

2017

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 an accredited, full-service forensic laboratory system offering analysis in the following disciplines: Latent Print/Impressions, Firearms/Toolmarks, Controlled Dangerous Substances (CDS), Toxicology, Biology, Trace Evidence, Questioned Documents and Crime Scene. Although the MSP-FSD operates under the administration of the Maryland State Police, the laboratory is available to provide service to all law enforcement agencies in Maryland. The MSP-FSD is accredited by ANSI-ASQ National Accreditation Board (ANAB) and licensed by the Maryland Department of Health Office of Health Care Quality. As such, the laboratory utilizes generally accepted practices and procedures as per accreditation to the ISO 17025 standards.

The MSP-FSD employs approximately 100 scientific and support staff and operates out of three laboratories located in Pikesville, Hagerstown and Berlin, as well as 13 Crime Scene Offices located strategically throughout the state. The 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 the Crime Scene Section and the Forensic Support Services Section. The Scientific Analysis Branch consists of the following Sections: Pattern Evidence, Chemistry, Biology and Trace Evidence. The personnel within the Operational Services Branch and the Scientific Analysis Branch provide scientific support services to the criminal justice 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 turnaround 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

In last year's Director's Summary I discussed the importance of maximizing efficiency. A major goal that was pursued and achieved by the Forensic Sciences Division (FSD) in 2017 was the creation and implementation of a formal case management system. Doing so established uniformity across the Division as to how casework assignments are prioritized and monitored in order to ensure the most beneficial and responsible use of resources. The key to the success of this new case management system is maintaining consistent and open communication with our customers. In fact, there is little that does not benefit from good communication. This is true because communication leads to collaboration which ultimately leads to progress.

I was reminded of this communication/collaboration/progress phenomena on multiple occasions in 2017. For example, we have made significant progress in finding a solution to the challenges faced today in regards to the safe, accurate, and efficient analysis of the various opioids that are becoming so prevalent in submissions to our CDS Units. The solution was not straight forward, but with continuous communication and collaborations we found our way. Originally, we pursued and obtained grant funds to evaluate Surface Enhanced Raman Spectroscopy (SERS) as a means for easy identification of opioids. We collaborated with a local start-up company called Diagnostic anSERS to evaluate this technology. While validation studies proved that SERS was not the solution we hoped for, our collaborators put us in contact with scientists at the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland who introduced us to additional technologies. This second collaboration proved more fruitful as it became clear that Direct Analysis in Real Time (DART) technology was potentially the answer we sought. This led to communications with the Virginia Department of Forensic Sciences who invited our team to Richmond, Virginia to learn about how they have implemented DART technology in their Drug Chemistry Unit further strengthening our belief that DART was the way to go. We then started communicating with organizations active in the opioid epidemic fight such as the Maryland Opioid Operational Command Center, the National Guard Counterdrug Program, and the U.S. Army Public Health Center seeking collaborations to fund the DART instrumentation. We are optimistic that funding will be forthcoming and we can soon start better addressing this very serious opioid situation that continues to impact public safety every day.

I anticipate many more instances in 2018 of FSD capitalizing on opportunities to foster communication with our many partners. These partners include the investigators, attorneys, and judges within the criminal justice system; our fellow crime laboratories and forensic practitioners within Maryland; as well as the scientific and forensic communities throughout the country and world. The impact of our work is felt by many and FSD is committed to maximizing that impact, but to do so we need to take advantage of opportunities when they appear and create opportunities when they are not clearly there.

Over the years, our laboratory has developed excellent relationships with our customers. Some may argue that there is no need to fix it if it is not broken. We have a system in place that works and nobody is complaining. But what if nobody is complaining because we are not effectively soliciting their feedback? FSD has a customer survey that we make available, but responses are

minimal. In 2018, FSD Management will be implementing customer meetings every quarter. While we are limited as to how many customers we can realistically meet with, it is believed that meeting with a representative population will highlight concerns felt by others in similar settings. Also, having such meetings will allow those we serve to share their positive experiences as well which can then be passed on to the staff and reinforce the important role they are playing in the criminal justice system. Another reason that we may be fooled into believing that everything is fine with our customers when it may not be is because of turnover. There are constantly retirements and new hires throughout state and local government. Unfortunately, the transfer of knowledge from the outgoing to the incoming does not always happen effectively and therefore we need to provide training to our customers on a regular basis. Recently, this became clear when communicating with the Maryland State's Attorney's Association. They recognized that they had experienced a significant turnover cycle recently and they approached FSD about providing training to all of the elected State's Attorneys and representatives from their offices. We quickly seized this opportunity and developed a half day training agenda that will be held in May 2018. One of the challenges of being the State Crime Laboratory is that we serve 23 counties as well as Baltimore City and all of these jurisdictions operate differently. This training will allow us to ensure that a constant message is provided throughout the State in regards to our services. Furthermore, it will be a chance to open new lines of communication.

Trace Evidence analysis capabilities in the State drastically decreased in 2017 as the Baltimore City and Baltimore County crime laboratories have decided to phase out their Trace Evidence Units. As a result, our Trace Evidence Section will be Maryland's sole provider of this valuable testing that includes chemical unknown analysis, fiber analysis, paint analysis, fracture match analysis, and several others. As such, the number of Trace Evidence submissions are expected to increase in 2018. Being the only operation in the State brings additional challenges, but FSD is accustomed to it. For example, the Toxicology Unit is the only approved laboratory in Maryland to provide ante-mortem Blood Alcohol and Blood Drug testing, so when we experienced staffing issues there was no other laboratory to help us. Failure was not an option though, so we had to find alternative solutions to address our growing backlogs and turn-around times in Toxicology. We decided to reach out and re-establish collaborations with some retired colleagues. First, we brought on former Chemistry Section Manager Dr. Ross Lowe as a contractual employee to carry out the validation of our LC/MS/MS instrument. This allowed us to finally realize the efficiencies of this new technology which was purchased back in 2014. We were also able to bring on former State Toxicologist Dr. Barry Levine as a contractual employee to review casework. This allowed us to remove the casework review duties from the staff so that they could spend more time in the laboratory performing casework analysis. These collaborations with Dr. Lowe and Dr. Levine, in conjunction with the permanent hiring of new Forensic Scientist Cammie Jennings, provided us with the resources we needed to meet our goal of eliminating the Toxicology backlogs by the end of 2017.

As the State Crime Laboratory, FSD must assume a leadership role within Maryland when it comes to forensic science. In 2017, the Latent Print / Impressions Unit (LPIU) displayed outstanding leadership by organizing an AFIS work group for all of the latent print examiners in Maryland. There has been significant disconnect between the Maryland AFIS users and those responsible for the Cogent AFIS software. At the first meeting of the AFIS work group, it was clear that everyone was clamoring for information and was extremely grateful for FSD taking the

initiative to promote communication. LPIU will continue to lead AFIS work group meetings in 2018 and their success has inspired the Firearms and Tool Marks Unit (FATMU) to establish a NIBIN work group. Gun crime continues to be a major problem in Maryland and a state-wide approach to address it is a priority. NIBIN plays an essential role in this effort and the need for consistency and cooperation among the NIBIN laboratories is critical. FATMU will take the lead in 2018 and initiate this collaboration. The Crime Scene Section (CSS) is another group that welcomes the chance to assist others. Over the past several years, the CSS has experienced severe staffing issues that peaked in 2016 with a 40% vacancy rate. Besides crippling their rotation schedule and drastically increasing response distances, the CSS also had to put on hold their two week Basic Crime Scene Course that they had regularly provided for FSD and allied agencies. At the end of 2017 the CSS finally found itself back to full staff and immediately made it a goal to provide the course in 2018.

Collaboration cannot just be limited to our colleagues within the State though. If we have information that can benefit others beyond the borders of Maryland, then we have an obligation to share that information. In 2018, I look forward to seeing more FSD staff present at professional meetings and submit their work for publication in professional journals. There is so much great work occurring at FSD and we should be proud of it. A prime example is a project in the Biology Section in which they collected data over the past year in regards to the success rates in obtaining DNA profiles from the wide variety of touch DNA samples that they see in casework. This information is incredibly valuable in that it provides guidance to the Crime Scene professionals who collect the evidence in regards to what is most likely to assist the investigation. Furthermore, it provides justification for the expert advice provided to investigators and attorneys as to what should and should not be subjected to DNA analysis.

It is clear that communication and collaboration with our customers is crucial to the success of FSD, but to be truly successful good communication and collaboration must occur within our own walls. Each unit within FSD plays a tremendous role in their own right, but for FSD to be the best it can be we must support and learn from each other. This concept is the basis of a new initiative in which Quality Assurance and Safety Manager Theresa DeAngelo has begun to hold regular meetings with all of the Unit Technical Leaders as well as regular meetings with all of the Unit Training Coordinators. While these individuals have different forensic specialties, they all have common roles and can greatly benefit from sharing their experiences. In closing, F/Sgt. Laura Beck, Deputy Director Wanda Kuperus, and I believe that the FSD staff is our most valuable resource and it is our hope that the staff feels that we are their most valuable resource. We are all stronger when we communicate and collaborate with each other. We are all in this together. We are all one FSD!

STATISTICAL SUMMARY

Activity Summary - Operational Services Branch				
	2014	2015	2016	2017
Crime Scene Section				
Crime Scene (Crime Scenes Processed)	765	696	644	620
Central Receiving Unit				
CDS cases submitted for destruction	7,650	9,025	7,704	7,296
Forensic Cases Received	19,488	13,023	13,617	14,061
Photography Unit				
Special Assignments	257	193	255	268
VeriPic/Color Film Rolls Processed	173	306	982	974
Color Prints	7,133	3,771	4,324	6,217
ID Cards	--	642	761	609

Activity Summary – Scientific Analysis Branch			
	2015	2016	2017
Latent Prints/Impressions			
Cases Received	1,167	1,235	1,176
Cases Completed	1,658	1,321	988
MAFIS Latent Hits	494	394	323
Case Uploads to MAFIS	704	594	461
Latent Print Uploads to MAFIS	1,832	1,362	1,039
Firearms/Toolmarks			
Cases Received	660	568	678
Cases Completed	812	765	905
Case Uploads to NIBIN	595	480	437
Number of NIBIN Leads Generated ¹	N/A	N/A	69
Number of NIBIN Hits Confirmed	6	7	39
Operation Test Shot Samples Completed	424	174	272
Walk-In Test Fires (# of Firearms)	144	255	253
CDS			
Cases Received in Pikesville	2,873	3,216	3,678
Cases Received in Berlin	2,623	2,734	2,672
Cases Received in Hagerstown	1,159	1,340	2,190
Subtotal Cases Received	6,655	7,290	8,540
Cases Received by Allied Forensic Scientists ²	2,257	2,342	1,379
Total Cases Received	8,912	9,632	9,919
Cases Completed in Pikesville	3,407	2,821	3,214
Cases Completed in Berlin	2,718	2,642	2,594
Cases Completed in Hagerstown	1,310	1,514	1,551
Subtotal Cases Completed	7,435	6,977	7,359
Cases Completed by Allied Forensic Scientists ²	2,324	2,108	1,371
Total Cases Completed	9,759	9,085	8,730
Toxicology			
Blood Alcohol Cases Received	698	740	692
Blood Drug Cases Received	400	347	388
Total Cases Received	1,098	1,087	1,080
Blood Alcohol Cases Completed	542	854	806
Blood Drug Cases Completed	315	338	519
Total Cases Completed	857	1,192	1,325
Biology			
Submitted Cases Received	643	675	673
Directly Outsourced Cases Received	370	244	363
Total Cases Received	1013	919	1,036
Submitted Cases Completed	597	648	670
Directly Outsourced Cases Completed	319	325	319
Total Cases Completed	916	973	989
Maryland Case CODIS Hits	857	796	986
Arrested/Charged CODIS Hits	139	145	133
Convicted Offender Uploads to CODIS	3,533	4,038	4,246
Arrested/Charged Uploads to CODIS	3,524	3,555	3,629
Case Uploads to CODIS	1,065	1,010	1,149

Activity Summary – Scientific Analysis Branch			
	2015	2016	2017
Trace Evidence			
Cases Received	134	156	151
Cases Completed	144	161	142
Question Documents			
Cases Received	39	20	21
Cases Completed	38	24	34

1 – Prior to 2017, NIBIN Leads were not reported to investigating agencies.

2 – 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.

Scientific Analysis Branch Casework Summary								
Unit	Cases Received		MSP Cases Received		Allied Agency Cases Received		Cases Completed	
	2016	2017	2016	2017	2016	2017	2016	2017
Latent Prints/Impressions	1,235	1,176	21%	19%	79%	81%	1,321	988
Firearms/Toolmarks	568	678	24%	28%	76%	72%	765	905
CDS-Pikesville	3,216	3,678	27%	31%	73%	69%	2,821	3,214
CDS-Berlin	2,734	2,672	28%	25%	72%	75%	2,642	2,594
CDS-Hagerstown	1,340	2,190	45%	24%	55%	76%	1,514	1,551
CDS-Allied ¹	2,342	1,379	17%	25%	83%	75%	2,108	1,371
Toxicology	1,087	1,080	32%	35%	68%	65%	1,192	1,325
Biology- Submitted	675	673	15%	17%	85%	83%	648	670
Biology- Direct Outsourcing	244	363	2%	1%	98%	99%	325	319
Trace Evidence	156	151	61%	40% ²	39%	60% ²	161	142
Questioned Documents	20	21	20%	38%	80%	62%	24	34
Totals	13,617	14,061³	26%	27%	74%	73%	13,521	13,113

1- 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. The Frederick Co. SAO Allied Forensic resigned in 2017. At that point, Frederick Co. cases were assigned to CDS-Hagerstown.

2- Starting in 2017, Anne Arundel Co. Fire Marshal and Montgomery County Fire Marshal cases were counted as Allied Agencies. In prior years, these agencies were included with OSFM/MSP.

3- Cases that are routed to multiple units are counted as a unique case for each unit.

Laboratory Backlogs and Turn Around Times				
Casework Type	Pending Caseload (Cases)¹	Backlog (Cases pending >30 days)¹	2017 Turn Around Time (Calendar Days)²	4th Quarter Turn Around Time (Calendar Days)³
Latent Prints/Impressions	383	293	55	73
Firearms/Toolmarks	590	544	258	130
CDS-Pikesville	960	636	42	56
CDS-Berlin	293	175	53	60
CDS-Hagerstown	996	805	82	118
CDS-Allied	136	38	30	32
Toxicology	116	76	117	101
Biology-Submitted	186	143	85	58
Biology-Directly Outsourced	119	95	130	111
Trace Evidence	20	15	41	53
Question Documents	3	3	185	154
Totals	3,802	2,823	124	71

1. Number of cases as of last day of calendar year.
2. Average turnaround time for cases completed throughout the calendar year.
3. Average turnaround time for cases completed during the 4th quarter.

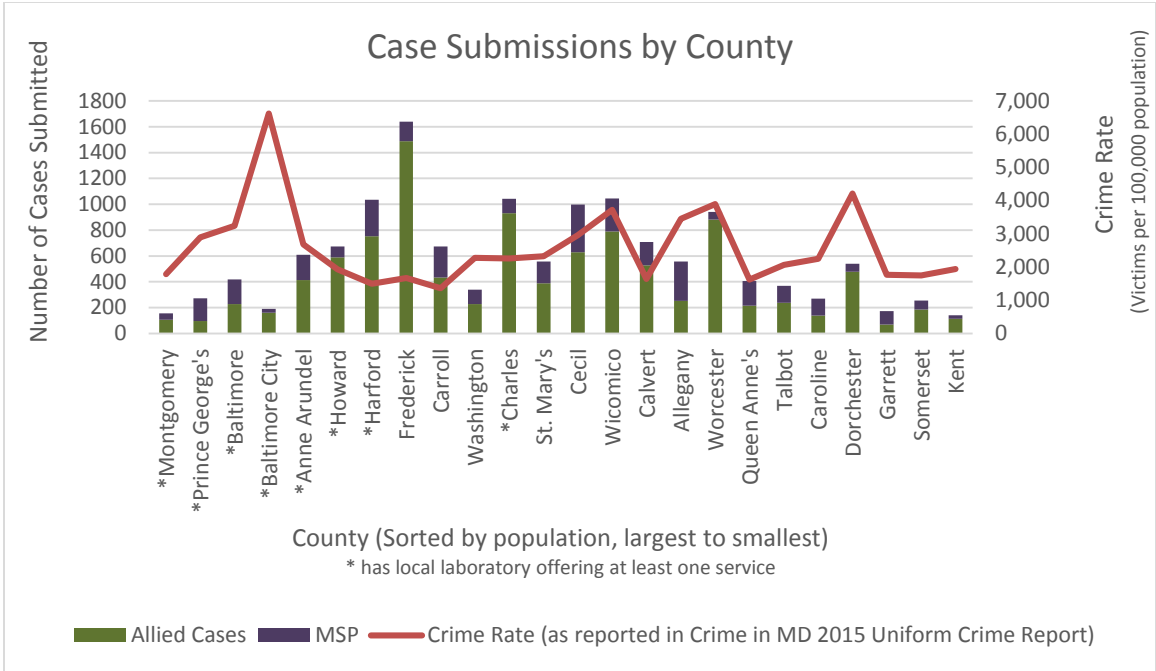
Quantity of FSD Requests by County						
County	2016			2017		
	Cases Submitted to Lab	Crime Scenes	Total	Cases Submitted to Lab	Crime Scenes	Total
Frederick	1,504	22	1,526	1,640	27	1,667
Wicomico	1,175	92	1,267	1,044	89	1,133
Harford	979	17	996	1,034	22	1,056
Cecil	825	72	897	997	58	1,055
Charles	941	3	944	1,043	5	1,048
Worcester	849	31	880	941	35	976
Calvert	790	4	794	709	3	712
Carroll	648	57	705	673	31	704
Howard	673	9	682	672	3	675
Anne Arundel	606	14	620	609	15	624
Allegany	558	58	616	557	63	620
St. Mary's	544	3	547	557	1	558
Dorchester	448	22	470	539	17	556
Queen Anne's	281	46	327	405	40	445
Baltimore	356	37	393	419	24	443
Talbot	370	28	398	369	35	404
Washington	401	13	414	339	11	350
Somerset	339	46	385	255	54	309
Caroline	226	18	244	270	23	293
Prince George's	322	11	333	273	7	280
Baltimore City	222	16	238	191	23	214
Garret	159	10	169	172	11	183
Montgomery	198	2	200	155	4	159
Kent	150	13	163	140	15	155
Not Determined*	41	0	41	50	0	50
Out of State	12	0	12	8	4	12
Totals	13,617	644	14,261	14,061	620	14,681

*County where offense occurred was not provided to FSD.

Quantity of Laboratory Submissions to FSD Ranked by MSP Installation			
2017 Rank	2016 Rank	MSP Installation	Counties Served
1	3	MSP-CID/CED	Statewide
2	2	MSP-Easton	Caroline, Dorchester, Talbot
3	10	MSP-Cumberland	Allegany
4	7	MSP-North East	Cecil
5	4	MSP-Westminster	Carroll
6	1	MSP-Salisbury	Wicomico
7	8	MSP-Centerville	Kent, Queen Anne's
8	12	MSP-Bel Air	Harford
9	5	MSP-Prince Frederick	Calvert
10	20	MSP-Leonardtown	St. Mary's
11	17 (tie)	MSP-Golden Ring	Baltimore
12	6	MSP-Frederick	Frederick
13	9	MSP-JFK Highway	Cecil, Harford, Baltimore
14	14	Office of State Fire Marshall	Statewide
14	16	MSP-Hagerstown	Washington
16	15	MSP-McHenry	Garrett
17	19	MSP-La Plata	Charles
18	11	MSP-Glen Burnie	Anne Arundel
18	22	MSP-College Park	Prince George's
18	23	MSP-Forestville	Prince George's
21	13	MSP-DED/C3I	Statewide
21	25	MSP-Waterloo	Howard
23	21	MSP-Princess Anne	Somerset
24	17 (tie)	MSP-Berlin	Worcester
24	26	MSP-Annapolis	Anne Arundel
26	24	MSP-Rockville	Montgomery
27	27	MSP-Homicide	Statewide
28	N/A	MSP-Crash Team	Statewide
29	28 (tie)	MSP-CVED	Statewide
30	28 (tie)	MSP-Auto Theft Team	Statewide

**Quantity of Laboratory Submissions to FSD
Ranked by Allied Agency County**

2017 Rank	2016 Rank	County
1	1	Frederick
2	4	Charles
3	5	Worcester
4	2	Wicomico
5	3	Harford
6	8	Cecil
7	6	Howard
8	7	Calvert
9	11	Dorchester
10	10	Carroll
11	12	Anne Arundel
12	9	St. Mary's
13	13	Allegany
14	15	Talbot
15	18	Baltimore
16	14	Washington
17	19	Queen Anne's
18	16	Somerset
19	17	Baltimore City
20	22	Caroline
21	23	Kent
22	20	Montgomery
23	21	Prince George's
24	24	Garrett
25	25	Out of State



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 analysis 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. Crime Scene personnel do not routinely respond to property crimes unless those crimes are tied to a serial offense or there is a viable suspect related to the case. The Section Manager oversees the overall operations of the Crime Scene Section. When fully staffed, there are three Regional Supervisors and five Crime Scene Technicians assigned to each of the three regions: Western, Central, and Eastern. The lack of staff during 2016 and 2017 resulted in an increase in response time, which caused a decrease in the number of calls for service since 2015.

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.

The CSS 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.

Law enforcement personnel provided valuable feedback to the CSTs and their supervisors by submitting a large volume of Technician Evaluation Forms in 2017. These evaluations were consistently highly rated and praised CSS personnel for their exemplary service and performance.

CRIME SCENE REGIONAL UNITS

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

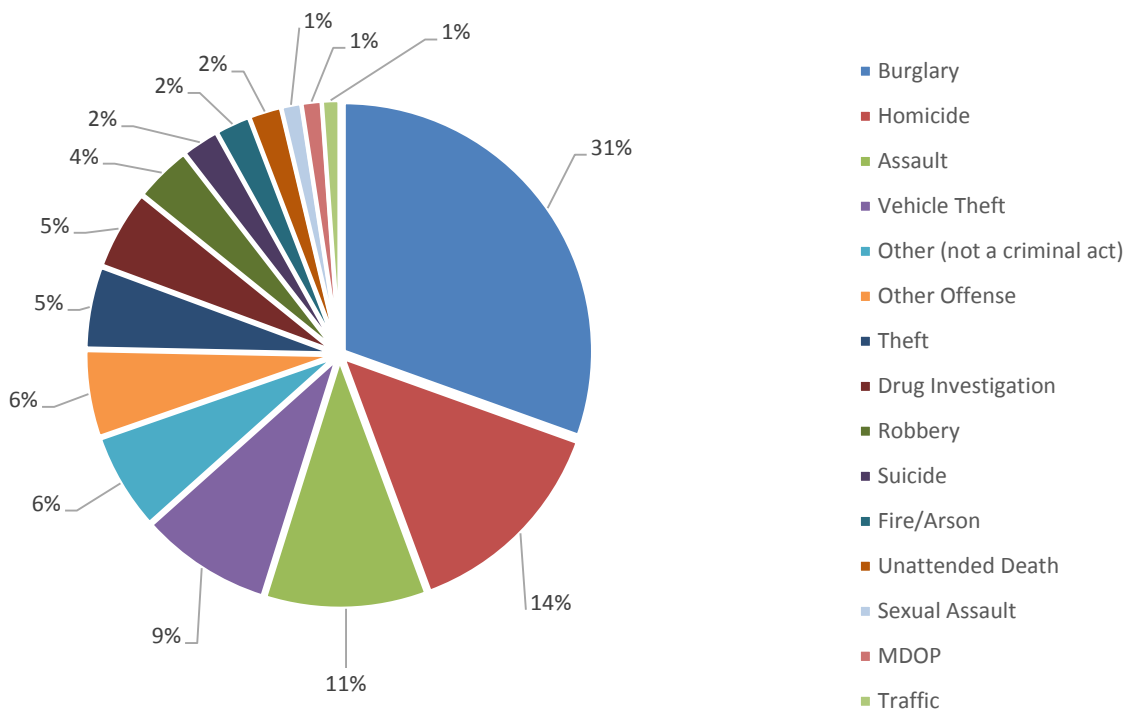
Central Region Unit: Anne Arundel, Harford, Baltimore, Cecil, Prince George's, Calvert, Charles, St. Mary's Counties as well as Baltimore City (Maryland Port Authority, Maryland Transportation Authority, DOC)

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

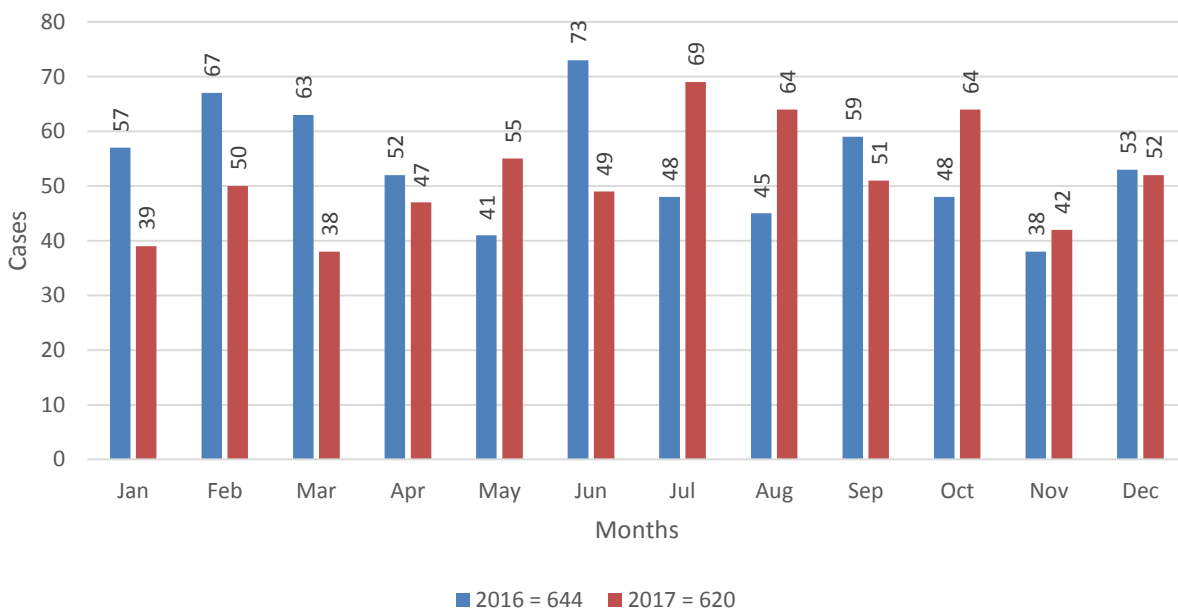
Crime Scene Summary								
Crime Scene Region	Scenes Processed		MSP Scenes		Allied Agency		Scene Assists	
	2016	2017	2016	2017	2016	2017	2016	2017
Eastern	295	312	47%	54%	53%	46%	23	18
Western	138	117	65%	66%	35%	34%	23	15
Central	211	191	77%	73%	23%	27%	27	47
Totals	644	620	57%	62%	43%	38%	73	80

Total Number of Crime Scenes Processed per County	
County	Total Crime Scenes
Wicomico	89
Allegany	63
Cecil	58
Somerset	54
Queen Anne's	40
Talbot	35
Worcester	35
Carroll	31
Frederick	27
Baltimore	24
Baltimore City	23
Caroline	23
Harford	22
Dorchester	17
Anne Arundel	15
Kent	15
Garrett	11
Washington	11
Prince George's	7
Charles	5
Montgomery	4
Other	4
Calvert	3
Howard	3
Saint Mary's	1
TOTAL	620

Crime Scenes Per Crime Type



Number of Crime Scenes per Month



NOTEWORTHY CASES

In June of 2017, CST Anschuetz processed a vehicle that was reported stolen and recovered during a perimeter search of a burglary scene. At that time, she processed the vehicle for both latent prints and possible DNA. Analysis of the latent prints that were collected resulted in the identification of the probable suspect.

In April of 2017, CST Jeudy responded to the Friendsville Pharmacy in Friendsville, Garrett County, MD. After taking initial photographs, she began attempting to retrace the steps of the suspect. She discovered that the suspect had taken porch furniture and used it to break a window of the pharmacy. The furniture was discovered to have come from a neighboring home. After making entry into the business, CST Jeudy noticed a small amount of blood on a chair in a doctor's office that is in the same building adjacent to the pharmacy. More blood was discovered on the back of a chair the suspect touched when entering through the broken window into the pharmacy. Blood from both locations was collected and the investigators were able to develop a suspect whose known standard was determined to be a match to the samples collected from the scene. The suspect was apprehended as a result of the DNA match.

In August of 2017, CST Zack was requested to process a prosthetic leg that was believed to have been used as a weapon in a homicide that took place on July 30, 2017. Six suspects were involved. CST Zack collected four (4) swabs for possible DNA. One of the swabs that was collected from a screw on the prosthesis was identified back to the victim, confirming that the prosthetic leg was used as a weapon.

In July of 2017, CST Shaw was requested to respond to the Office of the Chief Medical Examiner to obtain post-mortem fingerprint impressions from an unknown female who was burned beyond recognition in a motor vehicle collision on Route 50 in Centreville. Initial examination of the victim by CST Shaw revealed that three of the victim's fingers (right middle, right ring and right little finger) appeared undamaged from the fire and suitable for printing. CST Shaw collected known standards from these three fingers and through coordination with the FSD Latent Print/Impressions Unit, the victim was quickly identified.

In May of 2017, CST T. Johnson and CST Zack received a call for an assault investigation in which a suspect with a handgun had shot at two victims. Upon processing the scene, CST Johnson and CST Zack recovered two (2) cartridge cases, one (1) suspected projectile, three (3) swabs for possible DNA and three (3) latent lift cards containing numerous latent prints. Upon examination of the latent prints by the FSD Latent Print/Impressions Unit, the suspect, who investigators believed was involved in the incident, was positively identified on four (4) different latent prints.

In February of 2013, CST Idso responded to a homicide on the campus of the University of Maryland Eastern Shore involving an altercation between several individuals resulting in an individual being stabbed multiple times by an unknown assailant. CST Idso processed the original crime scene as well as a knife that was later recovered and believed to have been used in

the homicide for both fingerprints and possible DNA. In 2017, a DNA match was obtained that resulted in the arrest of the suspect.

In December of 2017, CST Idso and CST Woods responded to a police shooting involving an officer from the Cambridge Police Department. While conducting surveillance related to a rash of vehicle thefts in the area the Cambridge officer approached a suspicious individual who was seen walking down the street. As the officer came upon this individual, the subject pulled out a handgun and shot once at the officer. The victim officer then returned fire at the subject, who fled on foot. Other officers then spotted the suspect crouched down by a fence at which time he fled again leaving behind his gun, several cartridges, a cartridge casing and a partially burnt cigarette. These items were collected by CST Idso and submitted to the Biology Section where the suspect was identified in early 2018.

In March of 2017, CST Sexton received items of evidence from the Sykesville Police Department related to a burglary. CST Sexton processed the items using cyanoacrylate fuming and recovered multiple latent lifts that she then submitted to the Latent Print/Impressions Unit leading to the identification of the suspect involved in the case. This subject was subsequently linked to several other burglaries in the area.

In June of 2016, CST Myer responded to the MSP Westminster Barrack to process a recovered stolen vehicle. The vehicle was processed for fingerprints and possible DNA with numerous latent prints being recovered from the exterior of vehicle. These latent prints were submitted to the Latent Print/Impressions Unit (Hagerstown Laboratory) and in April of 2017, the suspect was identified.

FORENSIC SUPPORT SERVICES SECTION

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

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 five MSP Forensic Inventory Control Officers (MSP-FICO's), including two vacant positions. The Administrative Support Unit is supervised by one Administrative Specialist III and is staffed by one Administrative Specialist II.

PHOTOGRAPHY UNIT

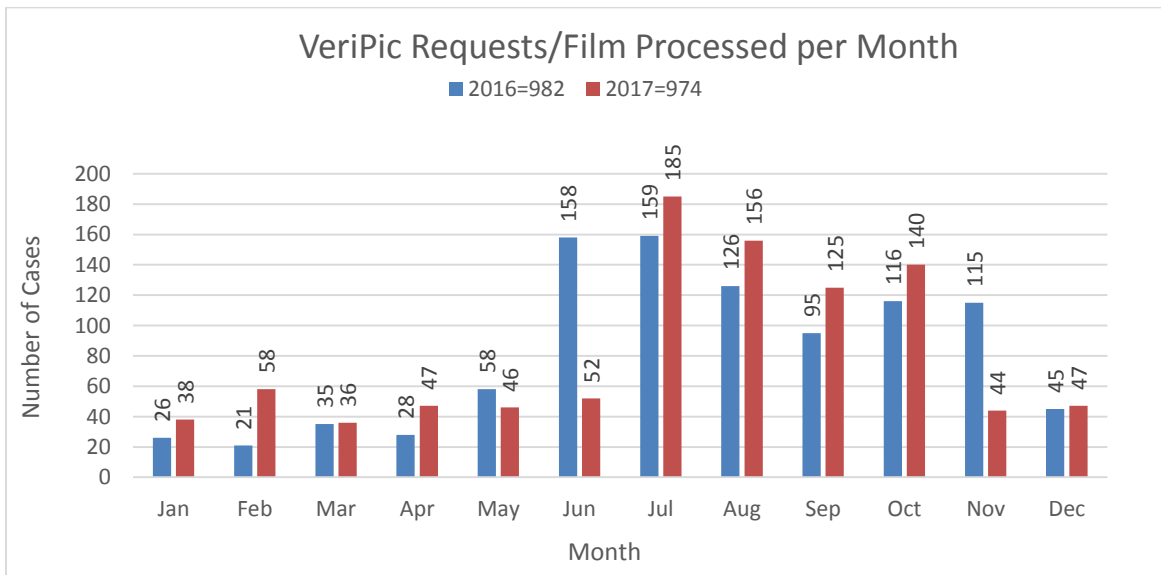
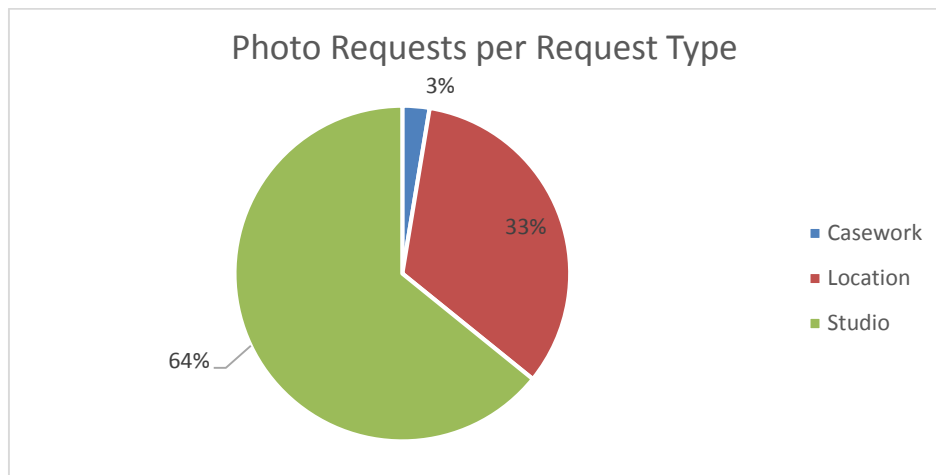
The Photography Unit provides photographic services to the Maryland State Police as requested through FSD management.

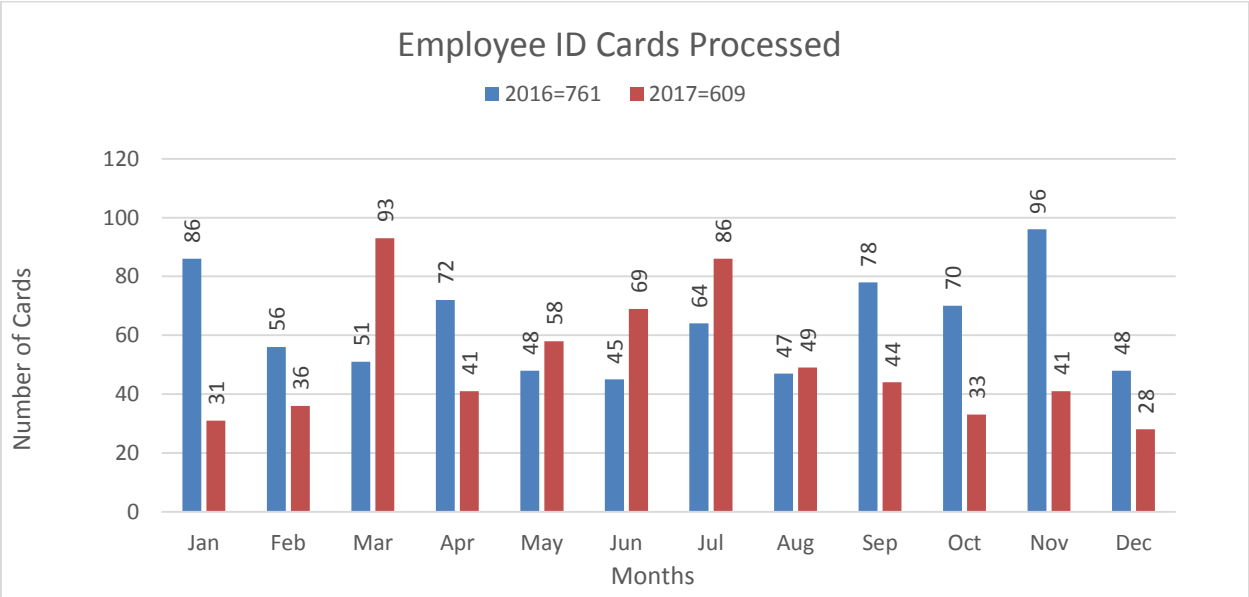
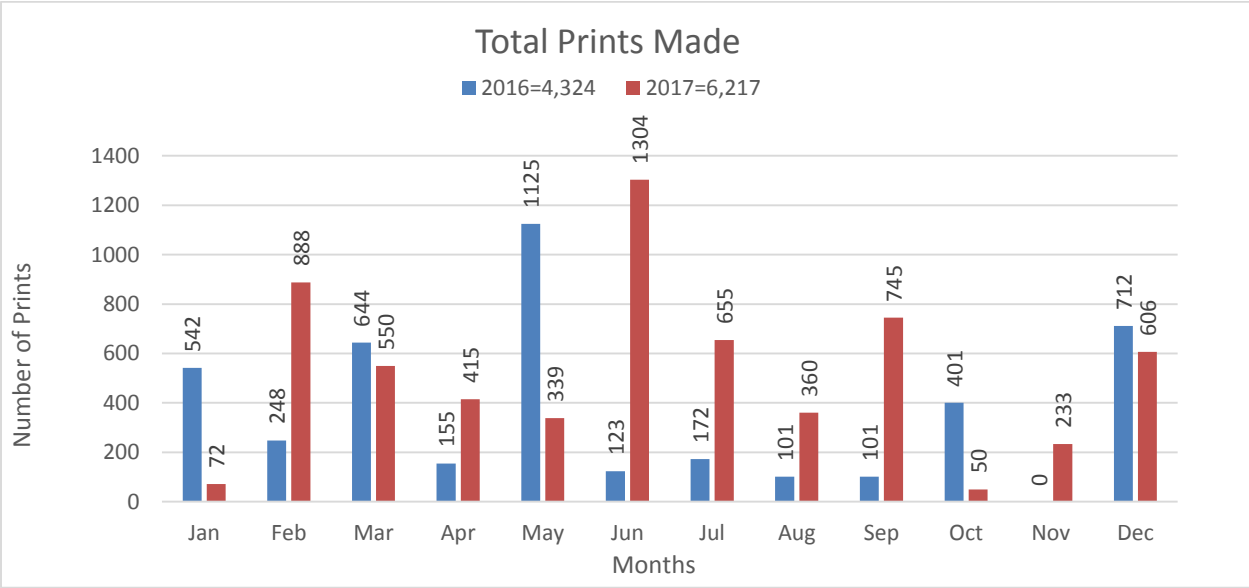
Duties within the Unit include the development and printing of images related to crime scenes and motor vehicle accidents for the Maryland State Police and other agencies. This Unit also serves as the VeriPic system administrator. Reprints or CDs are provided to various divisions and units throughout 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 2018 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	
MSP Requestors	Requests
Portraits (<i>by # of days not requestors</i>)	172
Headquarters	51
Forensic Science Division	7
Barracks	15
Training	11
Special Operations Division	6
Recruiting	5
Aviation	1
TOTAL	268





CENTRAL RECEIVING UNIT

The Central Receiving Unit (CRU) functions as the liaison between the FSD and agencies that submit evidence for scientific analysis and CDS destruction. All three laboratory sites have a Central Receiving Unit that controls the security of evidence while awaiting analysis and again while pending return to the submitting agency. The Unit reports directly to the FSD Assistant Commander.

Berlin Satellite Location

This location has an MSP Forensic Inventory Control Officer (MSP-FICO) who manages the CDS evidence submitted for analysis and conducts regularly scheduled inventories. The MSP-FICO assigns casework to the forensic scientists, manages rush requests and faxes laboratory reports to the local State's Attorney's Offices. The MSP-FICO also performs administrative tasks for the site such as logging subpoenas, completing requisitions, scheduling evidence transfer appointments, and distributing mail.

Hagerstown Satellite Location

The Hagerstown site has one MSP-FICO that manages CDS and Latent Print evidence submissions. In addition, the MSP-FICO manages rush requests, processes discovery requests and faxes laboratory reports to the local State's Attorney's Offices. The MSP-FICO also does several administrative tasks for the site such as conducting the capital equipment inventory, maintaining the working fund and retaining analytical case files.

Pikesville Headquarters Location

This location has one Administrative Officer and three MSP-FICO's (two of these positions are currently vacant). The Pikesville location 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, and questioned documents. The items stay 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 through the Unit.

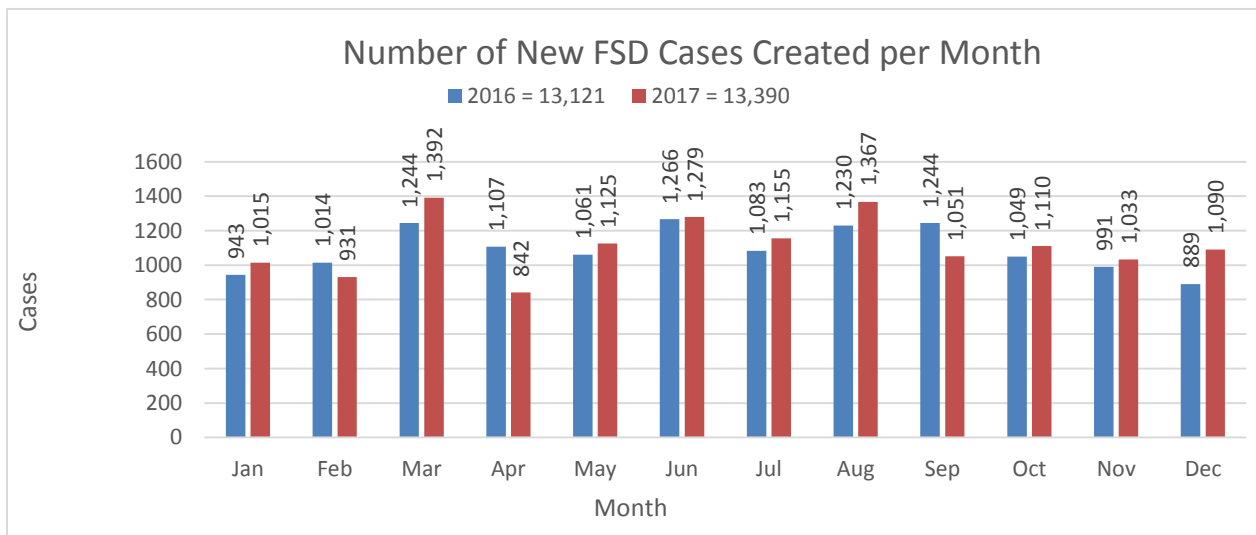
The Pikesville CRU administers and carries out the Department's CDS destruction process. During this process, MSP-FICO's randomly select a number of cases to be re-tested for quality control. The CRU also coordinates with various MSP Divisions for the local destruction of marijuana plants and confiscated parcels. The CRU supervisor is responsible for organizing disposal events for several law enforcement agencies across the state.

The CRU is also 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 maintains expunged records for the Division.

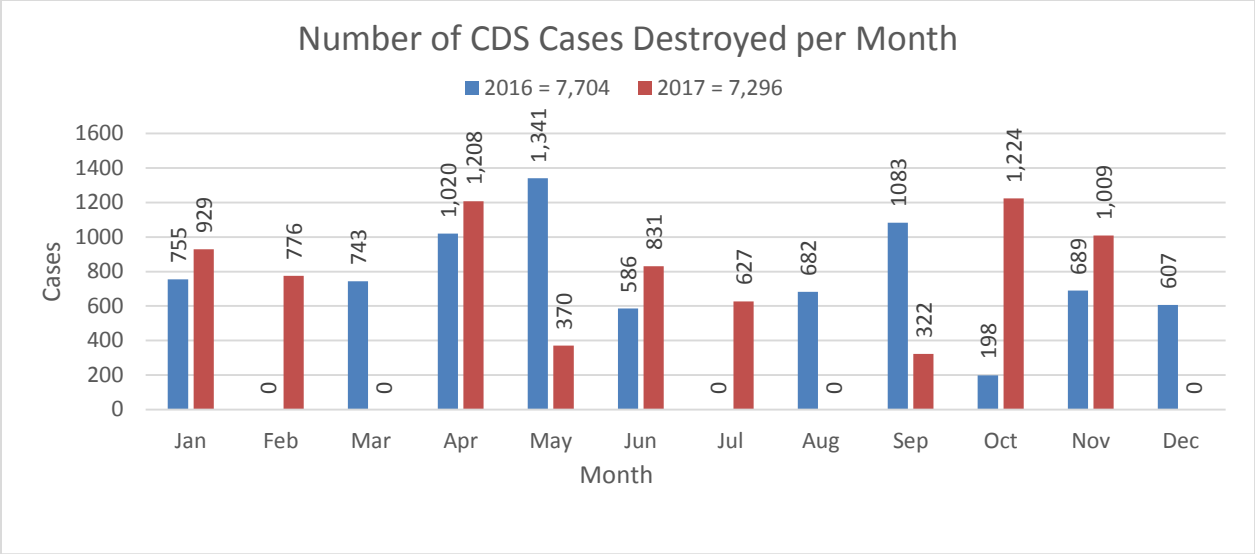
Additionally, the CRU plays an essential role in the use of StarLIMS, the laboratory information management system utilized by MSP-FSD. The CRU supervisor functions as a StarLIMS Administrator and acts as the primary liaison between FSD end users and the project manager at StarLIMS. Advances during 2017 included:

1. E-mail became functional within the StarLIMS system.
2. The system was modified to allow for entry of case prioritization codes compliant with the Division’s new Case Management Policy.
3. The Serology analysis module was completed and put in the test site for evaluation.
4. Templates for Report of No Analysis were created and put into the production system.
5. Signatures for all users within the system have been captured. Signatures of Crime Scene and CDS personnel are now automatically populated on their reports.

Throughout 2017, the CRU continued to have the support of a Master Trooper and a Crime Scene Technician to assist with the workload. With the commitment of these two individuals, and the dedication of the two remaining full-time employees, the Unit managed to continue running efficiently. A candidate has been selected for one vacant FICO position that will likely be filled in early 2018. It is anticipated that the other will be filled soon thereafter.



Note: Cases are counted only once, regardless of the number of units they are routed to.



Number of Containers Received by Lab			
	Berlin	Hagerstown	Pikesville
Jan	223	202	873
Feb	233	244	655
Mar	322	271	1,307
Apr	206	191	698
May	231	264	947
Jun	371	298	942
Jul	236	204	1,057
Aug	257	260	1,291
Sep	138	192	1,105
Oct	222	206	1,073
Nov	197	248	877
Dec	145	273	1,009
Total	2,781	2,853	11,834

Note: 'Containers' refers to individual evidence packages. A case can consist of one or more containers, depending on the amount or type of evidence.

ADMINISTRATIVE SUPPORT UNIT

The Administrative Support Unit provides support throughout the FSD. Office management functions include recruiting for civilian vacancies, 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, 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 communicates with the Headquarters' Duty Officer and the Baltimore County Police Department regarding security issues. In addition, this contracted employee provides clerical assistance to various units when needed.

PATTERN EVIDENCE SECTION

The Pattern Evidence Section is comprised of two units: the Latent Prints/Impressions Unit (LPIU) and the Firearm/Toolmarks Unit (FATMU). Both units operate out of the Pikesville laboratory and there is an additional LPIU in Hagerstown. The FATMU performs analysis in firearms, serial number restoration, toolmarks and comparison microscopy. The LPIU performs analysis in latent friction ridge impression, footwear and tire track related evidence. The section consist of one Forensic Scientist Manager who oversees both units. The LPIU consist of two supervisors (Pikesville/Hagerstown), one Forensic Scientist Advanced, one Forensic Scientist III (contractual), two Forensic Scientist I's and three vacant Forensic Scientist positions. The FATMU consist of one supervisor, two Forensic Scientist III's, two Forensic Scientist I's, three Laboratory Technicians (one of these positions is vacant), and two vacant Forensic Scientist Advanced positions. The Forensic Sciences Division is in the recruitment process for the vacant positions.

LATENT PRINTS/IMPRESSIONS UNIT

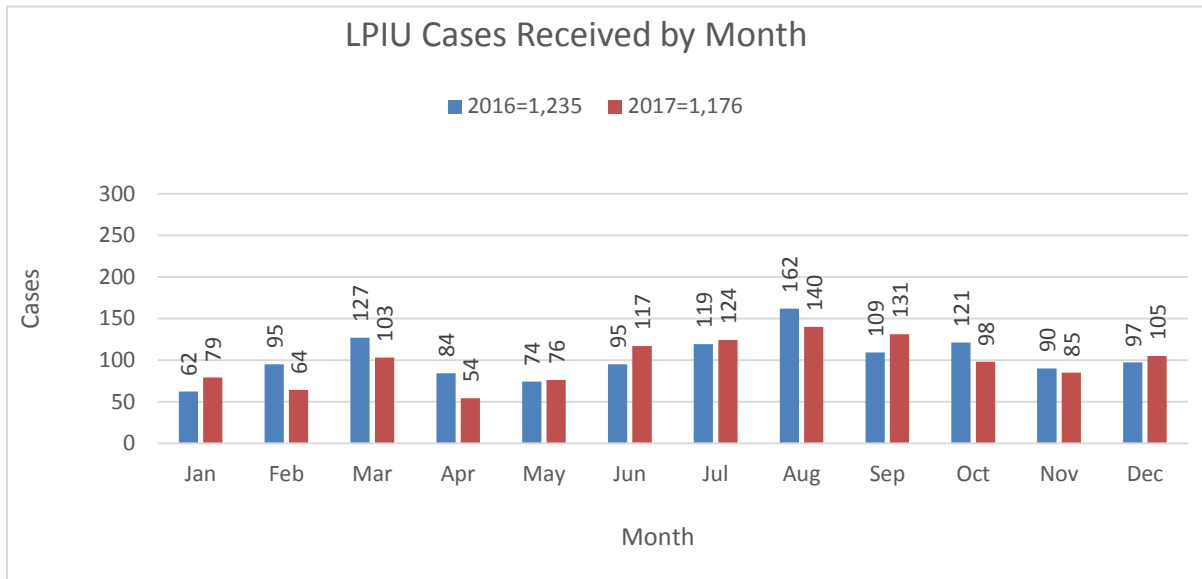
The Latent Print Sub-Unit performs examination of latent friction ridge impressions. Various methods involving chemicals, powders and illumination techniques are used for the visualization of latent prints. The Unit records developed friction ridge impressions using digital capture processes as well as gel and adhesive lifts. Comparisons between latent prints and known prints are conducted to determine if they originated from the same individual. In cases where an identification is made, 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, through the FBI database (NGI). An official report is issued on all case requests. All case files are administratively and technically reviewed by a qualified examiner. Examiners complete an annual external proficiency test administered by Collaborative Testing Services.

The Impressions Sub-Unit is responsible for the examination 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. An analysis and comparison are performed as required for these sub-disciplines. Any footwear images that are suitable are entered and searched through the Shoe Print Image Capture and Retrieval database (SICAR) for brand recognition. Tire images can be searched through MSP's database for brand recognition. In cases where either an "identification" or "could have been made" conclusions are reached, a second examiner performs an independent verification. All case files are administratively and technically reviewed by a qualified examiner. Examiners complete an annual external proficiency test administered by Collaborative Testing Services.

After the retirement of three experienced examiners in 2016, the LPIU hired new trainees who began in 2017. Two trainees are steadily working their way through a two-year in house training program under an examiner with over thirty years of latent print experience. At the end of this intensive training these examiners will be able to perform independent casework in the Latent Print Sub-Unit. Unfortunately, the LPIU also lost one experienced examiner from the

Hagerstown Unit in 2017. This leaves the Unit significantly short staffed. With a growing backlog and increasing turnaround times, work is being moved between the Pikesville and Hagerstown laboratories as needed. A new prioritization system was implemented this year to help manage the caseload. The Impressions Sub-Unit continues to utilize local laboratories for verifications and reviews. Despite the loss of experienced staff in the Unit and the focus on training, the LPIU strives to meet the needs of Maryland.

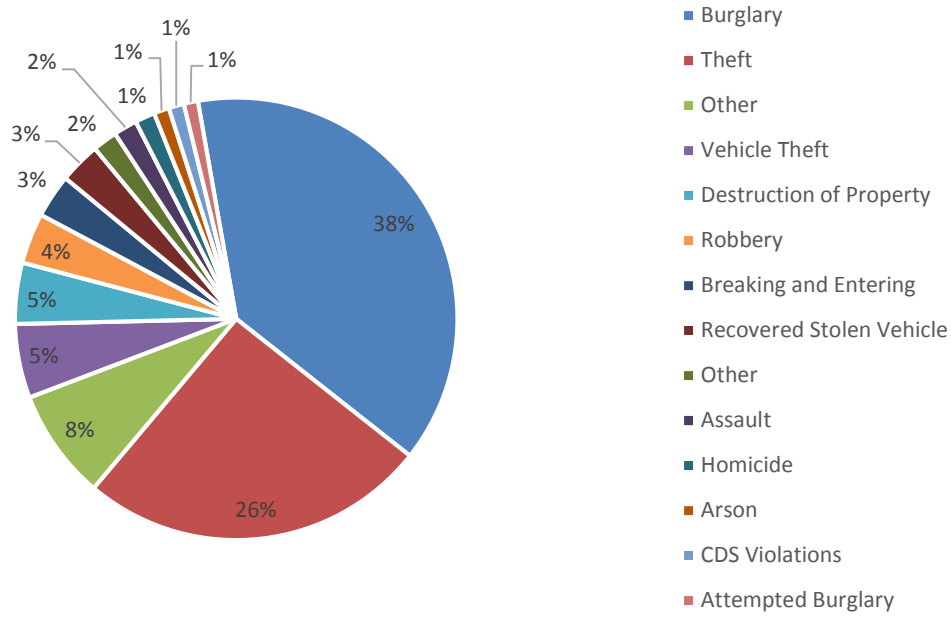
Latent Print/Impressions Casework Statistics



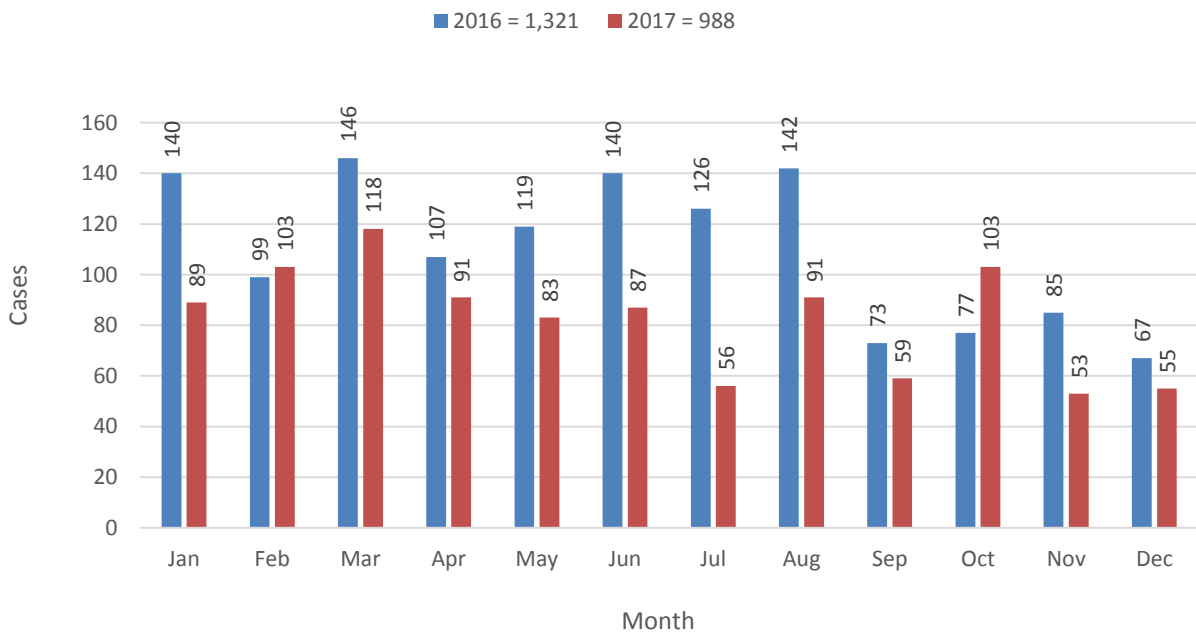
LPIU Cases Received per MSP Installation		
MSP Installation	Counties Served	Submissions
MSP-Westminster	Carroll	35
MSP-North East	Cecil	24
MSP-Hagerstown	Washington	18
MSP-Frederick	Frederick	16
MSP-Salisbury	Wicomico	13
MSP-Centerville	Kent, Queen Anne's	11
OSFM	Statewide	10
MSP-Easton	Talbot, Caroline, Dorchester	10
MSP-Princess Anne	Somerset	9
MSP-Bel Air	Harford	9
MSP-CID/CED	Statewide	9
MSP-Homicide	Statewide	8
MSP-McHenry	Garrett	8
MSP-Leonardtown	St. Mary's	7
MSP-Golden Ring	Baltimore	5
MSP-Berlin	Worcester	4
MSP-CID/CED	Statewide	4
MSP-DED/C3I	Statewide	3
MSP-Prince Frederick	Calvert	3
MSP-Rockville	Montgomery	3
MSP-Annapolis	Anne Arundel	3
MSP- Cumberland	Allegany	3
MSP-JFK Hwy	Cecil, Harford, Baltimore	3
MSP-Glen Burnie	Anne Arundel	2
MSP-College Park	Prince George's	1
MSP-Auto Theft Unit	Statewide	1
	TOTAL	222

Allied Agency Cases Received by LPIU per County	
County	Submissions
Dorchester	151
Worcester	138
Wicomico	135
St. Mary's	92
Frederick	88
Carroll	75
Washington	58
Talbot	46
Queen Anne's	32
Caroline	24
Cecil	19
Prince George's	17
Allegany	16
Anne Arundel	15
Baltimore City	9
Calvert	8
Baltimore	7
Kent	6
Garrett	5
OUT OF STATE	4
Somerset	4
Charles	3
Montgomery	2
TOTAL	954

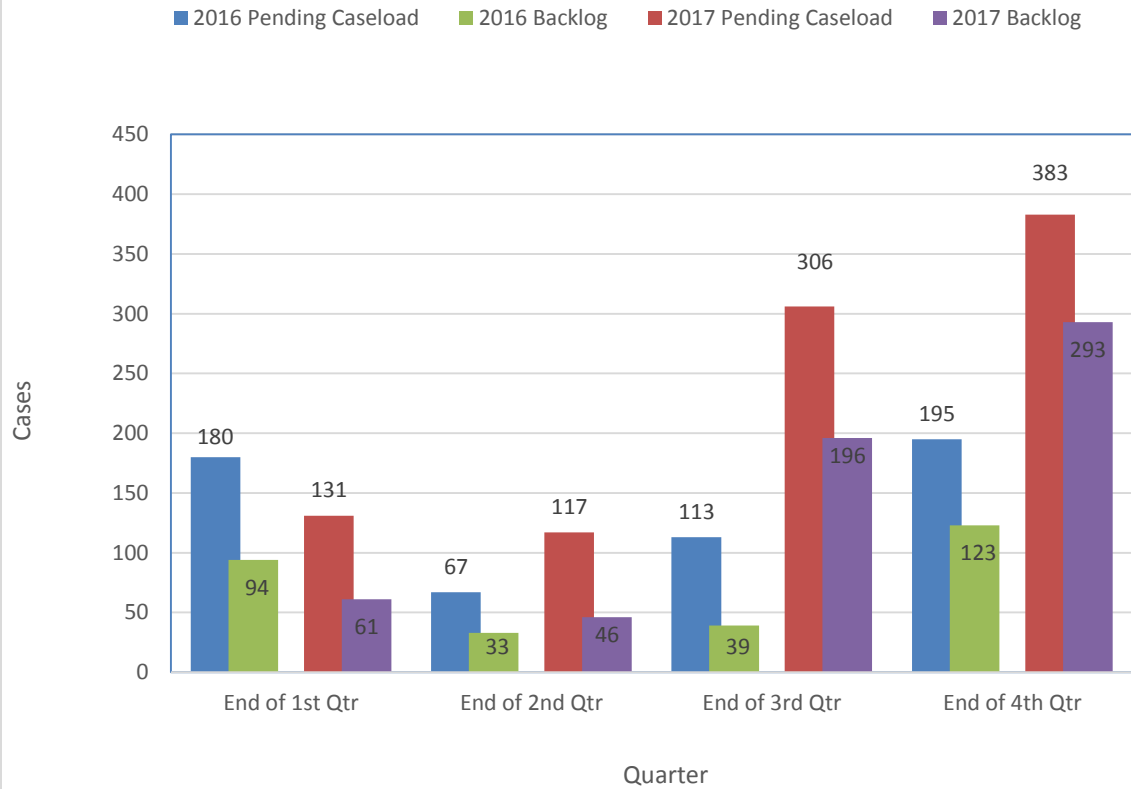
LPIU Cases Received per Crime Type



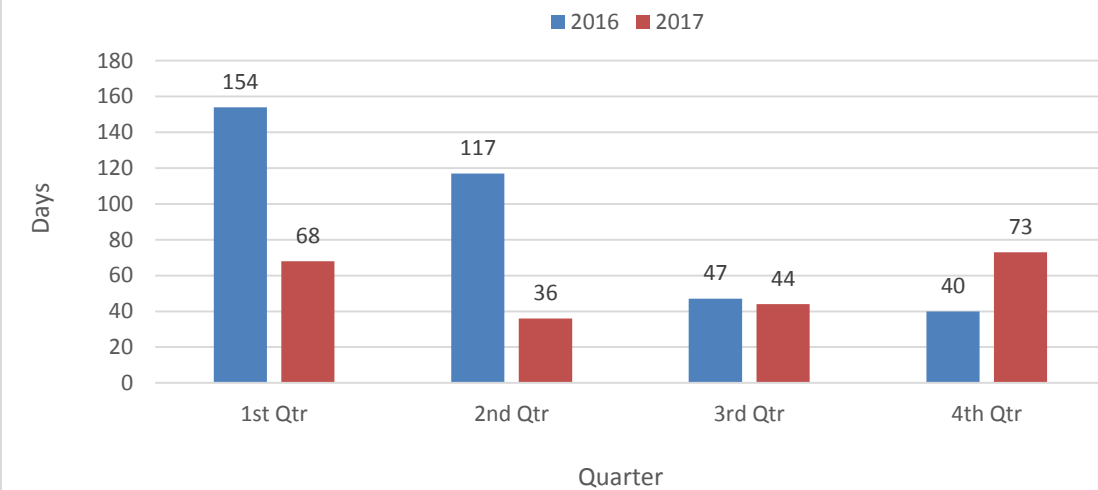
LPIU Cases Completed per Month



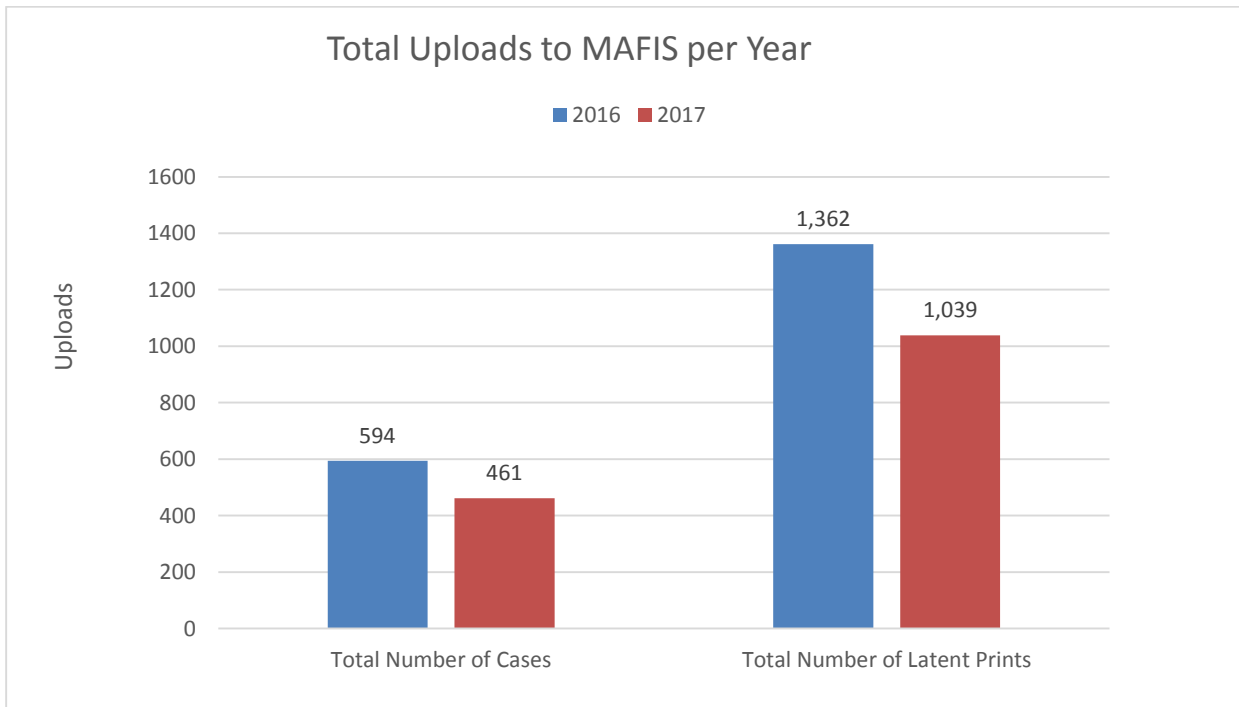
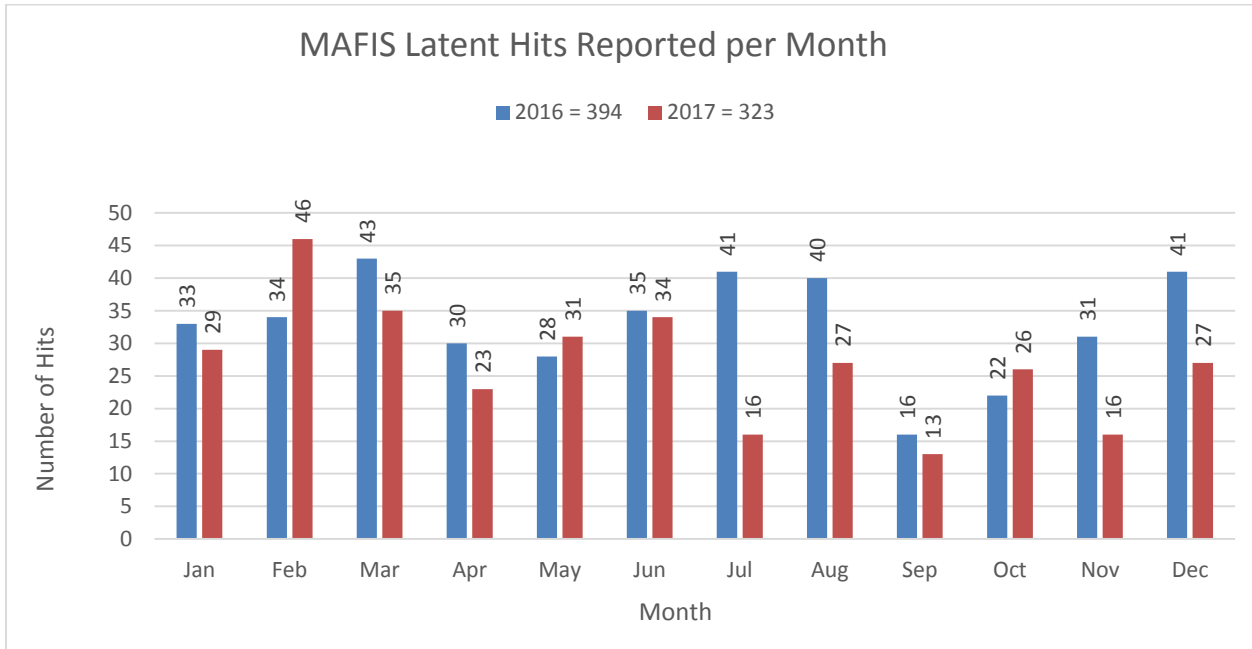
LPIU Pending Caseload and Backlog per Quarter



LPIU Case Turn Around Time per Quarter



Latent Print/Impressions Database Statistics



FIREARMS/TOOLMARKS UNIT

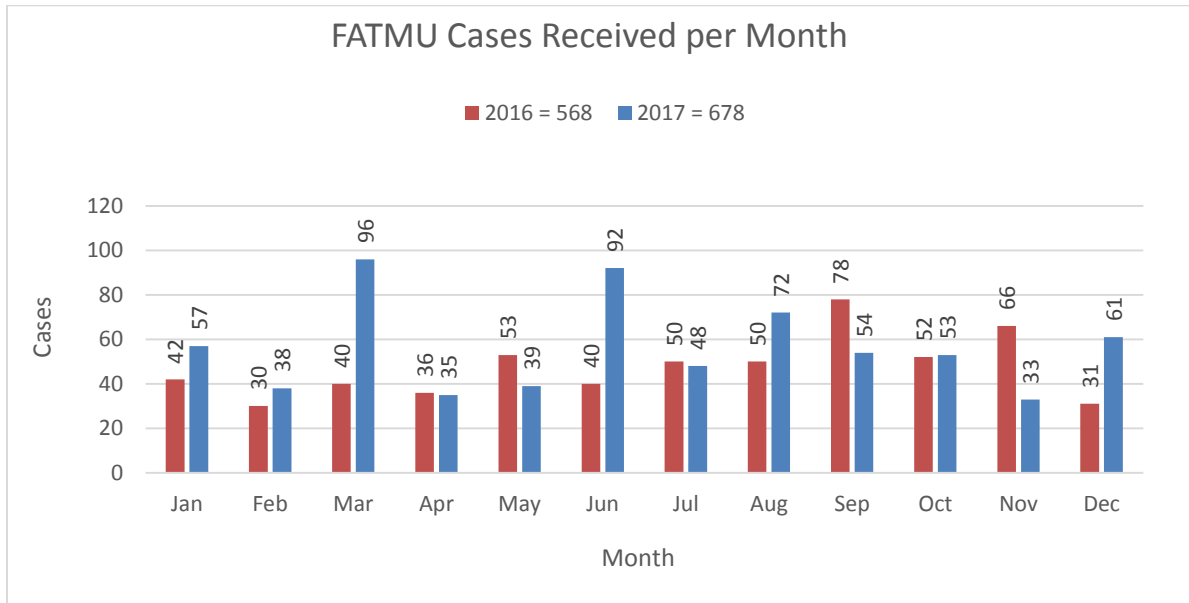
The Firearm/Toolmarks Unit (FATMU) provides microscopic and functional examination of firearms and firearm-related evidence. Examiners in this unit also perform serial number restoration and toolmark examinations. In addition, FATMU is responsible for test firing firearms for possible entry into the National Integrated Ballistic Information Network (NIBIN) BrassTrax system. Fired cartridge case data (digital images) are entered into the system to search against previously entered fired evidence cartridge cases from various scenes and against cartridge cases from test fired weapons.

At the end of 2016, FATMU had a backlog of approximately 1,500 unprocessed NIBIN correlations. In early 2017, FSD collaborated with the ATF's NIBIN National Correlation and Training Center (NNCTC) to process all correlations in the backlog. The backlog was eliminated by the end of February 2017. At the same time, FATMU improved their workflow to ensure that in-house correlations are completed within an average of 48 hours. Additionally, FATMU examiners began notifying investigators of potential hits, prior to confirmation by microscopic comparison. This change is expected to benefit investigators informing them of leads sooner than the previous practice allowed. In 2017, 69 such leads were generated. Furthermore, the number of confirmed hits increased from 7 in 2016 to 39 in 2017.

The unit has two programs assisting with turnaround time for casework. These programs are the Walk-In Test Fire (WITF) and Operation Test Shot (OTS). The WITF program involves allied law enforcement agencies bringing the firearms directly to the FATMU for functionality examinations. This program 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. OTS involves supplying 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 submit fired bullets/cartridge cases in pristine condition to the FATMU. These programs have been effective and instrumental in the unit's success with obtaining NIBIN Hits. In 2018, FATMU is looking forward to maintaining the above programs and implementing a NIBIN Squad that would solely provide assistance in test fires, triaging evidence, NIBIN Data Entry, NIBIN Correlations and NIBIN Confirmations.

The FATMU also provides a service to the Maryland Handgun Roster Board (HRB). The HRB 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.

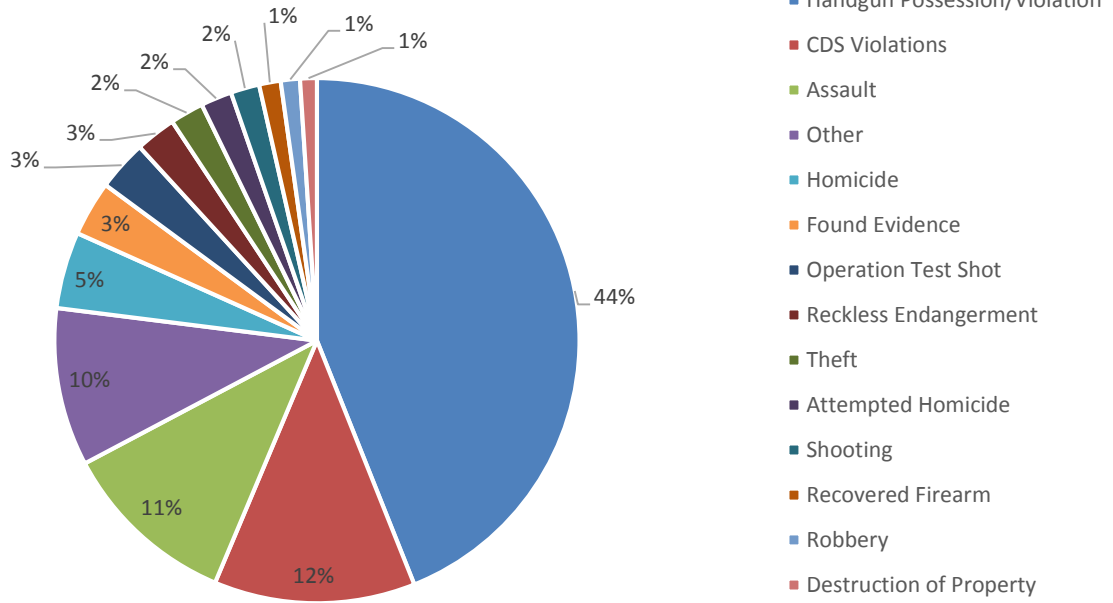
Firearms/Toolmarks Casework Statistics



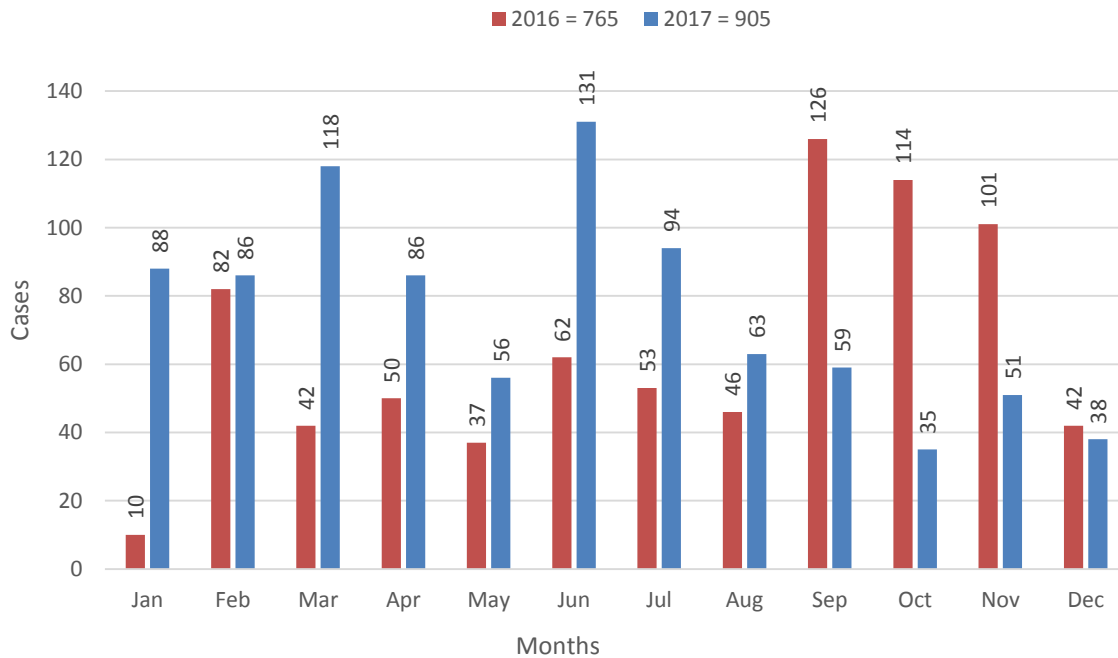
FATMU Cases Received per MSP Installation		
Installation	Counties Served	Submissions
MSP-CID/CED	Statewide	37
MSP-Forestville	Prince George's	16
MSP-JFK Hwy	Cecil, Harford, Baltimore	14
MSP-La Plata	Charles	13
MSP-Princess Anne	Somerset	11
MSP-Leonardtown	St. Mary's	11
MSP-Golden Ring	Baltimore	10
MSP-Homicide	Statewide	9
MSP-College Park	Prince George's	8
MSP-Prince Frederick	Calvert	7
MSP-Easton	Caroline, Dorchester, Talbot	7
MSP-McHenry	Garrett	6
MSP-Berlin	Worcester	6
MSP-Westminster	Carroll	6
MSP-Salisbury	Wicomico	6
MSP-Frederick	Frederick	6
MSP-North East	Cecil	5
MSP-Centerville	Kent, Queen Anne's	4
MSP-Bel Air	Harford	4
MSP-Glen Burnie	Anne Arundel	3
MSP-DED/C3I	Statewide	2
MSP-Hagerstown	Washington	1
MSP- Cumberland	Allegany	1
MSP-Waterloo	Howard	1
	TOTAL	194

Allied Agency Cases Received by FATMU per County	
County	Submissions
Frederick	120
Washington	63
Harford	41
Anne Arundel	39
Charles	36
Cecil	35
Worcester	33
Wicomico	24
Baltimore	18
Baltimore City	18
Howard	13
Queen Anne's	9
Carroll	8
Prince George's	7
Calvert	6
Somerset	6
Dorchester	3
Caroline	2
St. Mary's	2
Montgomery	1
TOTAL	484

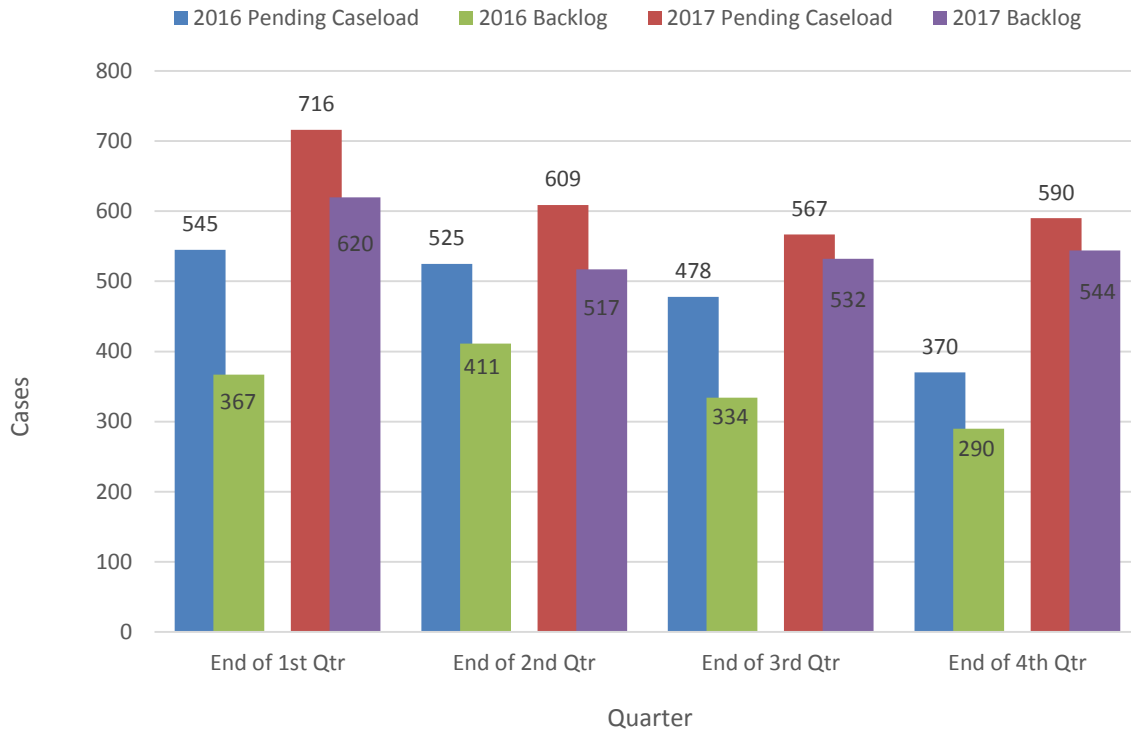
FATMU Cases Received per Crime Type



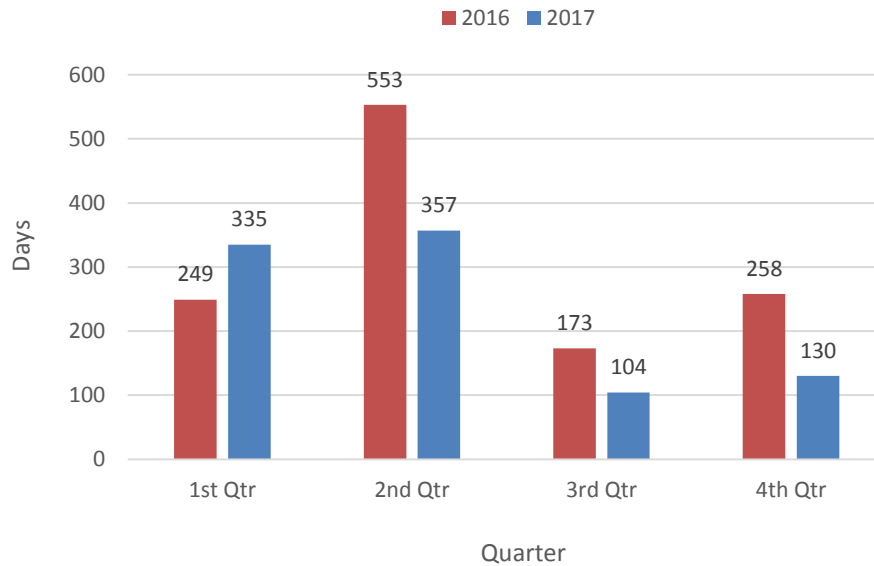
FATMU Cases Completed per Month



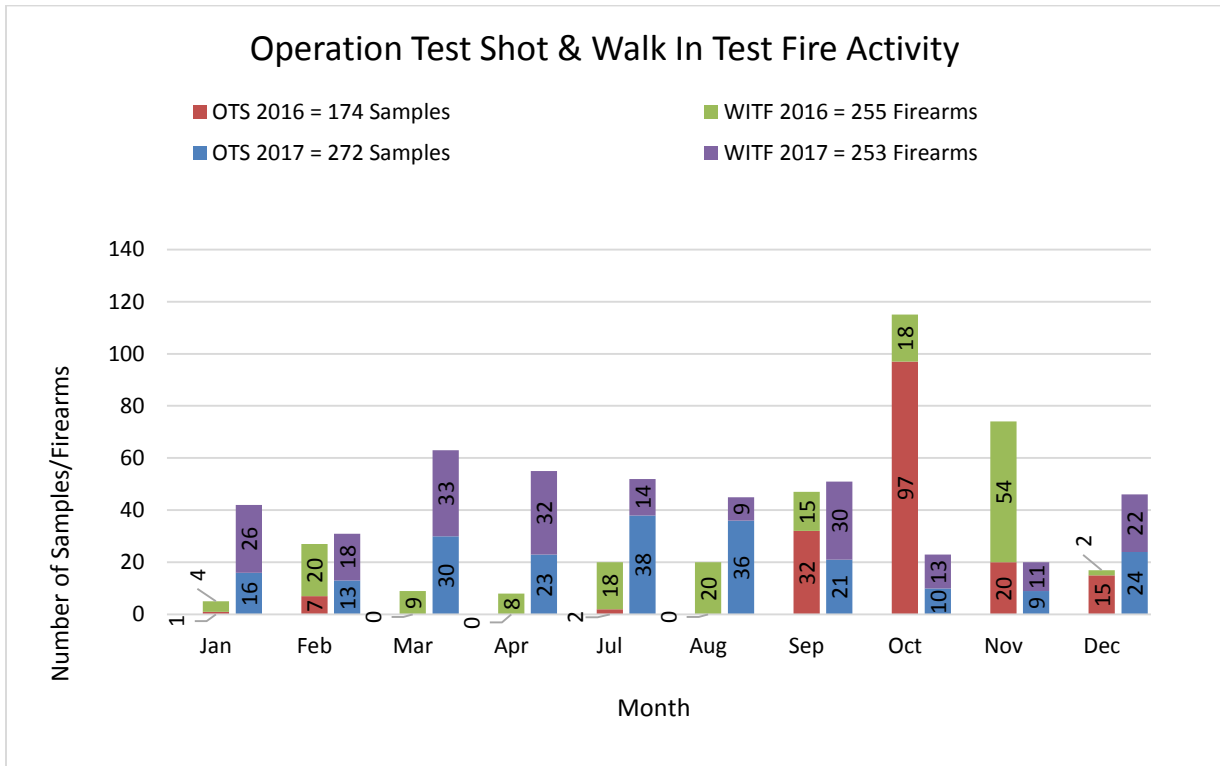
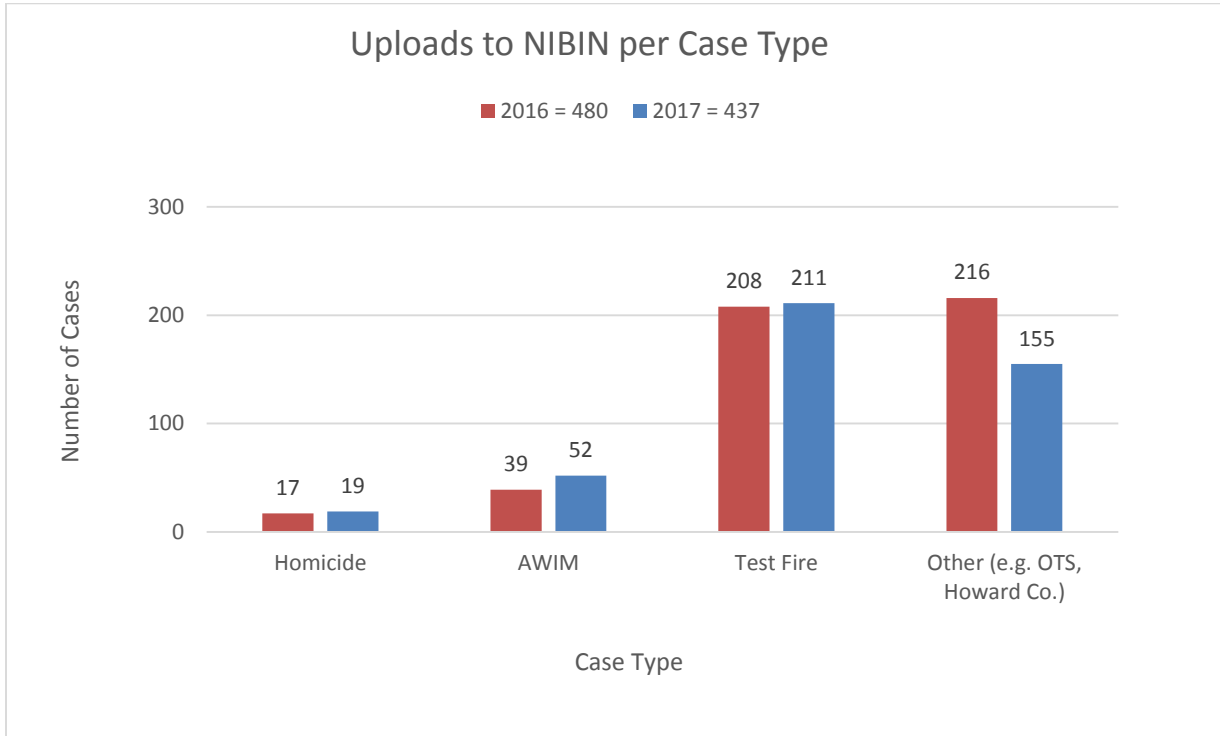
FATMU Pending Caseload and Backlog per Quarter



FATMU Case Turn Around Time per Quarter



Firearms/Toolmarks Database Statistics



Confirmed NIBIN Hits		
Submitting Agency		Number of Hits
Charles Co. SO	DC Metropolitan PD	4
Anne Arundel Co. PD	Baltimore PD	3
MD Transportation Authority PD	Baltimore PD	3
Annapolis PD	Annapolis PD	2
Frederick PD	Frederick PD	2
Frederick PD	Mont. Co. PD	2
Annapolis PD	Annapolis PD	1
Annapolis PD	Anne Arundel Co. PD	1
Annapolis PD	DC Metropolitan PD	1
Carroll Co. SO	Baltimore PD	1
Charles Co. SO	Virginia SP Chesapeake	1
Elkton PD	MSP-CED/DED	1
Frederick PD	Frederick PD	1
Frederick PD	Mont. Co. PD	1
Greenbelt PD	Mont. Co. PD	1
Hagerstown PD	MSP-CED/MSAT	1
Harford Co. SO	Baltimore Co. PD	1
Harford Co. SO	Baltimore PD	1
Howard Co. PD	MSP-Easton	1
MSP-CED	DC Metropolitan PD	1
MSP-College Park	Prince George's Co. PD	1
MSP-Easton	DC Metropolitan PD	1
MSP-Easton	Prince George's Co. PD	1
MSP-JFK Hwy	Baltimore PD	1
Salisbury PD	Hurlock PD	1
Salisbury PD	Salisbury PD	1
Stolen Handgun from MD Sample Reference Database	Baltimore PD	1
Stolen Handgun from MD Sample Reference Database	DC Metropolitan PD	1
U of M PD	Prince George's Co. PD	1
	Total	39

NOTEWORTHY CASES

On May 4, 2017, the Maryland Transportation Authority Police/BWI Airport (MDTAPD) confiscated a firearm. The firearm was obtained from a passenger, from within their carry-on luggage, going through the screening process to board a plane. The firearm was test fired by MDTAPD. The test fired bullets and cartridge cases were sent to the FATMU under the Operation Test Shot Program. The cartridge case samples were entered into the NIBIN BrassTrax system locally and in the state of Tennessee where the passenger was from. As a result of the correlation search in Tennessee, a Potential Lead was developed, with the firearm being possibly linked to three shootings in Tennessee. The Potential Lead information was provided to MDTAPD and Metro Nashville Police Department Crime Lab. This case demonstrates the value of the NIBIN BrassTrax system as an investigative tool.

In July 2017, the LPIU received a request regarding a Burglary case from the Ocean City Police Department. The Crime Scene Technician who worked the scene recognized that they had collected a potential footprint in the case and took the time to collect known foot print exemplars from the suspect. The evidence footprint impression was identified to the submitted exemplar footprints. Footprint identifications are very rare in the LPIU.

In October 2017, the LPIU received a set of postmortem prints from a suicide victim for identity confirmation. There was no record found on file for the potential individual and no identification was found using MAFIS or NGI. The investigator in the case was able to obtain a set of known index finger prints from the El Salvadorian government and the prints were submitted in PowerPoint format. Despite the limited quality of the both the known from El Salvador and the postmortem prints, the examiner was able to identify the victim.

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 vacant Forensic Scientist Supervisor position, one Forensic Scientist Advanced, two Forensic Scientists III and one Forensic Scientist I. 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.

The CDS-Berlin Unit consists of one Forensic Scientist Supervisor and two Forensic Scientists III. The CDS-Berlin Unit operates out of the Berlin Regional Laboratory located at the MSP-Berlin Barrack.

The CDS-Hagerstown Unit consists of one Forensic Scientist Supervisor and one Forensic Scientist I. One Forensic Scientist position is vacant. In addition, one Allied Forensic Scientist position is in the process of being filled 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 Advanced, one Forensic Scientist I and one Laboratory Technician I. One vacant 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 analyses 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, bench top balances, and bulk scales.

The CDS Units submit monthly reports to the National Forensic Laboratory Information System (NFLIS) that document 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.

The CDS Units have transitioned to an electronic CDS worksheet and 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.

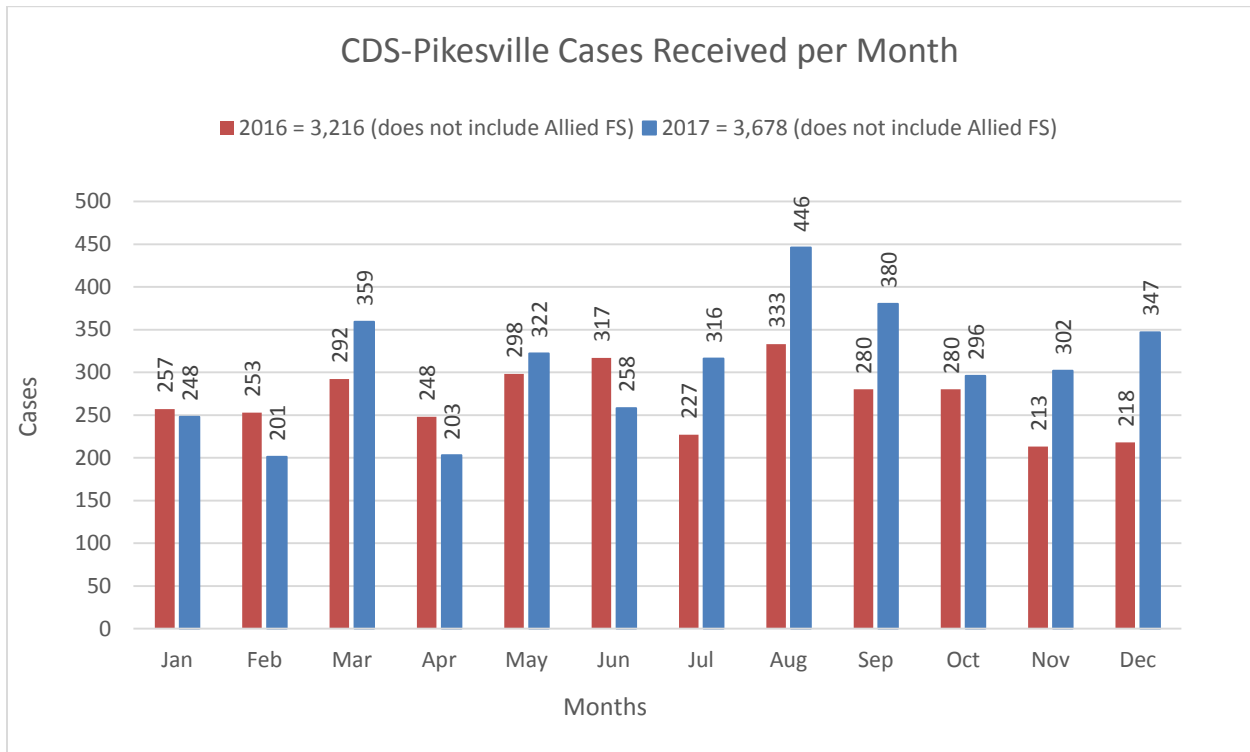
The CDS Units continue to encounter new synthetic drugs sold as synthetic marijuana or bath salts. Every effort is made to identify these new drugs, and to purchase the relevant drug standards so that chemists can confirm their presence in case samples. The FSD has noted a significant increase in fentanyl submissions, as well as analogs of fentanyl. Analogs are drugs that are similar in structure to fentanyl with similar effects in the body, but are a new and novel drug. It is a challenge for the lab to identify these new fentanyl analogs as they emerge in casework. To meet this challenge, the CDS Units are planning to expand their testing capabilities with new instrumentation that will screen samples very efficiently and accurately.

Catherine Savage, Forensic Scientist Advanced working in one of our CDS Units, has been elected as the Chair of the Criminalistics Board for the Mid-Atlantic Association of Forensic Scientists (MAAFS) for 2018.

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 MSP Installation*		
	Counties Served	Submissions
MSP-CID/CED	Statewide	176
MSP-Prince Frederick	Calvert	152
MSP-Bel Air	Harford	124
MSP-Leonardtown	St. Mary's	123
MSP-JFK Hwy	Cecil, Harford, Baltimore	81
MSP-Golden Ring	Baltimore	79
MSP-La Plata	Charles	65
MSP-Glen Burnie	Anne Arundel	64
MSP-Centerville	Kent, Queen Anne's	62
MSP-Forestville	Frederick	56
MSP-College Park	Prince George's	56
MSP-Annapolis	Anne Arundel	52
MSP-Westminster	Carroll	48
MSP- Cumberland	Allegany	2
OSFM	Statewide	1
MSP-CVED	Statewide	1
MSP-Hagerstown	Washington	1
	TOTAL	1,143

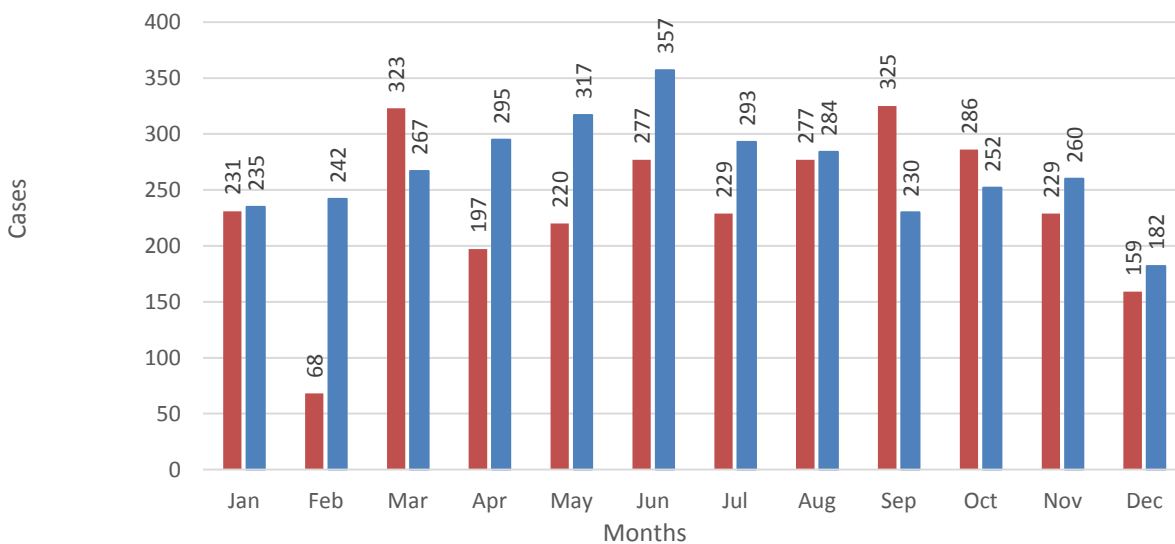
* Does not include Allied FS

Allied Agency Cases Received by CDS-Pikesville per County*	
County	Submissions
Charles	612
Harford	612
Calvert	460
St. Mary's	227
Carroll	157
Anne Arundel	137
Baltimore City	100
Queen Anne's	76
Baltimore	60
Kent	49
Prince George's	28
Montgomery	13
Allegany	1
Caroline	1
Dorchester	1
Frederick	1
TOTAL	2,535

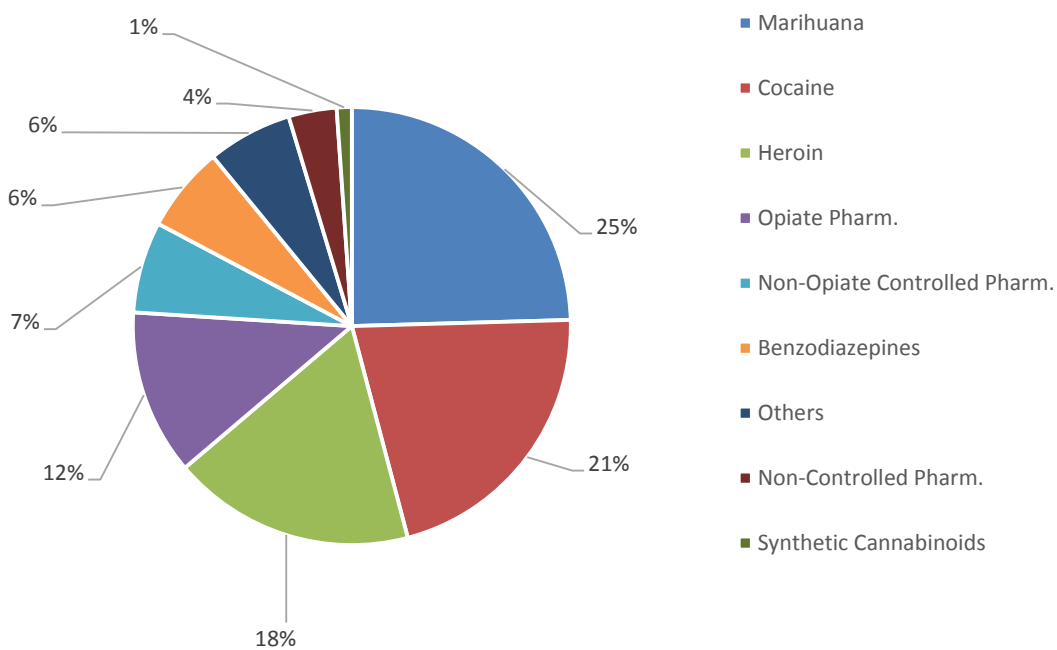
* Does not include Allied FS

CDS-Pikesville Cases Completed per Month

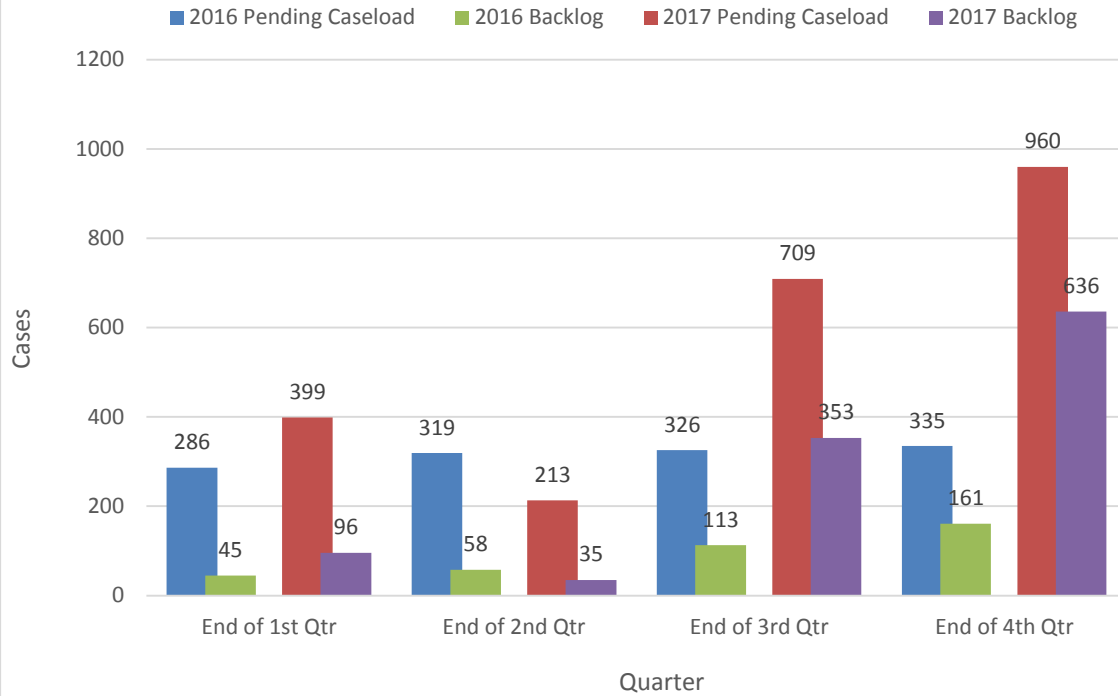
2016 =2,821 2017 =3,214



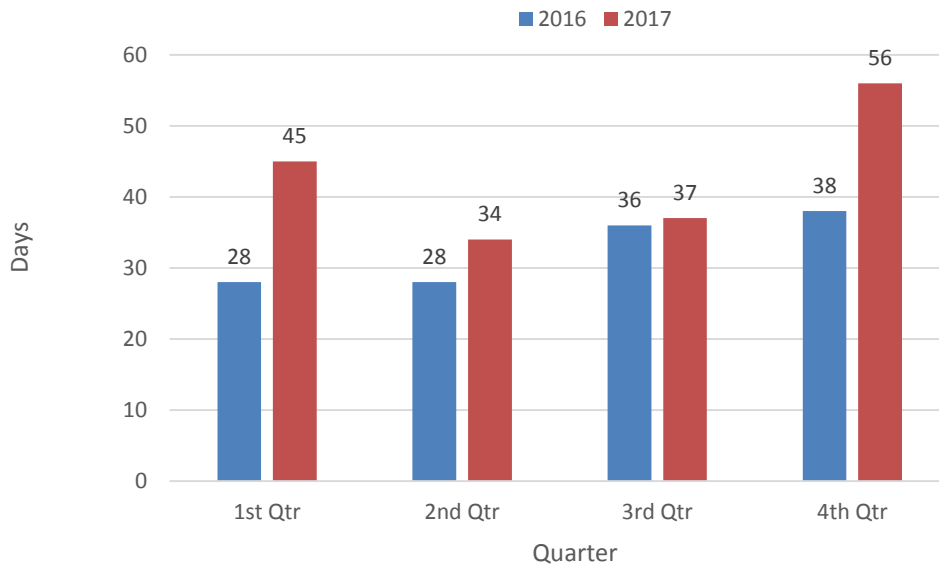
CDS-Pikesville Analyses Reported per Drug Type (includes Allied FS)



CDS-Pikesville Pending Caseload and Backlog per Quarter

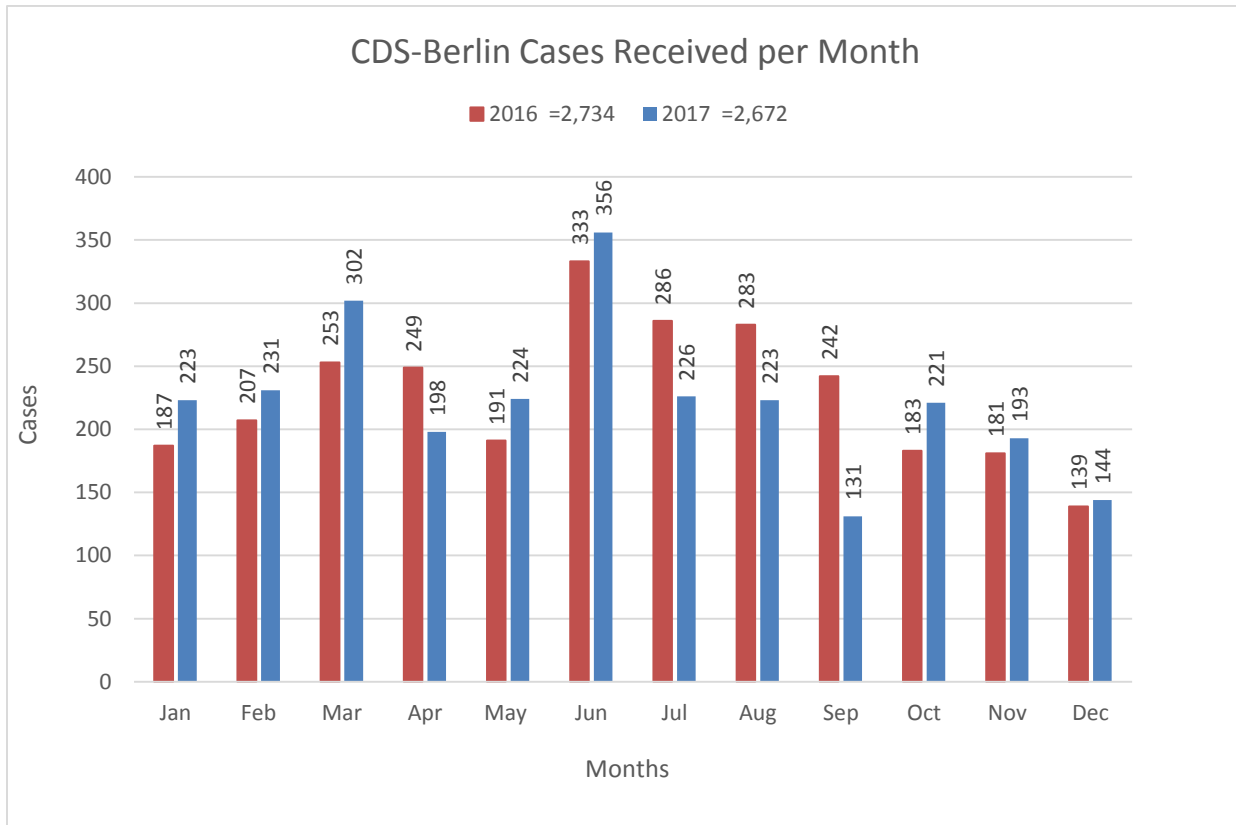


CDS-Pikesville Case Turn Around Time per Quarter



CDS-BERLIN UNIT

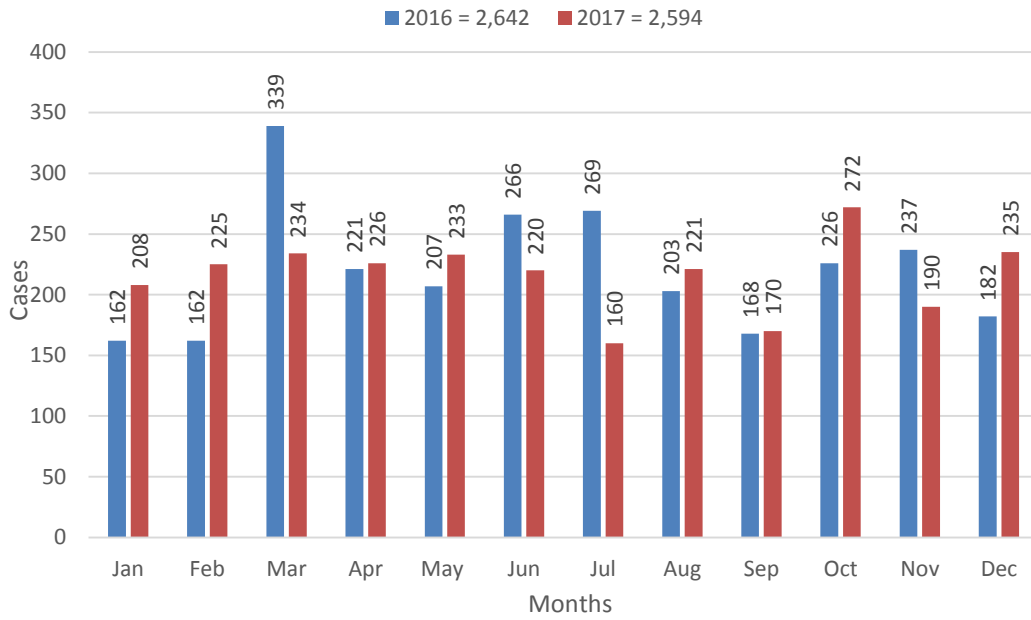
The CDS-Berlin laboratory services primarily the Eastern Maryland counties including Caroline County, Dorchester County, Kent County, Queen Anne’s County, Somerset County, Talbot County, Wicomico County, and Worcester County.



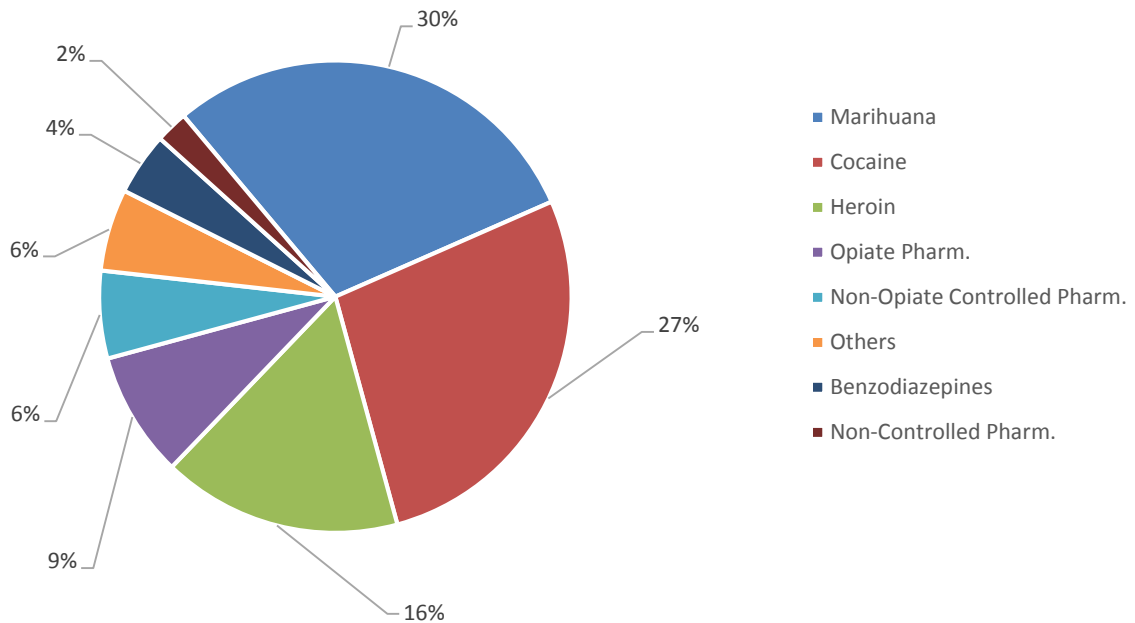
CDS-Berlin Cases Received per MSP Installation		
MSP Installation	Counties Served	Submissions
MSP-Easton	Caroline, Dorchester, Talbot	278
MSP-Salisbury	Wicomico	183
MSP-Centerville	Kent, Queen Anne's	96
MSP-Berlin	Worcester	40
MSP-Princess Anne	Somerset	33
	TOTAL	630

Allied Agency Cases Received by CDS-Berlin per County	
County	Submissions
Worcester	626
Wicomico	545
Dorchester	305
Talbot	177
Somerset	166
Caroline	92
Queen Anne's	79
Kent	51
St. Mary's	1
TOTAL	2,042

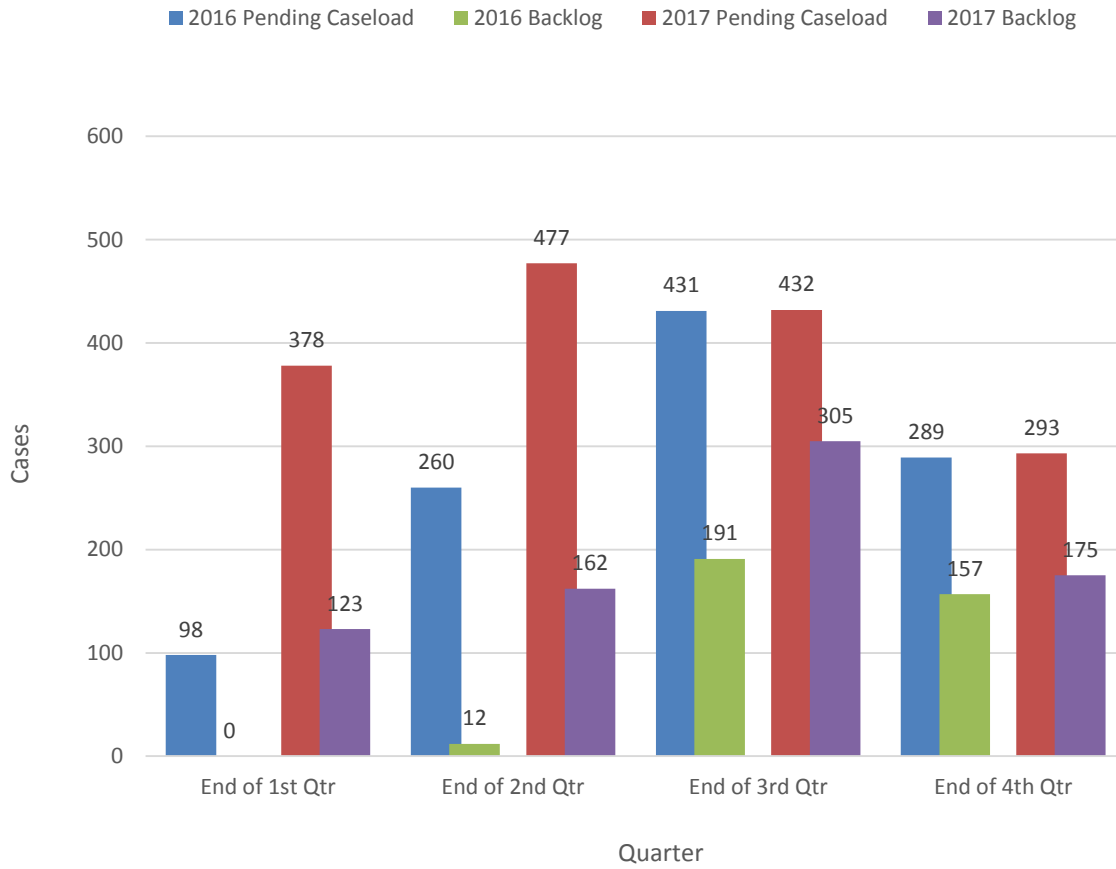
CDS-Berlin Cases Completed per Month



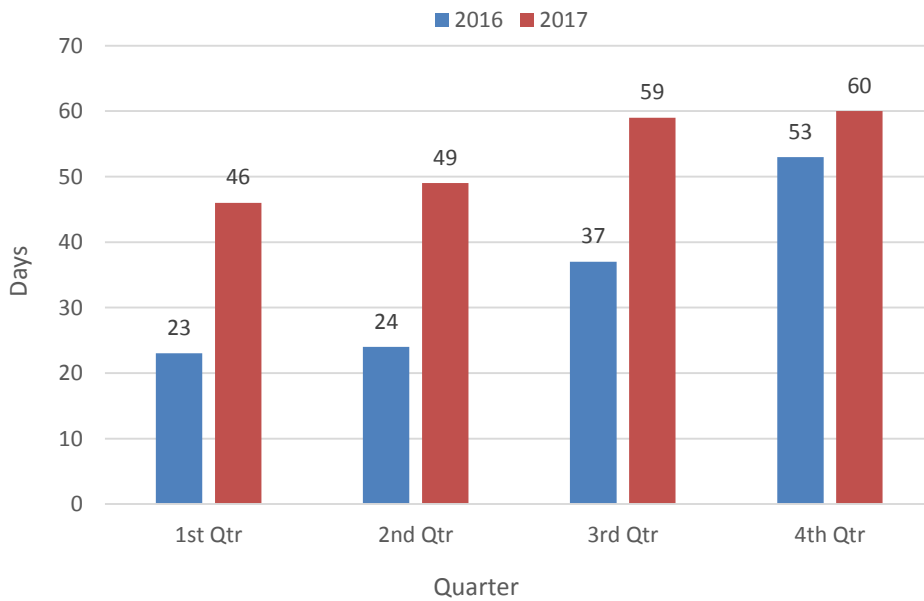
CDS-Berlin Analyses Reported per Drug Type



CDS-Berlin Pending Caseload and Backlog per Quarter



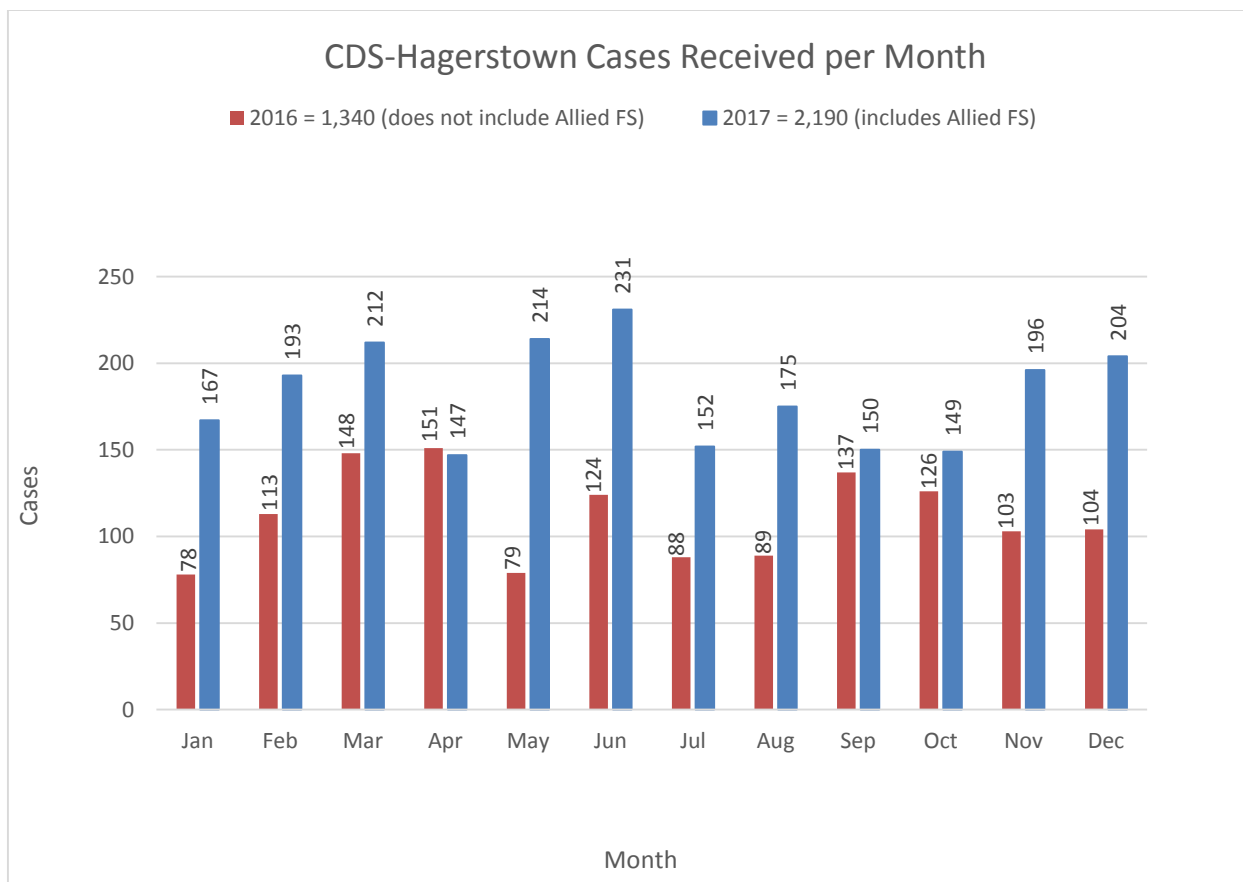
CDS-Berlin Case Turn Around Time per Quarter



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.

The Frederick County Allied Chemist resigned in May 2017, and the position was vacant through the remainder of the year. The CDS-Hagerstown Unit assumed the casework responsibilities and case backlog of that Allied Forensic Scientist. The 2017 data shown below includes cases which would have been assigned to the Allied Forensic Scientist (Allied FS).



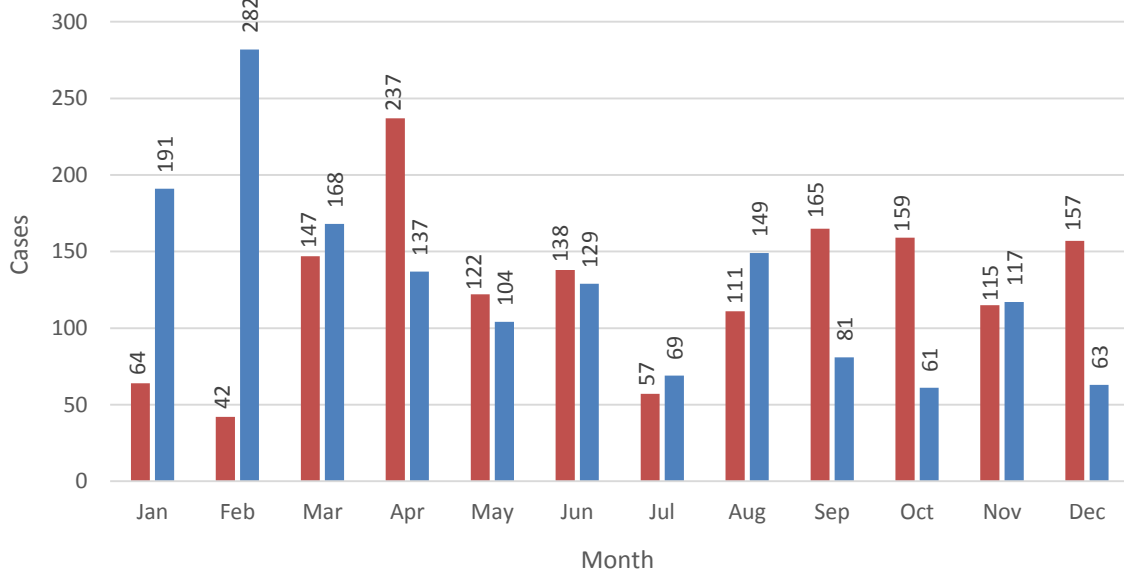
CDS-Hagerstown Cases Received per MSP Installation		
MSP Installation	Counties Served	Submissions
MSP- Cumberland	Allegany	253
MSP-Westminster	Carroll	105
MSP-Frederick	Frederick	92
MSP-McHenry	Garrett	80
MSP-Hagerstown	Washington	63
MSP-Rockville	Montgomery	22
MSP-DED/C3I	Statewide	9
MSP-CID/CED	Statewide	4
	TOTAL	628

Allied Agency Cases Received by CDS-Hagerstown per County	
County	Submissions
Frederick	1,112
Allegany	220
Carroll	150
Garrett	56
Washington	17
Federal Agency*	4
Caroline	2
Anne Arundel	1
TOTAL	1,562

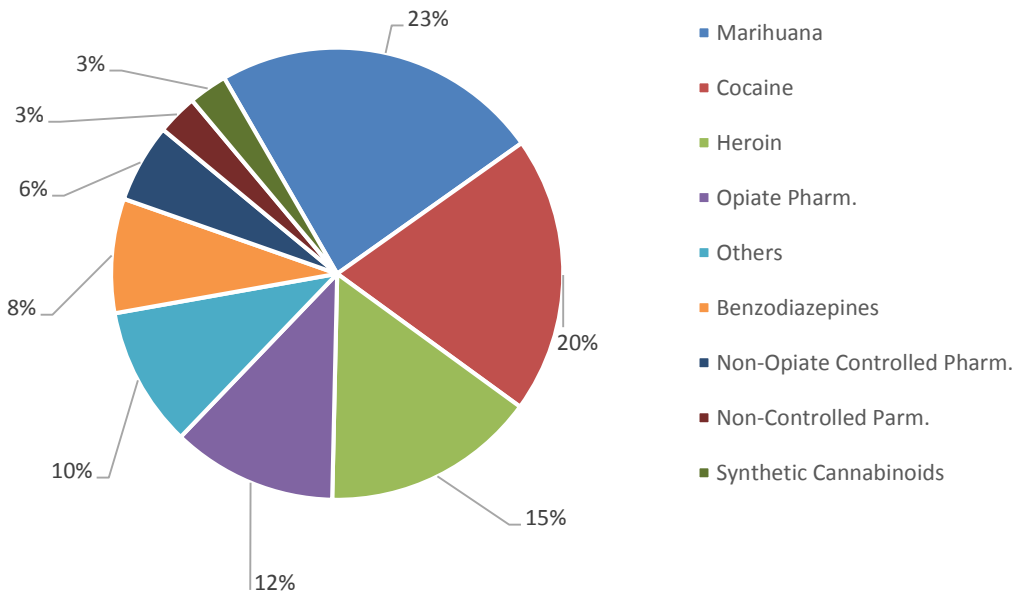
*Includes Fort Detrick and Department of Justice

CDS-Hagerstown Cases Completed per Month

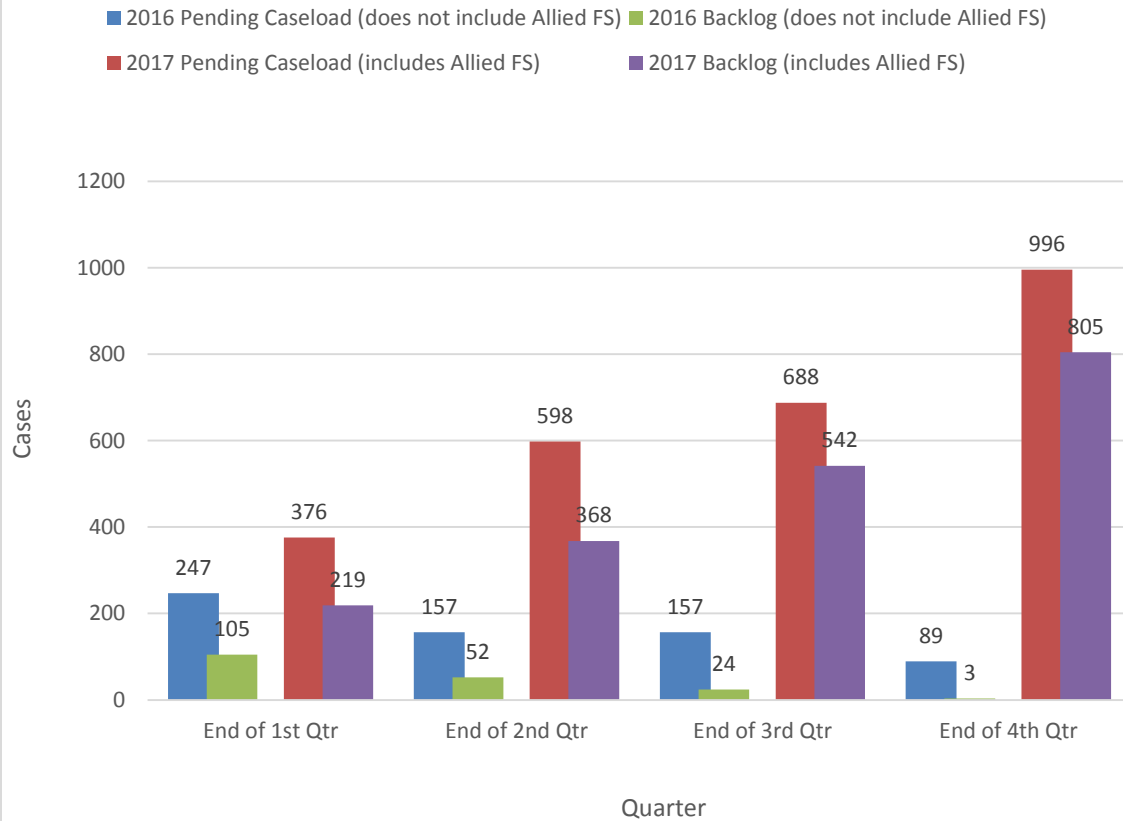
■ 2016 = 1,514 (does not include Allied FS) ■ 2017 = 1,551 (includes Allied FS)



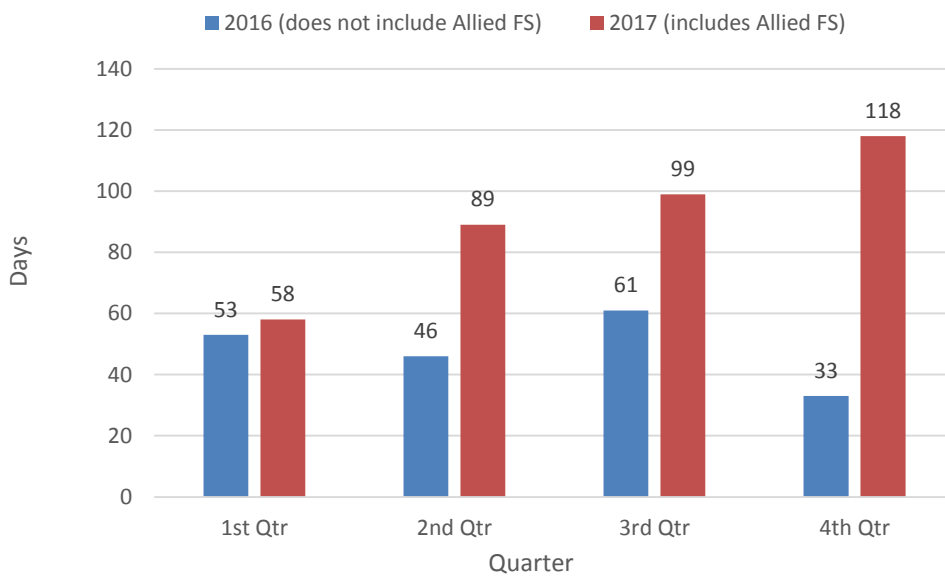
CDS-Hagerstown Analyses Reported per Drug Type



CDS-Hagerstown Pending Caseload and Backlog per Quarter



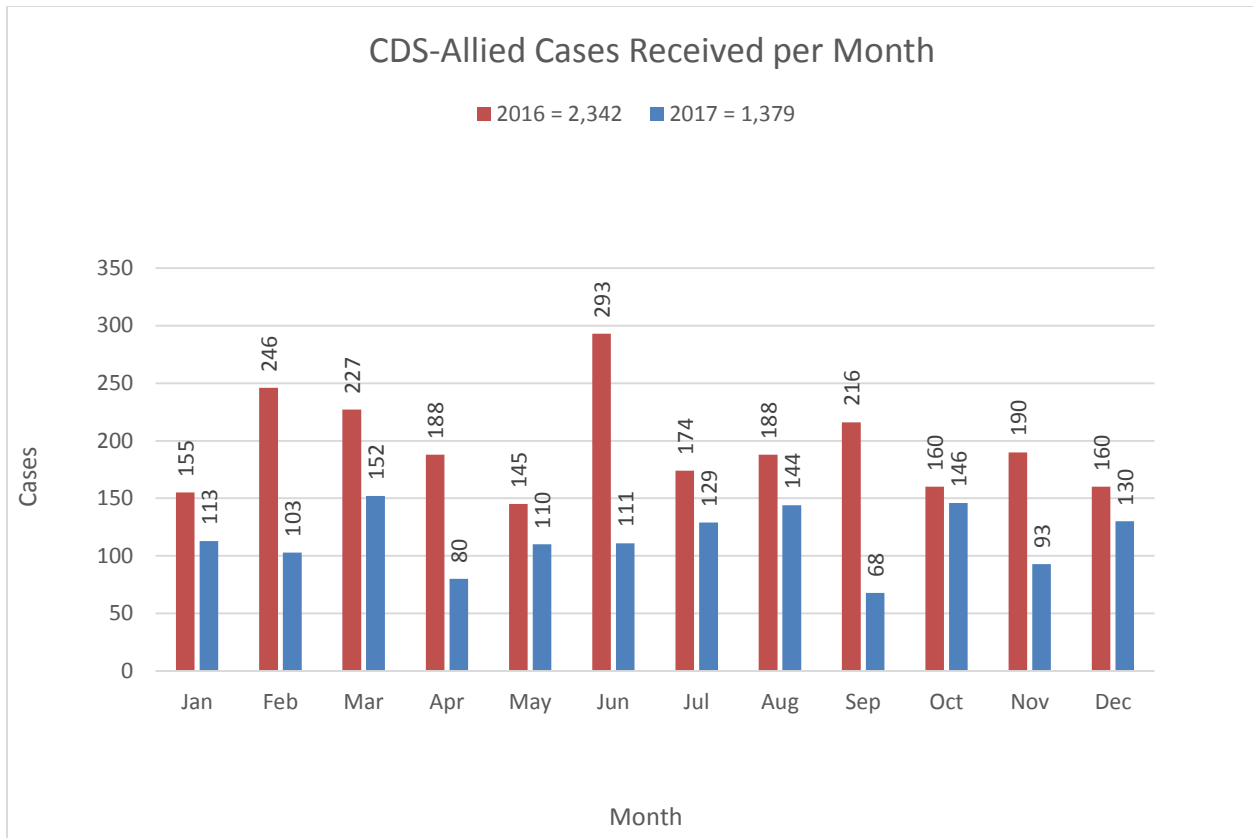
CDS-Hagerstown Case Turn Around Time per Quarter



CDS-ALLIED FORENSIC SCIENTIST PROGRAM

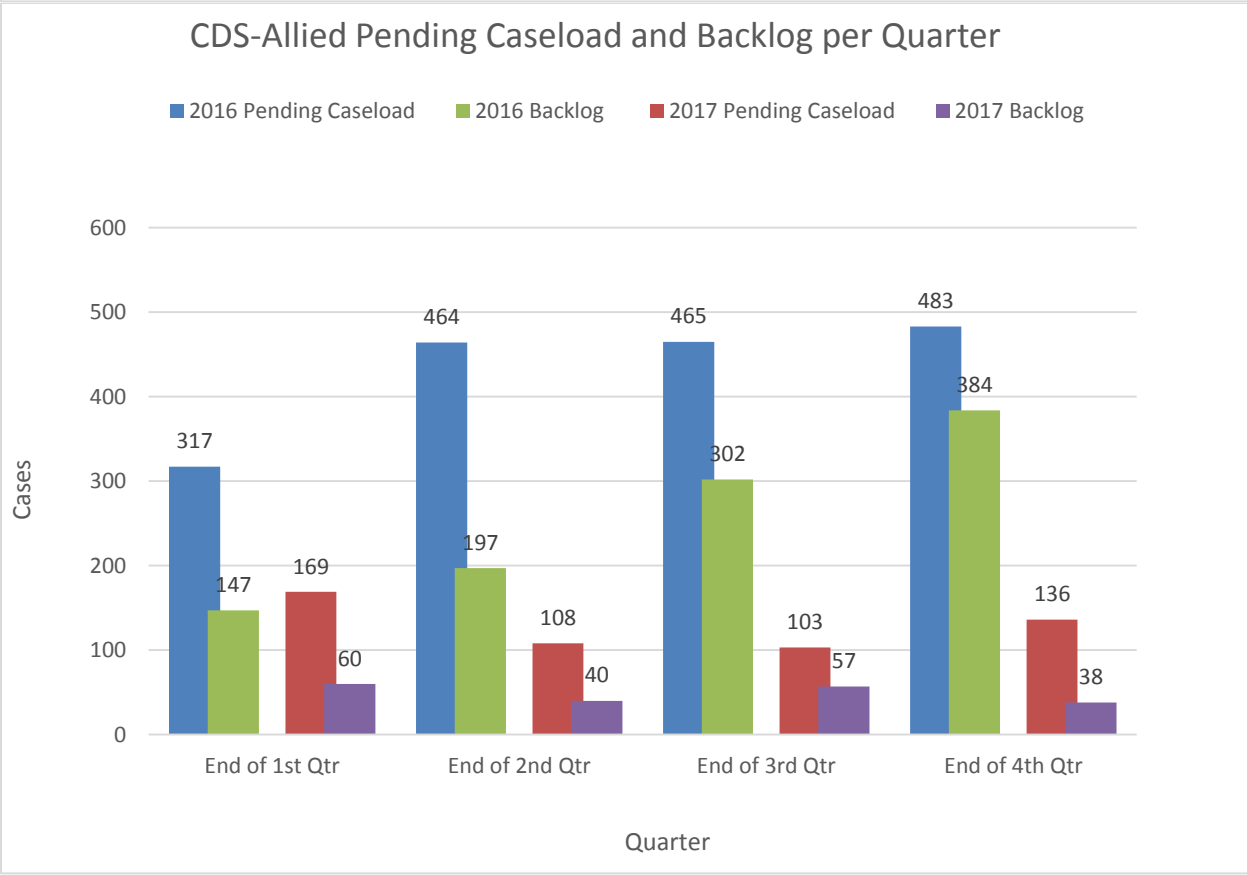
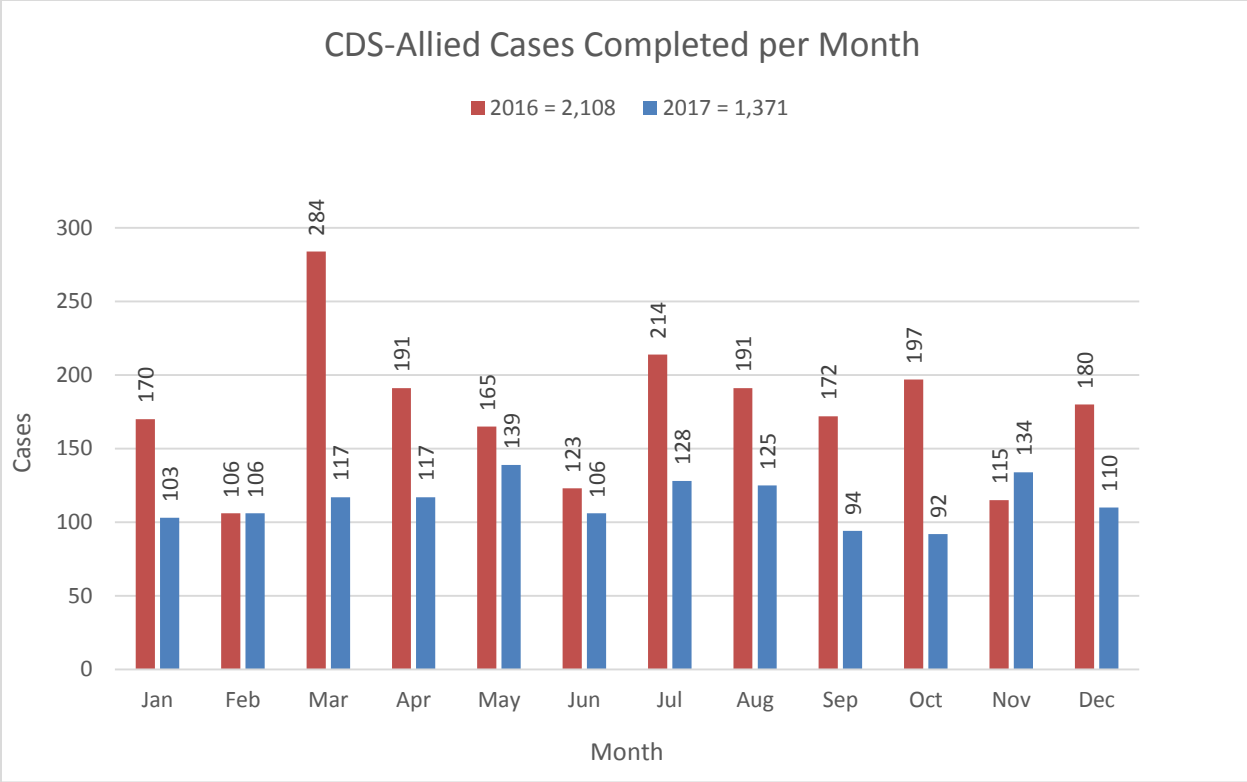
The Allied Forensic Scientists working in the CDS Units are employees of allied agencies or other governmental entities. These scientists are authorized to perform CDS analysis in FSD facilities under the provisions provided for in a Memorandum of Understanding. Even though these scientists are not MSP 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. The Frederick County Allied Chemist resigned in May 2017, and, as of early 2018, this position had not been re-filled. The CDS-Hagerstown Unit assumed the casework responsibilities and case backlog of that Allied Forensic Scientist. In this report, the Frederick County casework statistics are included under the CDS-Hagerstown Unit.

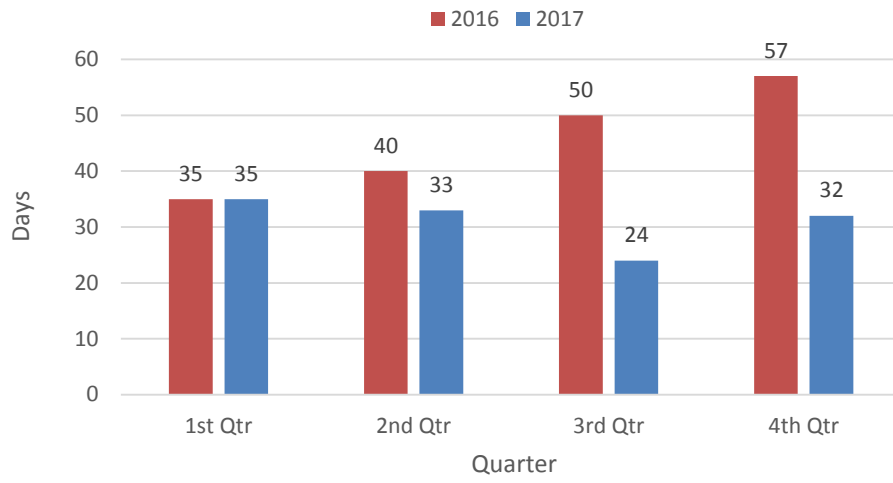


CDS Cases Received by Allied Forensic Scientists per MSP Installation		
MSP Installation	Counties Served	Submissions
MSP-North East	Cecil	185
MSP-CID/CED	Statewide	65
MSP-Waterloo	Howard	61
MSP-JFK Hwy	Cecil, Harford, Baltimore	33
MSP-CVED	Statewide	1
	TOTAL	345

CDS Cases Received by Allied Forensic Scientists from Allied Agencies per County	
County	Submissions
Cecil	520
Howard	514
TOTAL	1,034



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 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.

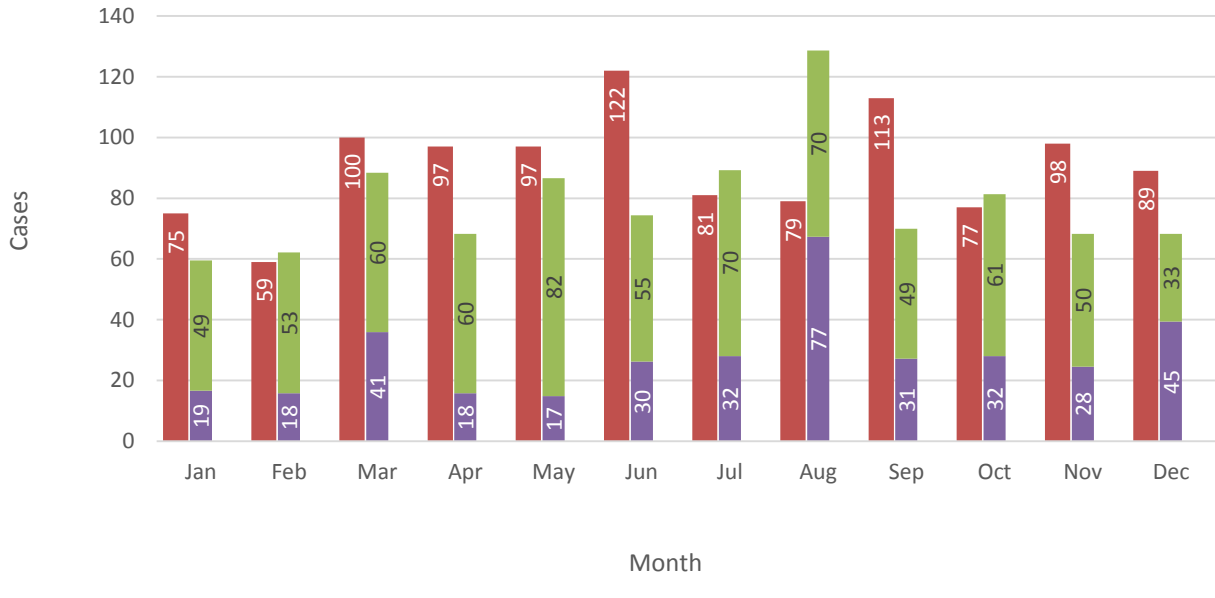
The Toxicology Unit has benefitted from the addition of a Forensic Scientist I, who has reduced the blood alcohol backlog and helped with screening of blood drug casework. Two contractual Toxicologists have further helped reduce the backlog by performing instrument validations and reviewing casework.

A major advancement in 2017 was the implementation of LC/MS/MS confirmation testing on benzodiazepines and zolpidem. This procedure has streamlined the testing and data analysis of these drug types. It is anticipated that additional LC/MS/MS methods will be implemented in 2018. These methods will expand the Unit's testing capabilities to confirm the cannabinoid drugs THC and hydroxy-THC, as well as the opioid drug fentanyl.

Due to the staffing and instrumental developments noted above, the blood alcohol and blood drug backlogs and turnaround time have been significantly reduced.

Toxicology Cases Received per Month

■ 2016 Total =1,087
 ■ 2017 Drugs =388
 ■ 2017 Alcohol =692
 2017 Total = 1,080

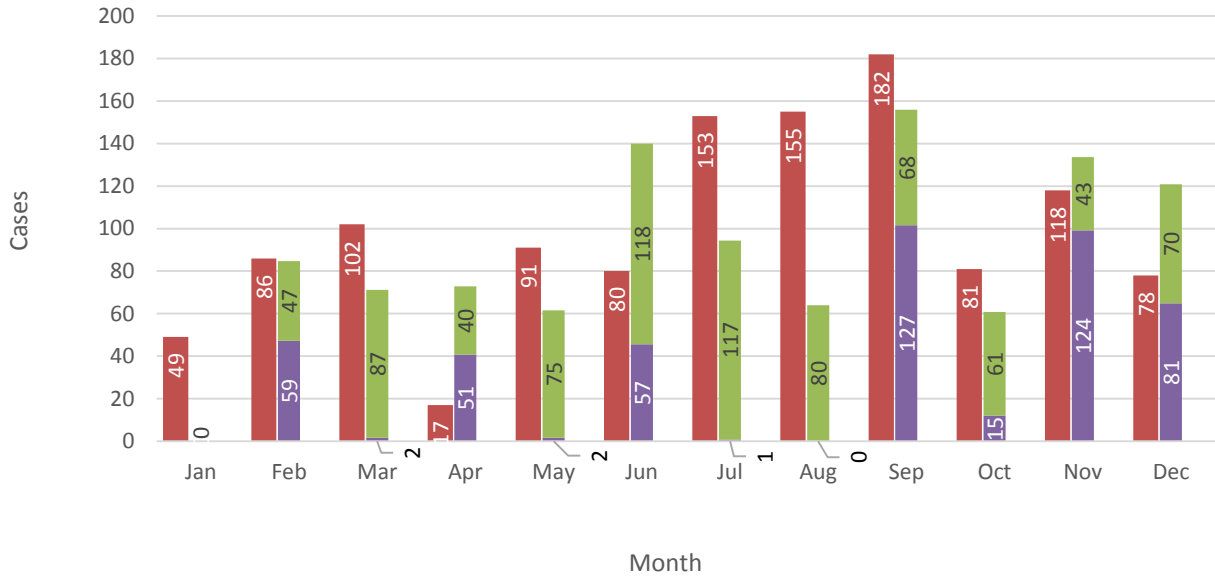


Toxicology Cases Received per MSP Installation		
MSP Installation	Counties Served	Submissions
MSP-Golden Ring	Baltimore	57
MSP-Bel Air	Harford	40
MSP-Frederick	Frederick	31
MSP-Westminster	Carroll	28
MSP-North East	Cecil	26
MSP-Hagerstown	Washington	23
MSP-Easton	Caroline, Dorchester, Talbot	22
MSP-La Plata	Charles	18
MSP-College Park	Prince George's	16
MSP-Centerville	Kent, Queen Anne's	15
MSP-Prince Frederick	Calvert	12
MSP-Glen Burnie	Anne Arundel	12
MSP-Waterloo	Howard	12
MSP-Leonardtown	St. Mary's	11
MSP-Rockville	Montgomery	11
MSP-Forestville	Prince George's	9
MSP-JFK Highway	Cecil, Harford, Baltimore	7
MSP-Cumberland	Allegany	7
MSP-Princess Anne	Somerset	6
MSP-Berlin	Worcester	6
MSP-McHenry	Garrett	5
MSP-Salisbury	Wicomico	5
MSP-Annapolis	Anne Arundel	4
	TOTAL	383

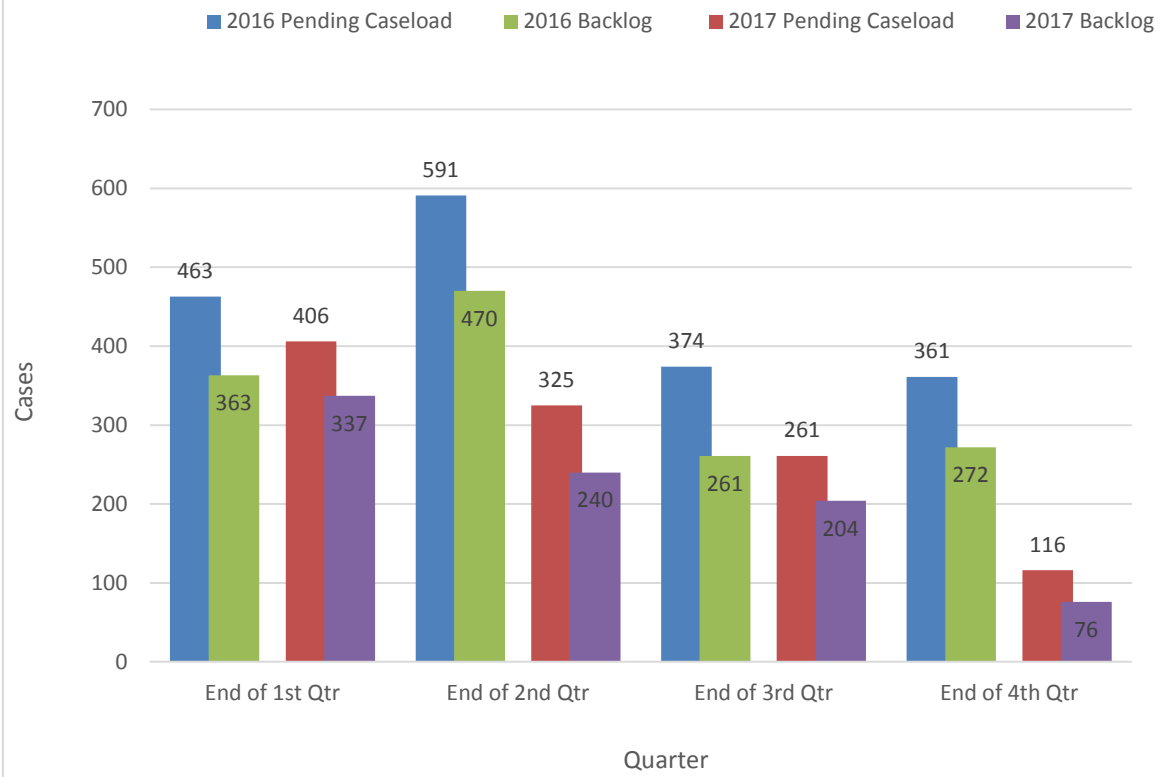
Toxicology Cases Received from Allied Agencies by County	
County	Submissions
Baltimore	116
Anne Arundel	109
Montgomery	75
Howard	54
Frederick	49
Calvert	44
Harford	37
Washington	33
Charles	32
Baltimore City	30
Prince George's	23
St. Mary's	17
Worcester	16
Allegany	15
Carroll	12
Wicomico	11
Garrett	7
Cecil	5
Caroline	3
Queen Anne's	3
Dorchester	2
Kent	2
Talbot	2
TOTAL	697

Toxicology Cases Completed per Month

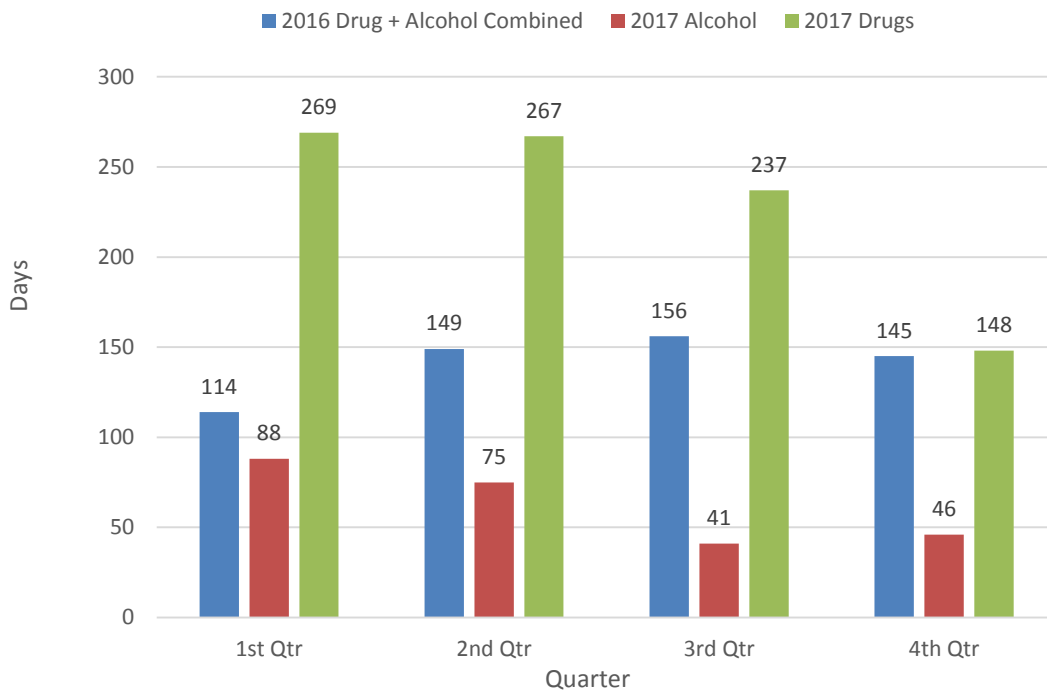
2016 Total = 1,192 2017 Drugs = 519 2017 Alcohol = 806 2017 Total = 1,325



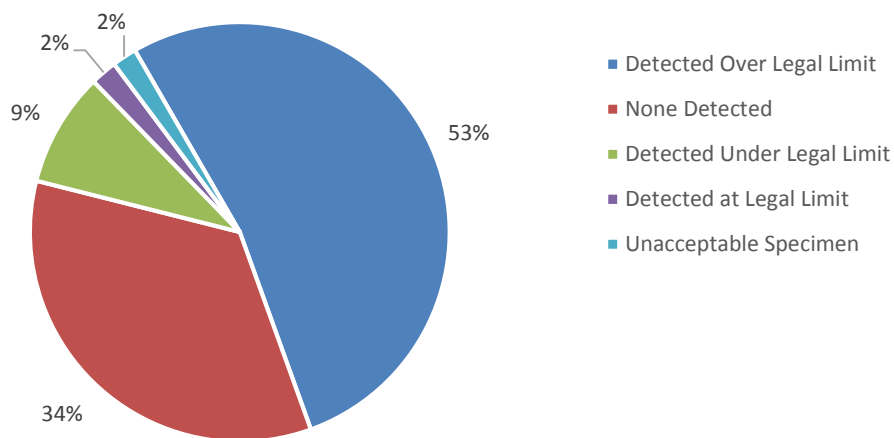
Toxicology Pending Caseload and Backlog per Quarter



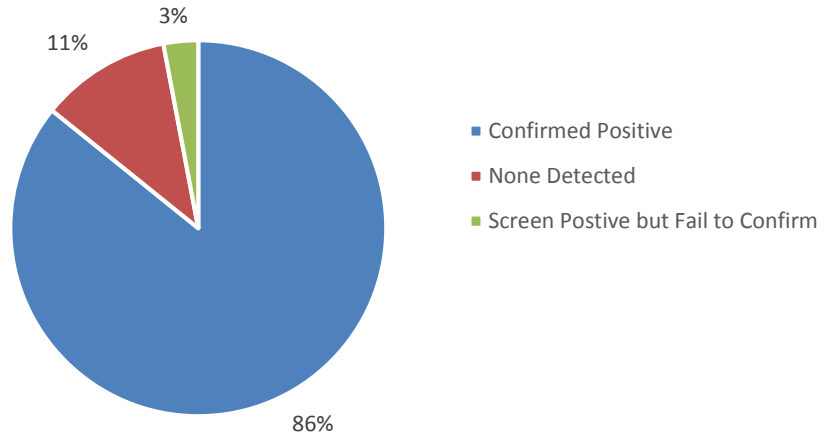
Toxicology Case Turn Around Time



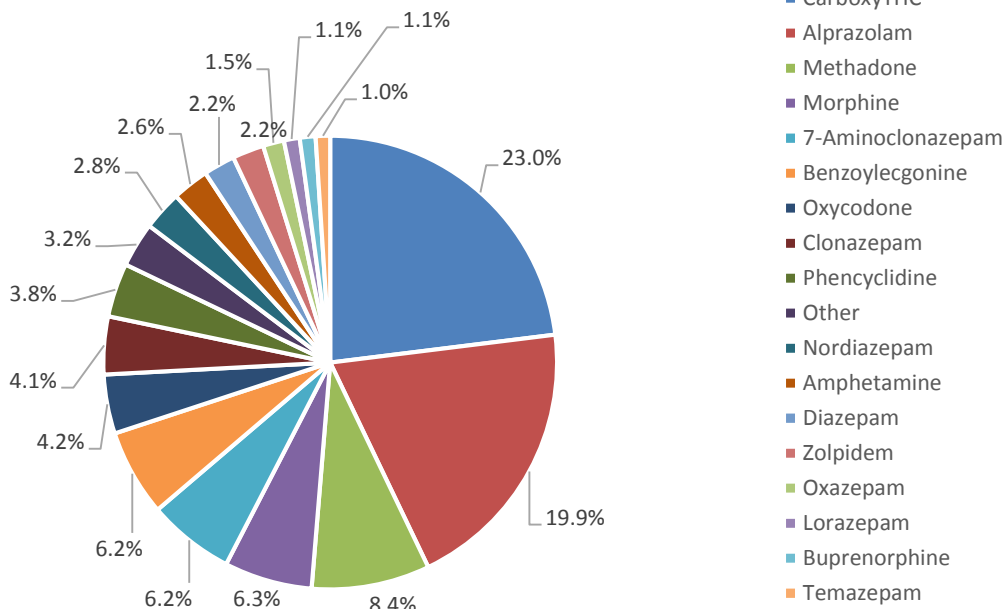
Blood Alcohol Cases Reported per Detection Level



Blood Drug Cases Reported per Result Type



Confirmed Results of Blood Drug Cases Reported per Drug Type



NOTEWORTHY CASES

The CDS Units have analyzed a significant number of cases involving fatal overdoses. In St. Mary's County, a number of undercover buys were tested as rush analyses by the Pikesville CDS Unit. Carfentanil was detected in several of these cases. Carfentanil is a fentanyl-related substance that is 5,000 times stronger than heroin. This dangerous drug was responsible for at least one overdose death in St. Mary's county. The dealers were charged with Depraved Heart Murder, and chemists testified that carfentanil and other fentanyl-related substances were detected in samples.

The Toxicology Unit analyzed a case from a fatal motor vehicle collision in Prince George's county. The driver lost control of his vehicle and crossed the median while travelling over 70 mph. His car collided with another vehicle travelling in the opposite direction, and the driver of that vehicle was pronounced deceased at the hospital. The operator of the vehicle that lost control was found to have been under the influence of PCP. This case went to trial, and the chemist testified that PCP was detected in the blood. The defendant was found guilty of criminal negligence manslaughter by vehicle or vessel.

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 five individuals: three scientists, including one Forensic Scientist Supervisor, one Forensic Scientist Advanced, and one Forensic Scientist III. The fourth position is a Forensic Inventory Control Officer. Additionally, there is one vacancy for a Forensic Scientist. The Trial Casework Unit is staffed by five scientists, including one Forensic Scientist Supervisor, one Forensic Scientist Advanced, and one Forensic Scientist III. Two additional Forensic Scientist positions in this unit became vacant in 2017.

The Database Unit is staffed by eight scientists, including one Forensic Scientist Supervisor (CODIS Administrator), two Forensic Scientists Advanced, and five Forensic Scientists III.

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. In addition, there is one vacancy for a Forensic Laboratory Technician I.

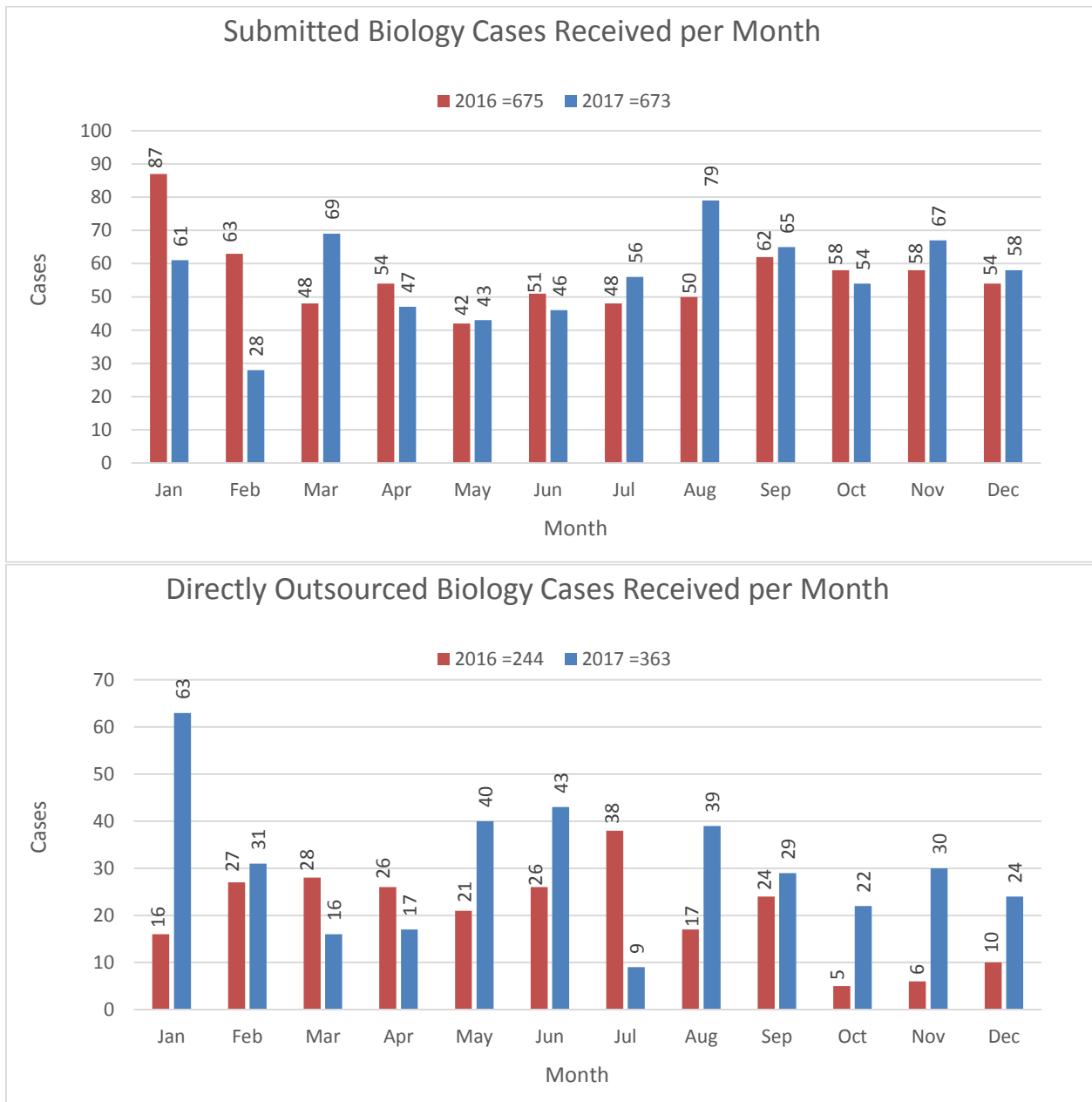
BIOLOGY CASEWORK UNITS

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. While the primary responsibility of this unit is cases with pending trial dates, it also assists 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.

The overall amount of case submissions to the Biology Section remained around the same in 2017. There were 673 cases received in the Biology Section, which is only a ~0.2% decrease from 2016. There was a 49% increase in the number of cases that were directly outsourced in 2017. 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 1.6% in 2017. This great success could not

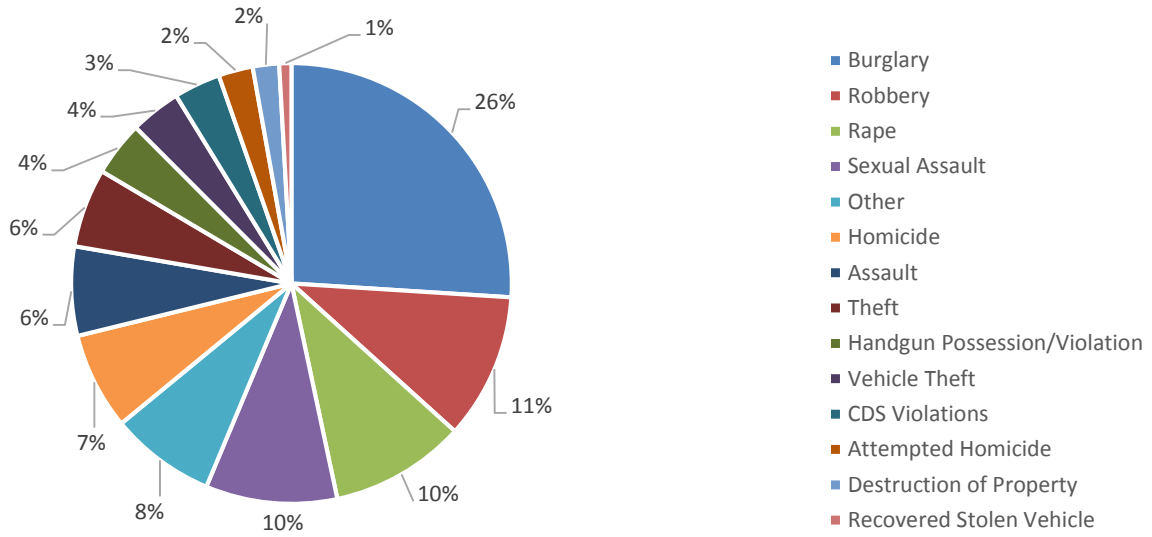
have been accomplished without the continued application of direct outsourcing, in-house outsourcing (evidence is received at FSD and then either the entire case or a portion of it is forwarded to a contracted laboratory for analysis), and in-house casework. By utilizing a combination of these three processes, the casework units have been able to continue to monitor and maintain the backlog at manageable levels.



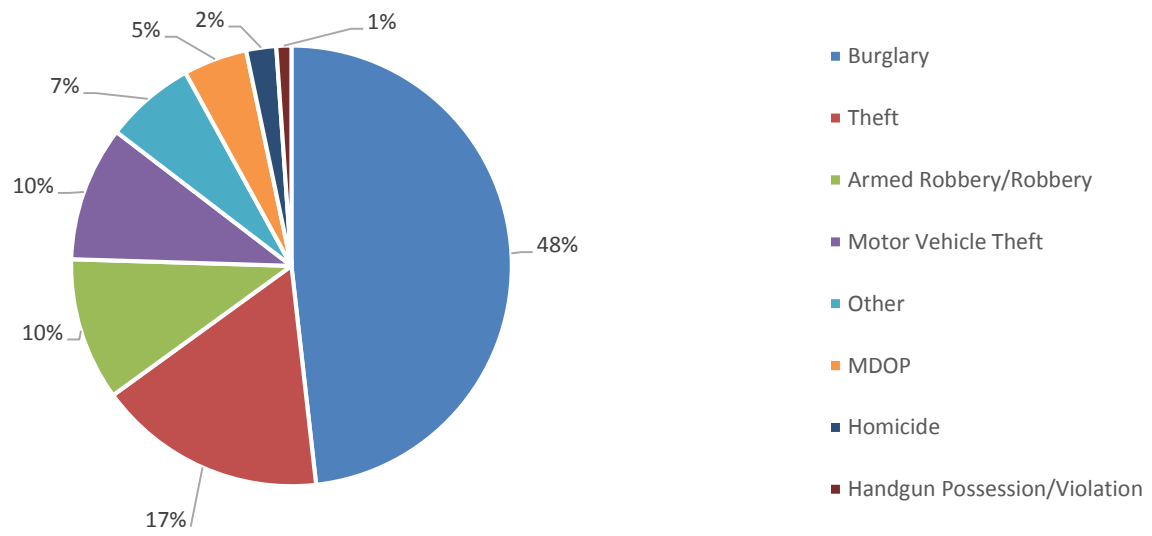
Biology Cases Received per MSP Installation				
MSP Installation	Counties Served	Case Type		
		Submitted	Directly Outsourced	Combined
MSP-CID/CED	Statewide	32		32
MSP-Salisbury	Wicomico	11		11
MSP-Homicide	Statewide	10		10
MSP-Easton	Caroline, Dorchester, Talbot	10		10
MSP-DED/C3I	Statewide	6	1	7
MSP-North East	Cecil	6		6
MSP-Westminster	Carroll	5		5
OSFM	Statewide	4		4
MSP-Crash Team	Statewide	4		4
MSP-Frederick	Frederick	4		4
MSP-Berlin	Worcester	3	1	4
MSP-Princess Anne	Somerset	3		3
MSP-Centerville	Kent, Queen Anne's	3		3
MSP-JFK Hwy	Cecil, Harford, Baltimore	3		3
MSP-McHenry	Garrett	2		2
MSP-Leonardtown	St. Mary's	2		2
MSP-Prince Frederick	Calvert	1		1
MSP-Golden Ring	Baltimore	1		1
MSP-Hagerstown	Washington	1		1
MSP-Rockville	Montgomery	1		1
MSP-Annapolis	Anne Arundel	1		1
MSP- Cumberland	Allegany	1		1
	TOTAL	114	2	116

Allied Agency Cases Received by Biology per County			
County	Case Type		
	Submitted	Directly Outsourced	Combined
Charles	88	158	246
Frederick	65	45	110
Anne Arundel	21	57	78
Wicomico	71	2	73
Worcester	31	34	65
Harford	53	7	60
Washington	42	13	55
St. Mary's	19	31	50
Cecil	49	0	49
Carroll	23	9	32
Prince George's	15	3	18
Dorchester	16	0	16
Queen Anne's	16	0	16
Caroline	12	1	13
Talbot	12	1	13
Calvert	9	0	9
Somerset	8	0	8
Kent	5	0	5
Allegany	1	0	1
Baltimore City	1	0	1
Garrett	1	0	1
Howard	1	0	1
TOTAL	559	361	920

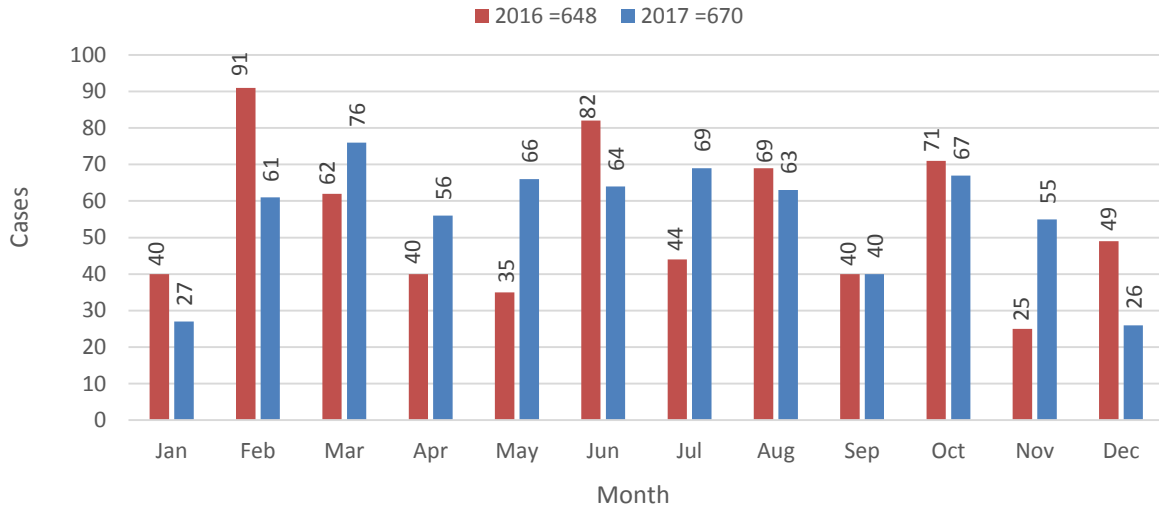
Submitted Biology Cases Received per Crime Type



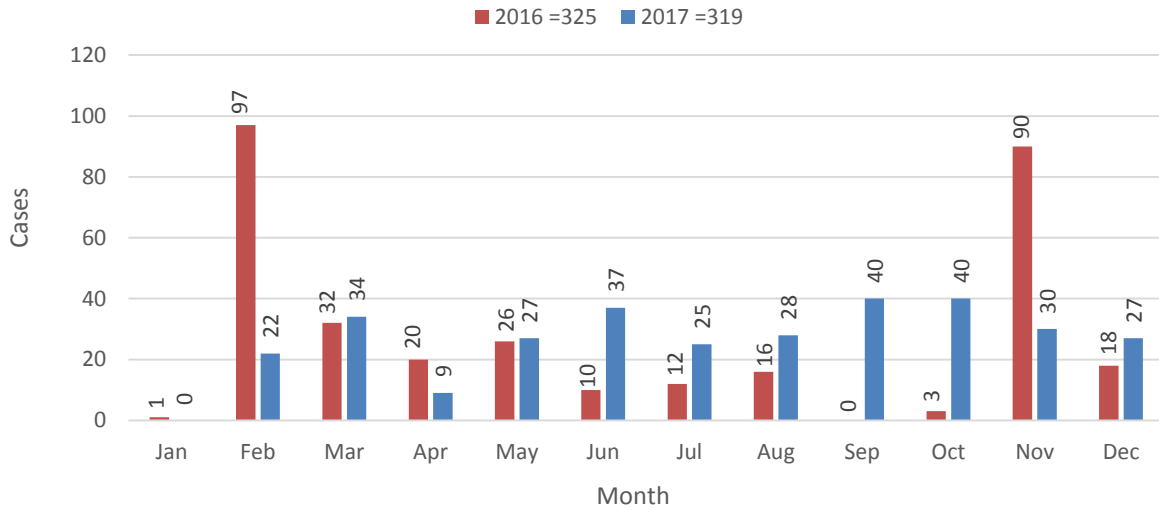
Directly Outsourced Biology Cases Received per Crime Type



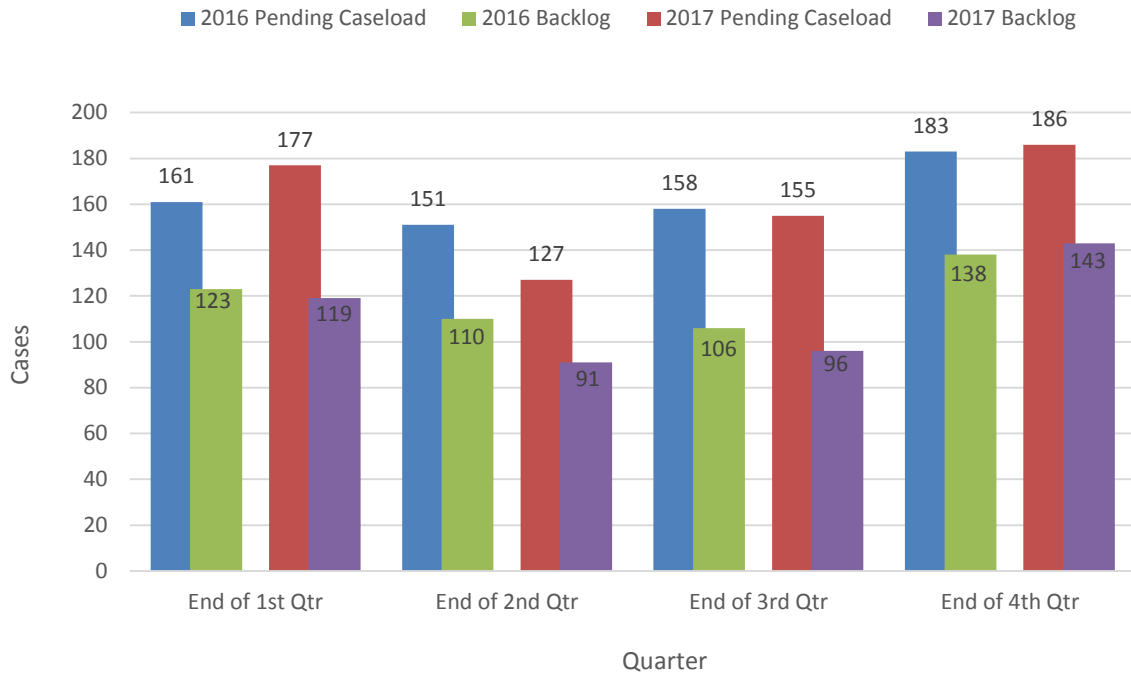
Submitted Biology Cases Completed per Month



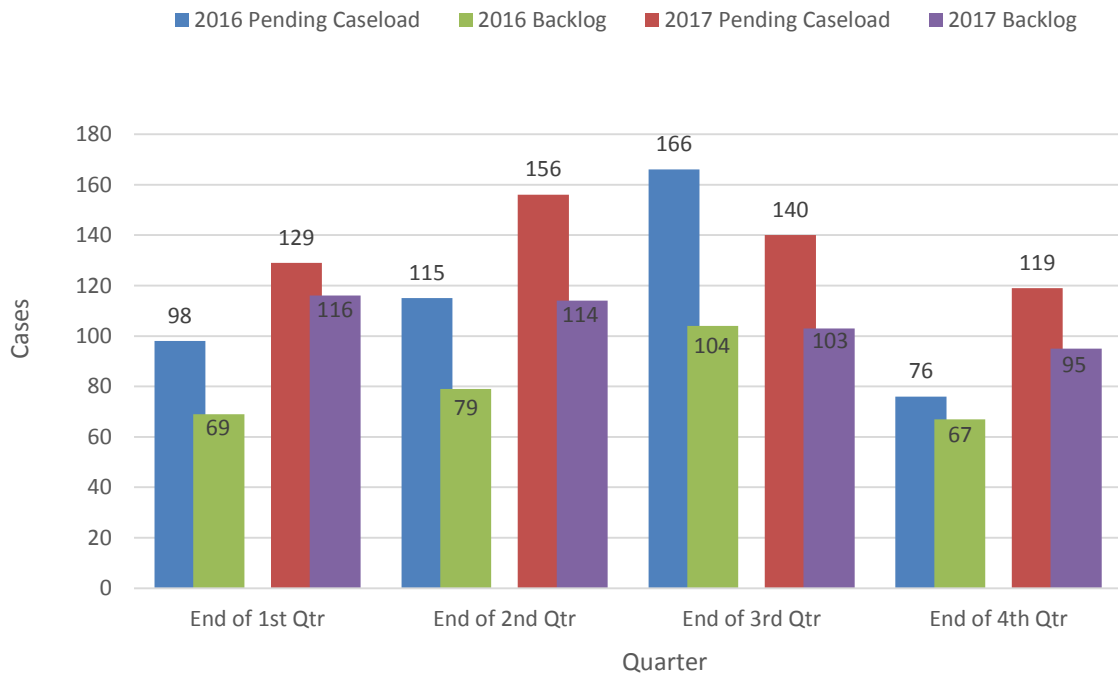
Directly Outsourced Biology Cases Completed per Month

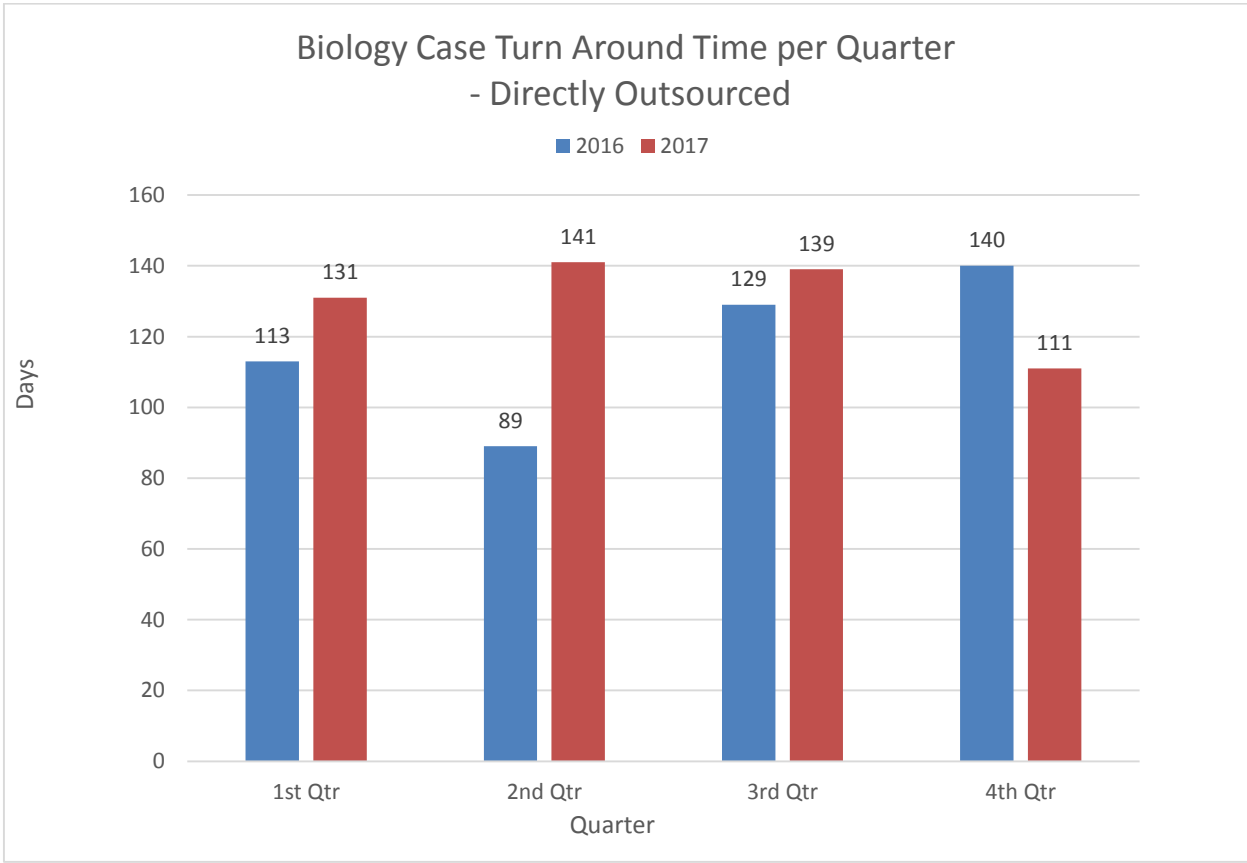
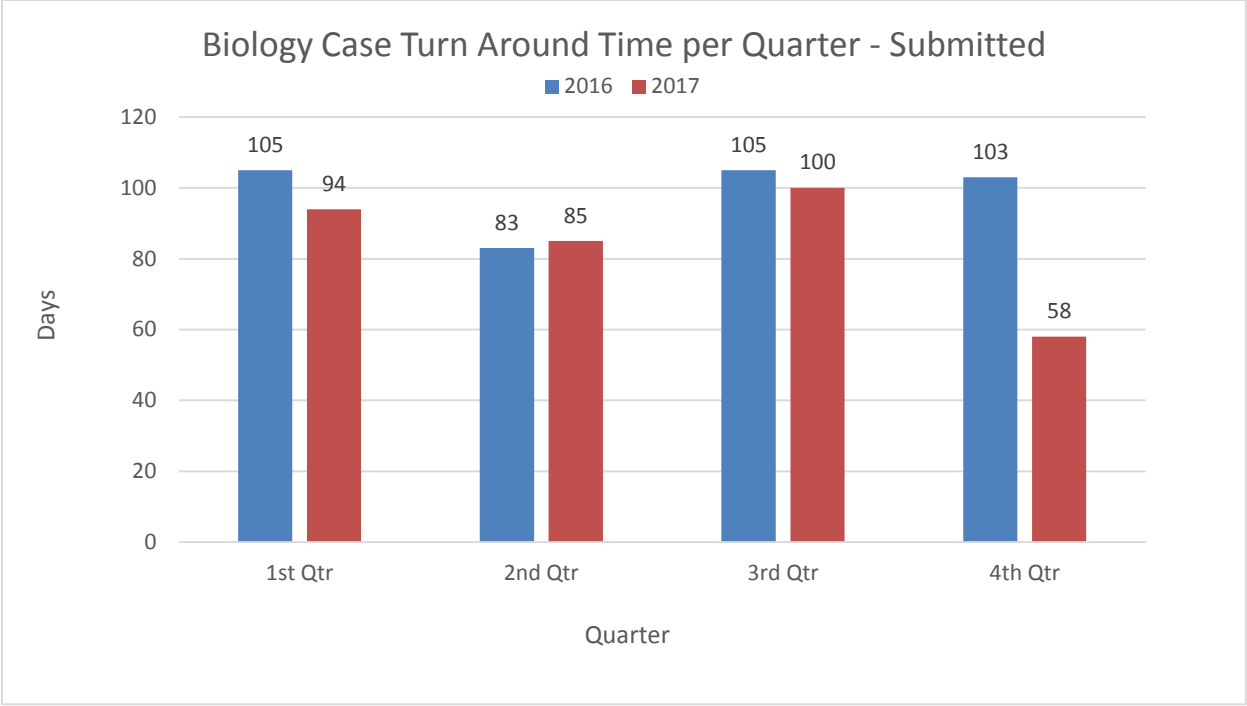


Biology Pending Caseload and Backlog per Quarter - Submitted



Biology Pending Caseload and Backlog per Quarter - Directly Outsourced

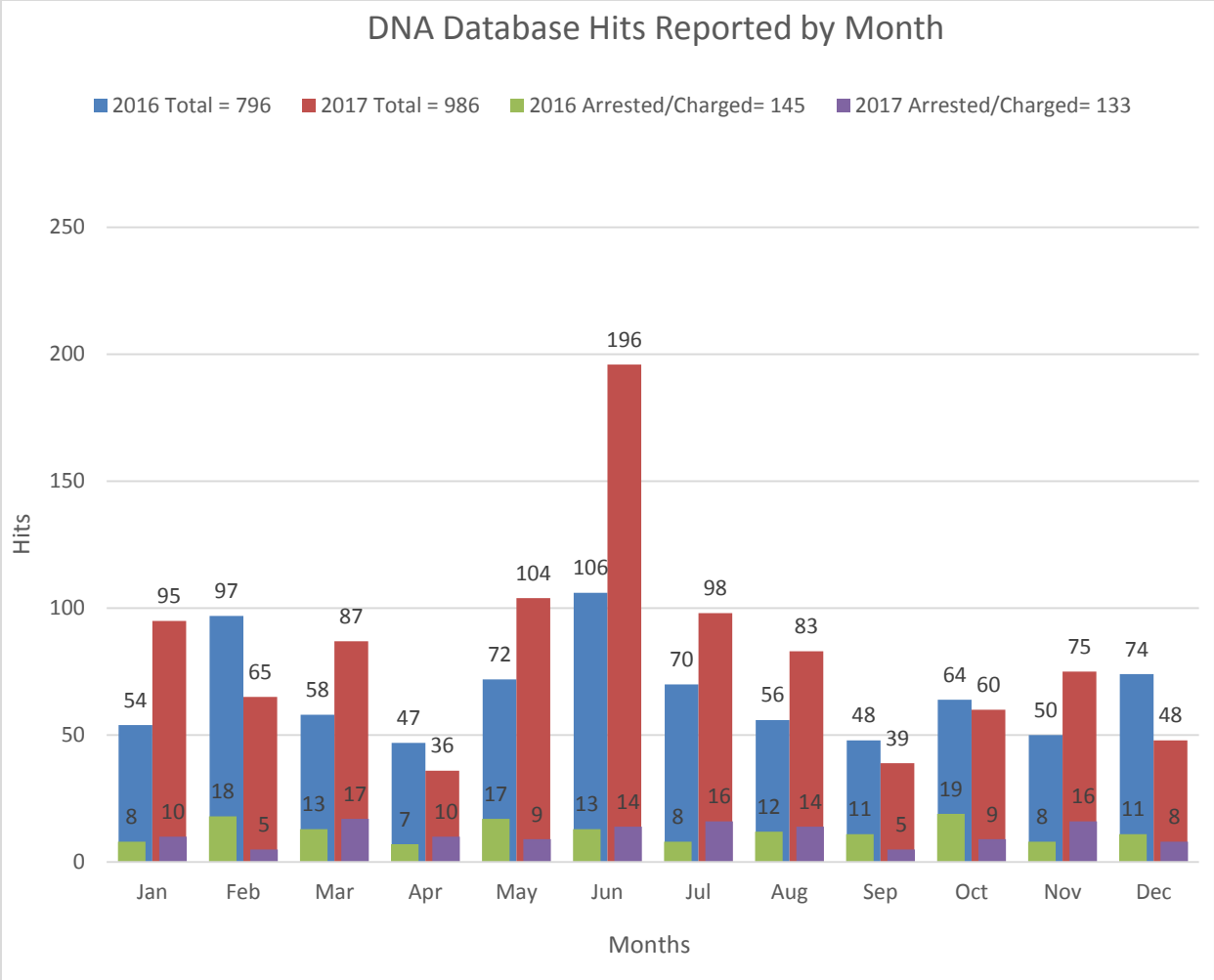




BIOLOGY DATABASE UNIT

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.

In 2017, the DNA Database Unit mapped out the complete life cycles of offender and arrestee DNA Database samples and the roles that each partner agency plays in the process. This mapping resulted in a set of intricate flowcharts that consider all possibilities associated with the processing of a DNA Database sample. These flowcharts will be integral teaching tools for MSP-ITD staff who become involved with the DNA Database operation. Furthermore, the flowcharts will be invaluable resources for communicating our needs to members of the Department of Public Safety and Correctional Services, and the Judiciary.



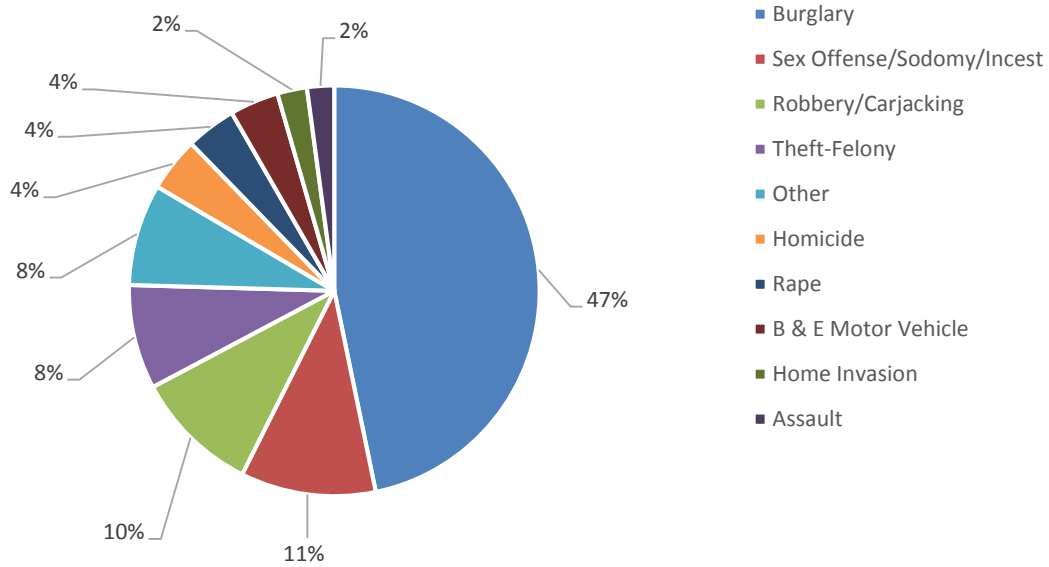
Maryland Case DNA Database Hits	
	Hits
Hits to Offenders/Arrestees (MD or National)	401
Hits to Cases (MD or National)	585
Total	986

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.

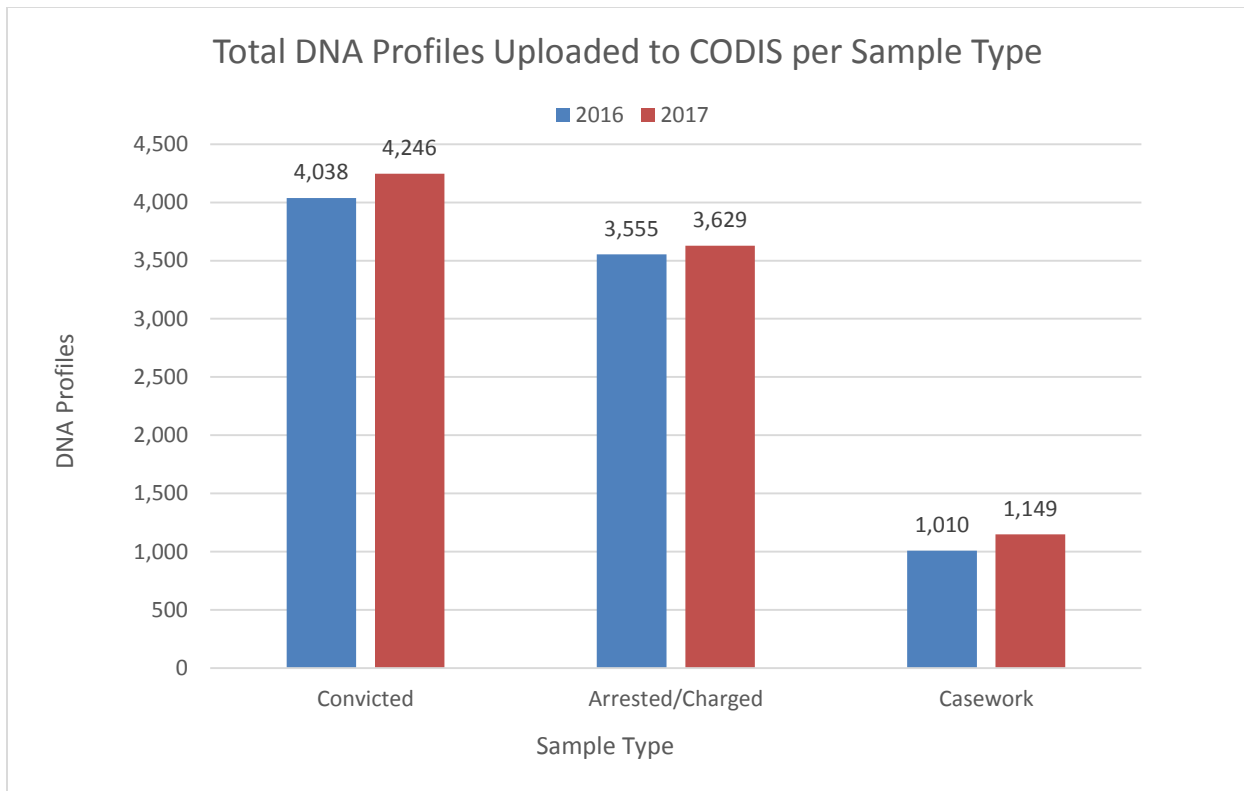
Maryland Case DNA Database Hits by County	
County	Hits
Baltimore City	394
Anne Arundel	108
Montgomery	92
Prince George's	84
Baltimore	67
Charles	45
Washington	33
Frederick	32
Howard	26
Harford	20
Wicomico	18
Worcester	16
Cecil	10
Talbot	9
Carroll	7
St. Mary's	5
Somerset	5
Calvert	5
Caroline	4
Allegany	3
Queen Anne's	2
Kent	1
TOTAL	986

Maryland DNA Database Case Hits by Crime Year	
Crime Year	Hits
1990	1
1991	2
1992	1
1993	1
1994	2
1995	3
1996	2
1997	1
1998	5
1999	2
2000	1
2001	1
2002	5
2003	8
2004	10
2005	14
2006	20
2007	16
2008	17
2009	18
2010	20
2011	16
2012	20
2013	31
2014	48
2015	82
2016	433
2017	197
Unknown	9
Total	986

Maryland Case DNA Database Hits per Crime Type



Maryland Offender/Arrestee DNA Database Hits per Crime Jurisdiction	
Jurisdiction	Number of Hits
Maryland	328
District of Columbia (Metro PD)	28
Virginia	9
FBI	8
Delaware	4
New York	3
Texas	3
Florida	2
North Carolina	2
Ohio	2
West Virginia	1
Pennsylvania	1
ATF	1
Arkansas	1
Michigan	1
New Jersey	1
Total	395



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.

In 2018, the Technical Unit will:

- continue to examine and validate new instruments that are necessary to replace the current instruments that are becoming outdated,
- implement any new policies and procedures to bring the Biology Section into compliance with ANAB Standards, and
- provide any resources necessary to those within the Biology Section, and across the entire FSD, to further their preparation for aspects of the ABC Certification exam that is specific to forensic biology.

NOTEWORTHY CASES

A juvenile victim was found partially dressed and disoriented. Her clothing was found concealed in a wooded area. She did not remember what happened or how she ended up in the woods. A SAFE exam was completed and submitted to the lab for analysis. Semen was identified on the vaginal swabs, anal swabs and external genitalia swabs. A profile was entered into CODIS, which did not result in any hits. After a few months, the detective for this rape case sent in a known standard from a possible suspect. The suspect was a juvenile male who was also a suspect in a homicide of a juvenile female. This suspect was found to have had recent contact with the victim in the rape case before the assault happened. The suspect standard which was submitted for comparison matched the unknown profiles in the rape case.

On back-to-back evenings, an unknown male suspect contacted two victims on a "Backpage" ad, which is commonly used for prostitution. It was believed the suspect was targeting prostitutes. Additional female victims were assaulted so it was believed that he was a serial rapist. The first victim was raped at knife point without a condom and the second victim fought him off during the attempted rape and believed that she cut him with her razor knife. The rape kit from the first victim, swabs of possible blood from the second victim (looking for blood from the suspect's injuries), and swabs from the razor blade were submitted for analysis. The same unknown male was present on the sperm fraction from the vaginal swabs and external genitalia swabs of the first victim and on the swabs from the blood-indicated stains on the second victim's forearm and pants leg. This unknown profile was entered into CODIS, which did not result in any hits. A suspect was developed by the submitting agency and submitted for comparison. He matched the unknown male profiles obtained from both victims.

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 TES works closely with our allied agencies so that the various types of examinations included in this discipline are available to the citizens of Maryland. The TES 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 TES are also reviewing casework from Baltimore City and Baltimore County when needed. TES examiners conduct analysis of paint cases for the Baltimore County PD. As the Baltimore City and Baltimore County laboratories continue to discontinue offering Trace Evidence services, the FSD will absorb cases from those jurisdictions, when possible. Previously, an agreement had been made between FSD and Baltimore County for glass analysis to be performed by Baltimore County. As of early 2018, Baltimore County was no longer offering this service. In fact, no public forensic laboratory in Maryland is currently conducting glass analysis.

TRACE EVIDENCE UNIT

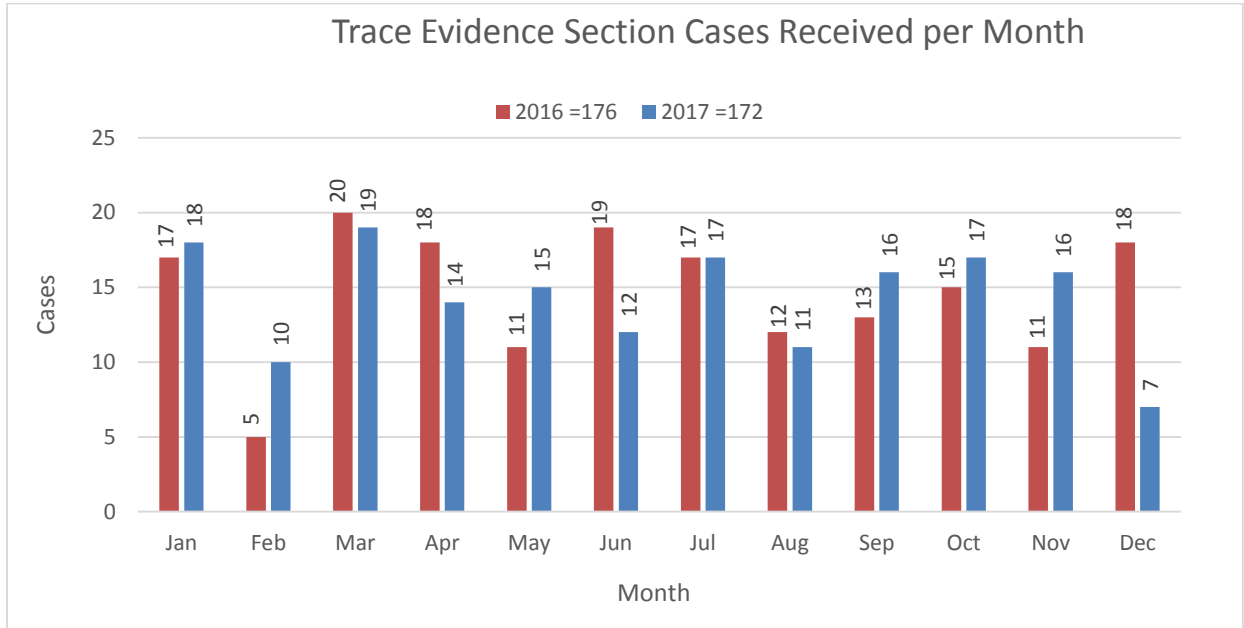
The Trace Pattern Sub-Unit performs analyses on evidence that either contains or produces a unique pattern that provides beneficial information to the investigators of the case. These analyses include Fracture Matches, Lamp Examinations, Nature of Damage (including Direction of Force, Fabric Separation, 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 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 the examination of hair 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 2018.

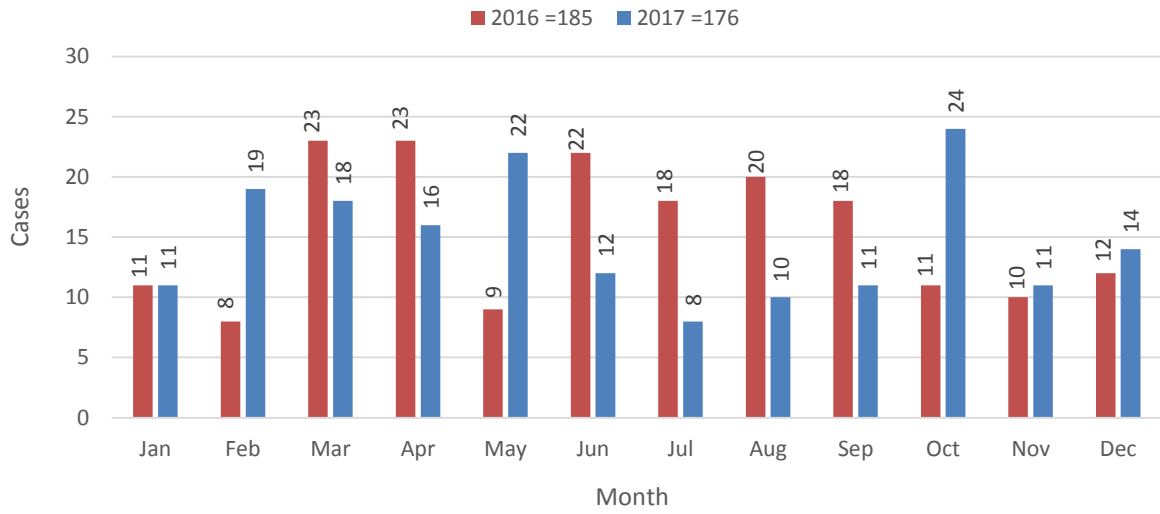


Trace Evidence Section Cases Received per MSP Installation		
Installation	Counties Served	Submissions
MSP-Homicide	Statewide	5
MSP-CID/CED	Statewide	4
MSP-Bel Air	Harford	2
MSP-Crash Team	Statewide	1
MSP-Princess Anne	Somerset	1
MSP-Westminster	Carroll	1
MSP-Salisbury	Wicomico	1
	TOTAL	15

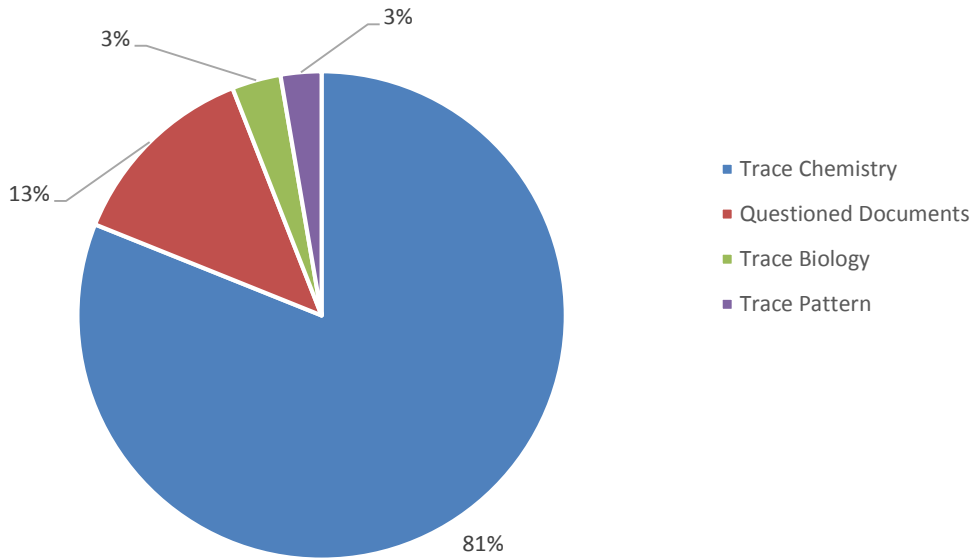
OSFM Cases Received by the Trace Evidence Section per OSFM Region		
Region	Counties Served	Submissions
OSFM - Southern	Calvert, Charles, St. Mary's	13
OSFM - North East	Harford, Cecil	12
OSFM - Upper Shore	Caroline, Kent, Queen Anne's, Talbot	11
OSFM - Lower Shore	Dorchester, Somerset, Wicomico, Worcester	9
OSFM - Western	Allegany, Garrett, Washington	8
	TOTAL	53

Allied Agency Cases Received by TES per County	
County	Submissions
Anne Arundel	34
Baltimore	27
Montgomery	15
Frederick	7
Howard	7
Baltimore City	3
Prince Georges	3
Harford	2
Wicomico	2
Worcester	2
Charles	1
Washington	1
TOTAL	104

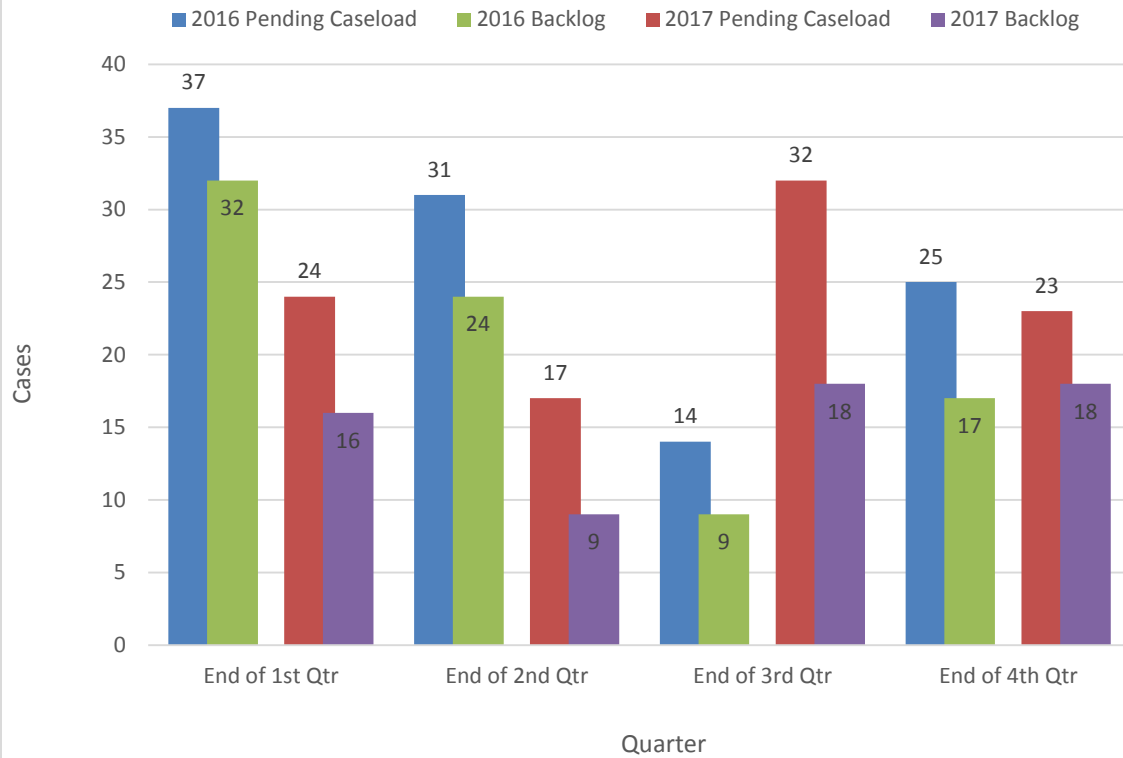
Trace Evidence Section Cases Completed per Month



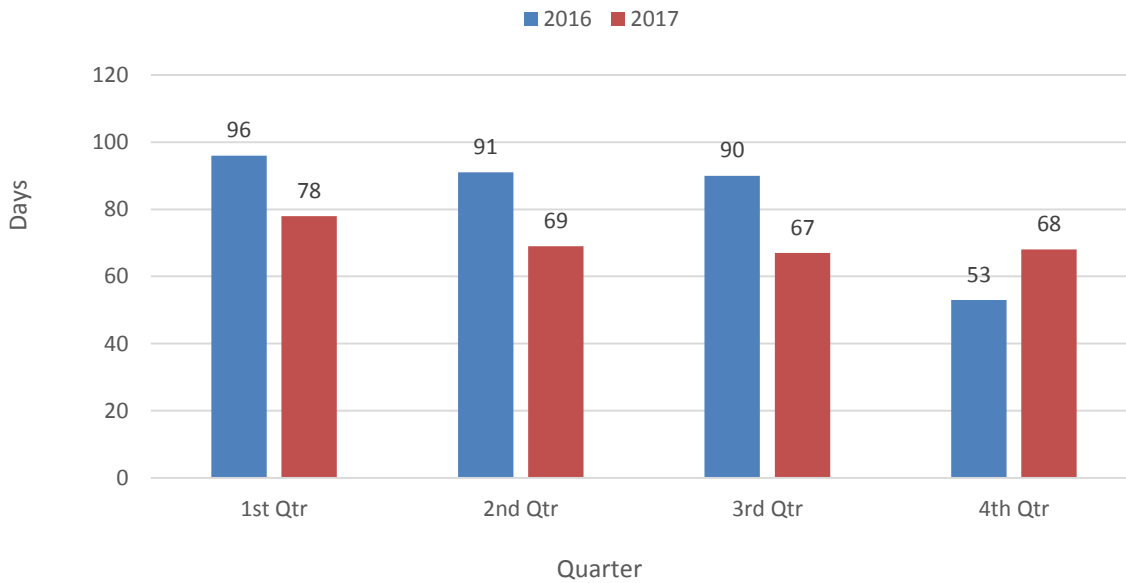
Trace Evidence Section Cases Completed by Sub-Unit



Trace Evidence Section Pending Caseload and Backlog per Quarter



Trace Evidence Section Case Turn Around Time per Quarter



NOTEWORTHY CASES

In March 2017, a Detective from the Frederick Police Department who was investigating a series of commercial burglaries along with multiple allied agencies submitted a yellow crowbar and yellow paint chips for comparison. The analysis confirmed that the paint chips could have come from the submitted crowbar. In July 2017, the Anne Arundel County Police Department submitted several small yellow paint chips from a commercial burglary that had also occurred in March. This paint was compared to the Frederick Police Department evidence and it was determined that it could have originated from the same source. Both agencies were notified of the possibility of the same suspect's committing the burglaries.

EMPLOYEE RECOGNITION

Employee of the Month Recipients	
Month	Award Recipient
January	Tina Bankard, Front Desk Receptionist (Pikesville)
February	Jessica Taylor, Forensic Scientist III (CDS-Berlin)
March	Shelly Adams, Forensic Inventory Control Officer (Berlin)
April	Stephanie Roberg, Forensic Scientist Supervisor (LPIU-Pikesville)
May	Naomi McAuley, Forensic Inventory Control Officer (Hagerstown)
June	Diane Lawder, Forensic Scientist Advanced (Trace Evidence)

Unit Citations

The members of the Maryland State Police Forensic Sciences Division's Biology Section demonstrated superior performance by implementing a complete overhaul of the DNA testing platform required as a result of the expansion of the CODIS core loci. This monumental achievement, which included contributions from every member of the Biology Section, was completed ahead of schedule and without any negative impact on the normal DNA Database and DNA Casework operations.

Each member of the Latent Print / Impressions Unit of the Maryland State Police Forensic Sciences Division is currently recognized by the International Association for Identification as a certified latent print examiner. Certification is a voluntary process that signifies a latent print examiner meets or exceeds the training, educational, and professional experience requirements set by the Certification Board. The LPIU became the first Unit within FSD to have 100% of its staff certified by an external Certification Board.

Commander's Award for Outstanding Performance

**Laura Waters, Forensic Scientist Supervisor
&
Wayne Shu, Forensic Scientist Advanced
Toxicology Unit**

The casework backlogs for Blood Alcohol analysis and Blood Drug analysis reached all-time highs in 2016 due to a continued lack of staffing. Despite the enormous pressure and stress of there being only two fully trained Forensic Scientists in the Toxicology Unit over the past four years, Ms. Waters and Mr. Shu refused to let the Toxicology Unit fail. As a result of their dedication, determination, and hard work, the casework backlog in Blood Alcohol has been eliminated and the casework backlog in Blood Drug has decreased by 50% since the start of the year. Their extraordinary planning, perseverance, and skill serves as an example for all of MSP-FSD.



END OF DOCUMENT