processed for possible latent prints and any other possible evidence. Seven swabs from the vehicle, two water bottles from the front passenger side floor as well as 37 latent print lifts were collected. From the 37 latent print lifts that were collected, numerous suspects were identified.

Also in July 2015, the FSD CSS responded to an armed robbery investigation at a bank. At that time, it was reported that two armed male suspects entered the bank and delivered a handwritten note to one of the tellers demanding that they turn over $15,000.00 and no dye packs or they would come back shooting. The suspects then fled the scene after receiving the money from the teller. Clothing and sunglasses matching the description of what was being worn by the suspects, as well as a second note, were discovered in the parking lot outside of the bank. Both the note that was handed to the teller and the note that was found in the parking lot, as well as the sunglasses, were processed for latent prints. Prints developed from the note led to the identification of one of the suspects, which then led to the apprehension and arrest of both individuals. It was later determined that the suspects were responsible for numerous bank robberies in both Maryland and Virginia.

In October 2015, CSS personnel responded to a reported homicide. A body had been discovered near an interstate highway, just off of an access road. Examination of the victim revealed that he had been beaten to death. The following day, while executing a search warrant at a salvage yard, a CST observed what appeared to be blood diluted in water in the back of a pick-up truck that was believed to be involved. A sample of the suspected blood was collected and submitted to the laboratory. The DNA profile of this sample was consistent with the victim, leading to the quick apprehension of the suspect who was attempting to flee the state.

FORENSIC SUPPORT SERVICES SECTION

The FSSS consists of the Photography Unit, the Central Receiving Unit, the Administrative Support Unit, and the Computer Support Unit. These units play an important role in allowing the FSD to function as efficiently and effectively as possible.

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 II. The Central Receiving Unit is supervised by one Administrative Officer and is staffed by three Forensic Inventory Control Officers (including one vacant position). The Administrative Support Unit is supervised by one Administrative Specialist III and is staffed by one Administrative Specialist II, and an Office Secretary III position (vacant). The Computer Support Unit consists of two individuals from the IT Division who are assigned to FSD. This includes one IT Quality Assurance Specialist and one Computer Network Specialist II.

PHOTOGRAPHY UNIT

The Photography Unit provides photographic services to the Maryland State Police as requested through FSD management.

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, expungement requests relating to the digital Barrack Identification Photo System, ID card production, and the support of other units within the Department. The Photography Unit assisted in creating the 2016 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.

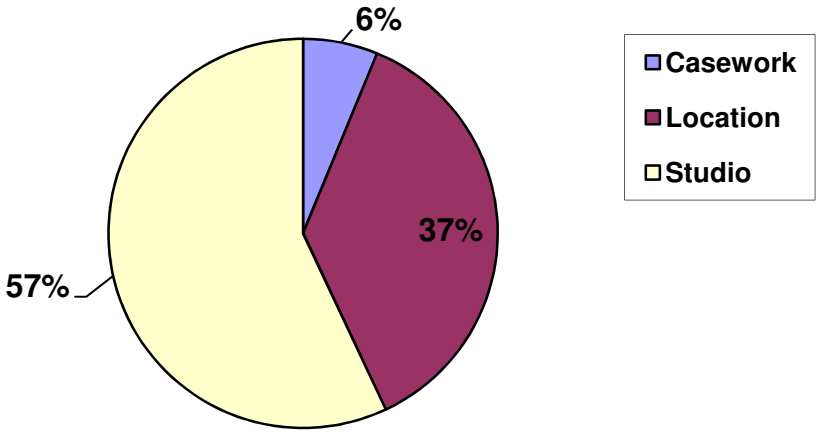
The Photography Unit will pursue the possibility of moving VeriPic into a cloud based system with possible connectivity into the RMS. The goal of obtaining this information is to make the system easier for personnel to use, have an integrated system with the RMS, and continue to safeguard our Department's images.

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

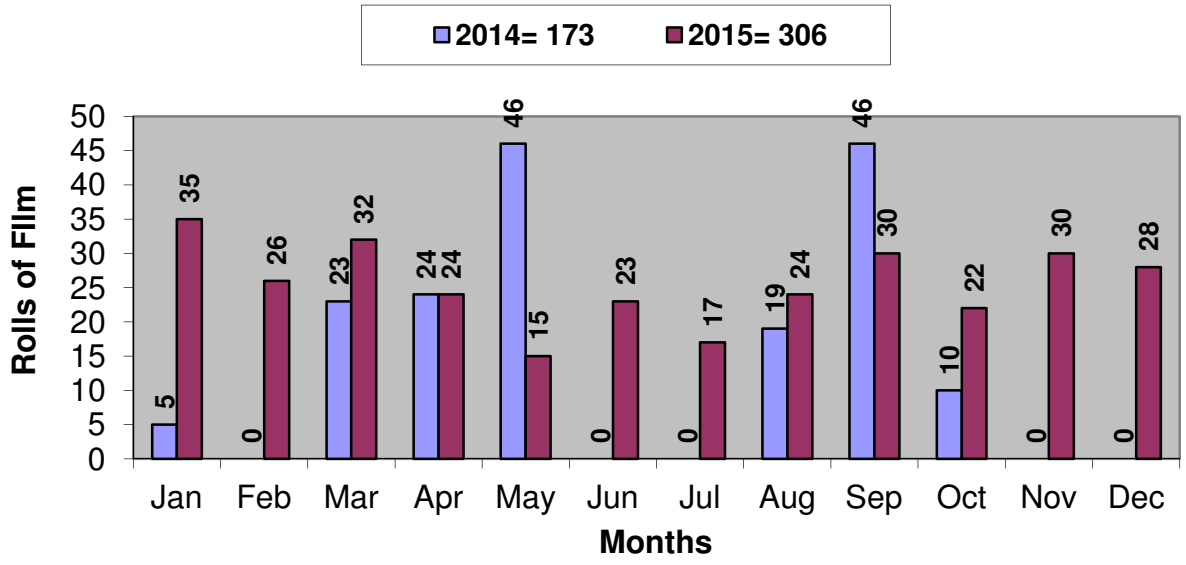
Photography Requests 2015

MSP Requestors	Requests
Portraits/FSD *(by # of days not requestors)*	110
Headquarters	30
Barracks	16
Forensic Science Division	12
Training	12
Special Operations Division	7
Aviation	4
Recruiting	2
TOTAL	**193**

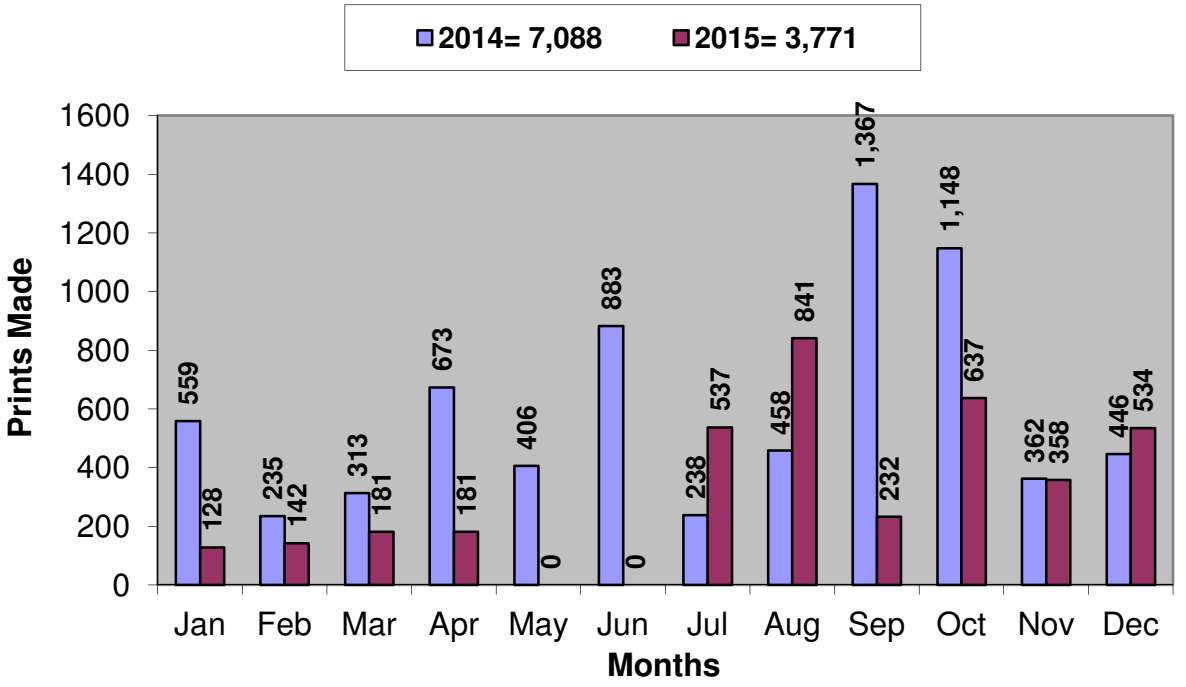
2015 Photo Requests per Request Type



Total Film Processed



Total Prints Made



CENTRAL RECEIVING UNIT

The Central Receiving Unit (CRU) functions as the liaison between the FSD and agencies submitting evidence for scientific analysis and CDS destruction. The Unit is composed of one Administrative Officer and three MSP Forensic Inventory Control Officers (including one vacant position). The Unit reports directly to the FSD Assistant Commander.

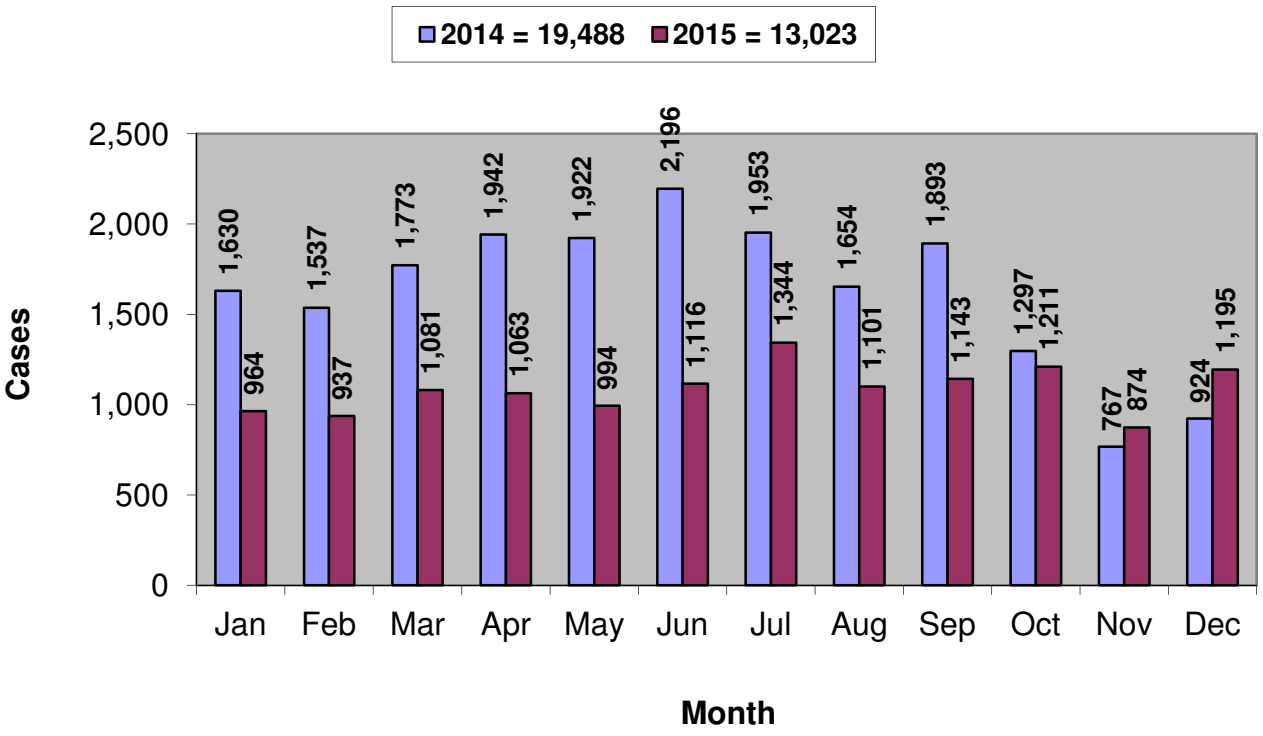
The CRU handles a large volume of various types of evidence such as swabs, sexual assault kits, soiled clothing, controlled dangerous substances, toxicology kits, guns, ammunition, fingerprint lift cards, fire debris cans, and questioned documents. The items are secured in the unit while awaiting analysis and again while pending return to the submitting agency. Personnel assigned to the unit ensure the integrity and protection of each item of evidence while in their custody. 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 this process, MSP Forensic Inventory Control Officers randomly select a number of cases to be re-tested for quality control. The CRU also coordinates the local destruction of marijuana plants and confiscated parcels with various Divisions in the Department. The CRU Supervisor is responsible for organizing disposal events for several law enforcement agencies across the state. While the marijuana decriminalization law and Firearms Unit Walk-In Test Fire program reduced the amount of cases submitted to the Central Receiving Unit for analysis, the Unit saw an increase in the amount of CDS being submitted for destruction. Personnel have been able to manage the increase in volume efficiently as well as performing the other duties assigned to the Unit. The Unit Supervisor has worked extensively with MSP's Planning and Research Division to improve the practices around submissions of CDS for destruction.

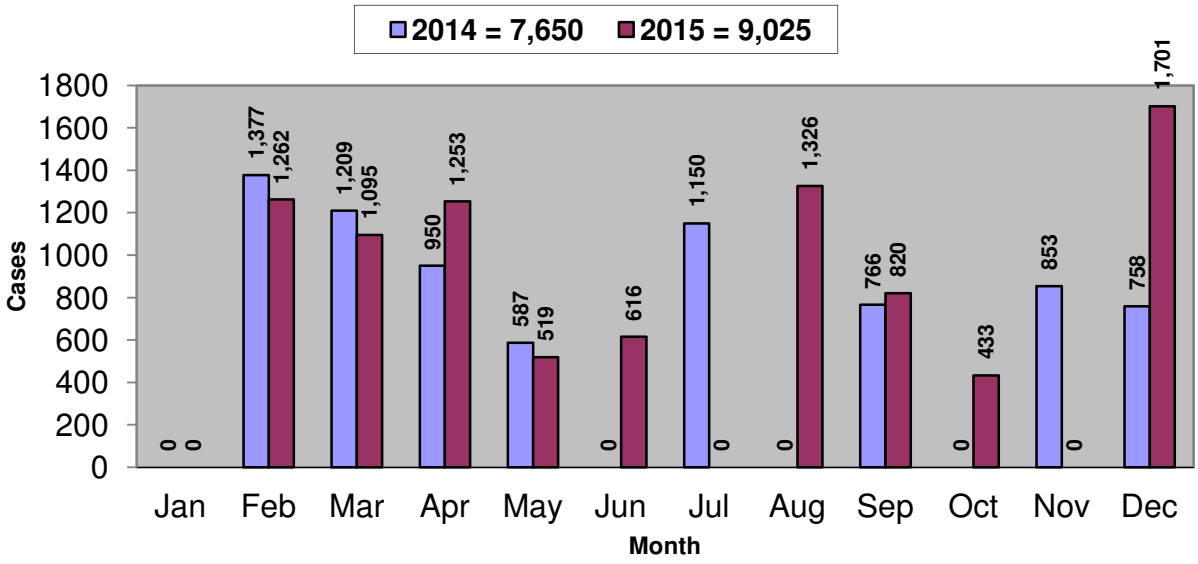
The CRU is responsible for archiving scientific analytical reports for all sections of the FSD and coordinates the transmittal of files to and from the State Records Management Center. The CRU also maintains expunged records for the Division.

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



Number of CDS Cases Destroyed per Month in 2015



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. The Administrative Support Unit is essential in providing the FSD staff with what they need to do their jobs in the field and in the laboratory.

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 Computer Network Specialist II is responsible for installing and maintaining computer hardware and software as well as responding to web help desk tickets originating from FSD.

The two StarLIMS Administrators (one in the Computer Support Unit and one in the Central Receiving Unit) continue to work diligently toward the successful implementation of the latest version of StarLIMS. Most recently, great strides have been taken to create an electronic worksheet for the Drug Chemistry Unit, which will ultimately generate a report from within the system and capture a multitude of statistical information.

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 firearm, toolmark, latent friction ridge impression, footwear, and tire track related evidence associated with criminal casework. The overall operations of the Pattern Evidence Section are overseen by one Forensic Scientist Manager. Current staffing of the LPIU includes a Forensic Scientist Supervisor, one Forensic Scientist Advanced, four Forensic Scientists III, and one part-time contractual Forensic Scientist III. The FATMU is staffed with a Forensic Scientist Supervisor, one Forensic Scientist Advanced, one Forensic Scientist III, one Forensic Scientist II, and three Laboratory Technicians I. The unit has one vacant Forensic Scientist III position.

LATENT PRINTS/IMPRESSIONS UNIT

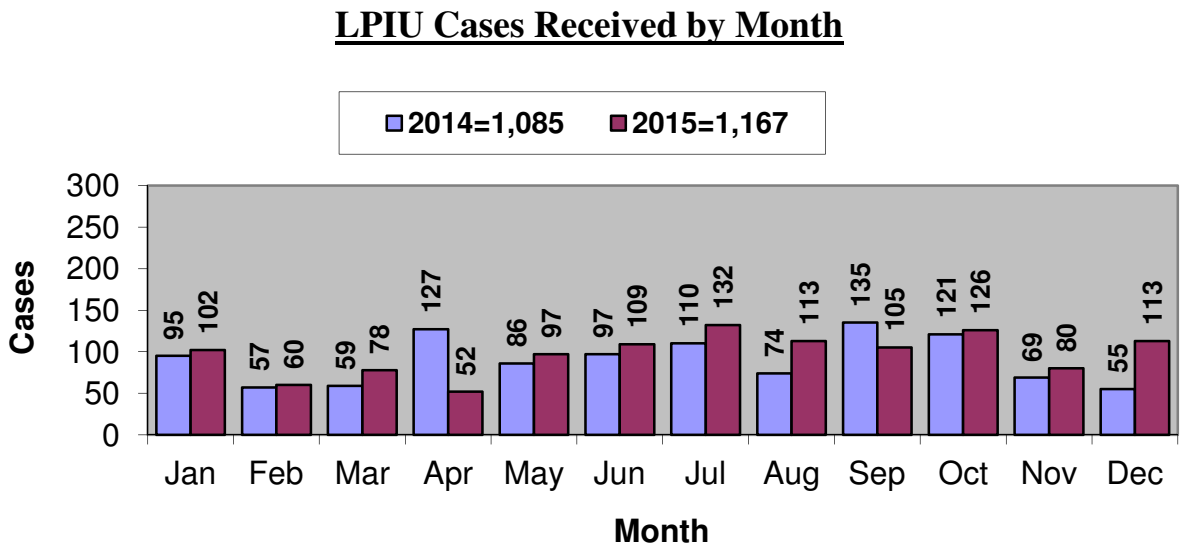
The Latent Prints Sub-Unit performs examinations of latent friction ridge impressions. Various methods utilizing chemicals, powders, and illumination techniques are used for the detection of latent prints. The unit records developed friction ridge impressions using digital capture/photo processes as 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 completes 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.

Grant funding provided through the Governor’s Office on Crime Control and Prevention was used to acquire equipment and supplies required to open a satellite LPIU office at the Hagerstown FSD laboratory. An experienced examiner was hired to staff the lab along with another FS III previously working at the Pikesville lab who transferred to the new location. The FSD will monitor casework throughput at the Hagerstown LPIU to determine appropriate

casework and jurisdictional assignment to most effectively utilize resources and address the latent print service needs of the effected regions.

Latent Print/Impressions Casework Statistics



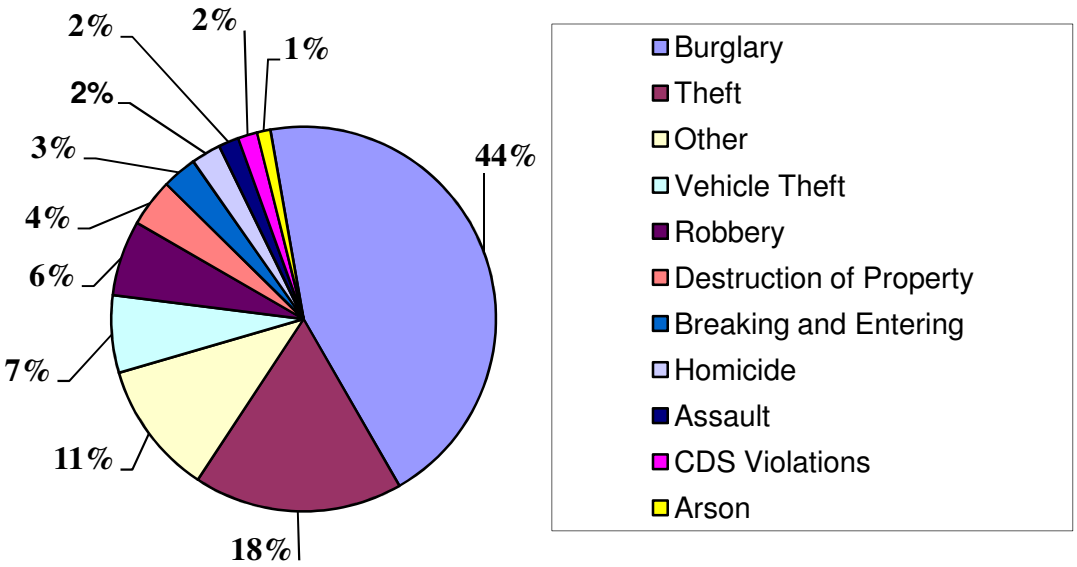
LPIU Cases Received in 2015 per MSP Installation

MSP Installation	Counties Served	Submissions
MSP-Westminster	Carroll	34
MSP-Northeast	Cecil	31
MSP-Bel Air	Harford	11
MSP-Salisbury	Wicomico	11
MSP-Centerville	Kent, Queen Anne's	10
MSP-Homicide	Statewide	10
MSP-Cumberland	Allegany	9
MSP-Easton	Talbot, Caroline, Dorchester	9
MSP-Frederick	Frederick	9
MSP-Princess Anne	Somerset	9
MSP-CID/CED	Statewide	9
MSP-Berlin	Worcester	7
MSP-Glen Burnie	Anne Arundel	7
MSP-Hagerstown	Washington	7
MSP-Leonardtown	St. Mary's	7
Office of State Fire Marshall	Statewide	7
MSP-DED/C3I	Statewide	7
MSP-McHenry	Garrett	6
MSP-Prince Frederick	Calvert	6
MSP-Golden Ring	Baltimore	3
MSP-LaPlata	Charles	2
MSP-College Park	Prince George's	1
MSP-Forestville	Prince George's	1
MSP-Waterloo	Howard	1
MSP-ASED	Statewide	1
	TOTAL	**215**

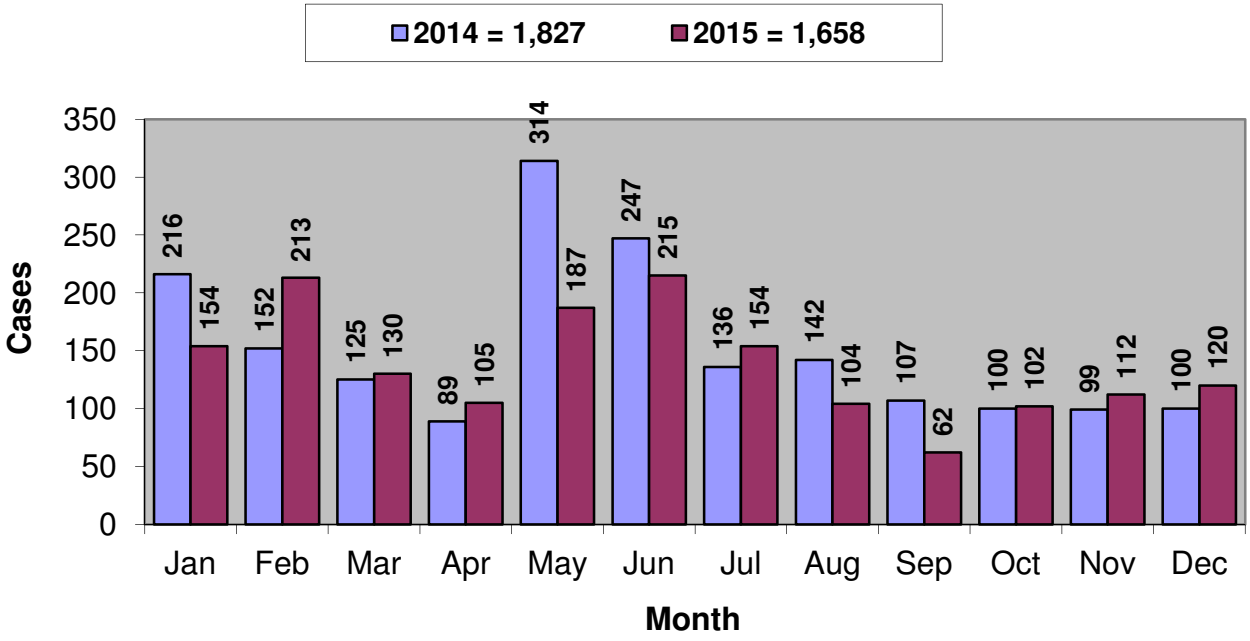
Allied Agency Cases Received by LPIU in 2015 per County

County	Submissions
Worcester	144
Wicomico	137
St. Mary	128
Frederick	107
Dorchester	100
Carroll	71
Washington	49
Queen Anne's	32
Cecil	29
Allegany	28
Statewide	25
Calvert	18
Caroline	17
Talbot	15
Prince George's	14
Kent	13
OUT OF STATE	9
Baltimore	8
Somerset	4
Charles	2
Anne Arundel	1
Harford	1
TOTAL	**952**

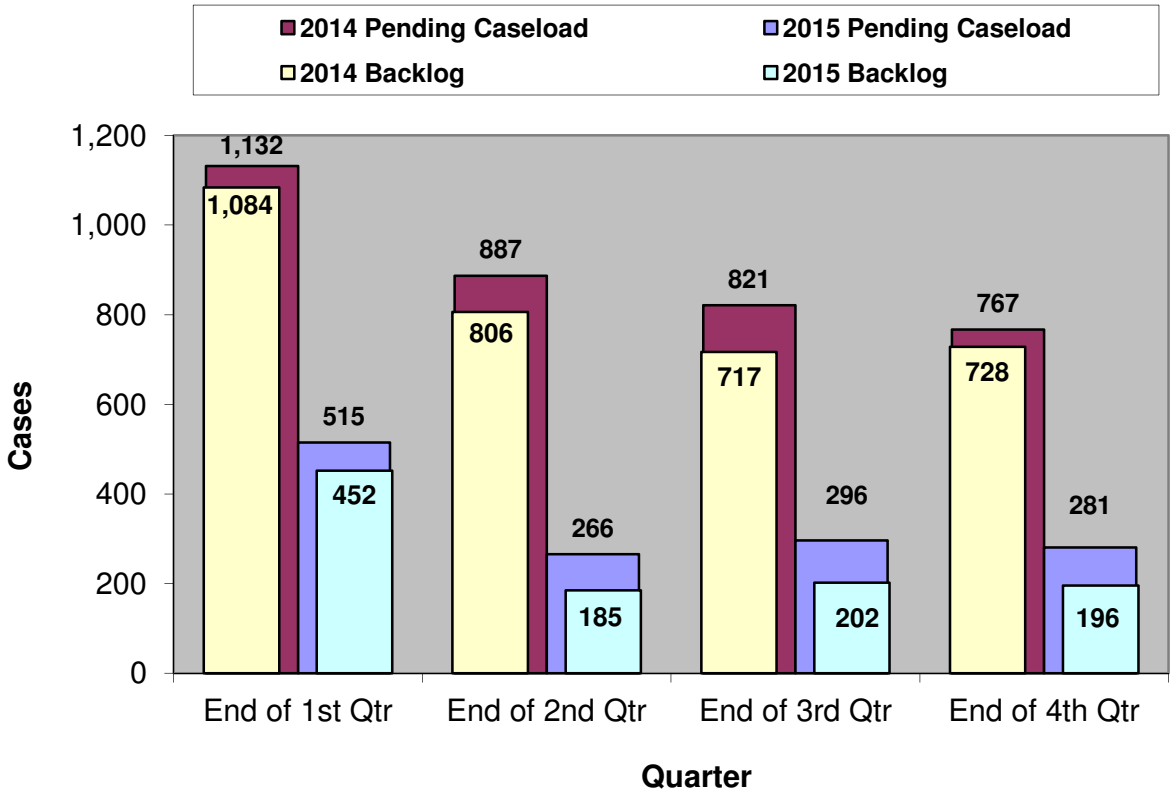
LPIU Cases Received in 2015 per Crime Type



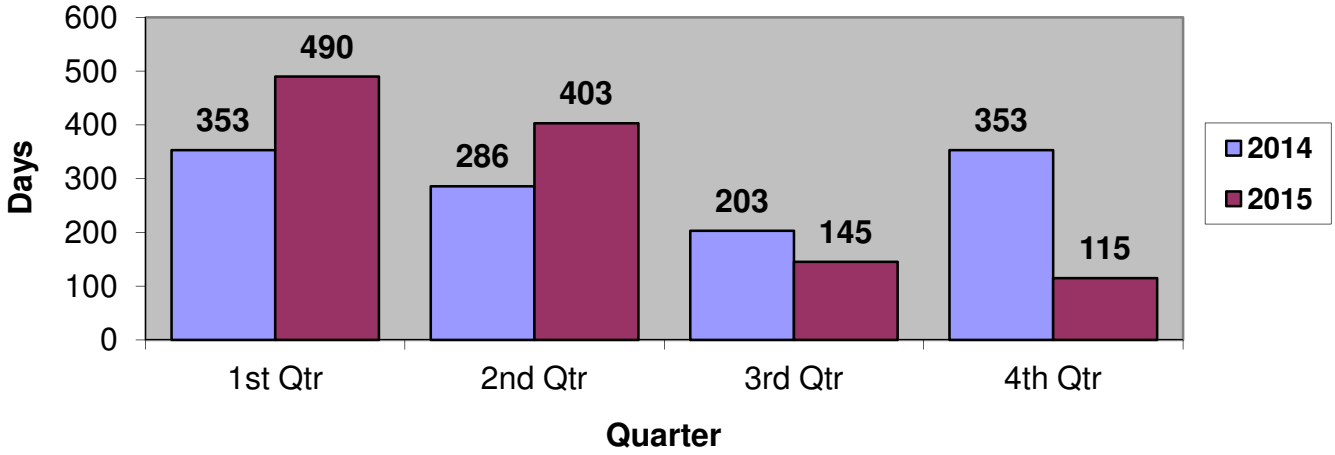
LPIU Cases Completed per Month



LPIU Pending Caseload and Backlog per Quarter

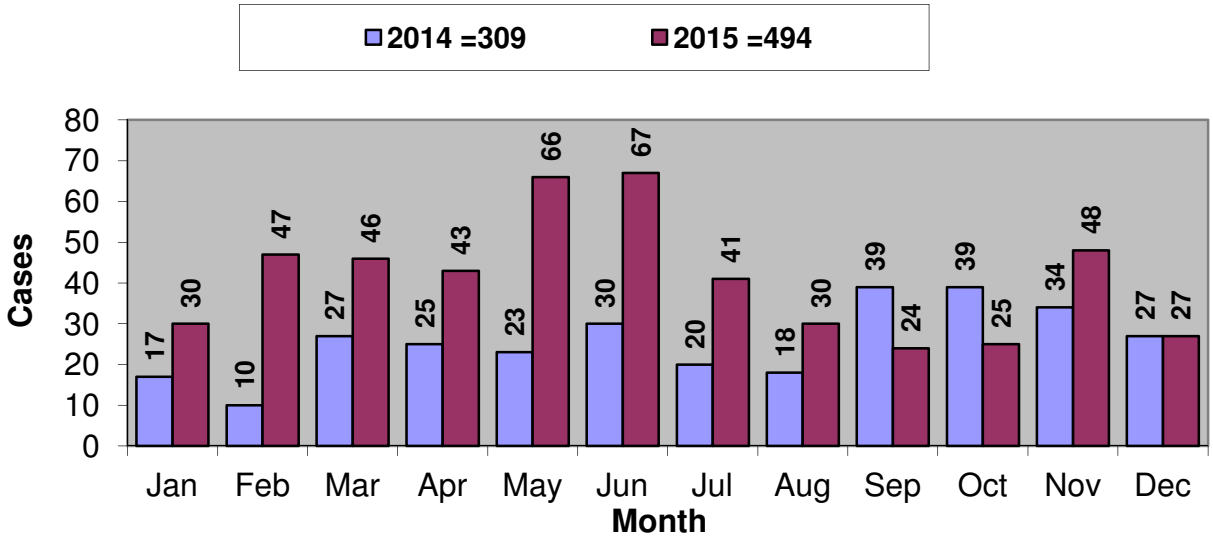


LPIU Case Turn Around Time per Quarter

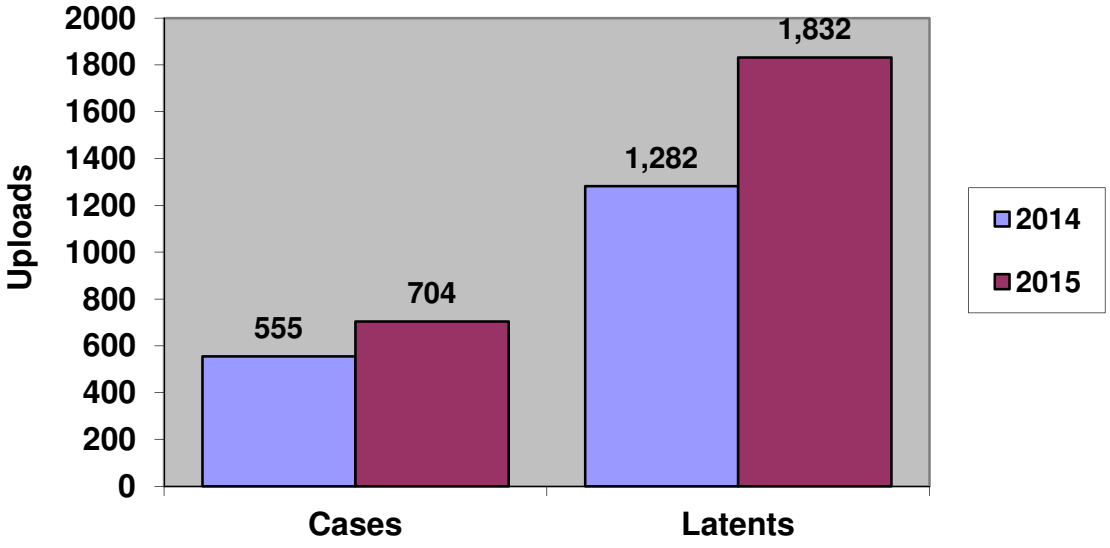


Latent Print/Impressions Database Statistics

MAFIS Latent Hits Reported per Month



Total Uploads to MAFIS per Year



FIREARMS/TOOLMARKS UNIT

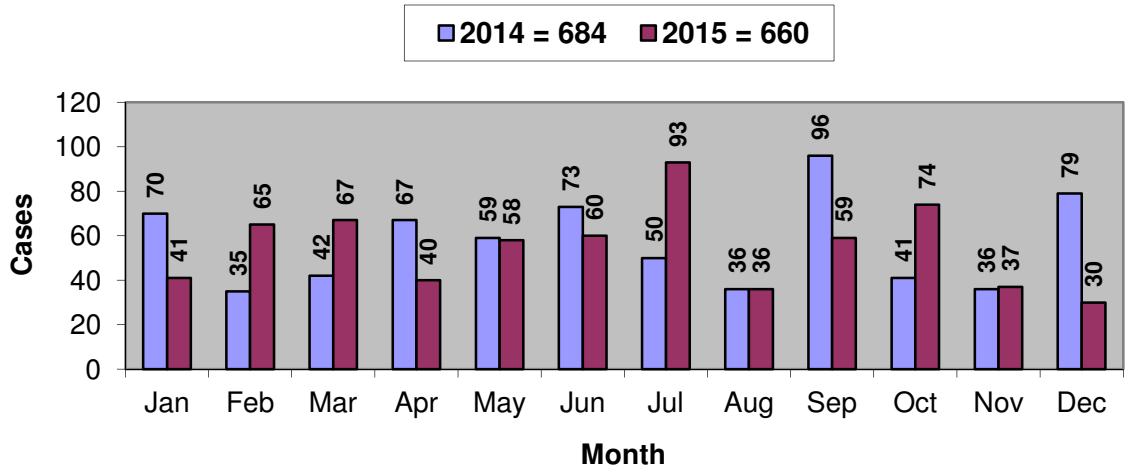
The Firearms/Toolmarks Unit (FATMU) provides microscopic and functional examination of firearms and firearm related evidence. Examiners in this Unit also perform toolmark examinations, muzzle to distance determination, shot patterns, and serial number restorations. The FATMU follows all lab protocols in place to include having a 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 implemented 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, are 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 functionality examinations. This allows the agency representative to observe the test fire, and then serve as a witness in court in lieu of requiring the examiner to appear.

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. FATMU performs a non-forensic examination of the petitioned firearms specifically for the qualifying criteria established in COMAR.

In accordance to the recently repealed “Responsible Gun Bill Act of 2000” the FATMU was responsible for the tracking of cartridge case samples submitted from the purchase of new handgun sales in the state of Maryland. The unit continues to maintain the acquired samples for use in examinations where the original firearm has been stolen, or otherwise becomes part of a criminal investigation.

Firearms/Toolmarks Casework Statistics

FATMU Cases Received per Month



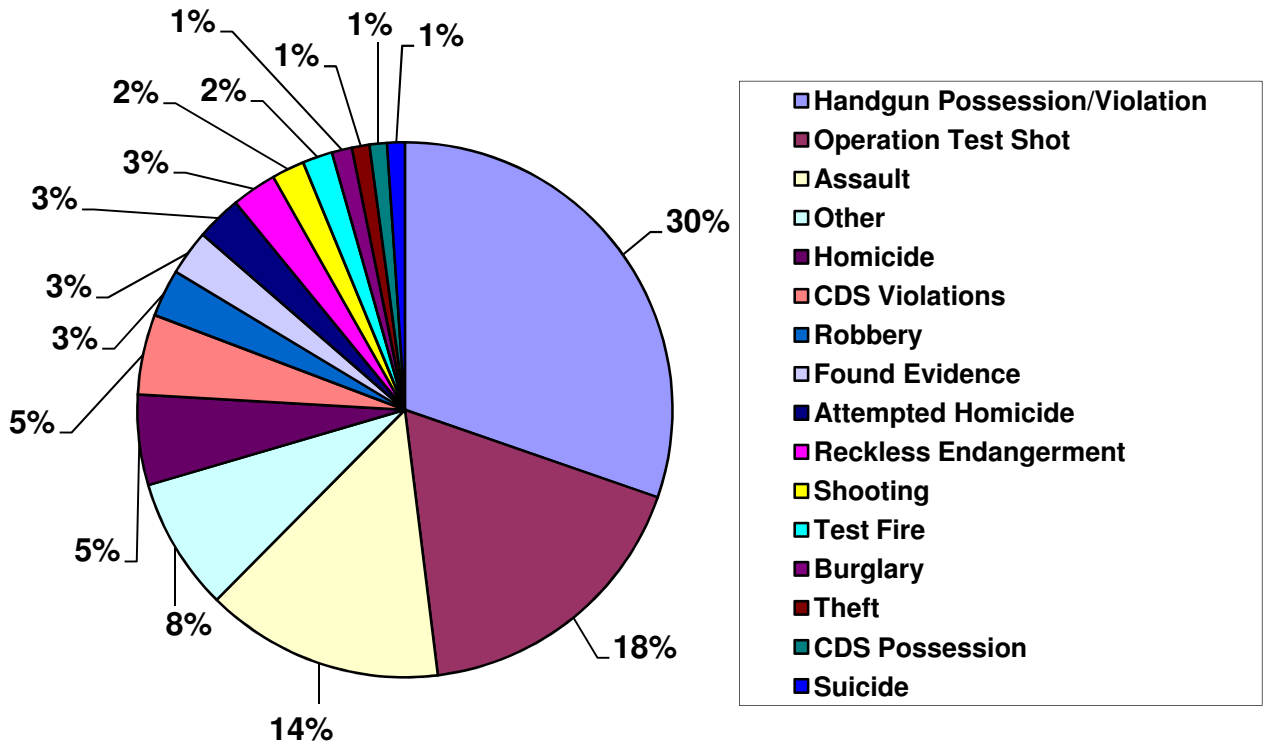
FATMU Cases Received in 2015 per MSP Installation

Installation	Counties Served	Submissions
MSP-CID/CED	Statewide	33
MSP- Frederick	Frederick	15
MSP- Easton	Caroline, Dorchester, Talbot	11
MSP- Golden Ring	Baltimore	9
MSP-College Park	Prince George's	8
MSP- JFK Highway	Cecil, Harford, Baltimore	8
MSP- North East	Cecil	8
MSP- Westminster	Carroll	8
MSP- Berlin	Worcester	7
MSP- Homicide	Statewide	7
MSP- Princess Anne	Somerset	6
MSP- Forestville	Prince George's	5
MSP-Waterloo	Howard	5
MSP- Bel Air	Harford	4
MSP- LaPlata	Charles	4
MSP- McHenry	Garrett	4
MSP- Prince Frederick	Calvert	4
MSP- Centreville	Kent, Queen Anne's	3
MSP- Hagerstown	Washington	3
MSP- Leonardtown	St. Mary's	3
MSP- Glen Burnie	Anne Arundel	2
MSP-Salisbury	Wicomico	2
MSP-DED/C3I	Statewide	2
MSP- Cumberland	Allegany	1
MSP-CVED	Statewide	1
	TOTAL	**163**

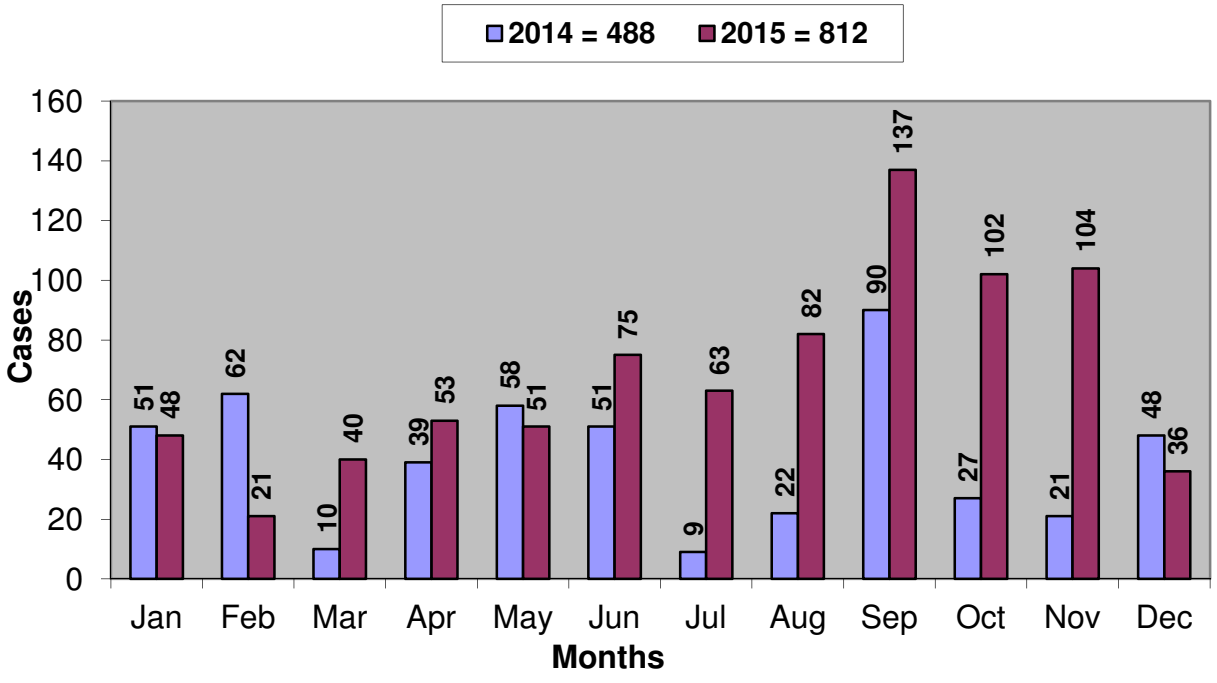
Allied Agency Cases Received by FATMU in 2015 per County

County	Submissions
Anne Arundel	139
Harford	69
Frederick	46
Charles	44
Statewide	37
Cecil	28
Worcester	27
Wicomico	24
Washington	23
Carroll	18
Calvert	9
Howard	9
Dorchester	6
Prince George's	5
Allegany	3
St. Mary's	3
Queen Anne's	2
Baltimore	1
Caroline	1
Kent	1
Somerset	1
Talbot	1
TOTAL	**497**

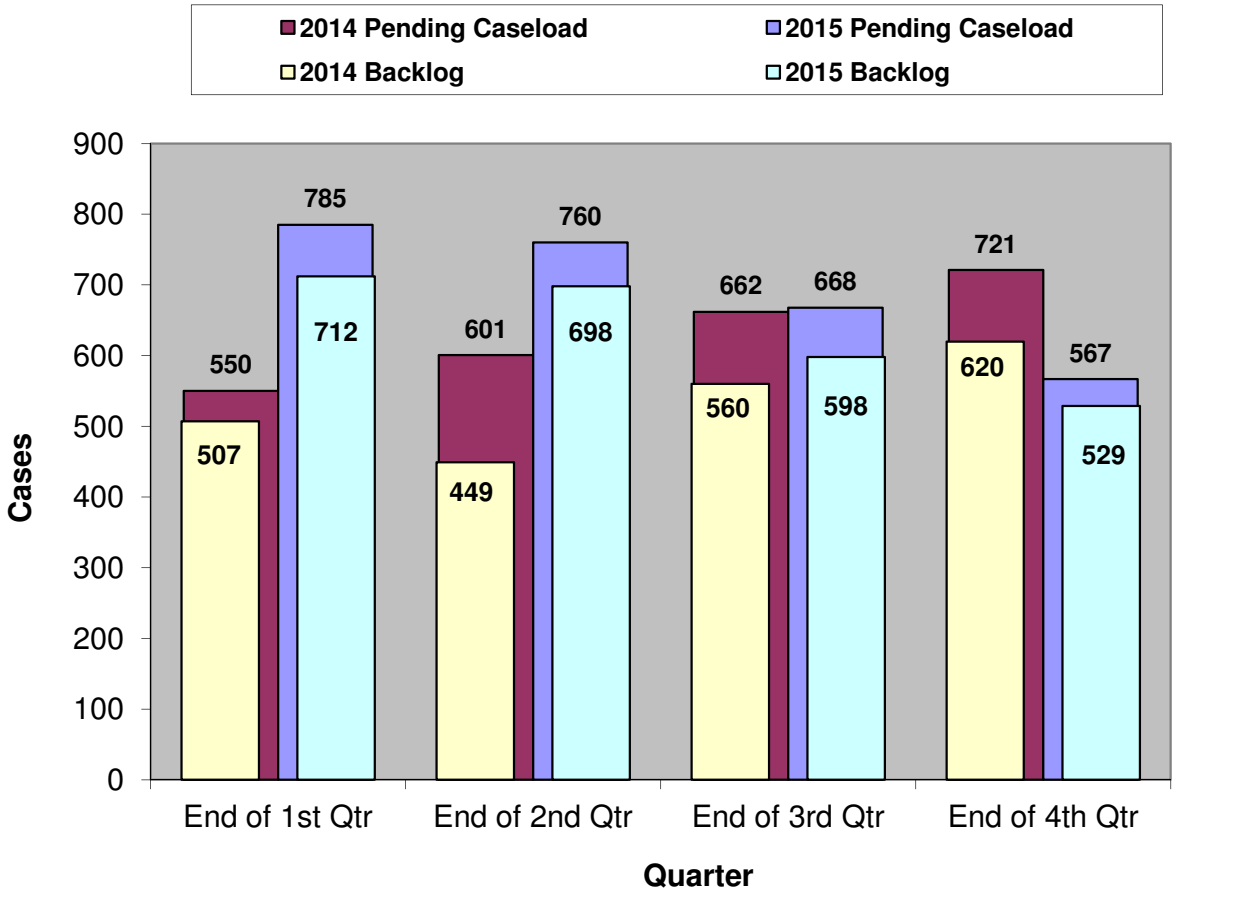
FATMU Cases Received in 2015 per Crime Type



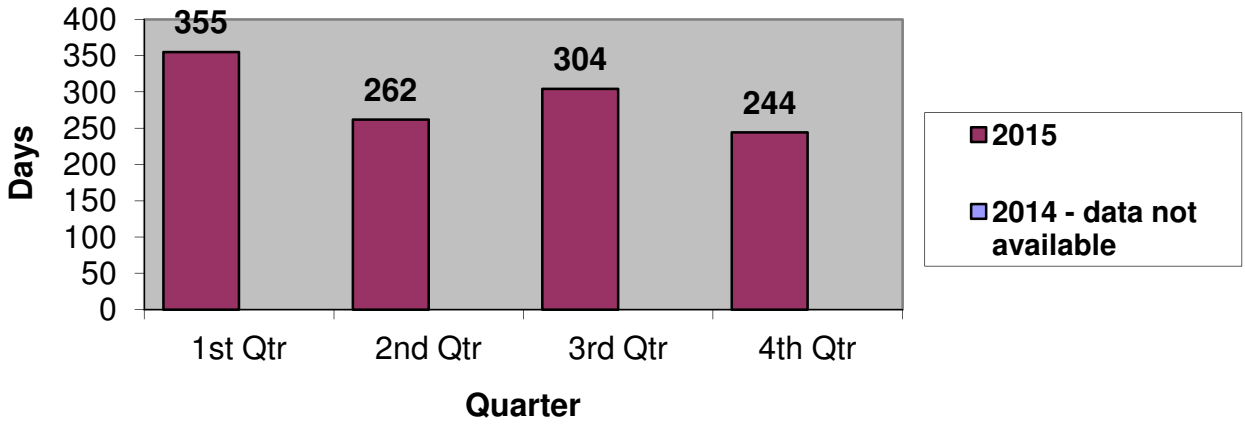
Total Cases Completed per Month



FATMU Pending Caseload and Backlog per Quarter

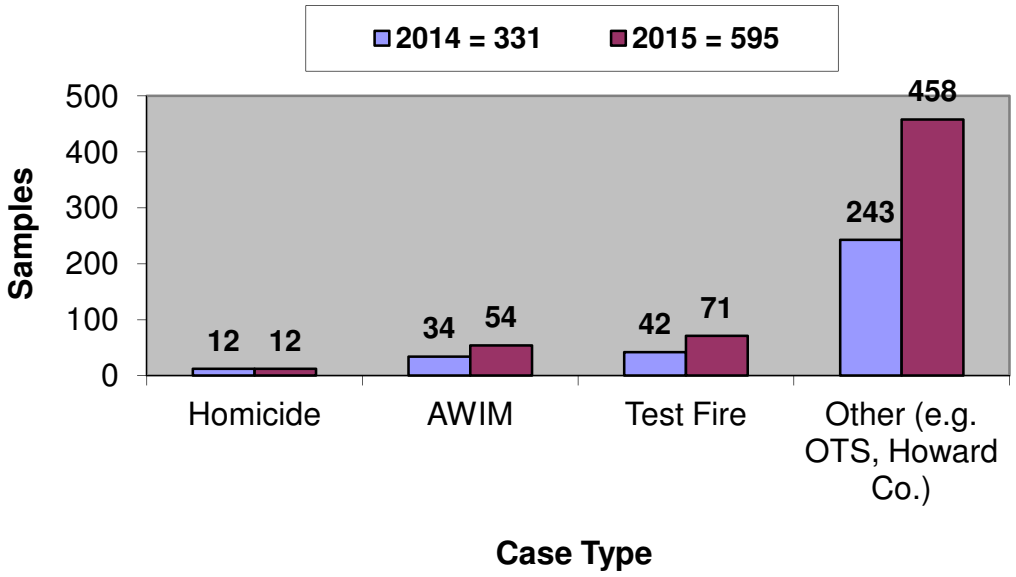


FATMU Case Turn Around Time per Quarter

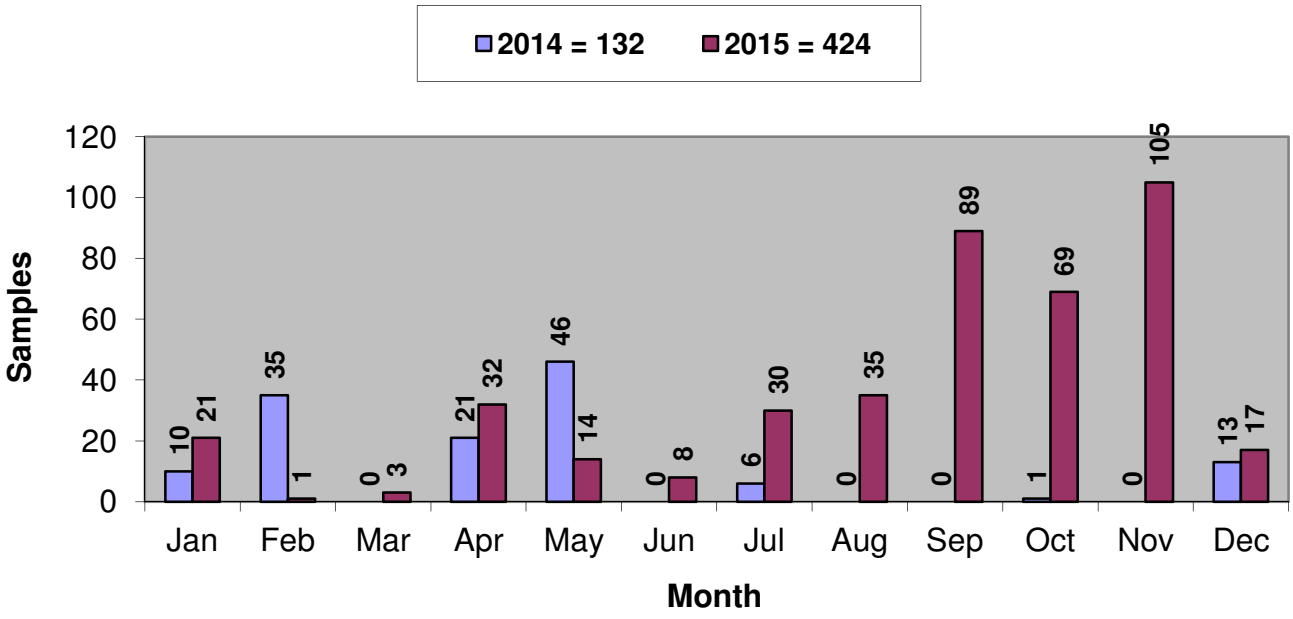


Firearms/Toolmarks Database Statistics

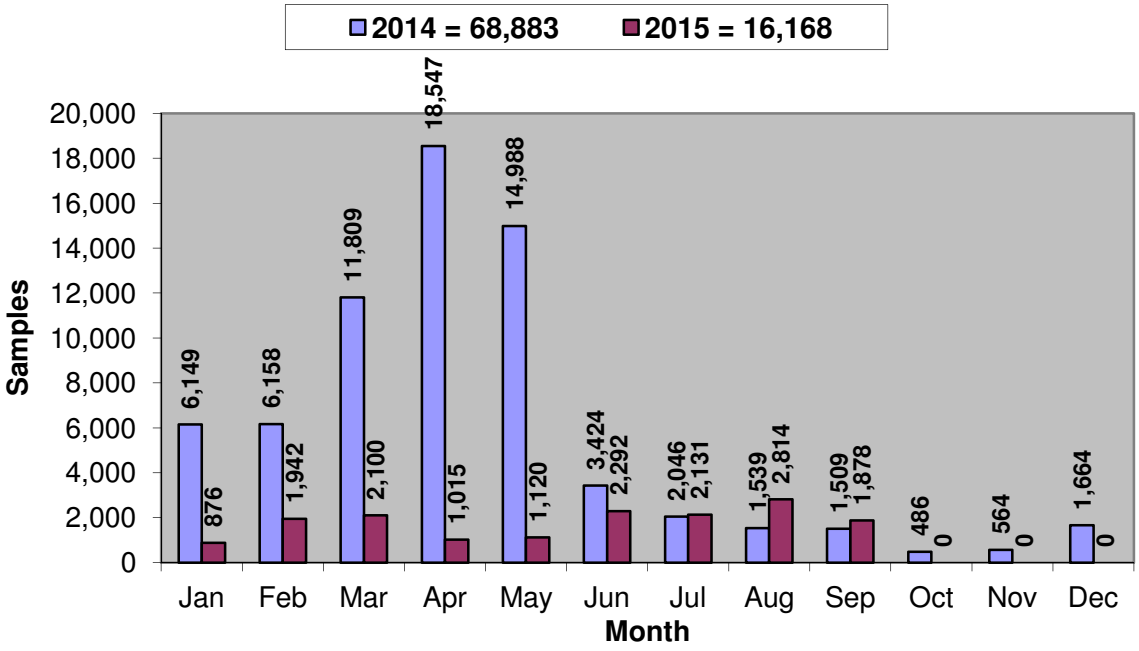
Uploads to NIBIN per Case Type



Operation Test Shot Samples Completed per Month



MSRD Samples Processed per Month



NOTEWORTHY CASES

Early one morning in June 2015, Troopers responded to a report of a pedestrian struck by a motor vehicle. The responding troopers later determined that the victim was in fact jogging, and had collapsed. The victim was not carrying any form of identification. All leads were being investigated, however, foul play was not suspected. A few hours later, images of the victim's prints were e-mailed to the LPIU to be entered into the AFIS to attempt to identify him. An identification was quickly effected to a 51 year old white male who was retired from the U.S. Navy. The single fingerprint card in the Maryland Webarchive database for this person turned out to be one taken for his visa application dated just eight months prior.

The FATMU had a NIBIN (National Integrated Ballistic Information Network) hit with local police department. An officer of this police department had reported his firearm stolen in 2008. Later in 2008, a homicide took place in Harford County, Maryland. Evidence from this homicide was examined by FATMU and placed into the NIBIN database. A shooting occurred in Baltimore City in November 2015, at which time, a firearm was recovered from the victim. A test fire sample of the recovered firearm was entered into the NIBIN database system. Upon correlation, it was determined that the two cases may be related. Examiners from FATMU and Baltimore Police Department proceeded with a microscopic examination of the two cases, and concluded that the firearm recovered was the officer's firearm stolen in 2008, and had been used in the 2008 homicide in Harford County.

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 driving while 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 three Forensic Scientists III. In addition, two Allied Forensic Scientists work in the CDS-Pikesville laboratory. One Allied Forensic Scientist is employed by the Howard County Police Department, and the other is employed by the Cecil County State's Attorney's Office. One Forensic Scientist position is vacant.

The CDS-Berlin Unit consists of one Forensic Scientist Supervisor, three Forensic Scientists III, and one Forensic Inventory Control Officer. 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. In addition, one Allied Forensic Scientist is employed by the Frederick County State's Attorney's Office. The CDS-Hagerstown Unit operates out of the Hagerstown Regional Laboratory located at the MSP-Hagerstown Barrack.

The Toxicology Unit consists of one Forensic Scientist Supervisor, one Forensic Scientist III and one Laboratory Technician I. One Forensic Scientist I position is vacant. 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.

In October of 2014, a law was enacted leading to the decriminalization of marihuana under 10 grams. This law has significantly decreased case submissions, but the complexity of the cases submitted has affected the amount of time it takes to analyze a case. The majority of cases require instrumental testing, which has increased the number of samples run daily.

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.

The Allied Forensic Scientists working in the CDS Units are employees of allied agencies or other governmental entities. These scientists are authorized to perform CDS analysis in FSD facilities under the provisions provided for in a Memorandum of Understanding. Prior to 2015, data for this group were combined with the CDS Units in which the work was performed. In this report, some statistics are provided separately to show the distribution of the workload between the MSP Forensic Scientists and Allied Forensic Scientists.

The CDS Units are also in the process of transitioning to an electronic CDS worksheet and a new report format in STARLIMS. The ultimate goal is to have a paperless case file, and to be able to transmit CDS reports to the customer through an internet portal.

The CDS Units are still encountering new synthetic drugs sold as synthetic marihuana or bath salts. Every effort is made to identify these new drugs, and to purchase the drug standard so that the chemist can confirm the presence of this new drug in case samples. The lab has also noticed a significant increase in fentanyl submissions, where fentanyl is the primary substance, occasionally mixed with heroin.

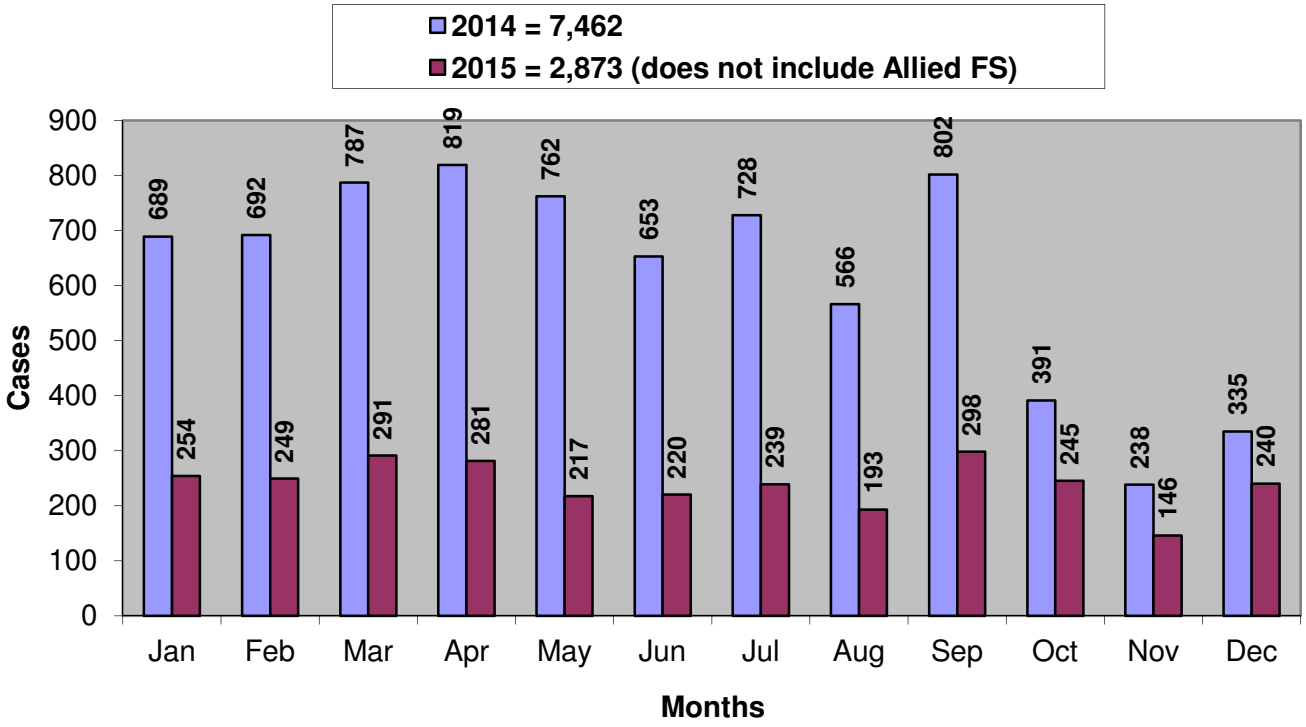
In 2016, the lab is undertaking a project to validate new technology (RAMAN) as a new screening tool for the CDS Units. The chemists will determine if this new technology will be a useful tool in screening samples quickly without consuming the sample.

CDS-PIKESVILLE UNIT

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

Where indicated, the data shown below does not include cases assigned to the Allied Forensic Scientists (Allied FS).

CDS-Pikesville Cases Received per Month



CDS-Pikesville Cases Received in 2015 per MSP Installation*

MSP Installation	Counties Served	Submissions
MSP-Prince Frederick	Calvert	165
MSP-CID/CED	Statewide	95
MSP-Glen Burnie	Anne Arundel	74
MSP-LaPlata	Charles	60
MSP-JFK Highway	Cecil, Harford, Baltimore	54
MSP-Leonardtown	St. Mary's	46
MSP-College Park	Prince George's	43
MSP-Golden Ring	Baltimore	43
MSP-Bel Air	Harford	41
MSP-Forestville	Prince George's	24
MSP-CVED	Statewide	1
MSP-North East	Cecil	1
MSP-Salisbury	Wicomico	1
MSP-Westminster	Carroll	1
	TOTAL	**649**

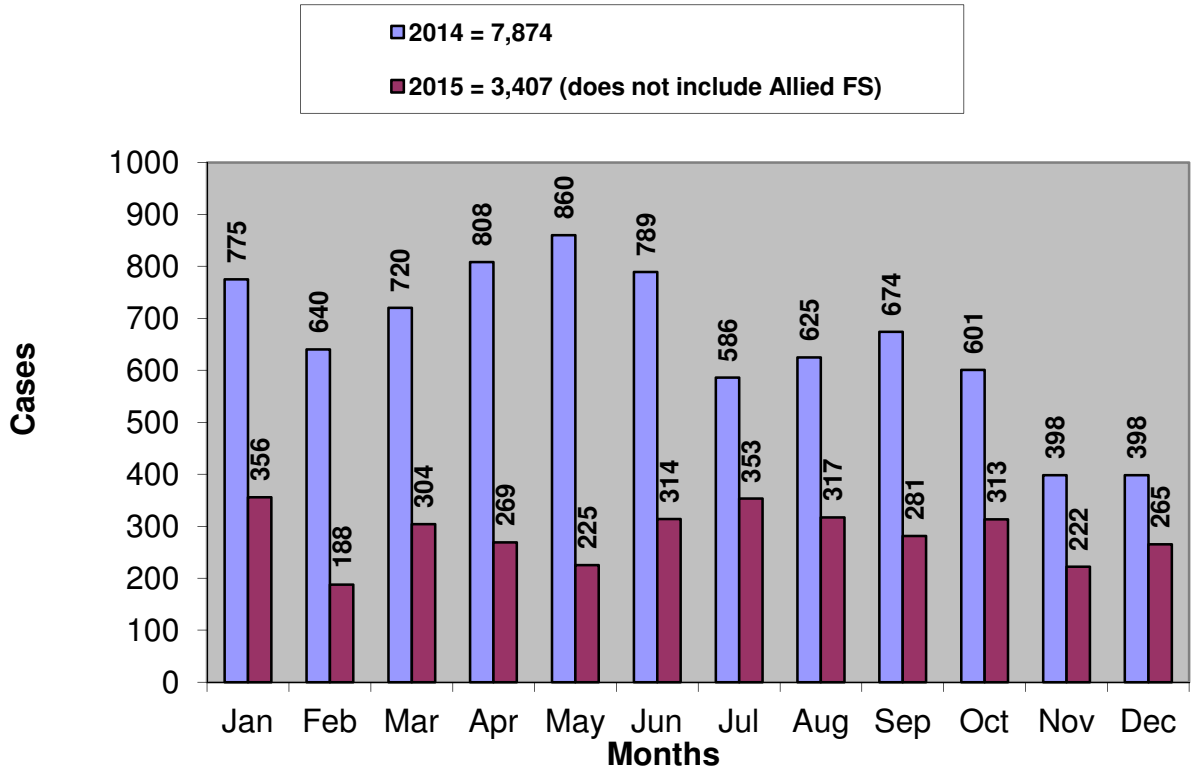
* Does not include Allied FS

Allied Agency Cases Received by CDS-Pikesville in 2015 per County*

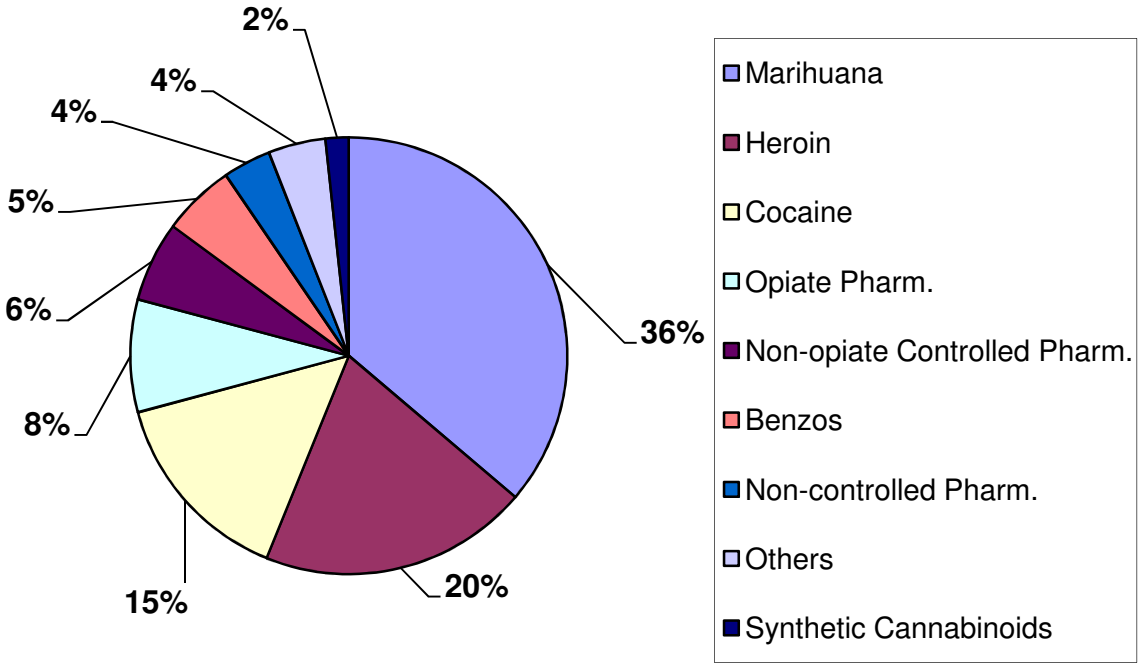
County	Submissions
Charles	697
Calvert	558
Harford	359
Statewide	280
St. Mary's	228
Montgomery	41
Prince George's	35
Worcester	18
Baltimore	2
Anne Arundel	1
Carroll	1
Dorchester	1
Frederick	1
Wicomico	1
Cecil	1
TOTAL	**2,224**

* Does not include Allied FS

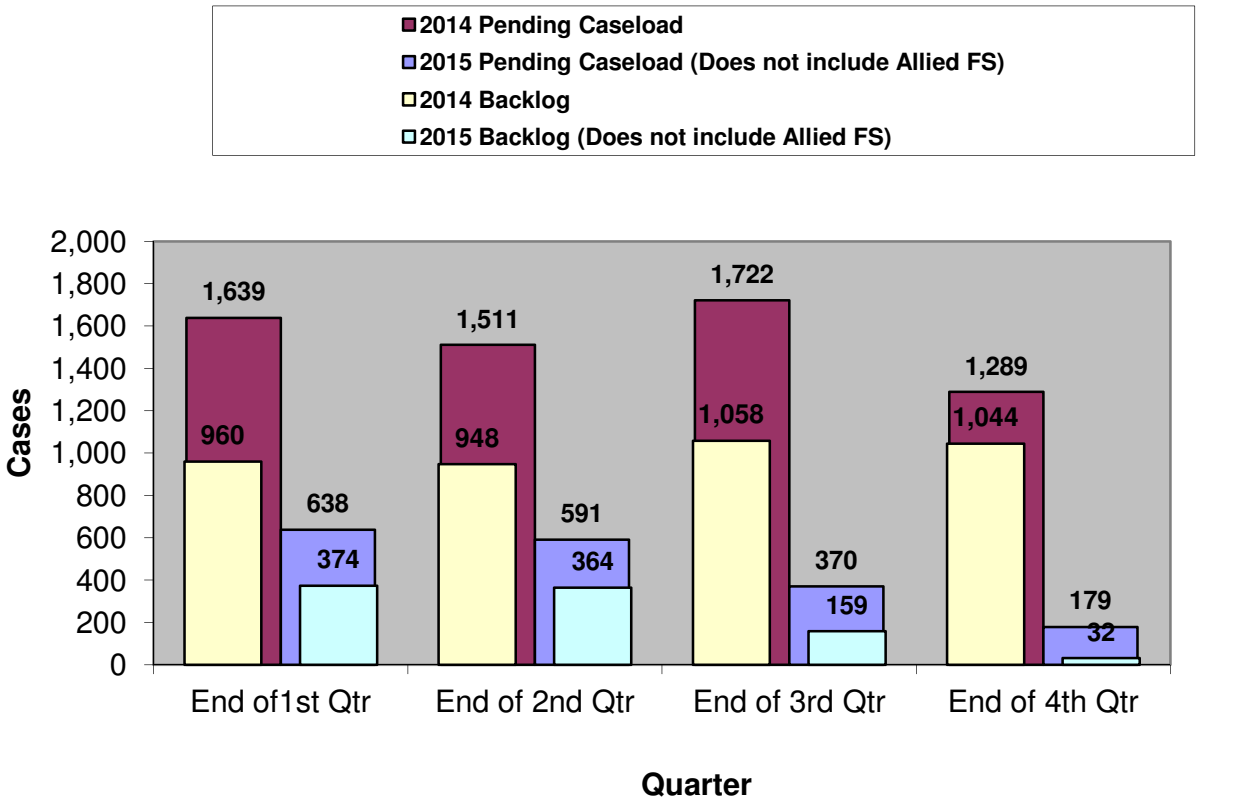
CDS-Pikesville Cases Completed per Month



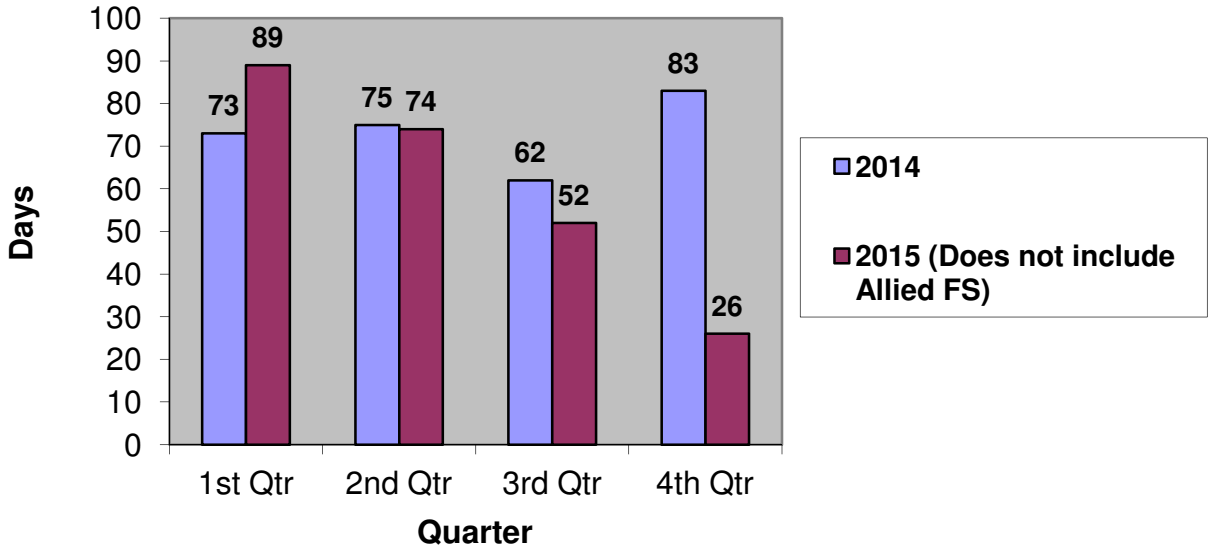
CDS-Pikesville Analyses Reported in 2015 per Drug Type



CDS-Pikesville Pending Caseload and Backlog per Quarter



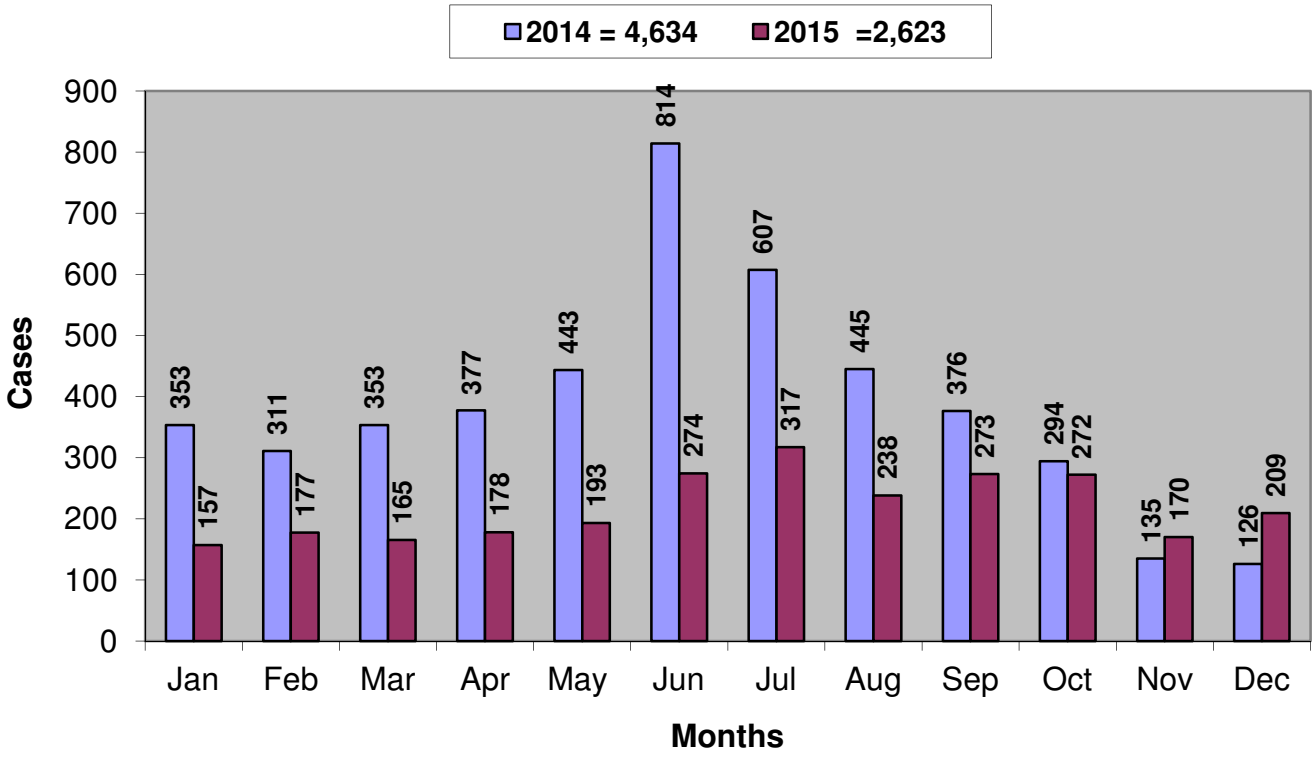
CDS-Pikesville Case Turn Around Time per Quarter



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 Harford County.

CDS-Berlin Cases Received per Month



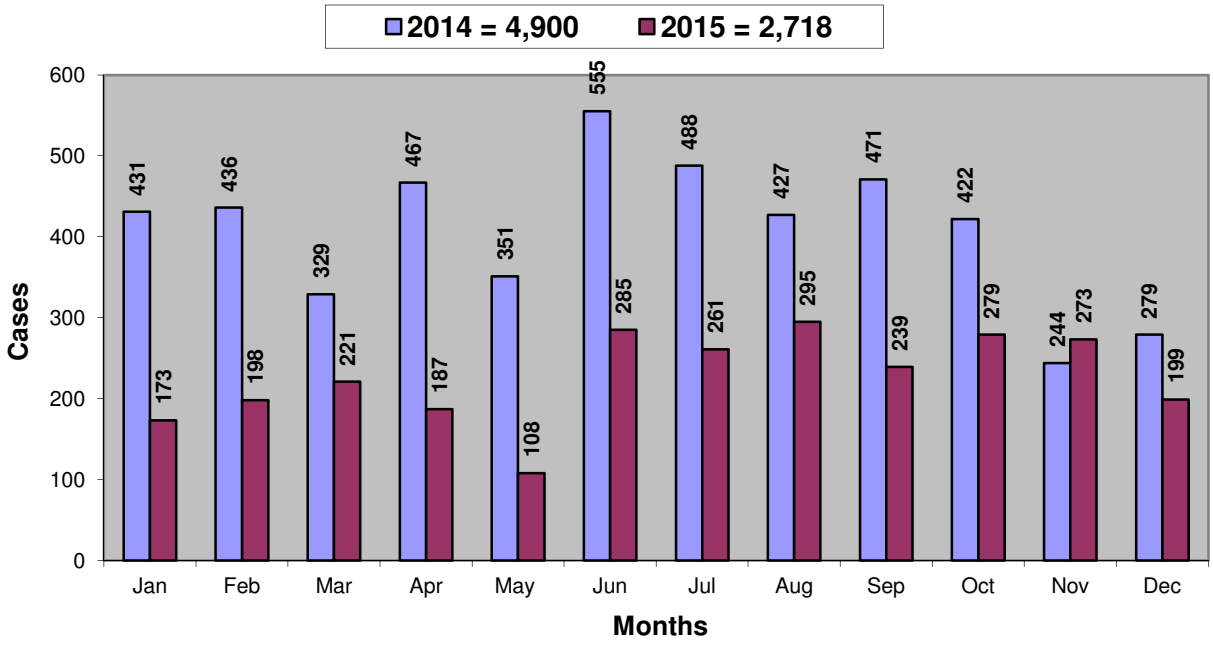
CDS-Berlin Cases Received in 2015 per MSP Installation

MSP Installation	Counties Served	Submissions
MSP-Easton	Caroline, Dorchester, Talbot	147
MSP-Salisbury	Wicomico	146
MSP-Centerville	Kent, Queen Anne's	126
MSP-Berlin	Worcester	57
MSP-Princess Anne	Somerset	37
MSP-CID/CED	Statewide	20
MSP-North East	Cecil	15
MSP-JFK Highway	Baltimore, Cecil, Harford	9
MSP-Bel Air	Harford	5
	TOTAL	**562**

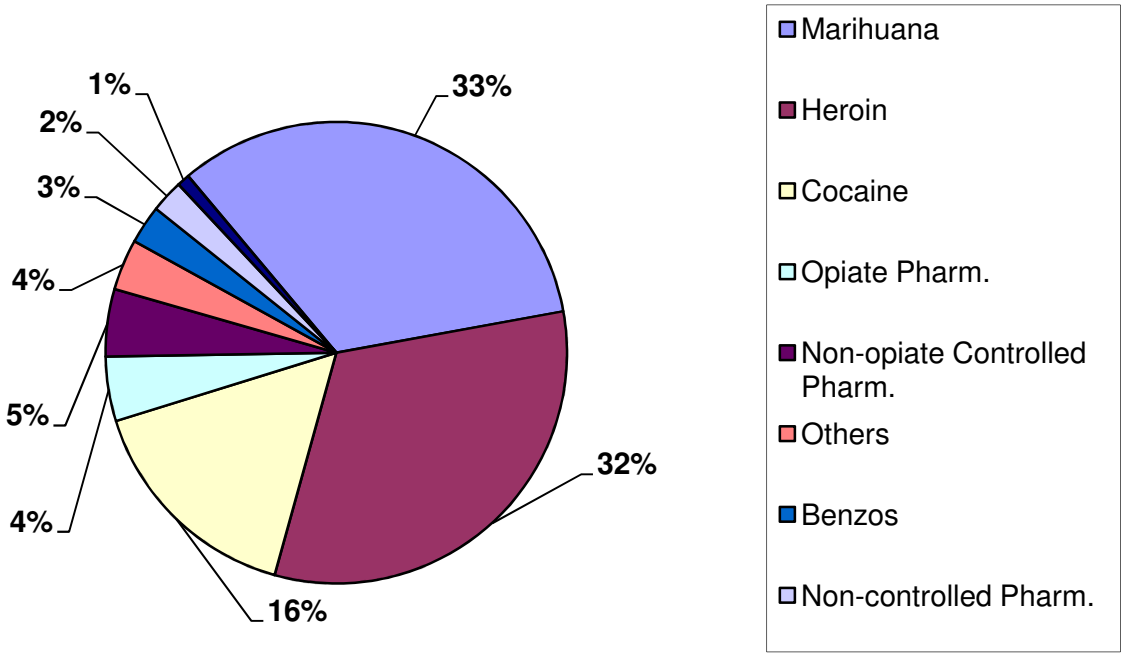
Allied Agency Cases Received by CDS-Berlin in 2015 per County

County	Submissions
Wicomico	612
Worcester	411
Dorchester	281
Talbot	214
Harford	178
Queen Anne's	96
Kent	87
Somerset	84
Caroline	75
Cecil	12
Statewide	10
Calvert	1
TOTAL	**2,061**

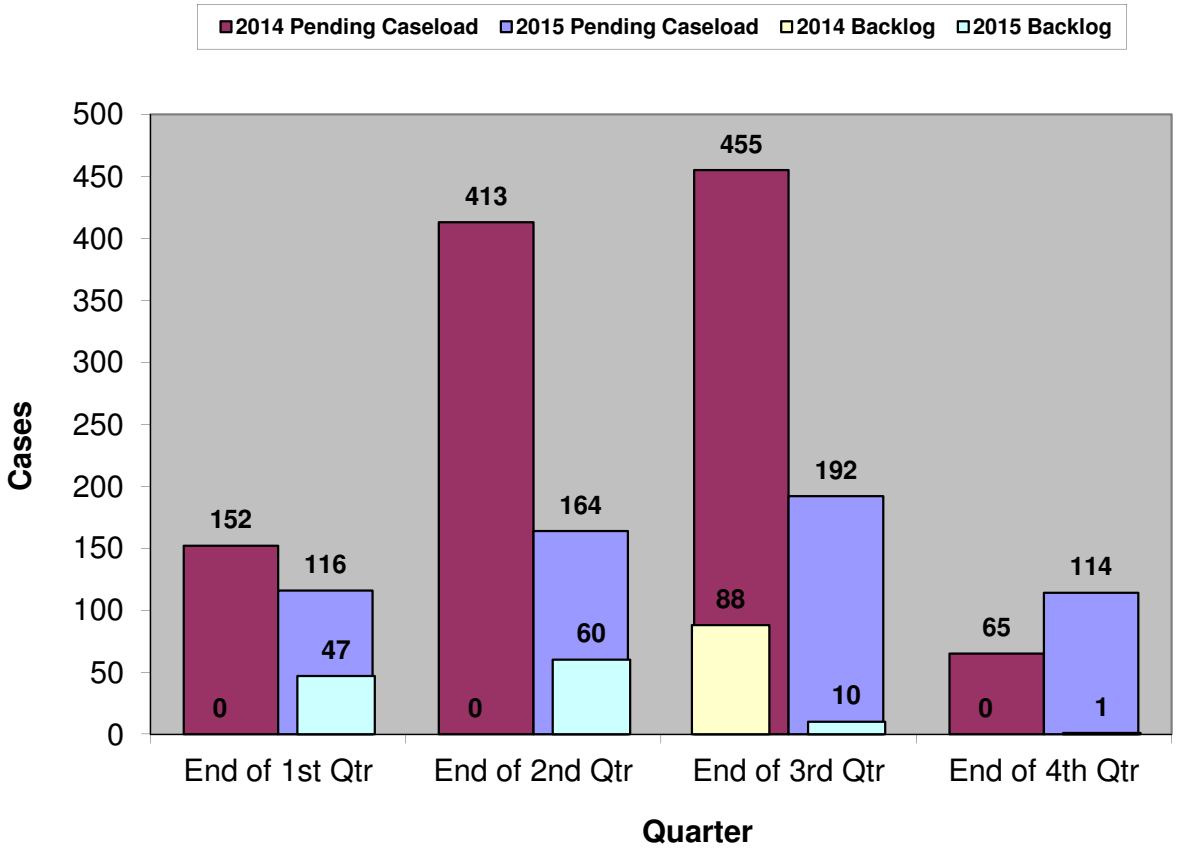
CDS-Berlin Cases Completed per Month



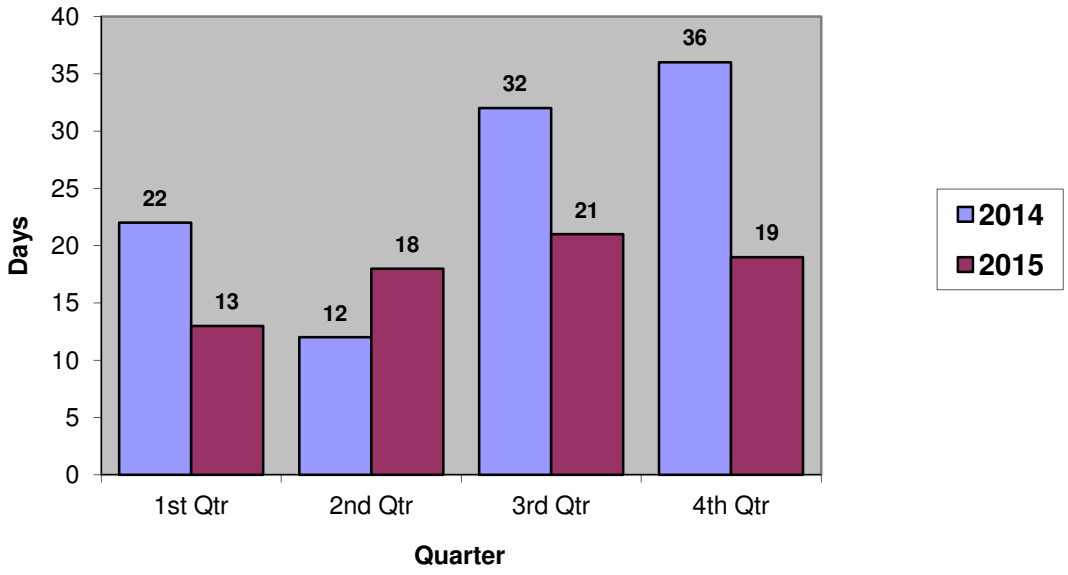
CDS-Berlin Analyses Reported in 2015 per Drug Type



CDS-Berlin Pending Caseload and Backlog per Quarter



CDS-Berlin Case Turn Around Time per Quarter

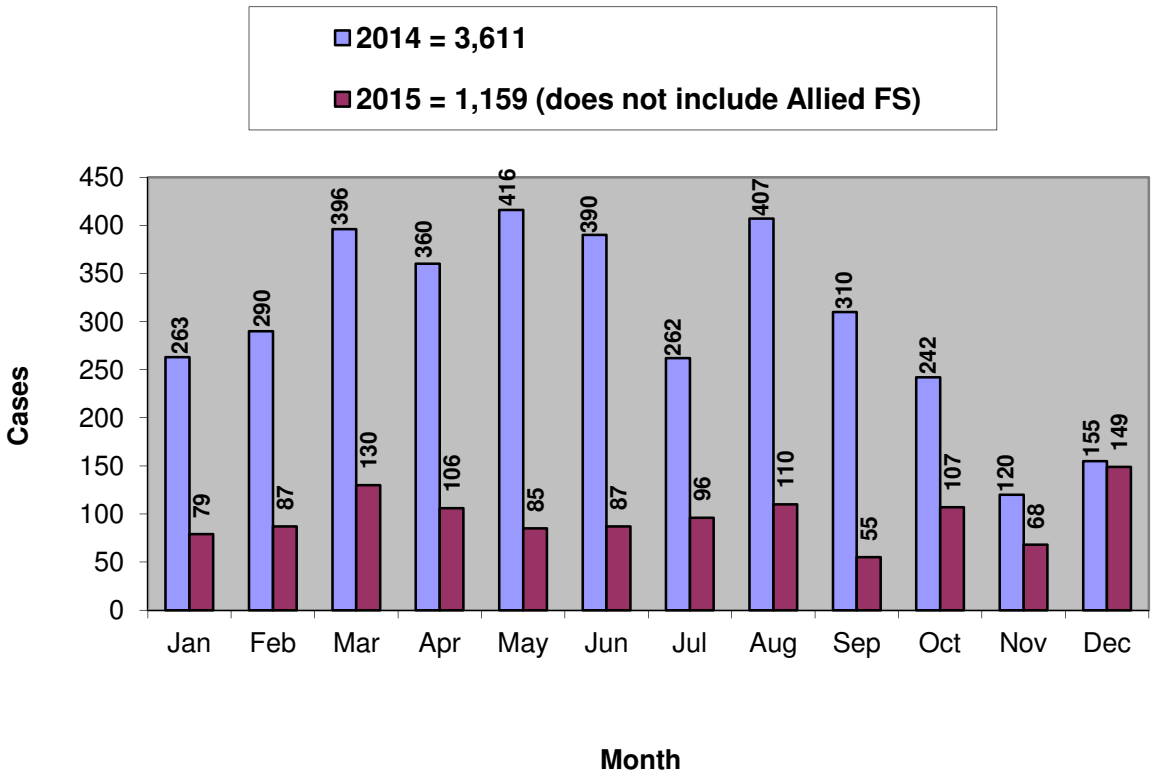


CDS-HAGERSTOWN UNIT

The Hagerstown CDS laboratory services primarily the Western Maryland counties including Washington County, Carroll County, Allegany County, Garrett County, Harford County, Montgomery County, and Frederick County.

Where indicated, the data shown below does not include cases assigned to the Allied Forensic Scientist (Allied FS).

CDS-Hagerstown Cases Received per Month



CDS-Hagerstown Cases Received in 2015 per MSP Installation*

MSP Installation	Counties Served	Submissions
MSP-DED/C3I	Statewide	154
MSP-Westminster	Carroll	92
MSP-Cumberland	Allegany	81
MSP-McHenry	Garrett	79
MSP-CID/CED	Statewide	70
MSP-Hagerstown	Washington	53
MSP-Rockville	Montgomery	23
	TOTAL	**552**

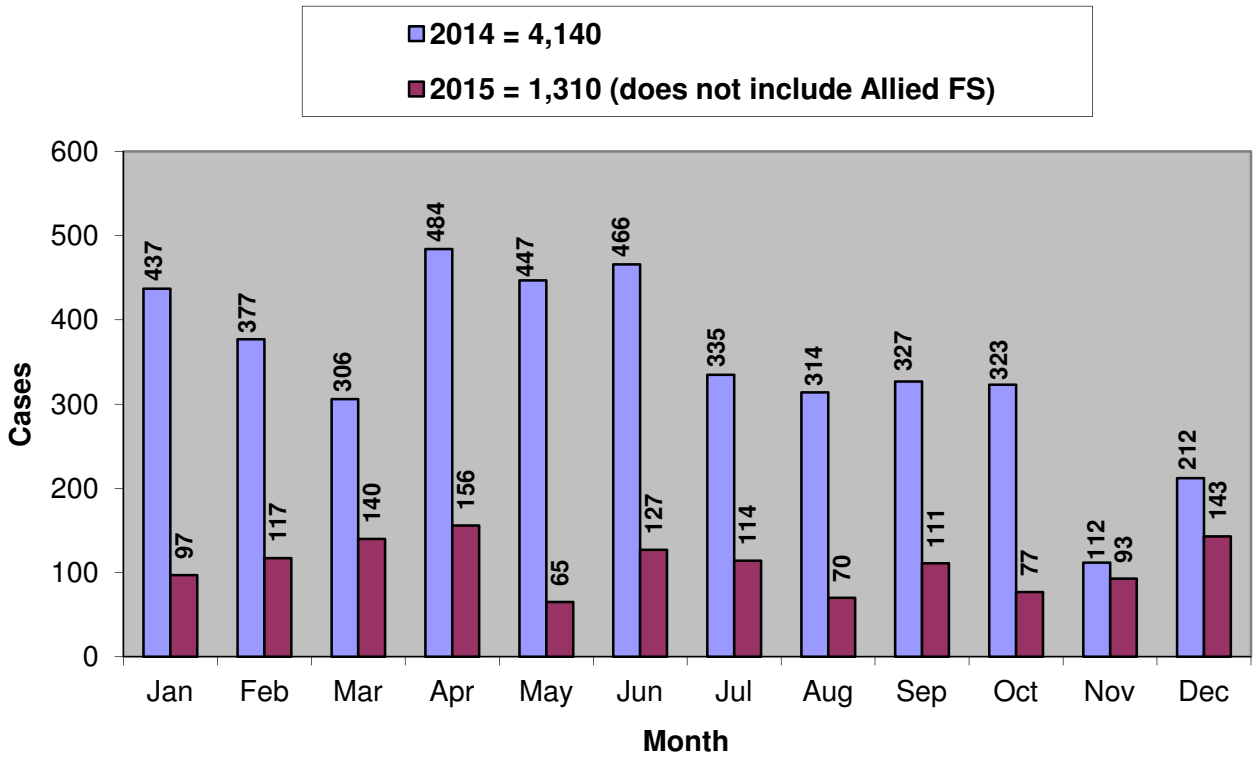
* Does not include Allied FS

Allied Agency Cases Received by CDS-Hagerstown in 2015 per County*

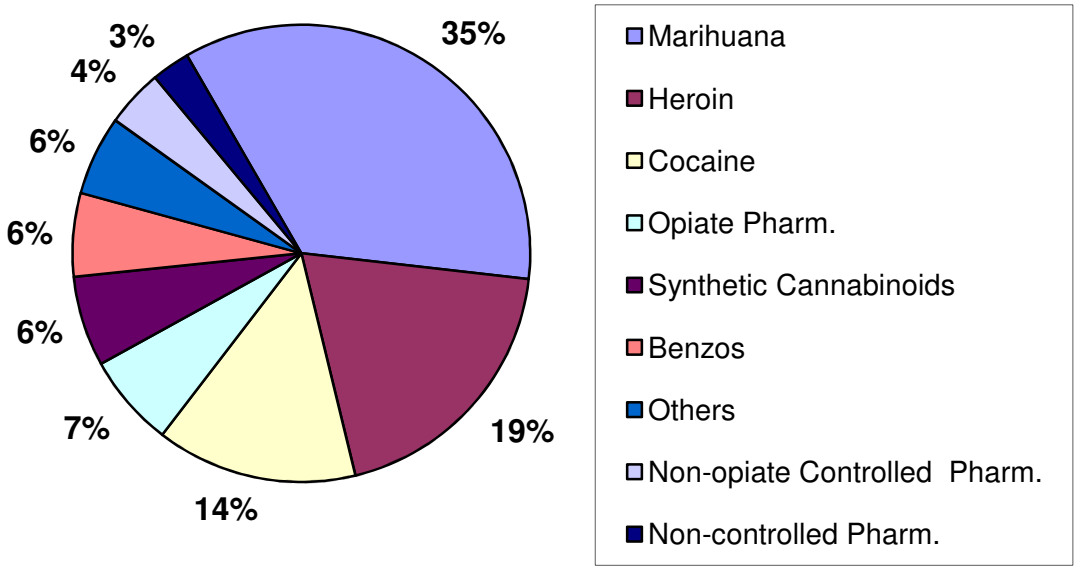
County	Submissions
Carroll	261
Allegany	178
Harford	94
Statewide	54
Garrett	19
Baltimore	1
TOTAL	**607**

* Does not include Allied FS

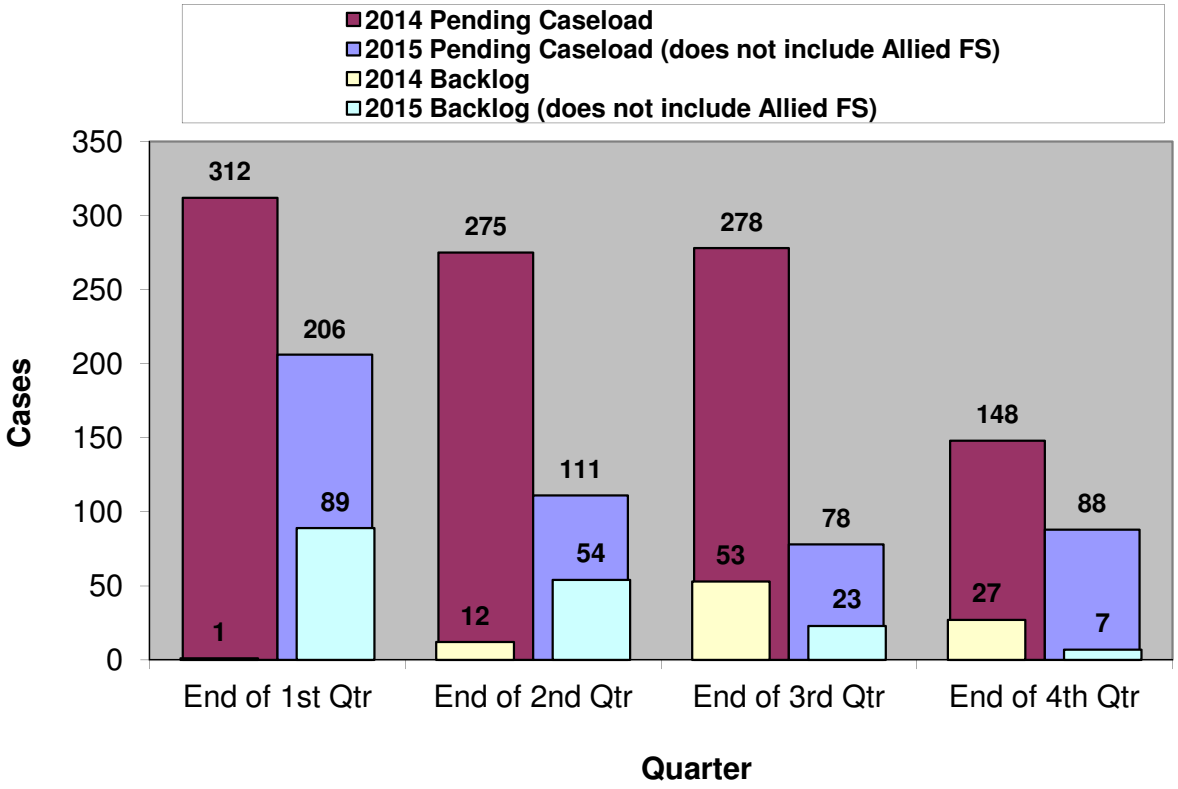
CDS-Hagerstown Cases Completed per Month



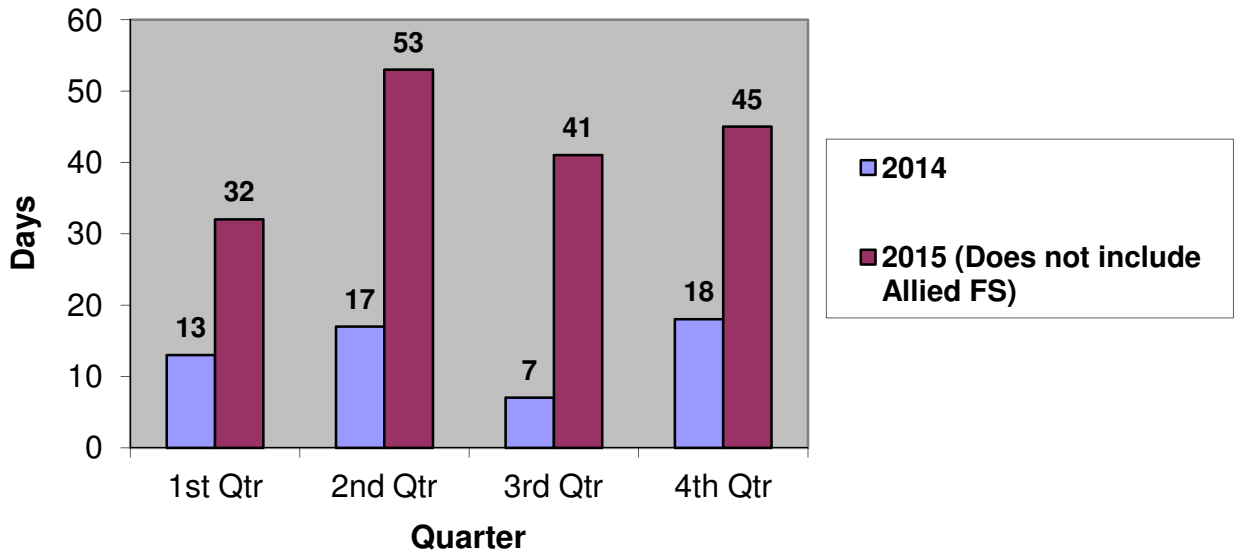
CDS-Hagerstown Analyses Reported in 2015 per Drug Type



CDS-Hagerstown Pending Caseload and Backlog per Quarter



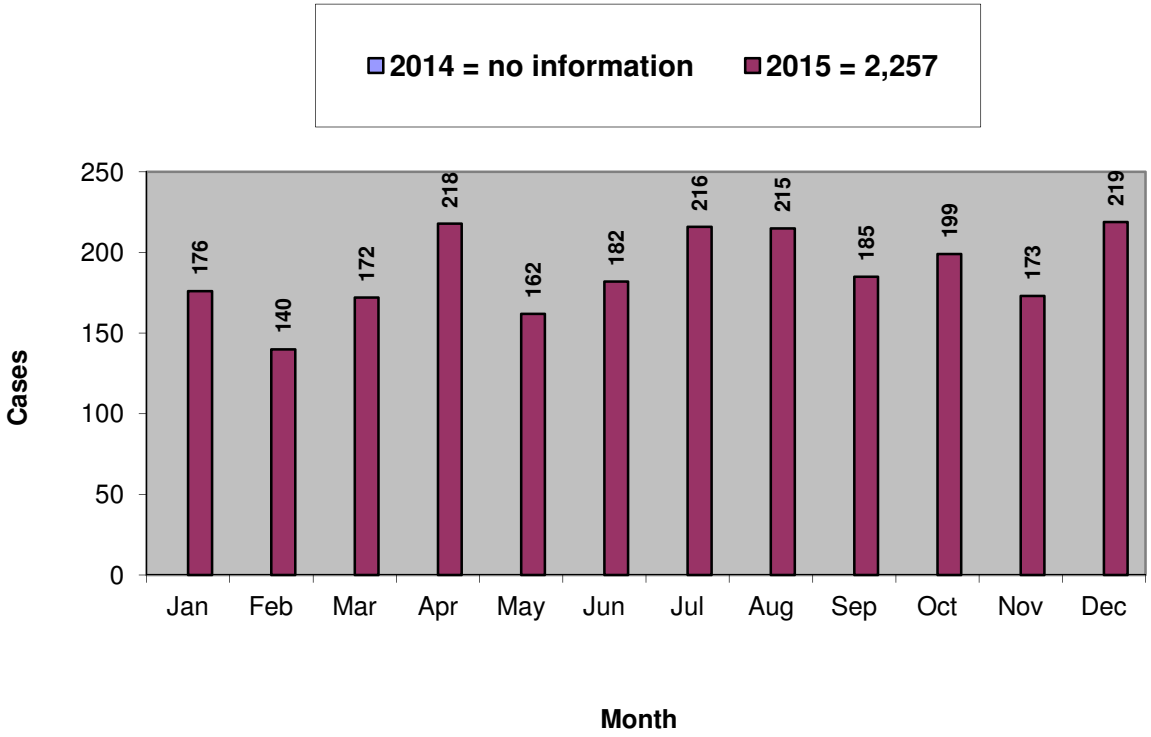
CDS-Hagerstown Case Turn Around Time per Quarter



CDS-ALLIED FORENSIC SCIENTIST PROGRAM

The Allied Forensic Scientists working in the CDS Units are employees of allied agencies or other governmental entities. These scientists are authorized to perform CDS analysis in FSD facilities under the provisions provided for in a Memorandum of Understanding. Even though these scientists are not MSP employees, they perform forensic testing in accordance with the FSD management system by complying with the FSD Quality Assurance Manual and following the FSD standard operating procedures. Three Allied Forensic Scientists, representing the following agencies, work in the CDS Units: Howard County Police Department, Cecil County State's Attorney's Office and Frederick County State's Attorney's Office.

CDS-Allied Cases Received per Month



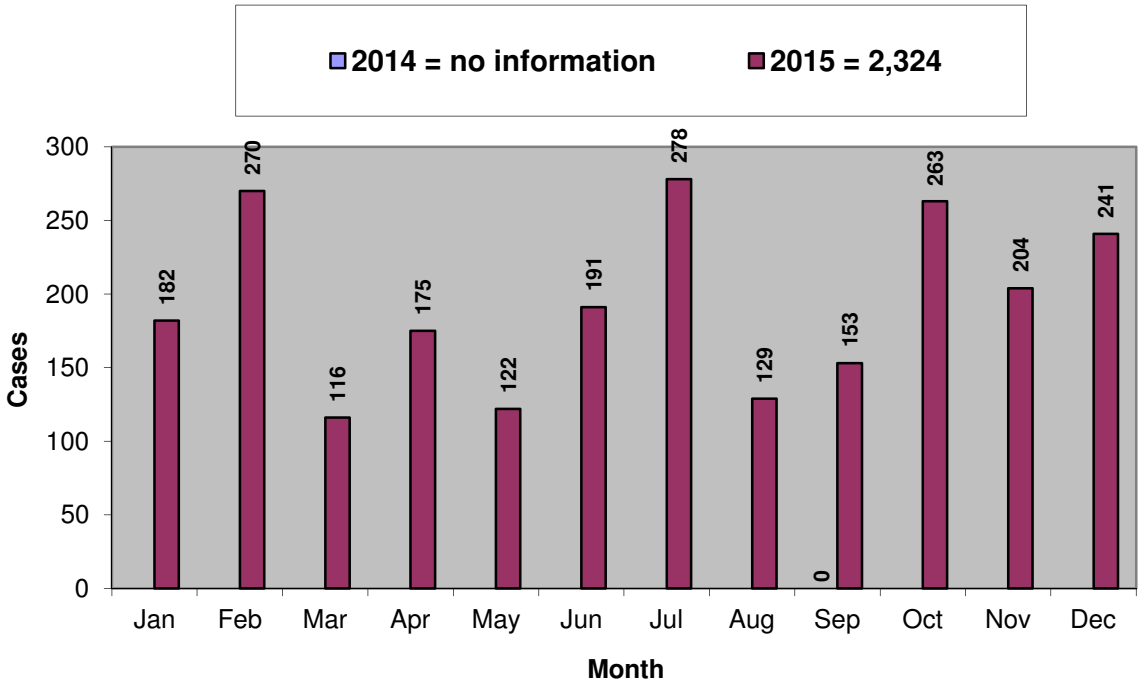
CDS Cases Received by Allied Forensic Scientists in 2015 per MSP Installation

MSP Installation	Counties Served	Submissions
MSP-North East	Cecil	131
MSP-Frederick	Frederick	93
MSP-CID/CED	Statewide	79
MSP-Waterloo	Howard	32
MSP-JFK Hwy	Cecil, Harford, Baltimore	18
MSP-La Plata	Charles	1
	TOTAL	**354**

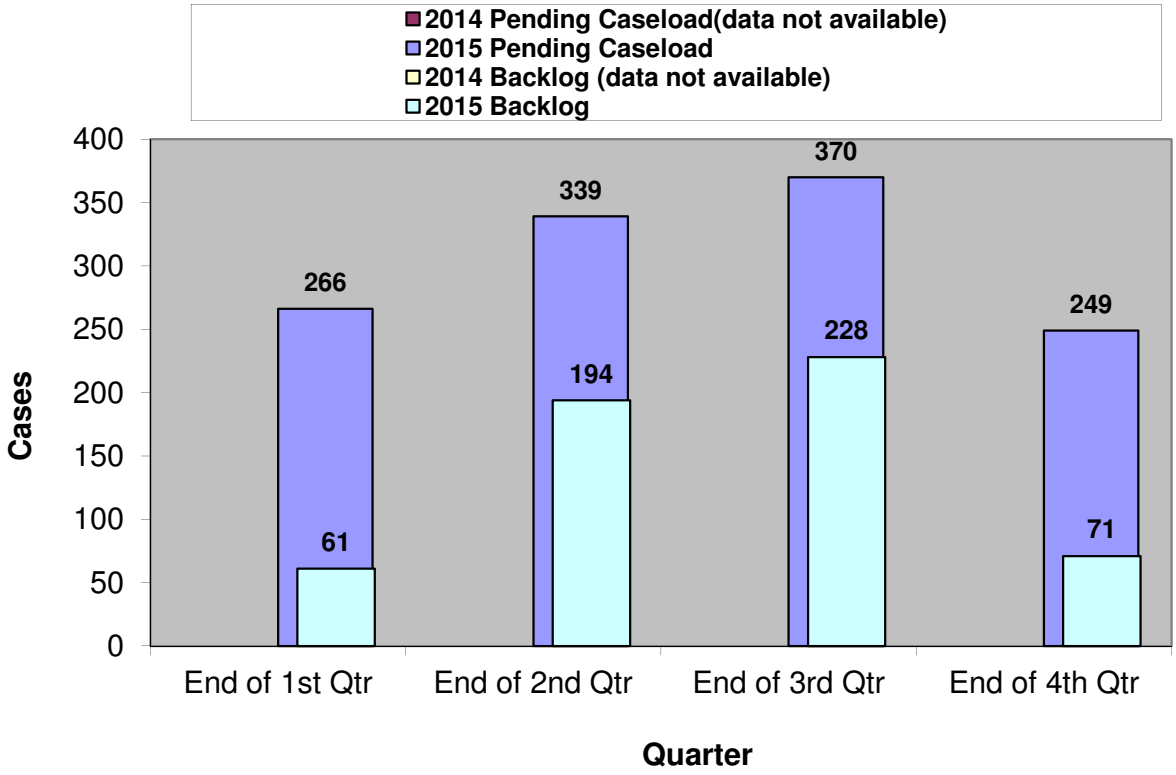
CDS Cases Received in 2015 by Allied Forensic Scientists from Allied Agencies per County

County	Submissions
Frederick	1,040
Howard	436
Cecil	389
Statewide	36
Carroll	1
Charles	1
TOTAL	**1,903**

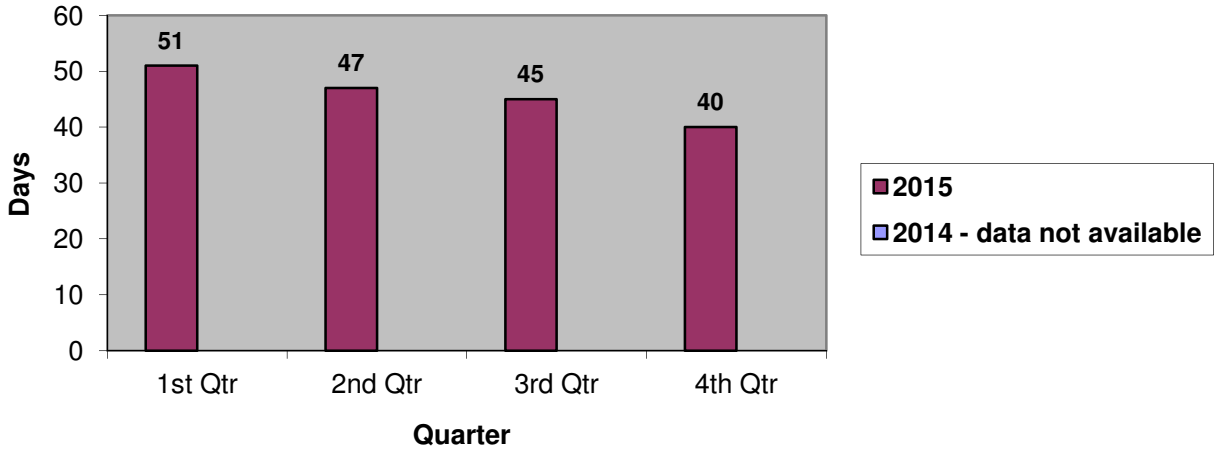
CDS-Allied Cases Completed per Month



CDS-Allied Pending Caseload and Backlog per Quarter



CDS-Allied Case Turn Around Time per Quarter



TOXICOLOGY UNIT

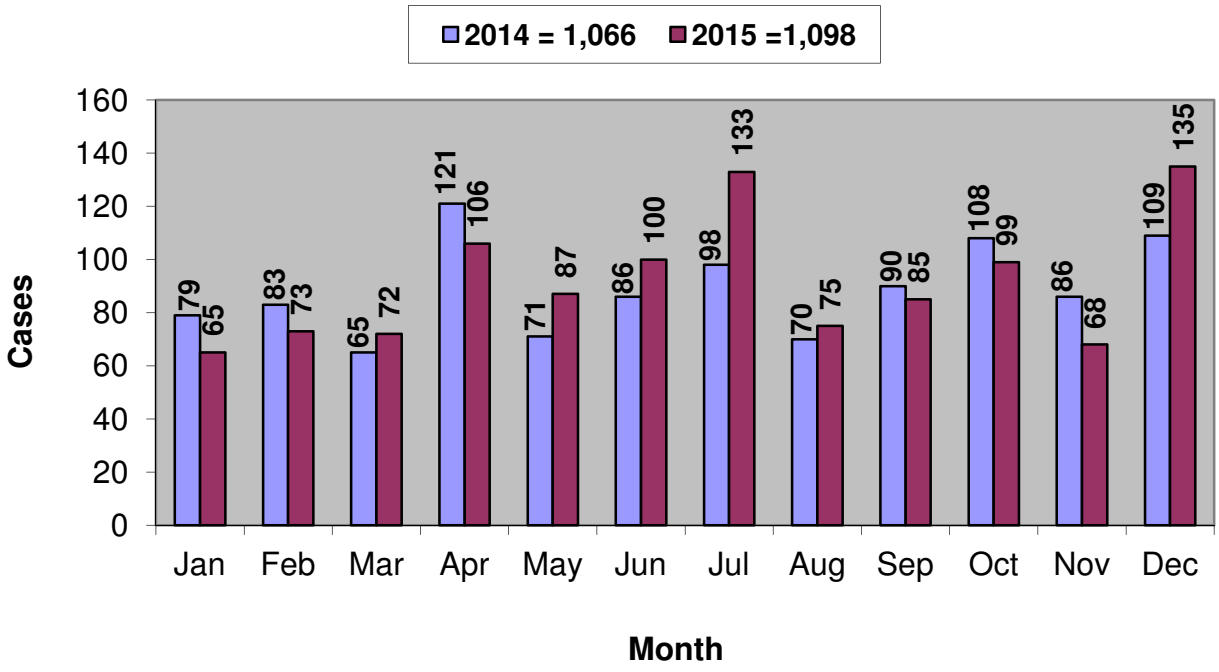
The Toxicology Unit is responsible for the analysis of alcohol and drugs contained in blood specimens submitted to the Maryland State Police Forensic Sciences Division. Testing is performed in conjunction with the Driving While Impaired (DWI) program of the Maryland State Police and the State Toxicologist's 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.

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.

The Toxicology Unit is in the process of filling a forensic scientist position, which first became vacant in early 2013. Additionally, a CDS chemist is cross-training in Blood Alcohol analysis and a Laboratory Technician I has been transferred to the Toxicology Unit from FATMU. Only two scientists (one also a supervisor) are currently performing casework and case review. Case turnaround time, particularly for blood drug cases, continues to increase during this transition period. However, teamwork between the Unit members and an emphasis on client communication have aided case prioritization.

The Toxicology Unit has accomplished several goals this year. Thanks to grant funding, the Toxicology Unit acquired both an LCMS instrument and a positive pressure extraction system. When implemented, these technologies will enable the Unit to test for more drugs in a shorter period of time. LCMS installation and training is a major goal of the Unit for 2016, and the Unit obtained grant funding to bring a Toxicologist on board to help with the validation. Validation of the positive pressure system for at least one type of drug extraction is also anticipated.

Toxicology Cases Received per Month



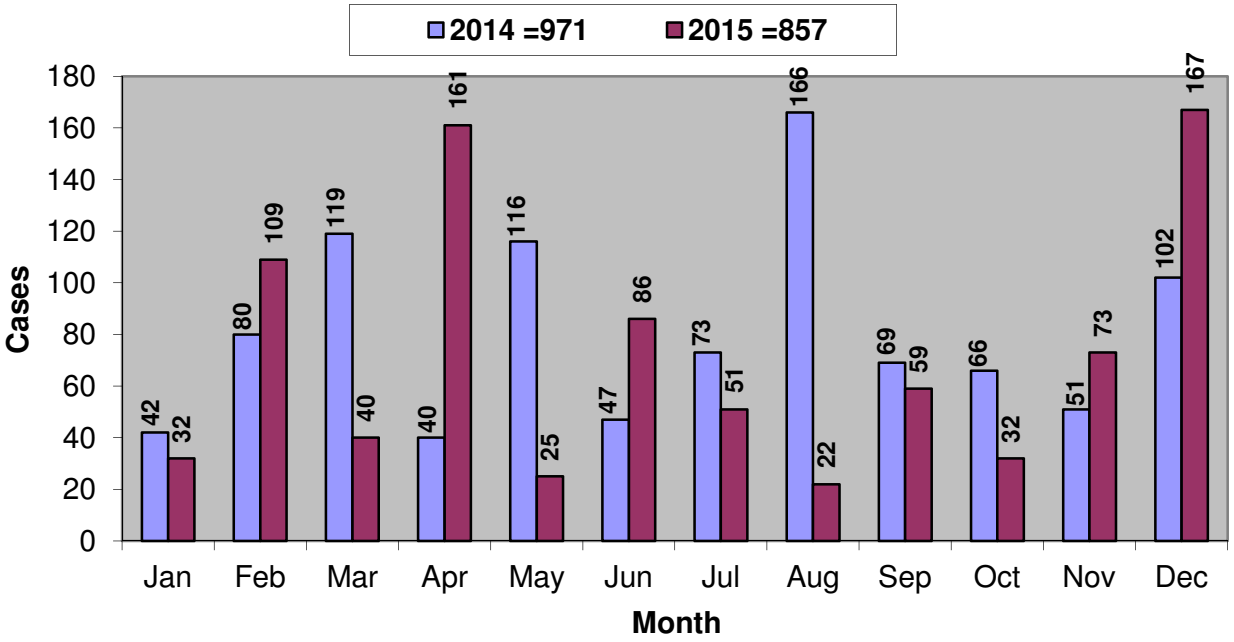
Toxicology Cases Received in 2015 per MSP Installation

MSP Installation	Counties Served	Submissions
MSP-Golden Ring	Baltimore	38
MSP-Frederick	Frederick	25
MSP-Hagerstown	Washington	23
MSP-Westminster	Carroll	23
MSP-LaPlata	Charles	22
MSP-Centerville	Kent, Queen Anne's	19
MSP-Easton	Caroline, Dorchester, Talbot	18
MSP-Glen Burnie	Anne Arundel	18
MSP-Bel Air	Harford	17
MSP-Rockville	Montgomery	17
MSP-College Park	Prince George's	15
MSP-Forestville	Prince George's	12
MSP-Prince Frederick	Calvert	12
MSP-Berlin	Worcester	11
MSP-Waterloo	Howard	11
MSP-Leonardtown	St. Mary's	9
MSP-McHenry	Garrett	9
MSP-JFK Highway	Cecil, Harford, Baltimore	6
MSP-Cumberland	Allegany	5
MSP-North East	Cecil	5
MSP-Salisbury	Wicomico	5
MSP-Princess Anne	Somerset	3
	TOTAL	**323**

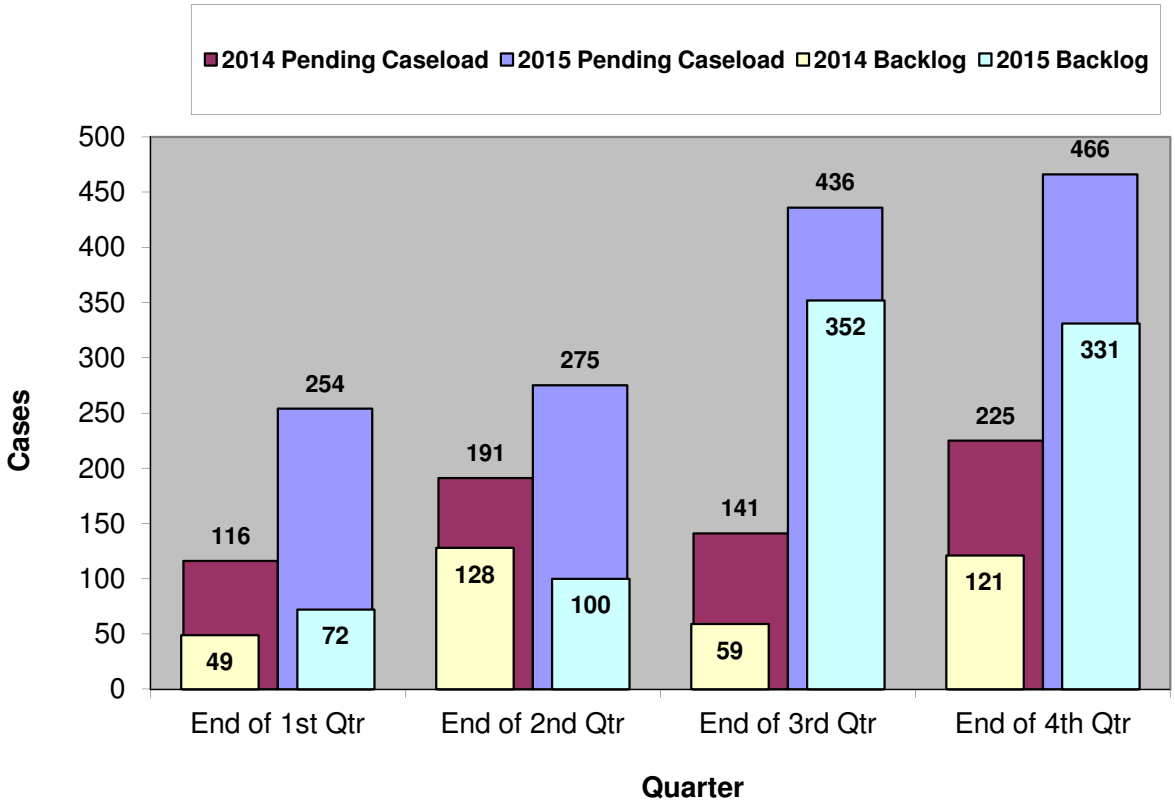
Toxicology Cases Received from Allied Agencies in 2015 by County

County	Submissions
Baltimore	148
Montgomery	118
Anne Arundel	78
Prince George's	74
Washington	45
Howard	42
Frederick	40
Calvert	34
Statewide	30
St. Mary's	25
Harford	23
Charles	20
Wicomico	20
Worcester	17
Baltimore City	14
Carroll	12
Talbot	10
Allegany	5
Cecil	5
Dorchester	5
Garrett	5
Kent	2
Caroline	2
Somerset	1
TOTAL	**775**

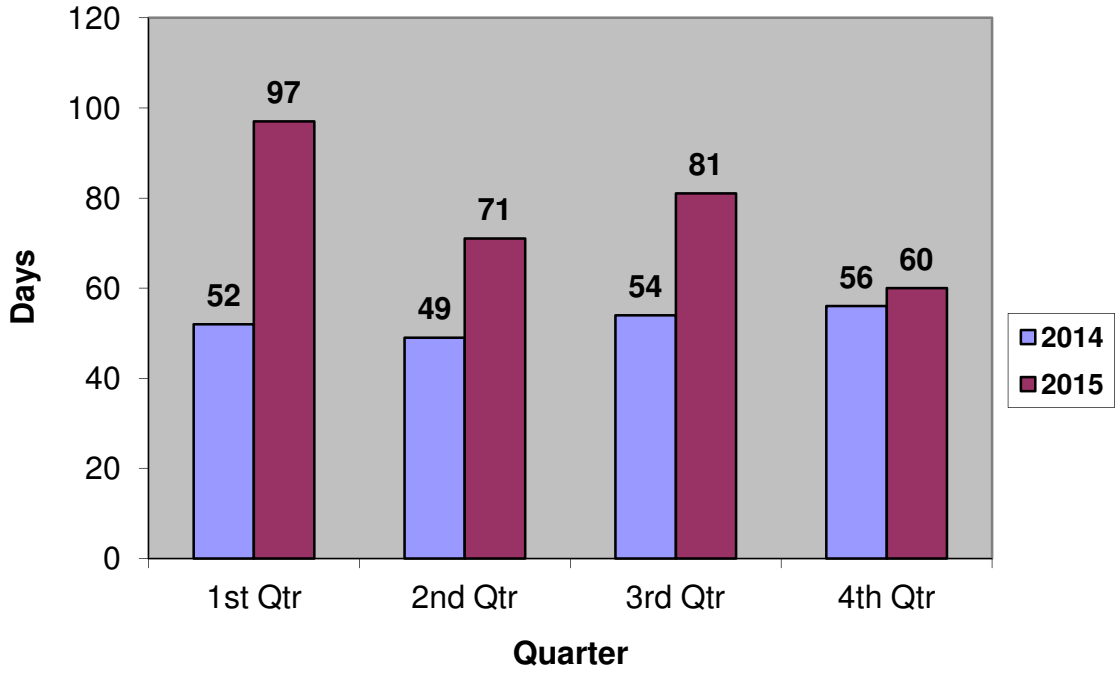
Toxicology Cases Completed per Month



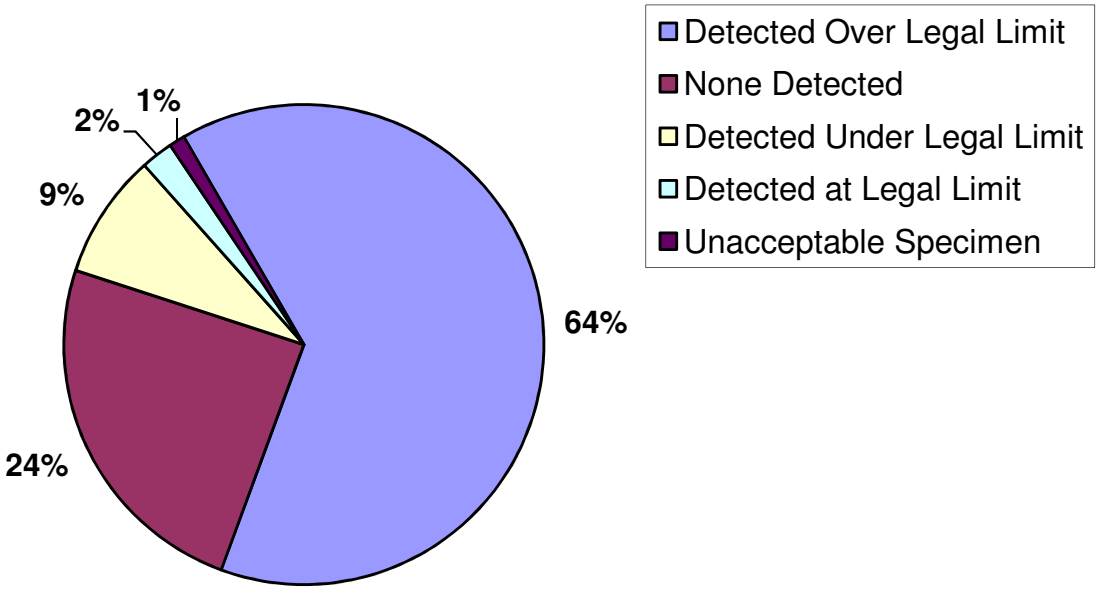
Toxicology Pending Caseload and Backlog per Quarter



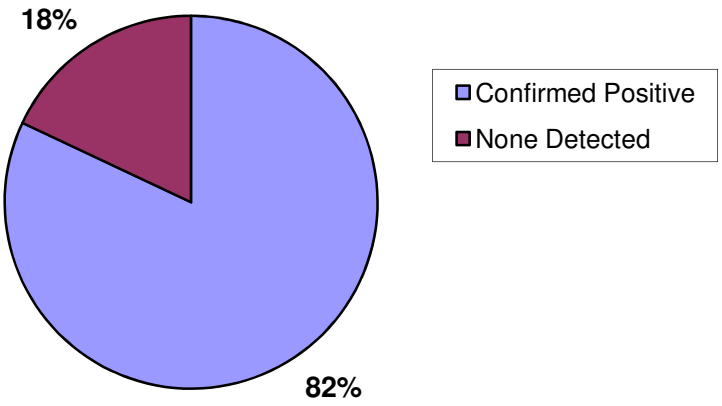
Toxicology Case Turn Around Time



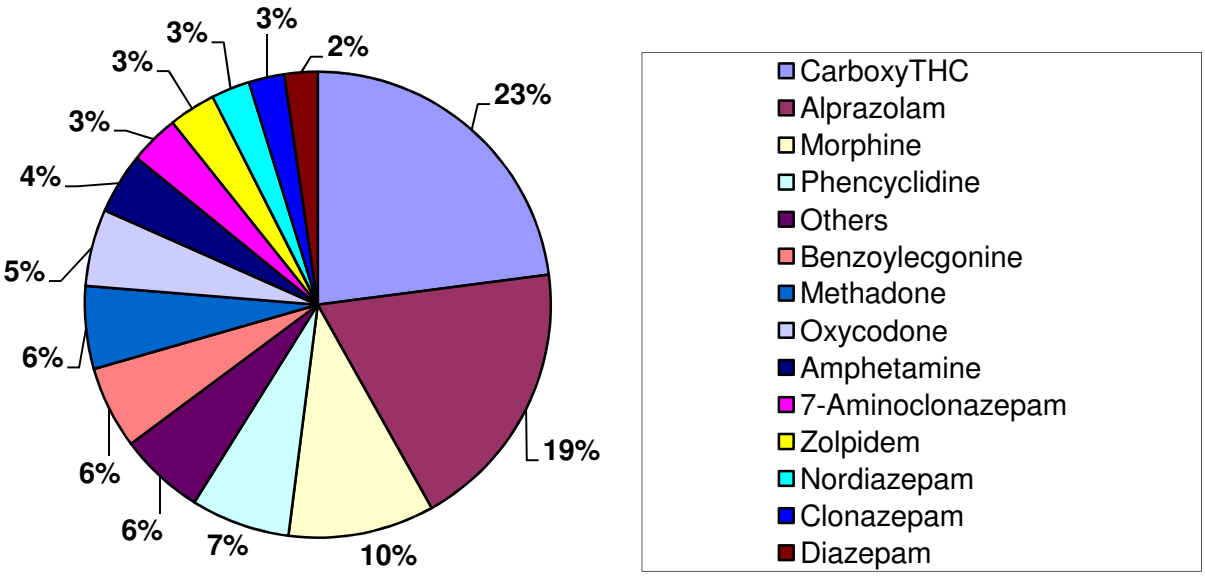
Blood Alcohol Cases Reported in 2015 per Detection Level



Blood Drug Cases Reported in 2015 per Result Type



Positive Blood Drug Cases Reported in 2015 per Drug Type



NOTEWORTHY CASES

Cecil County submitted an unusual case this year containing a compressed substance hidden inside four balls of stringy substance resembling cheese. The compressed substance was identified as Cocaine.

A Frederick County case was analyzed and found to contain ADB-PINACA, which is a synthetic cannabinoid that became illegal to possess on February 10, 2014. Other illegal synthetic cannabinoids submitted within Frederick County recently were confirmed as XLR-11 and UR-144. Legal synthetics, as of January 29, 2015, which were analyzed and tentatively identified were AB-PINACA, AB-CHMINACA, and NM-2201.

An interesting case from Caroline County involved two chemists from Toxicology, a CDS chemist, and a DNA analyst. A fatal accident occurred in Caroline County, and the driver was charged with DUI. The driver's blood was analyzed for Blood Alcohol by one chemist in Toxicology, and analyzed for drugs in the blood by another Toxicology chemist. Drug paraphernalia and plant material was discovered in the car by the accident reconstruction officer, and that evidence was analyzed by a CDS chemist. There was some question of whether or not the defendant was the driver of the vehicle at the time of the accident, so the swabs of the air bags for the driver's side and passenger's side were analyzed for DNA. The combined efforts of three units at the FSD led to the successful prosecution on the charge of negligent homicide by auto while impaired by CDS, and a sentence of three years.

BIOLOGY SECTION

The Biology Section is responsible for performing Serological and DNA analyses 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 four-unit basis overseen by one Forensic Scientist Manager.

There are two casework units: the Investigative Casework Unit and the Trial Casework Unit. The Investigative Casework Unit is staffed by four scientists, including one Forensic Scientist Supervisor, one Forensic Scientist Advanced, and two Forensic Scientists III. The Trial Casework 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 eight scientists, including one Forensic Scientist Supervisor (CODIS Administrator), two Forensic Scientists Advanced, four Forensic Scientists III, and one Forensic Scientist II.

The Technical/Validation Unit is staffed by five individuals; four scientists including one Forensic Scientist Supervisor (Technical Leader), one Forensic Scientist Advanced, and two Forensic Scientists III. The fifth position is a Forensic Laboratory Technician I.

BIOLOGY CASEWORK UNITS

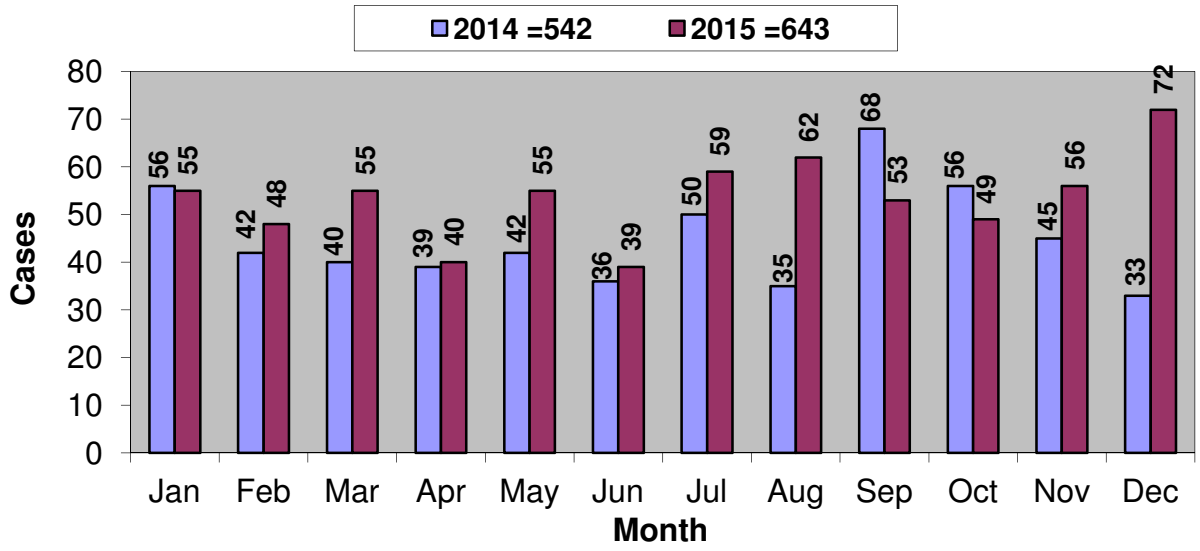
The Trial Casework Unit performs serology and/or DNA testing on cases that have resulted in an arrest and are being tested in support of the adjudication of the arrestee. This unit has the main responsibility of assigning, analyzing, and reviewing these cases for those agencies serviced by the MSP-FSD Biology Section. While the primary responsibility of this 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 Unit performs serology and/or DNA testing on cases without pending court dates, which have not resulted in an arrest but are being tested in support of making an arrest. This unit is responsible for handling high-priority/high-profile investigative cases, routine investigative cases, and cold cases. The Investigative Casework Unit is also responsible for the management and processing of outsourced casework to the contract vendor laboratory and training of new analysts, as necessary.

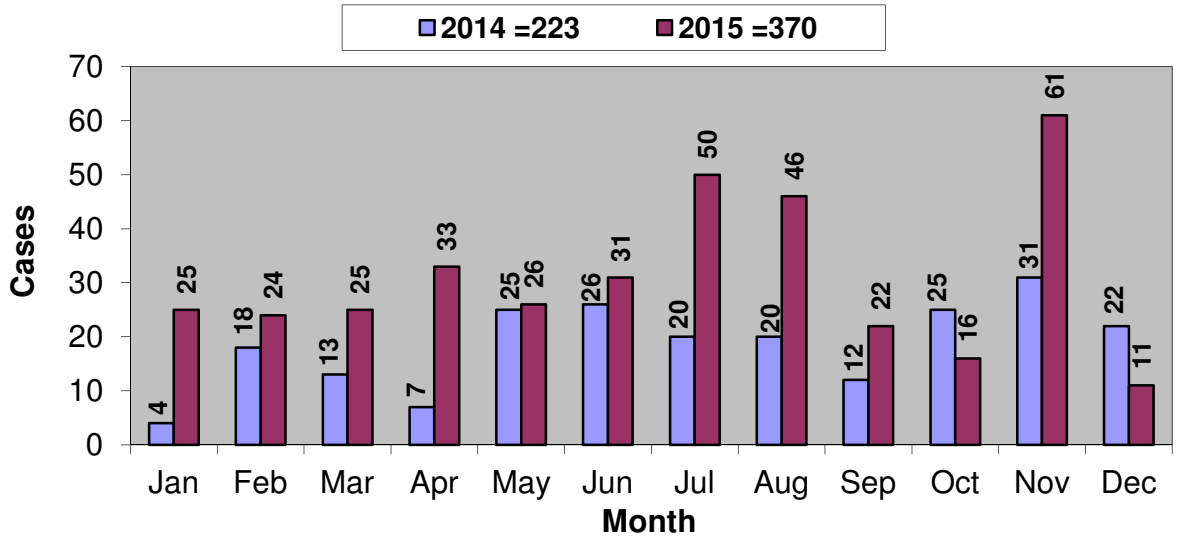
It should be noted that the overall amount of case submissions increased in 2015. There were 643 cases received in the Biology section, which is ~19% increase from 2014. Also, there was a 66% increase in the number of cases which were directly outsourced in 2015. Even though these cases were directly outsourced from the agency to the contract lab, they were still monitored and followed by Biology Section staff. Upon completion of such cases, the data is reviewed and suitable profiles are uploaded to the CODIS database. When considering both in-house cases and directly outsourced cases, the total number of cases completed within the Biology Section

increased by 14% in 2015. This great success could not have been accomplished without the continued application of direct outsourcing, in-house outsourcing (evidence is received at FSD and then either the entire case or a portion of it is forwarded to a contracted laboratory for analysis), and in-house casework. By utilizing a combination of these three processes, the casework units have been able to continue to monitor and maintain the backlog at manageable levels.

Submitted Biology Cases Received per Month



Directly Outsourced Biology Cases Received per Month



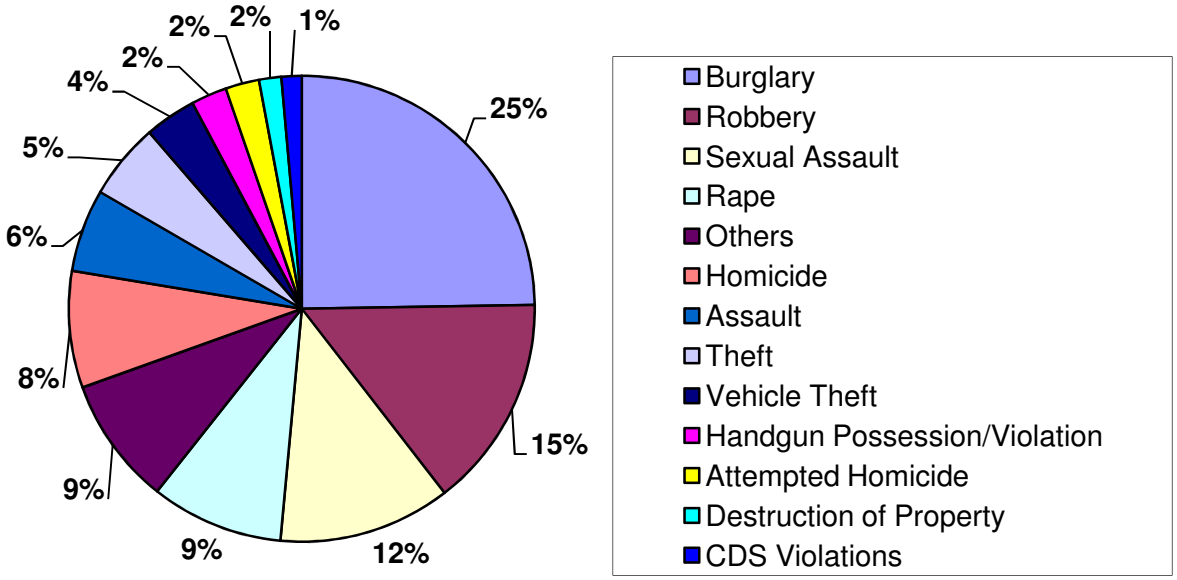
Biology Cases Received in 2015 per MSP Installation

MSP Installation	Counties Served	Case Type		
		Submitted	Directly Outsourced	Combined
MSP-Homicide	Statewide	18	1	19
MSP-CID/CED	Statewide	17	1	18
MSP-Princess Anne	Somerset	9	2	11
MSP-DED/C3I	Statewide	9	1	10
MSP-Salisbury	Wicomico	7	0	7
MSP-Easton	Caroline, Dorchester, Talbot	6	1	7
MSP-North East	Cecil	6	1	7
MSP-Berlin	Worcester	6	0	6
MSP-Centerville	Kent, Queen Anne's	3	0	3
MSP-Leonardtown	St. Mary's	3	0	3
MSP-Forestville	Prince George's	2	0	2
MSP-Frederick	Frederick	2	0	2
MSP-Cumberland	Allegany	2	0	2
MSP-Hagerstown	Washington	2	0	2
MSP-JFK Hwy	Cecil, Harford, Baltimore	2	0	2
MSP-Waterloo	Howard	1	1	2
MSP-McHenry	Garrett	1	0	1
MSP-Prince Frederick	Calvert	1	0	1
MSP-Golden Ring	Baltimore	1	0	1
MSP-Westminster	Carroll	1	0	1
MSP-Bel Air	Harford	0	1	1
MSP-Internal Affairs	Statewide	1	0	1
	TOTAL	**100**	**9**	**109**

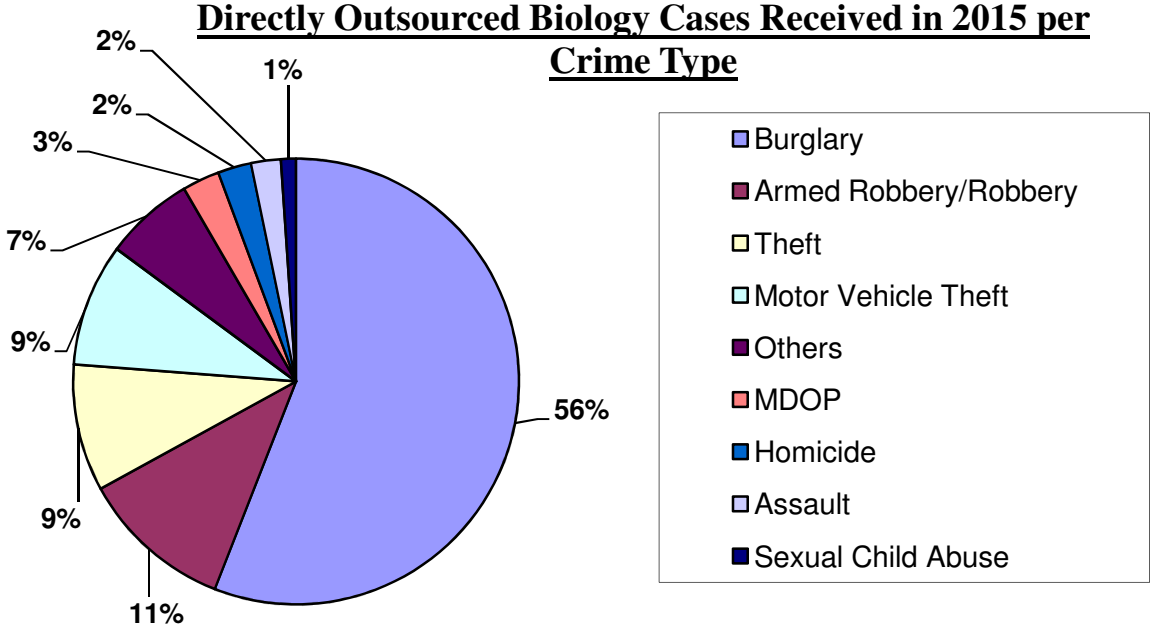
Allied Agency Cases Received by Biology in 2015 per County

County	Case Type		
	Submitted	Directly Outsourced	Combined
Charles	53	117	170
Frederick	80	45	125
Anne Arundel	23	89	112
Wicomico	101	2	103
Harford	50	7	57
Worcester	28	28	56
St. Mary's	19	31	50
Cecil	46	2	48
Washington	24	24	48
Prince George's	25	8	33
Carroll	22	2	24
Calvert	16	0	16
Dorchester	11	1	12
Kent	11	0	11
Caroline	8	3	11
Queen Anne's	9	0	9
Talbot	7	0	7
Somerset	3	1	4
Allegany	3	0	3
Garrett	2	0	2
Baltimore City	1	0	1
Statewide	1	0	1
Howard	0	1	1
TOTAL	**543**	**361**	**904**

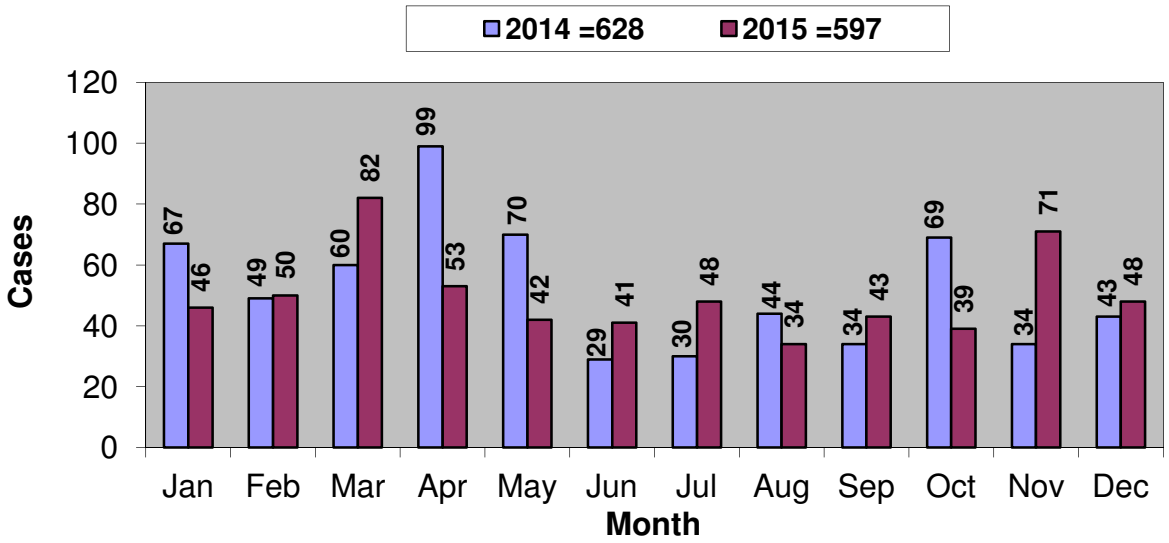
Submitted Biology Cases Received in 2015 per Crime Type



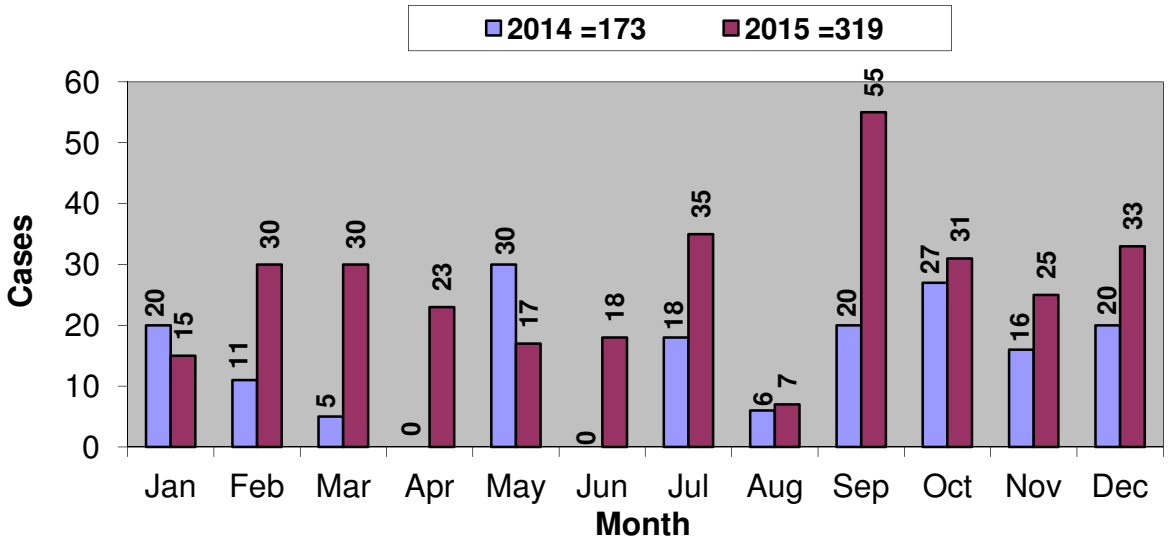
Directly Outsourced Biology Cases Received in 2015 per Crime Type



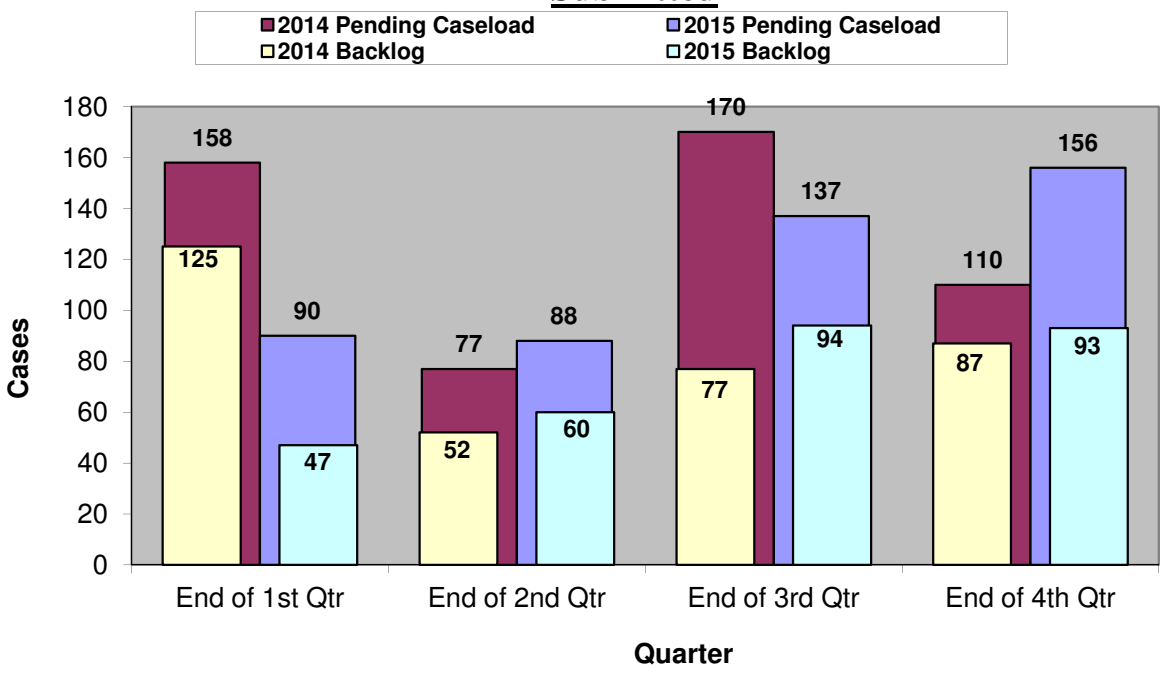
Submitted Biology Cases Completed per Month



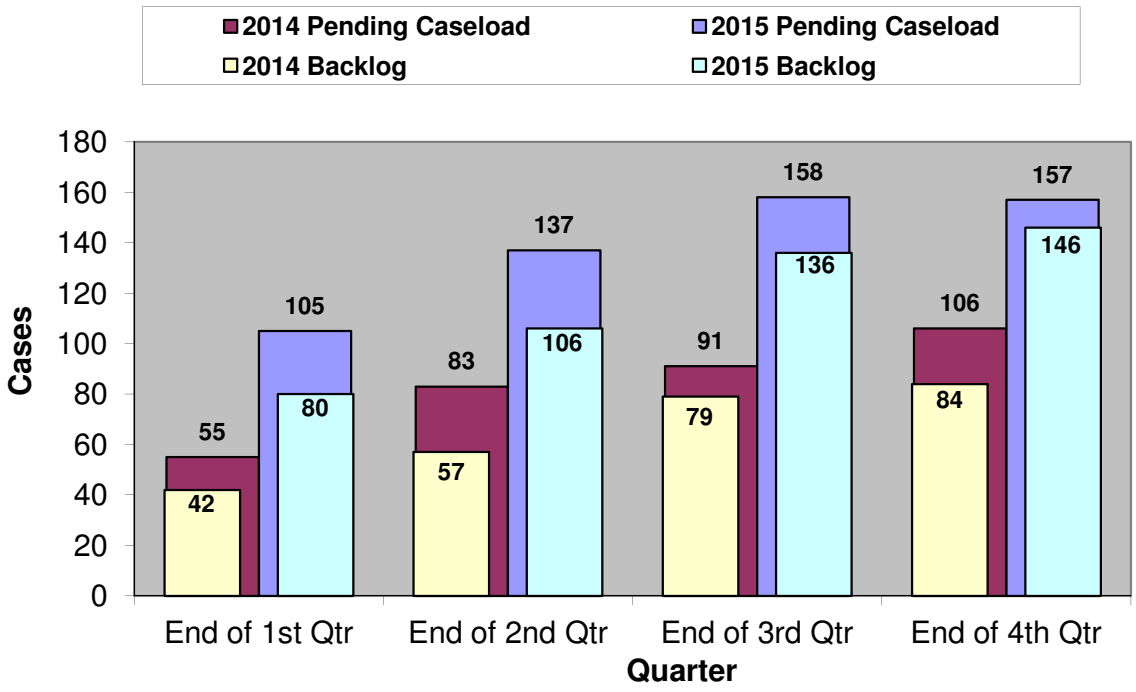
Directly Outsourced Biology Cases Completed per Month



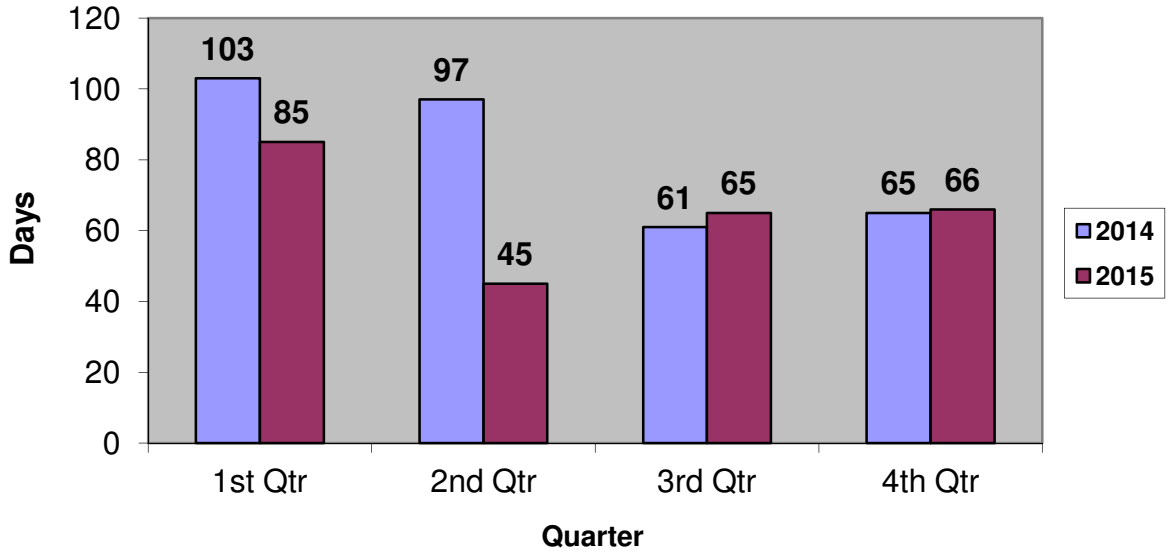
Biology Pending Caseload and Backlog per Quarter - Submitted



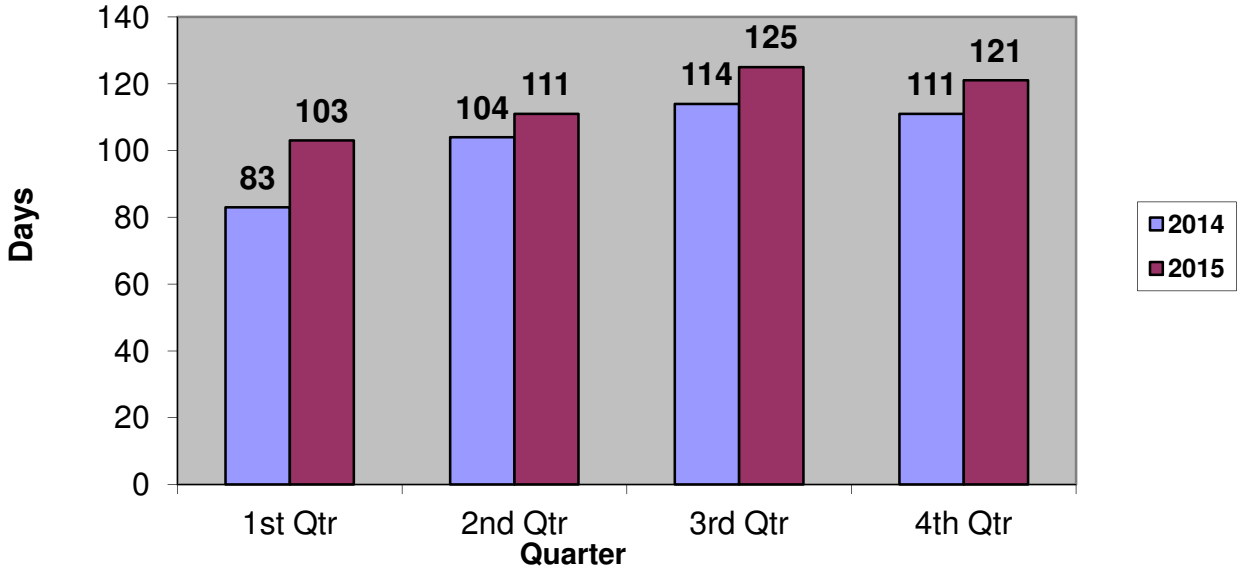
Biology Pending Caseload and Backlog per Quarter- Directly Outsourced



Biology Case Turn Around Time per Quarter - Submitted



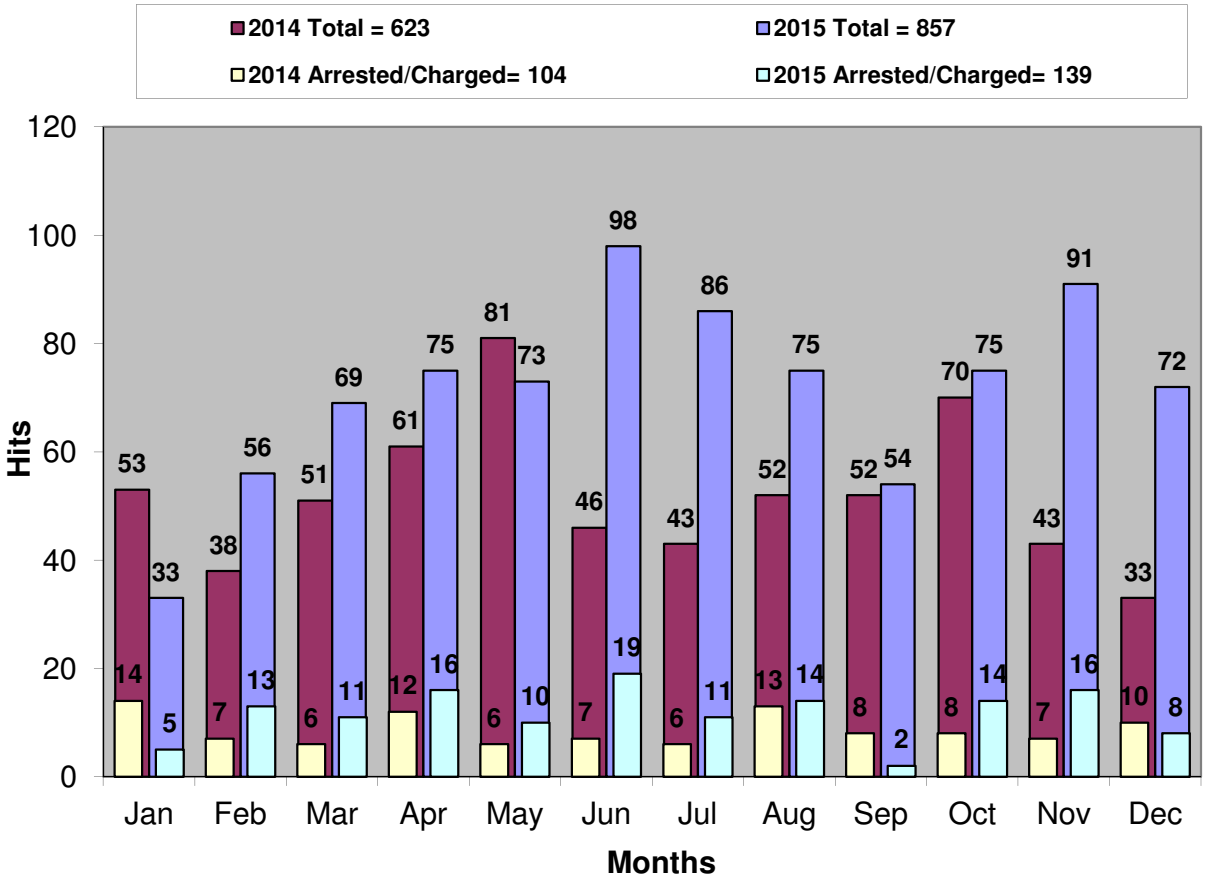
Biology Case Turn Around Time per Quarter - Directly Outsourced



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.

DNA Database Hits Reported by Month



DNA Database Hits in 2015

	Hits Reported
Maryland Offender/Arrestee Hits	413
Maryland Case Hits	857

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.

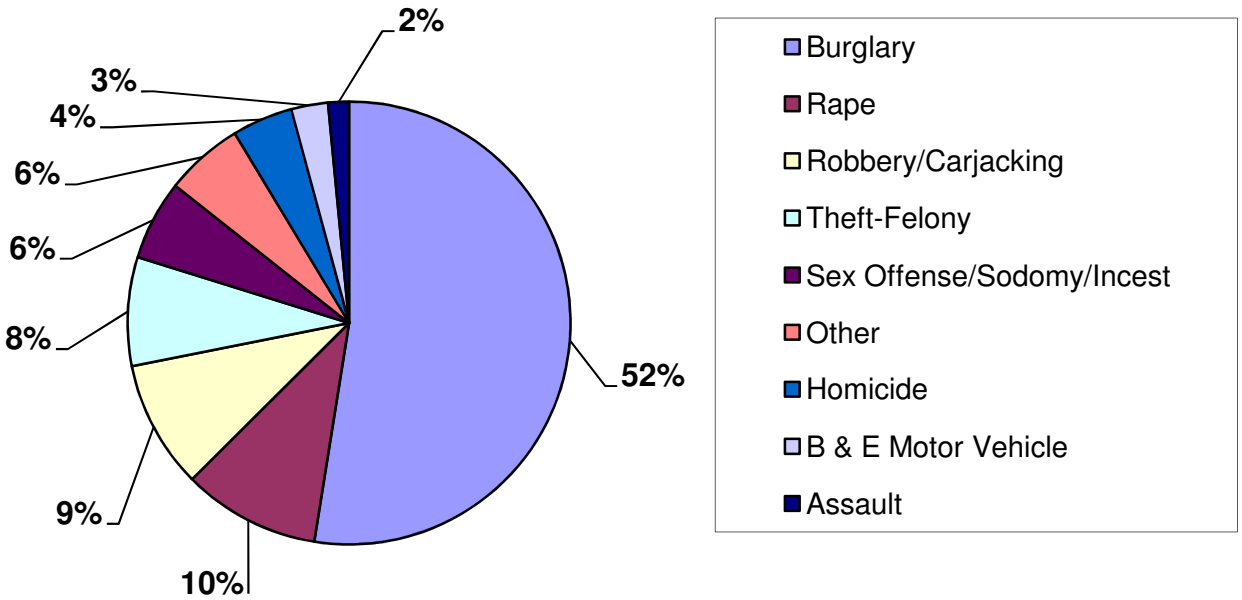
Maryland Case DNA Database Hits in 2015 by County

Maryland County	Hits
Baltimore City	341
Anne Arundel	113
Prince George's	75
Montgomery	68
Baltimore	60
Charles	29
Wicomico	28
Howard	24
Frederick	23
Harford	21
Cecil	18
St. Mary's	17
Washington	15
Queen Anne's	6
Worchester	5
Talbot	3
Carroll	3
Somerset	3
Kent	2
Allegany	2
Caroline	1
TOTAL	**857**

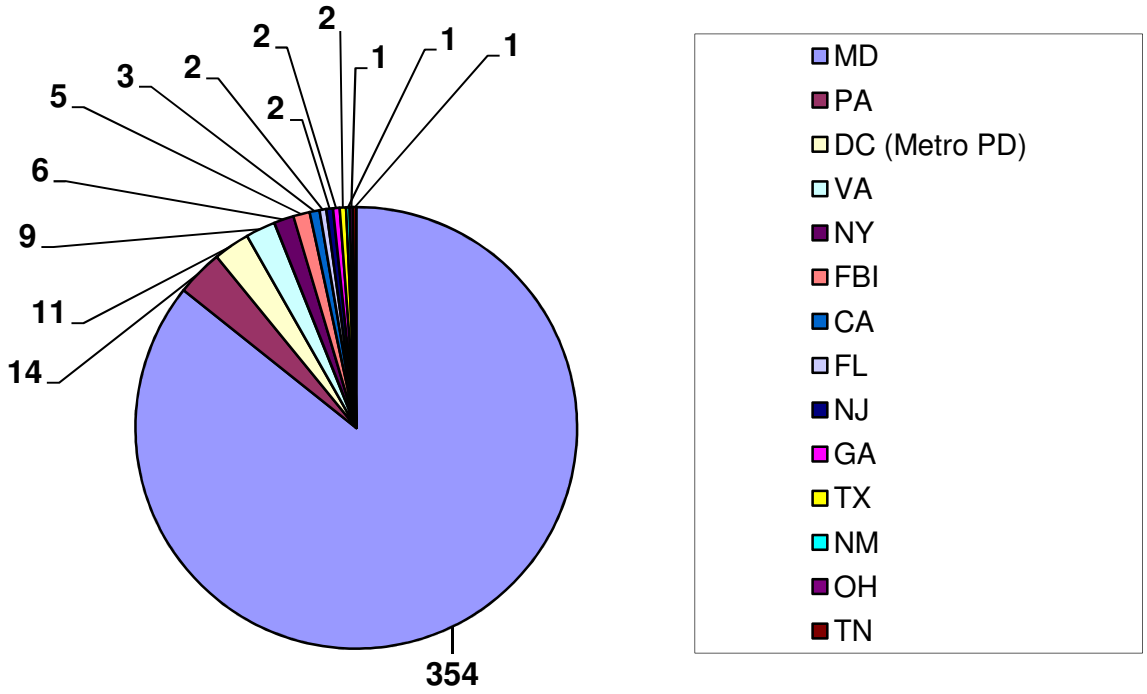
Maryland DNA Database Case Hits in 2015 by Crime Year

Crime Year	Hits
1989	1
1990	2
1991	2
1992	1
1993	2
1994	1
1996	1
1998	3
1999	0
2000	1
2001	2
2002	8
2003	1
2004	11
2005	10
2006	12
2007	15
2008	16
2009	22
2010	32
2011	26
2012	48
2013	142
2014	310
2015	163
Unknown	25
Total	**857**

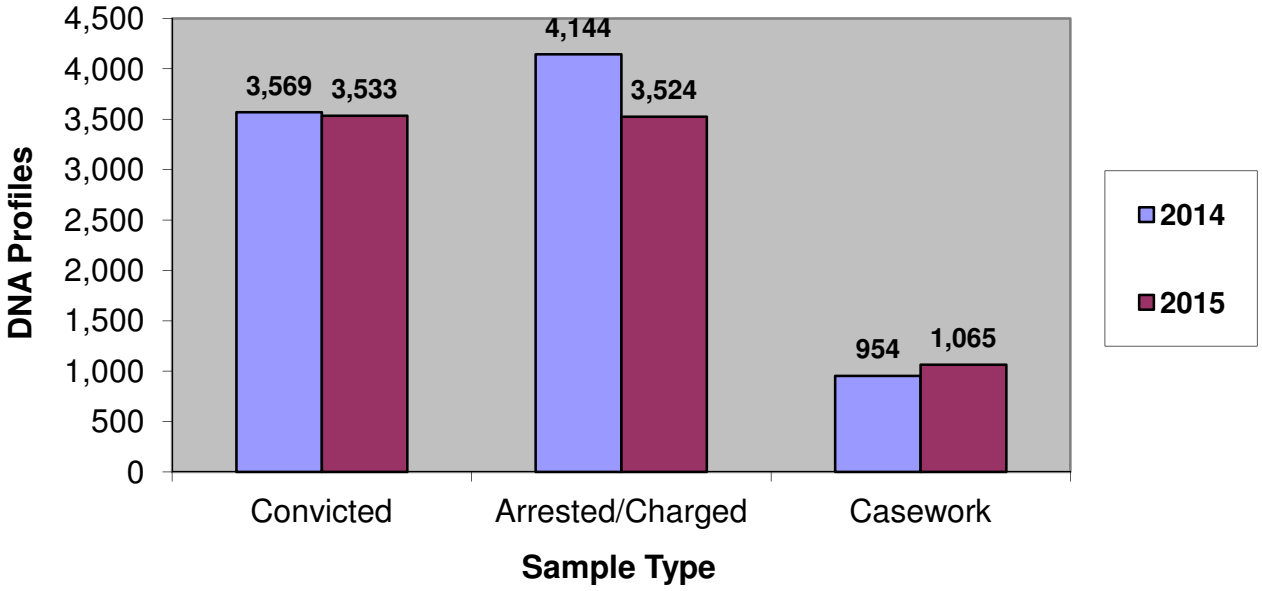
Maryland Case DNA Database Hits in 2015 per Crime Type



Maryland Offender/Arrestee DNA Database Hits in 2015 per Crime Jurisdiction



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.

With the expansion of the CODIS core loci from 13 to 20, the Biology Section will examine new technology and equipment so that we meet the January 1, 2017 deadline. To that end, the Technical Unit will continue to focus on the validation of the Globalfiler amplification kit along with the accompanying hardware and software. The new instrumentation is necessary since current instruments are becoming outdated and the new amplification kits are not compatible with the current platform.

NOTEWORTHY CASES

A 52 year old female victim was killed in her residence in June 2015. The victim was found nude on her living room floor by her son and grandson. The family had not heard from the victim in a few days so they stopped by her residence to check on her. The residence was found unlocked and the victim's throat had been slit. It was unknown if a sexual assault had also occurred. The first tier of DNA analysis was performed on swabs which were collected from the Medical Examiner's Office, the knife, a carpet sample and a swab of the bathroom sink which was thought to have been used by the suspect. The knife and bathroom sink samples were consistent with the victim. However, a DNA profile was obtained from the sperm fraction of the victim's vaginal swabs. This profile was from an unknown male and was entered into NDIS. This same unknown male DNA profile was found on the carpet sample from the victim's residence. The DNA profile from the vaginal swab which was entered into NDIS hit to an evidence sample from an assault case which was also submitted by the same agency in January 2015. After all evidence for this homicide case was submitted, the case was completed, reviewed, entered into CODIS and the hit report was released within a week. After the initial CODIS hit, the source of this DNA profile was still unknown. Therefore, the agency then submitted additional standards of possible suspects after the initial report was released. Upon this additional analysis, the DNA profile from one of the suspects did match the sperm fraction of the vaginal swabs as well as the carpet sample. This additional analysis was also expedited. Once all known standards were received for comparison, this portion of the case was completed, reviewed and the supplemental report was released within two weeks.

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 and two Forensic Scientist III's.

The MSP-FSD Trace Evidence Section works closely with our allied agencies so that the various types of examinations included in this discipline are available to the citizens of Maryland. An agreement has been made between MSP-FSD and Baltimore County Police Department-Forensic Services Section for glass analysis to be performed by Baltimore County and in exchange MSP-FSD will perform paint analysis for their agency. The Trace Evidence Section relies on trace examiners from Baltimore City and Baltimore County to technically review casework in which FSD only has one qualified examiner. Forensic scientists from the Trace Evidence Section are also reviewing casework from Baltimore City and Baltimore County when they are needed.

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); and Plastic Bag comparisons.

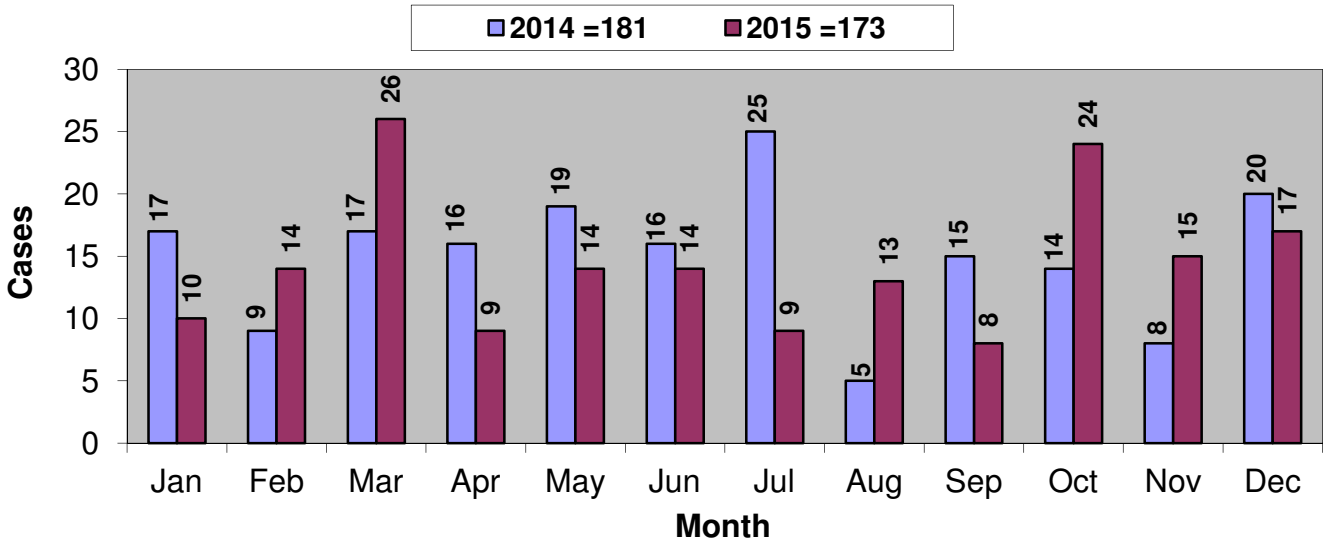
The Trace Chemistry Sub-Unit receives the bulk of the Trace Evidence Section case requests and is responsible for the analyses of any evidence submitted to the section that requires chemical or instrumental testing to determine physical and chemical properties. These include analyses in the areas of 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.

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. Since the FSD has only one Questioned Documents examiner, the Trace Evidence Section is in the process of training a Forensic Scientist III in Questioned Document analysis. This training is anticipated to be completed in the first quarter of 2017.

Trace Evidence Cases Received per Month



Trace Evidence Cases Received in 2015 per MSP Installation

Installation	Counties Served	Submissions
MSP-CID/CED	Statewide	5
MSP-Homicide	Statewide	4
MSP-Easton	Caroline, Dorchester, Talbot	3
MSP-Westminster	Carroll	1
MSP-Frederick	Frederick	1
MSP-Glen Burnie	Anna Arundel	1
MSP-Forestville	Prince George's	1
MSP-Centerville	Kent, Queen Anne's	1
MSP-Princess Anne	Somerset	1
	TOTAL	**18**

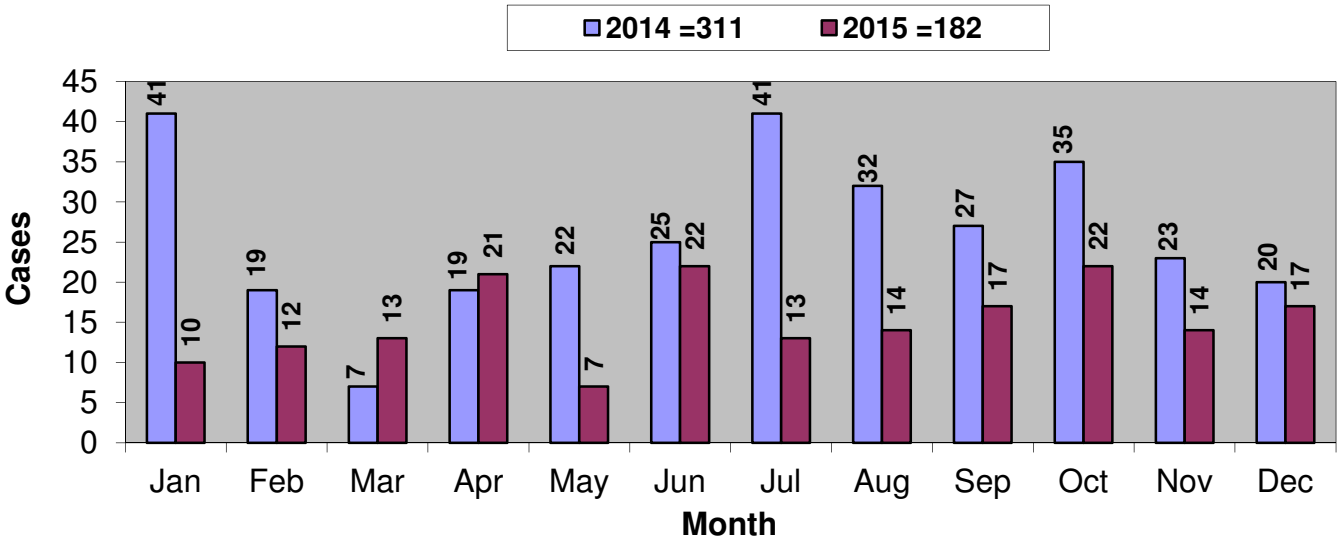
OSFM Cases Received in 2015 per OSFM Region

Region	Counties Served	Submissions
OSFM - Anne Arundel Co	Anne Arundel	30
OSFM - Lower Shore	Dorchester, Somerset, Wicomico, Worcester	14
OSFM - Western	Allegany, Garrett, Washington	8
OSFM – Montgomery Co	Montgomery	8
OSFM - North East	Harford, Cecil	7
OSFM - Metro	Carroll, Frederick, Howard	6
OSFM - Southern	Calvert, Charles, St. Mary's	5
OSFM - Upper Shore	Caroline, Kent, Queen Anne's, Talbot	4
	TOTAL	**82**

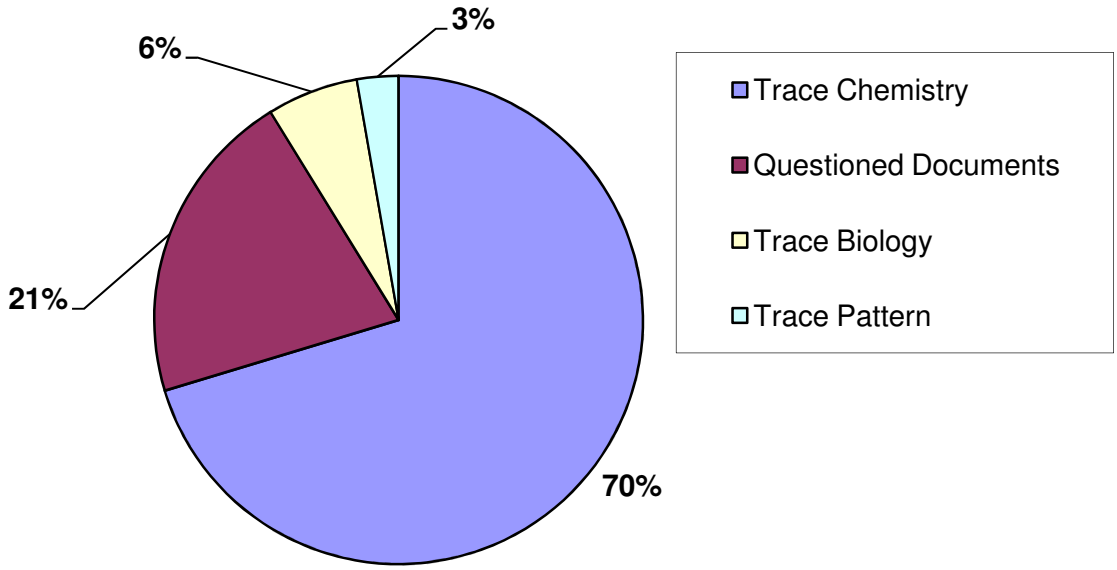
Allied Agency Cases Received by Trace Evidence in 2015 per County

County	Submissions
Baltimore	19
Wicomico	7
Worcester	6
Harford	6
Frederick	5
Statewide	4
Howard	4
Charles	3
Anne Arundel	3
Montgomery	3
Cecil	2
Carroll	2
Baltimore City	2
Washington	1
Somerset	1
Queen Anne	1
Prince George's	1
Out of State	1
Garrett	1
Calvert	1
TOTAL	**73**

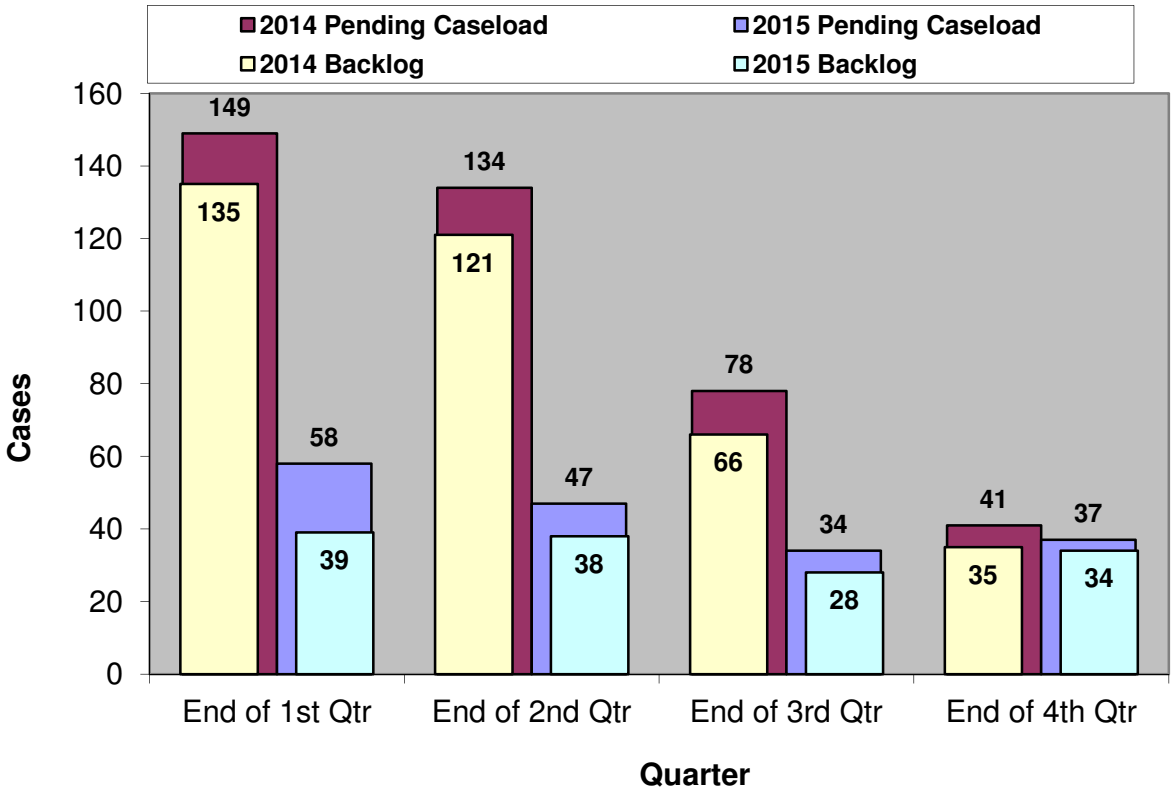
Trace Evidence Cases Completed per Month



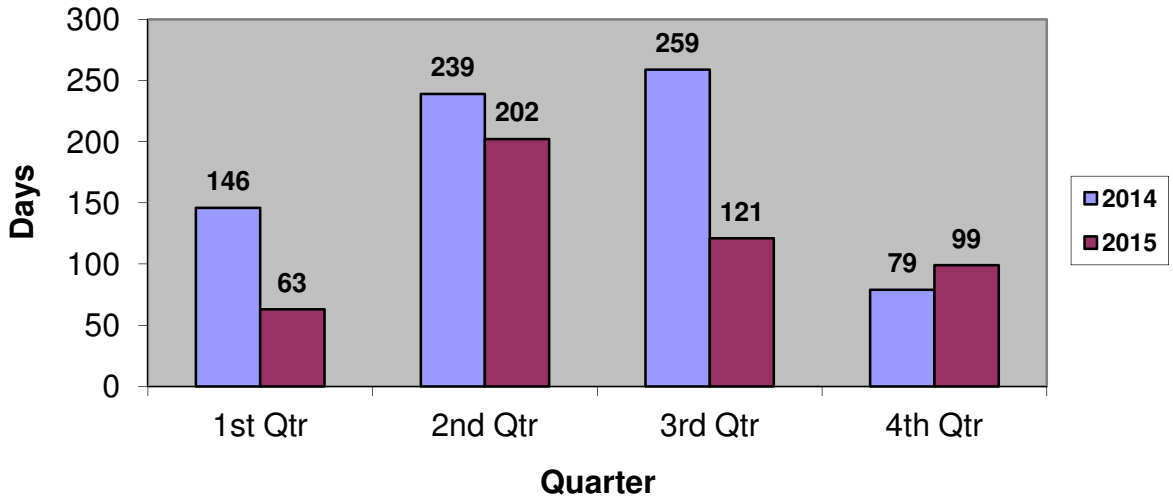
Trace Evidence Cases Completed by Sub-Unit



Trace Evidence Pending Caseload and Backlog per Quarter



Trace Evidence Case Turn Around Time per Quarter



NOTEWORTHY CASES

The Questioned Document Examiner of the Trace Section testified in a case involving theft over $100,000. The case involved a former municipal employee accused of stealing from the taxpayers. The defendant opted for a bench trial where numerous witnesses including our Questioned Documents examiner testified in the case. The examiner's report was inconclusive; however, the examination was unable to eliminate the defendant as forging several names on checks written to her. The defendant was convicted and sentenced to 20 years, with 7 years suspended.

The Trace Unit received a request for the identification of an unknown liquid recovered by a Fire Marshal's office. While at a local business, the victim took a drink from a water bottle and became ill. She was then hospitalized. A Hazmat unit ran basic tests on the water bottle liquid, which indicated only the presence of water. A surveillance recording showed the suspect adding an unknown substance to the water bottle. Our laboratory analysis determined the presence of camphor and isopropyl alcohol. A commercial product containing those compounds was subsequently located at the business. The suspect was charged with assault.

EMPLOYEE RECOGNITION

2015 Employee of the Month Recipients

Month	Award Recipient
January	Teri Zerbe, Forensic Scientist Advanced (Biology)
February	Bruce Tanner, Human Resources Division
March	Justin Adams, Forensic Lab Technician (Pattern Evidence)
April	Maggie Iman, Crime Scene Technician II Kristina Amspacker, Crime Scene Technician Supervisor Danielle Goodnow, Crime Scene Technician Supervisor Shawn Miller, Crime Scene Technician Supervisor
May	Cindy Hoffmann, Central Receiving Unit Supervisor
June	Leslie Mounkes, Forensic Scientist III (Biology)
July	Marieli Padilla, LB&B
August	Julie Kempton, Forensic Scientist III (Biology)
September	Mitchell Dinterman, Crime Scene Section Manager
October	Amy Hager, Forensic Photographer Supervisor
November	Theresa DeAngelo, Quality Assurance/Safety Manager
December	Nakia Howell, Forensic Inventory Control Officer

2015 Commander's Award for Outstanding Performance

Amber Burns, Chemistry Section Manager

Throughout 2015, Ms. Burns has continually demonstrated the highest level of dedication and work ethic as she leads efforts to streamline and modernize the operations of the Chemistry Section. Her efforts to improve the efficiency and quality of the work produced by the Chemistry Section will impact the MSP-FSD, our customers, and the citizens of Maryland for years to come. Her vision, commitment, and perseverance serves as an example for all of MSP-FSD.


Forensic Sciences 2015

END OF DOCUMENT