



**2022**

**ANNUAL REPORT**

**MARYLAND STATE POLICE**

**FORENSIC SCIENCES DIVISION**



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## **2022 FORENSIC SCIENCES DIVISION TEAM MEMBERS**

Matt Abbott	Tim Gerlach	Rebecca Levine	Cat Rust
Shelly Adams	Danielle Goodnow	Jennifer Lewis	Cathy Savage
Whitley Abrams	Laura Gossard	Deniece Lobban	Liz Schneider
Kris Amspacker	Michelle Groves	Ross Lowe	Lindsey Schultz
Jose Ayala	Amy Hager	Roshell Mack	Adonia Sedore
Tina Bankard	Arnetta Haith	Argi Magers	Kelly Sexton
Heather Baxivanos	Melissa Harvey	Alex Mankevich	Wayne Shu
Kevin Beardsley	Bruce Heidebrecht	Amber McConnell	Ed Sisco
Laura Beck	Debbie Heller	Corrie Mellott	Joshua Smith
Jason Befus	Makenzie Hooper	C.R. Miller	Tiffany Smith
Delaney Berryman	Jeanine Hotchkin	Jamie Miller	Barbara Solomon
Jim Betts	David Iden	Shawn Miller	Angie Spessard
Laurel Bobka	Linda Idso	Gary Moore	Darby Stemple
Megan Buck	Ikenna Ikpeama	Leslie Mounkes	Zach Suber
Tristan Buckley	Maggie Iman	Jaimie Myer	Bruce Tanner
Jessica Bullis	Valerie Imschweiler	Nicholas Palmer	Mekonnen Tesfaye
Kathy Busch	Jenn Jeudy	Jim Patrick	Dawn Trusty
Myrna Canales	Andy Johnson	Kenedy Patterson	Natalie Wasicko
Yale Caplan	Sashi Kambhampati	Madison Pennington	Laura Waters
Michelle Cataldo	Dan Katz	Greg Phillips	Lyndon Watkins
Theresa Chamberlayne	Tiffany Keener	Jon Phillips	Rosalie Weimer
Theresa DeAngelo	Amy Kelly	Rita Phillips	Brooke Welsh
Brooke Demby	Julie Kempton	Alicia Quinn	Katelyn Wentworth
Mitch Dinterman	Susan Kim	Ying Ren	Michael Whitmore
Norman Dofflemyer	Angela Kortchak	Douglas Reiner	Heath Wilkins
Tony Edoga	Wanda Kuperus	Theia Rene	Stacey Wise
Jessie Fisher	Subha Kuriakose	Tristan Rice	Lauren Wolfe
Sierra Fleegle	Hannah Lang	Stephanie Roberg	Sam Woods
Christina Fraling	Stephanie Laufert	Stephanie Roe	Annie Wright
Patricia Frantz	Diane Lawder	Meagan Rogers	Carol Young
Gisselle Fredericks	Cesia Lazo Vera	Pat Rogers	Teri Zerbe
Alla Frenkil	Sara Lee	Rebecca Roher	
Nancy Garcia	Taylor Lentz	Richard Russell	

## **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: Crime Scene, Latent Prints/Impressions, Firearms/Toolmarks, Controlled Dangerous Substances (CDS), Toxicology, Biology, Trace Evidence, and Questioned Documents. Although the MSP-FSD operates under the administration of the Maryland State Police, the laboratory is available to provide services to all law enforcement agencies in Maryland and partners outside of the state. The MSP-FSD is accredited by ANSI 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 and conforms to *ISO/IEC 17025 - General requirements for the competence of testing and calibration laboratories*.

The MSP-FSD employs approximately 100 personnel who work 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 Administrative Services Branch, the Field and Evidence Services Branch, and the Laboratory Services Branch. The Office of the Director consists of the Director, Deputy Director, Assistant Commander, Captain, 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 a Captain oversees the operational logistics of the Division, a Lieutenant oversees the Field and Evidence Services Branch, the Deputy Director oversees the Laboratory Services Branch, and the Quality Assurance/ Safety Manager oversees the Administrative Services Branch. The Field and Evidence Services Branch consists of the Crime Scene Section and the Forensic Support Services Section. The Laboratory Services Branch consists of the following Sections: Pattern Evidence, Chemistry, Biology and Trace Evidence. The Administrative Services Branch consists of the Administrative Support Staff Unit and Data Support Unit. The personnel within the Field and Evidence Services Branch and the Laboratory Services 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, impartial, 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, inclusive, equitable, unified, and safe 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 within a diverse workplace.
- 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 MESSAGE**

*Daniel E. Katz*

Another year has passed, and while we always are looking forward to the future and what lies ahead, it is critical that we memorialize and comment on what we achieved in 2022. This is important so that we can identify both where we have excelled, as well as where there are opportunities for improvement. Perhaps more than anything though, this annual report should be a source of pride for the entire Forensic Sciences Division. While our casework statistics continue to depict an operation that is at the top of its game, I want to make sure that we look beyond the statistics. It is important that we see the impact that the people of this Division have made and continue to make on our community each and every day.

It can be very easy to lose focus of why we do what we do. We may be struggling to balance our work and home lives. We may be stressing over meeting the expectations of our co-workers, our customers, and ourselves. We may be feeling burnt out. Whatever the reason, sometimes we simply need to re-center ourselves. To that end, I would like to highlight a number of cases that FSD handled in 2022 that demonstrate the many ways that we make a difference. Our work serves the criminal justice system on many fronts and benefits people across a multitude of jurisdictions.

Let us first consider all the ways that our work impacts criminal justice. While investigators and attorneys are essential to taking a case from fact finding through legal disposition, neither party could be successful without the work of the Crime Scene Technicians, Forensic Scientists, and other professionals within FSD.

Investigators routinely require our assistance to sort out what actually happened at a crime scene. On one hand, this can be because of a lack of witnesses to the crime; and on the other hand, it may be because there were so many people involved that the sheer chaos of the event prevents a clear picture. A great example of the latter was a shootout with multiple shooters that occurred at a community 4th of July party in Cambridge that left a 24-year-old father dead. The Crime Scene Technicians recovered several shell casings from the scene and submitted them to the Firearms/Toolmarks Unit. One of these shell casings had a NIBIN hit that linked this casing to another casing from a Baltimore City case. In addition, Crime Scene Technicians also processed guns collected from the scene that were submitted for fingerprints and DNA. The DNA swabs were submitted to the Biology Section, which resulted in a hit/identification on one of the items to another individual not originally identified as a person of interest. One fingerprint impression was retained in the Maryland unsolved latent database. Ultimately, with the help of information developed through the work of FSD, a total of 11 individuals were arrested in connection with this homicide.

Sometimes it is clear who was involved in the crime, but forensic testing is needed to prove that a crime occurred and to facilitate the prosecution of the perpetrator. For example, in September 2022, blood samples tested by the FSD Toxicology Unit helped secure a 15-year prison sentence for a negligent homicide while driving under the influence case. The head-on vehicle crash occurred in 2020. Five people were found on the scene with injuries, including one fatality and two still trapped in their vehicles. Further investigation and accident reconstruction revealed that a Nissan Altima driven by the defendant had been traveling at a high rate of speed

when he crossed the centerline and hit a Kia Sorrento. Our testing revealed that the defendant's blood alcohol content at the time of the crash was 0.13 grams of alcohol per 100 milliliters, above the legal limit.

Without a doubt, our ability to utilize impartial scientific findings to ensure justice for victims and their families, as well as for those falsely accused, reinforces how noble a profession forensic science is. Another aspect of the job that can be very rewarding is when our work brings closure to the family of a victim. In May 2022, Crime Scene Section personnel were called to Clear Spring in Washington County for the investigation of a decomposing body found in a ditch. The death investigation was challenging due to the extreme state of decomposition and required the use of shovels, metal detectors and sifting over two days to complete the body excavation. The Latent Prints / Impressions Unit made the successful identification of the deceased individual from a detached finger. The deceased was identified as Bryan Patrick Harley, a Hagerstown man missing since January 2022.

The impact that our work can have on the criminal justice system is clearly significant. That significance is magnified when we consider how many communities our work impacts. As the crime laboratory for the Maryland State Police, we provide forensic services for all 23 counties within the State as well as Baltimore City. There are some larger jurisdictions that have their own forensic resources, but even those agencies depend on us for Trace Evidence, Questioned Documents, and Toxicology analysis, as we are the only laboratory in the State providing those services. In 2022, 31% of FSD's crime scene responses and 67% of FSD's laboratory cases were for Allied Agencies, demonstrating how much local communities depend on us. That being said, often local cases deal with crimes that have the potential to cross borders near and far.

The CDS unit in Pikesville conducted a same-day analysis of a liquid from a large can of PCP that was seized by an MSP task force in August 2022. A total of 37 gallons of suspected PCP was seized and was packaged in 30 metal 'soup can' containers. After the lab's initial report indicated PCP, Anne Arundel County State's Attorney's Office requested five additional cans to be tested. To ensure the safety of the scientists, the Unit requested the help of the Howard County HAZMAT team to help sample and repackage the large cans of PCP. The suspect took a plea in December 2022. This was an Anne Arundel County case, but it is easy to imagine how jurisdictions throughout Maryland benefited from removing 37 gallons of a dangerous CDS like PCP from the streets.

The power of the forensic databases such as CODIS, AFIS, and NIBIN is their ability to link cases and offenders not only within Maryland, but also across the nation. The following is an example of a case that involved crimes in three different states separated by over 1,500 miles. In September 2022, a 2006 MSP Homicide Cold Case was solved with the help of Forensic Investigative Genetic Genealogy (FIGG) and the use of the CODIS database. MSP charged a Florida man, in connection to a 2006 murder of a young woman found on Interstate 70 in Frederick. He was charged with first- and second-degree murder and first- and second-degree assault. Back on August 18, 2008, a search of the CODIS database resulted in an unknown DNA match between this case and a 1996 Michigan case. The DNA profile match to an unknown male linked the two cases, and the investigation remained open for 14 years. In August 2022, MSP's Homicide Unit received a call from Michigan informing them that, using FIGG, a suspect had been identified in the 1996 Michigan cold case, and in turn in the 2006 MSP cold



case. Furthermore, investigators from Michigan obtained a warrant to search a storage unit in Florida believed to be owned by the suspect. Several pieces of women's underwear were found which might be linked to more victims.

The extent of FSD's influence was even felt globally in 2022. Several FSD units aided in testing evidence for an international investigation leading to the takedown of the world's leading novel psychoactive substances (NPSs) manufacturer in November of 2022. The investigation started in 2018 when the Metropolitan Area Drug Task Force (MADTF) did several interdictions of packages similar to one that was delivered to a college student who had overdosed and died. The Biology Section provided DNA testing support for the Baltimore Office of Homeland Security Investigations (HSI) and the National Police of the Netherlands (NPN) during a years-long investigation that culminated in the apprehension of the manufacturer who was synthesizing, producing, and distributing NPSs that had led to numerous overdoses around the world as well as in the United States. The Pikesville CDS Unit analyzed CDS that had been purchased from the dark web. These NPSs were novel substances that did not have current reference standards or reference data. The CDS Unit worked with NIST and the DEA to identify the substances. The Latent Print and Impressions Unit also aided in testing evidence in support of this extensive investigation.

I hope that it is clear to all who read this report that the work being done by the intelligent and dedicated employees of the Maryland State Police Forensic Sciences Division is positively affecting many lives in the community every single day. I want this truth to be appreciated by not only the citizens of Maryland and our colleagues in the criminal justice system reading this report, but also by the FSD staff. I implore my co-workers at FSD to take great pride and personal satisfaction in knowing the impact of their work. You all should feel empowered by what you do. If you ever have one of those days when it all seems overwhelming, remember to take a timeout and remind yourself that you **are** making a difference!

## **STATISTICAL SUMMARY**

<b>Activity Summary - Field and Evidence Services Branch</b>				
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>Crime Scene Section</b>				
Crime Scenes Processed	674	625	676	678
<b>Photography Unit</b>				
Special Assignments	211	181	177	239
VeriPic Requests Processed	868	845	773	816
Color Prints	5,073	1,175	2,884	4,188
ID Cards	657	522	594	865
<b>Central Receiving Unit</b>				
CDS cases submitted for destruction	11,129	8,100	9,390	7,881
Forensic Cases Received	13,952	11,871	11,813	10,757

Activity Summary – Laboratory Services Branch				
	2019	2020	2021	2022
<b>Latent Prints/Impressions</b>				
Cases Received	1,060	1,034	916	824
Cases Completed	1,348	1,043	984	717
MAFIS Latent Hits	540	418	368	308
Case Uploads to MAFIS	624	459	441	326
Latent Print Uploads to MAFIS	1,640	1,368	1,248	907
<b>Firearms/Toolmarks</b>				
Cases Received	811	925	1,291	1,233
Cases Completed	921	1,018	1,163	1,086
Number of Firearms for Handgun Roster Board	181	92	92	79
Exhibit Uploads to NIBIN	833	912	1,169	1,075
Number of NIBIN Leads Generated	81	185	263	205
Number of NIBIN Hits Confirmed	2	11	11	12
Operation Test Shot Samples Completed	305	400	1,151	752
Walk-In Test Fires (# of Firearms)	75	26	22	85
<b>CDS</b>				
Cases Received in Pikesville	3,867	2,657	3,207	2,764
Cases Received in Berlin	2,387	1,489	1,166	1,012
Cases Received in Hagerstown	840	1,486	1,956	1,335
Subtotal Cases Received	7,094	5,632	6,329	5,111
Cases Received by Allied Forensic Scientists <sup>1</sup>	2,835	1,921	1,792	1,722
Total Cases Received	9,929	7,553	8,121	6,833
Cases Completed in Pikesville	3,867	3,152	3,278	2,980
Cases Completed in Berlin	2,207	1,806	1,088	1,095
Cases Completed in Hagerstown	800	1,665	1,517	1,732
Subtotal Cases Completed	6,874	6,623	5,883	5,807
Cases Completed by Allied Forensic Scientists <sup>1</sup>	3,103	2,475	1,665	1,923
Total Cases Completed	9,977	9,098	7,548	7,730
<b>Toxicology</b>				
Blood Alcohol Cases Received	789	694	693	547
Blood Drug Cases Received	660	625	566	355
Total Cases Received	1,449	1,319	1,259	902
Blood Alcohol Cases Completed	713	630	713	608
Blood Drug Cases Completed	458	695	481	576
Total Cases Completed	1,171	1,325	1,194	1,184
<b>Biology</b>				
Submitted Cases Received	648	607	652	636
Directly Outsourced Cases Received	298	290	281	210
Total Cases Received	946	897	933	846
Submitted Cases Completed	626	657	613	651
Directly Outsourced Cases Completed	266	333	261	212
Total Cases Completed	892	990	874	864
Maryland Case CODIS Hits	872	1,128	1,170	1,107
Arrested/Charged CODIS Hits	130	144	141	137
Convicted Offender Uploads to CODIS	3,787	2,285	2,655	3,462
Arrested/Charged Uploads to CODIS	2,884	2,741	3,374	3,380
Case Uploads to CODIS	958	1,568	1,284	1,250

Activity Summary – Laboratory Services Branch				
	2019	2020	2021	2022
<b>Trace Evidence</b>				
Cases Received	133	125	138	111
Cases Completed	124	124	137	102
<b>Question Documents</b>				
Cases Received	23	18	14	8
Cases Completed	27	18	16	11

1 - Allied Forensic Scientists = 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.

Laboratory Services Branch Casework Summary								
Unit	Cases Received <sup>2</sup>		MSP Cases Received		Allied Agency Cases Received		Cases Completed	
	2021	2022	2021	2022	2021	2022	2021	2022
Latent Prints/Impressions	916	824	20%	22%	80%	78%	984	717
Firearms/Toolmarks	1,291	1,233	41%	43%	59%	57%	1,163	1,086
CDS-Pikesville	3,207	2,764	46%	40%	54%	60%	3,278	2,980
CDS-Berlin	1,166	1,012	26%	20%	74%	80%	1,088	1,095
CDS-Hagerstown	1,956	1,335	39%	42%	61%	58%	1,517	1,732
CDS-Allied <sup>1</sup>	1,792	1,722	35%	26%	65%	74%	1,665	1,923
Toxicology	1,259	902	35%	37%	65%	63%	1,194	1,184
Biology- Submitted	652	636	18%	24%	82%	76%	613	651
Biology- Direct Outsourcing	281	210	3%	4%	97%	96%	261	212
Trace Evidence	138	111	35%	32%	65%	68%	137	102
Questioned Documents	14	8	29%	0%	71%	100%	16	11
<b>Totals</b>	<b>12,672</b>	<b>10,757</b>	<b>36%</b>	<b>33%</b>	<b>64%</b>	<b>67%</b>	<b>11,916</b>	<b>11,694</b>

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.

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

Laboratory Services Branch Backlogs and Turn Around Times				
Casework Type	Pending Caseload (Cases) <sup>1</sup>	Backlog (Cases pending >30 days) <sup>1</sup>	2022 Turn Around Time (Calendar Days) <sup>2</sup>	4th Quarter Turn Around Time (Calendar Days) <sup>3</sup>
Latent Prints/Impressions	133	69	28	49
Firearms/Toolmarks	639	562	107	102
CDS-Pikesville	181	78	41	30
CDS-Berlin	195	138	90	91
CDS-Hagerstown	258	172	151	133
CDS-Allied	128	62	69	41
Toxicology	201	124	170	84
Biology-Submitted	181	140	108	115
Biology-Directly Outsourced	91	74	127	106
Trace Evidence	27	13	48	46
Question Documents	0	0	60	59
<b>Totals</b>	<b>2,035</b>	<b>1,433</b>	<b>90</b>	<b>75</b>

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 4<sup>th</sup> quarter.

Quantity of FSD Requests by County*						
County	2021			2022		
	Cases Submitted to Lab	Crime Scenes	Total	Cases Submitted to Lab	Crime Scenes	Total
Frederick	1,151	28	1,179	1,212	28	1,240
Cecil	1,103	89	1,192	859	95	954
Wicomico	801	52	853	749	39	788
Worcester	751	21	772	698	39	737
St. Mary's	836	22	858	718	16	734
Harford	802	26	828	666	24	690
Allegany	586	60	646	644	45	689
Carroll	758	24	782	596	25	621
Charles	706	6	712	568	4	572
Anne Arundel	659	43	702	476	39	515
Washington	504	30	534	456	18	474
Calvert	464	5	469	393	2	395
Baltimore	470	36	506	304	39	343
Dorchester	390	33	423	277	47	324
Queen Anne's	427	13	440	283	21	304
Baltimore City	268	27	295	262	36	298
Caroline	310	15	325	236	25	261
Talbot	344	33	377	218	33	251
Howard	271	16	287	231	12	243
Prince George's	239	27	266	217	24	241
Montgomery	182	8	190	181	18	199
Somerset	218	42	260	140	32	172
Garrett	199	4	203	140	6	146
Kent	140	15	155	119	10	129
Statewide/Not Determined**	90	0	90	99	0	100
Out of State	3	1	4	15	1	15
<b>Totals</b>	<b>12,672</b>	<b>676</b>	<b>13,348</b>	<b>10,757</b>	<b>678</b>	<b>11,435</b>

\*Cases are counted more than one time when submitted to different FSD Units.

\*\*County where offense occurred was not provided to FSD.

Quantity of Laboratory Submissions to FSD Ranked by MSP Installation*			
2022 Rank	2021 Rank	MSP Installation	Counties Served
1	1	MSP-CID/CED	Statewide
2	6	MSP-Cumberland	Allegany
3	2	MSP-Easton	Caroline, Dorchester, Talbot
4	5	MSP-North East	Cecil
5	3	MSP-Frederick	Frederick
6	4	MSP-Centerville	Kent, Queen Anne's
7	8	MSP-Hagerstown	Washington
8	14	MSP-Bel Air	Harford
9	7	MSP-Leonardtown	St. Mary's
10	12	MSP-Golden Ring	Baltimore
11	13	MSP-Salisbury	Wicomico
12	11	MSP-Glen Burnie	Anne Arundel
13	10	MSP-JFK Highway	Cecil, Harford, Baltimore
14	18	MSP-Prince Frederick	Calvert
15	9	MSP-Westminster	Carroll
16	15	MSP-Berlin	Worcester
17	21	MSP-La Plata	Charles
18	16	MSP-Annapolis	Anne Arundel
19	25	MSP-Rockville	Montgomery
20	22	MSP-Forestville	Prince George's
21	17	MSP-Waterloo	Howard
22	25	MSP-Homicide	Statewide
23	19	MSP-Princess Anne	Somerset
23	20	MSP-College Park	Prince George's
25	23	MSP-McHenry	Garrett
26	24	Office of State Fire Marshal	Statewide
27	27	MSP-DED/C3I	Statewide
28	28	MSP-Crash Team	Statewide
29	29	MSP-CVED	Statewide

\*This does not include Crime Scene Submissions

Quantity of Laboratory Submissions to FSD Ranked by Allied Agency County*		
2022 Rank	2021 Rank	County
1	1	Frederick
2	4	Worcester
3	6	Wicomico
4	5	St. Mary's
5	2	Cecil
6	3	Charles
7	8	Carroll
8	7	Harford
9	11	Allegany
10	9	Calvert
11	10	Anne Arundel
12	12	Washington
13	15	Baltimore City
14	13	Dorchester
15	17	Howard
16	14	Baltimore
17	16	Talbot
18	20	Montgomery
19	19	Garrett
20	23	Prince George's
21	18	Queen Anne's
22	21	Caroline
23	24	Kent
24	22	Somerset
25	26	Out of State
26	25	Statewide/Not Determined*

\*This does not include Crime Scene Submissions

\*\*County where offense occurred was not provided to FSD.



## **ADMINISTRATIVE SERVICES BRANCH**

The Administrative Services Branch consists of the Administrative Support Staff Unit and the Data Support Unit, both which provide support throughout the MSP-FSD. The Administrative Support Staff Unit provides office management functions including recruiting for civilian vacancies, processing working fund expenditures, ordering laboratory supplies, conducting 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, and maintaining the Division's filing system. The Administrative Support Staff Unit is essential in providing the MSP-FSD staff with what they need to do their jobs in the field and in the laboratory.

MSP-FSD receives additional support through functions provided within the Data Support Unit consisting of a Research Statistician. The Research Statistician collects, analyzes, evaluates and disseminates data for this Annual Report as well as for MSP-FSD's Annual DNA Statewide Database Report, the Monthly Activity Report, and other laboratory statistical needs. The Research Statistician also provides ongoing statistical information for MSP-FSD grants.

In addition to the MSP-FSD administrative staff, a contractual employee that is sub-contracted through Falcon is assigned to provide security/receptionist coverage for the MSP-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. This contracted employee also provides clerical assistance to various units when feasible.

## **FIELD AND EVIDENCE SERVICES BRANCH**

The Field and Evidence Services Branch of MSP-FSD is comprised of the Crime Scene Section and the Forensic Support Services Section. The Assistant Commander of MSP-FSD is responsible for the planning, organization, direction, and control of this branch.

### **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 to 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. The Section Manager oversees the overall operations of the Crime Scene Section. When fully staffed, there are four Regional Supervisors (North, East, West and South Regions) with five Crime Scene Technicians assigned to the Northern and Eastern Regions and four Crime Scene Technicians assigned to the Western and Southern Regions.

Most of the evidence examined by the MSP-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 sheriff's 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 involved in the MSP-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 law enforcement agency 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 Technician Evaluation Forms in 2022. 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, and Garrett Counties

Northern Region Unit: Harford, Howard, Baltimore, and Cecil Counties as well as Baltimore City (Maryland Port Authority, Maryland Transportation Authority, DOC)

Southern Region Unit: Montgomery, Anne Arundel, Prince George's, Calvert, Charles, and St. Mary's Counties

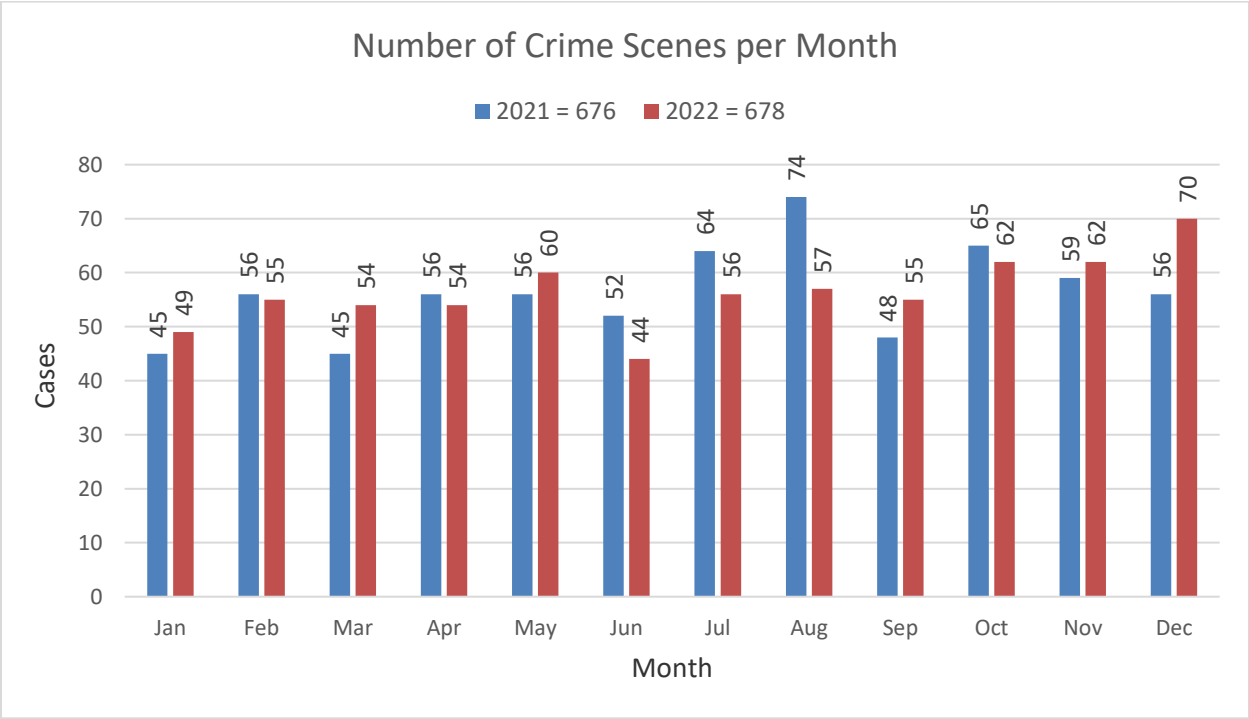
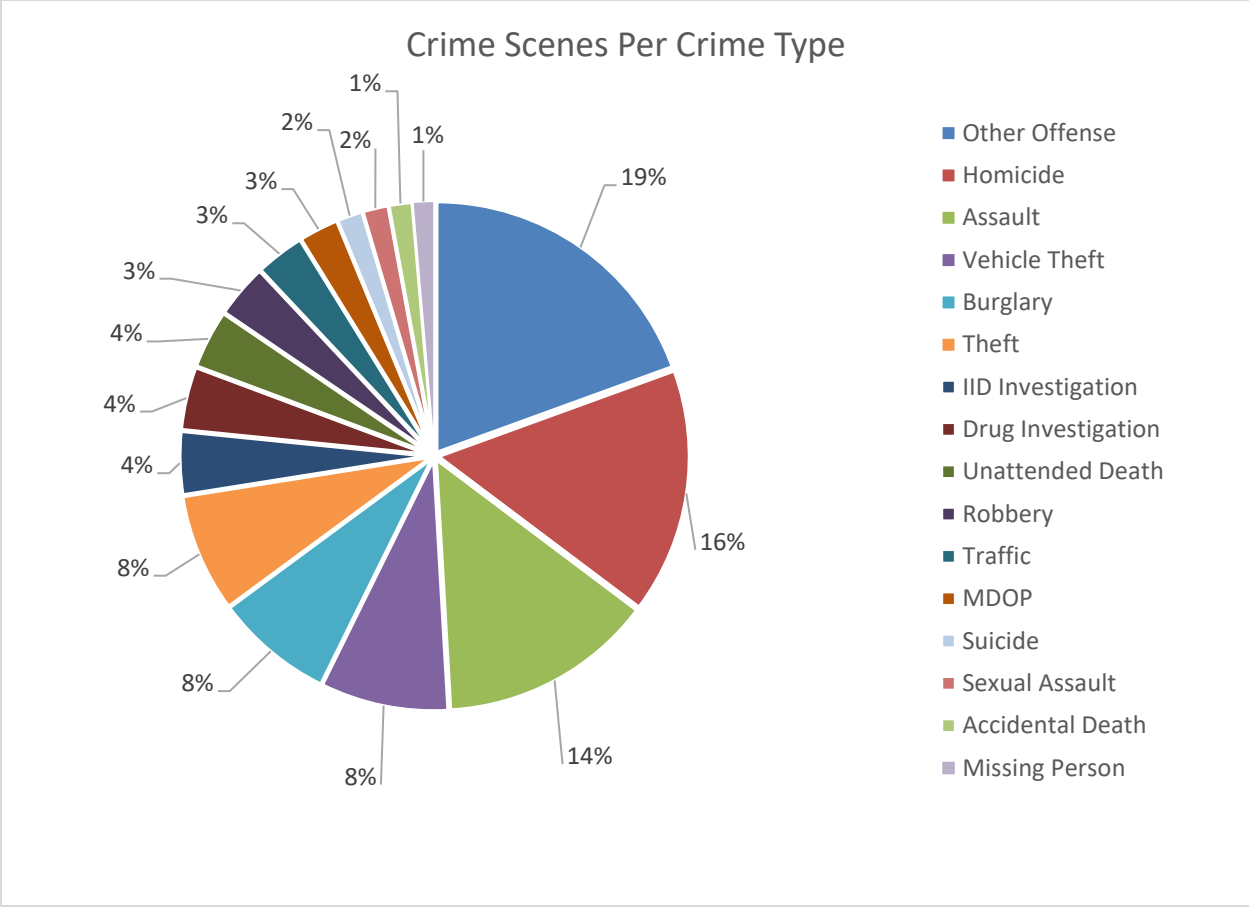
Eastern Region Unit: Kent, Queen Anne's, Talbot, Caroline, Dorchester, Wicomico, Somerset and Worcester Counties

<b>Crime Scenes Processed</b>		
<b>Crime Scene Region</b>	<b>2021</b>	<b>2022</b>
Northern	289*	206
Southern		103
Eastern	210	247
Western	177	122
<b>Totals</b>	<b>676</b>	<b>678</b>

\*For 2021 both Northern and Southern Regions were combined for a total in a Central Region

<b>Crime Scene Summary</b>				
<b>Agency</b>	<b>2021</b>		<b>2022</b>	
	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>
MSP Scenes	439	65%	465	69%
Allied Agency Scenes	237	35%	213	31%
<b>Total</b>	<b>676</b>	<b>100%</b>	<b>678</b>	<b>100%</b>
Scene Assists	71	N/A	64	N/A

<b>Total Number of Crime Scenes Processed per County</b>	
<b>County</b>	<b>Total Crime Scenes</b>
Cecil	95
Dorchester	47
Allegany	45
Wicomico	39
Anne Arundel	39
Baltimore	39
Worcester	39
Baltimore City	36
Talbot	33
Somerset	32
Frederick	28
Carroll	25
Caroline	25
Harford	24
Prince George's	24
Queen Anne's	21
Montgomery	18
Washington	18
St. Mary's	16
Howard	12
Kent	10
Garrett	6
Charles	4
Calvert	2
Out of State	1
<b>TOTAL</b>	<b>678</b>



## **NOTEWORTHY CASES**

### **Western Region**

On May 11, 2022, multiple Crime Scene personnel responded to a shooting incident in Prince Frederick, Maryland. Upon arrival the officers observed one vehicle on its side and 3 additional vehicles that appeared to have been struck by gunfire. While documenting the crime scene, a firearm was located and collected from a drainage ditch behind a dumpster in the surrounding area, as well as over twenty-five additional items of evidence from the scene and the overturned vehicle. Latent fingerprints collected by the CST from the overturned vehicle led to the Latent Prints/Impressions Unit identifying four possible suspects involved in the shooting.

On September 9, 2022, a CST was tasked with latent print processing of 39 cellphones related to a theft investigation. Of the 39 cellphones, several were received with the Sim card removed and taped to the exterior of the corresponding device. Each piece of tape was carefully removed and processed for latent prints with wet powder. A total of 28 pieces of tape were submitted to the Latent Prints/Impressions Unit for analysis. The final Latent Print Examination identified three subjects, including the named suspect, as well as generated two additional persons of interest in the investigation.

### **Northern Region**

On July 25, 2022, a CST responded to the Maryland State Police North East Barrack in reference to a recovered stolen vehicle. At that time, the CST processed the vehicle for latent prints and possible DNA. During the latent print processing, the CST was able to obtain latent prints from the gear shift, the interior driver side B pillar, a gray plastic cover, the interior passenger door frame and a "Gold Peak" tea bottle. The lifted prints were submitted to the Latent Prints/Impressions Unit, where an Examiner was able to identify a suspect in the case.

### **Southern Region**

On June 22, 2022, a CST responded to a scene in St. Mary's County for a theft from an MSP Trooper's personal vehicle in which the Trooper's service weapon was stolen. The CST recovered numerous latent prints from the vehicle which were submitted to in the Latent Prints/Impressions Unit and resulted in the Unit identifying a possible suspect.

### **Eastern Region**

On March 15, 2022, a CST responded to a shooting incident in Kent County where an unknown suspect reportedly shot the victim as they were either entering or exiting a vehicle. Four cartridge casings, one cartridge and one bullet/projectile were located and collected from the scene. One DNA swab was also taken at the scene. The vehicle was then processed for latent prints by the CST, at which time seventeen latent lifts were recovered and submitted to the

Latent Prints/Impressions Unit. The latent print submissions resulted in the identification of both the victim and a possible suspect in the case.

On September 23, 2022, a CST processed a recovered stolen vehicle for the MSP Homicide Unit related to a homicide that had occurred in Cambridge, Maryland on September 20, 2022. It was believed that the vehicle being processed was used by the suspect to transport the victim's body to another location. The CST processed the vehicle for latent prints and recovered four prints. The prints were submitted to the Latent Print/Impressions Unit, which resulted in the identification of the girlfriend of the reported suspect.

## **FORENSIC SUPPORT SERVICES SECTION**

This Section consists of the Photography Unit and the Central Receiving 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 (CRU Supervisor) and is staffed by five MSP Forensic Inventory Control Officers (MSP-FICO's).

### **PHOTOGRAPHY UNIT**

The Photography Unit provides photographic services to the Maryland State Police.

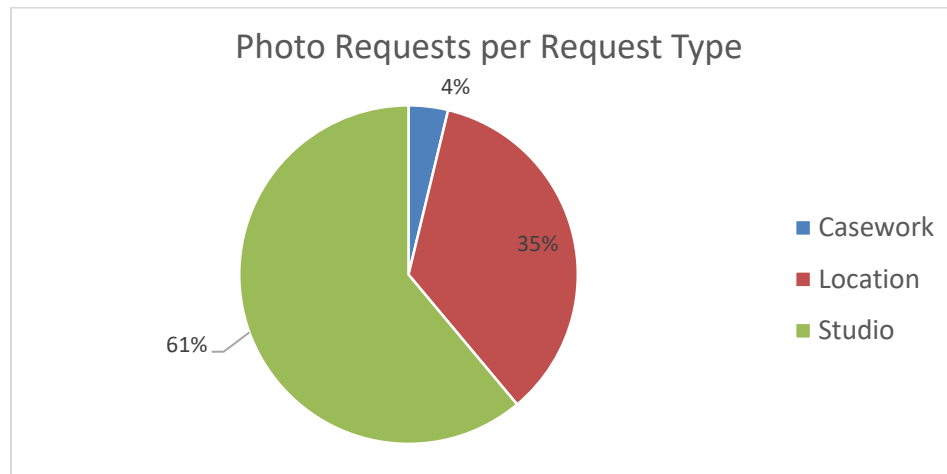
Duties within the unit include the acquiring and printing of images related to crime scenes and motor vehicle accidents for the Maryland State Police and other agencies. This unit also serves as the VeriPic system administrator. Reprints or CDs are provided to various divisions and units throughout the Department upon request. Other duties include 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 2023 MSP Safety Calendar.

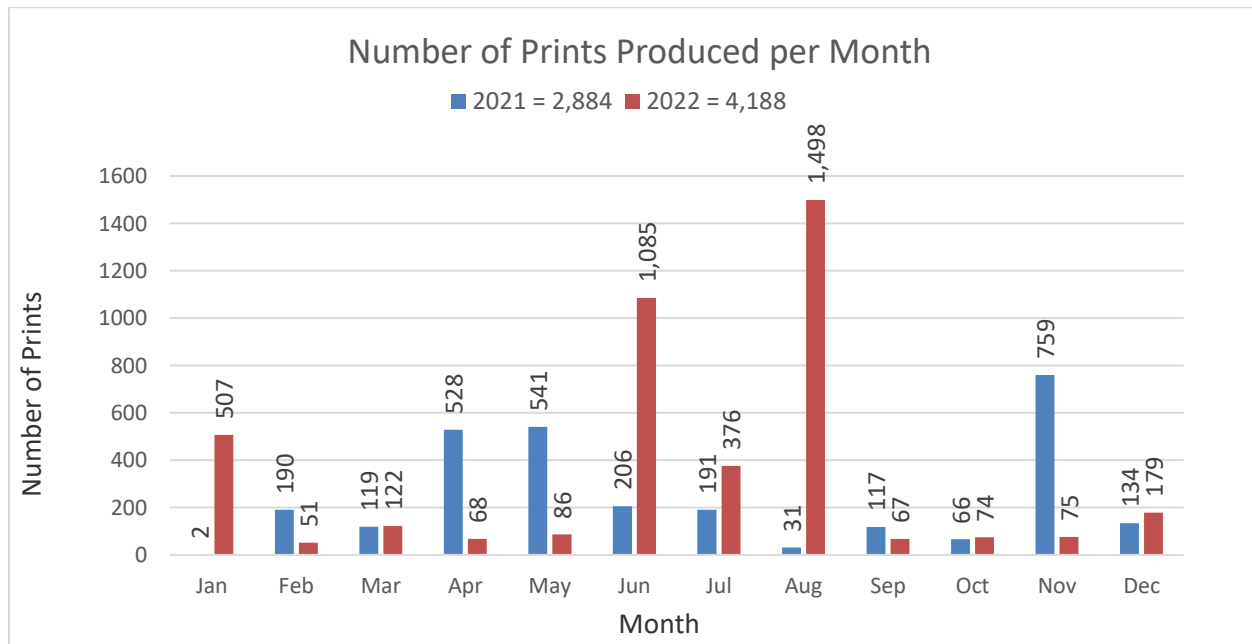
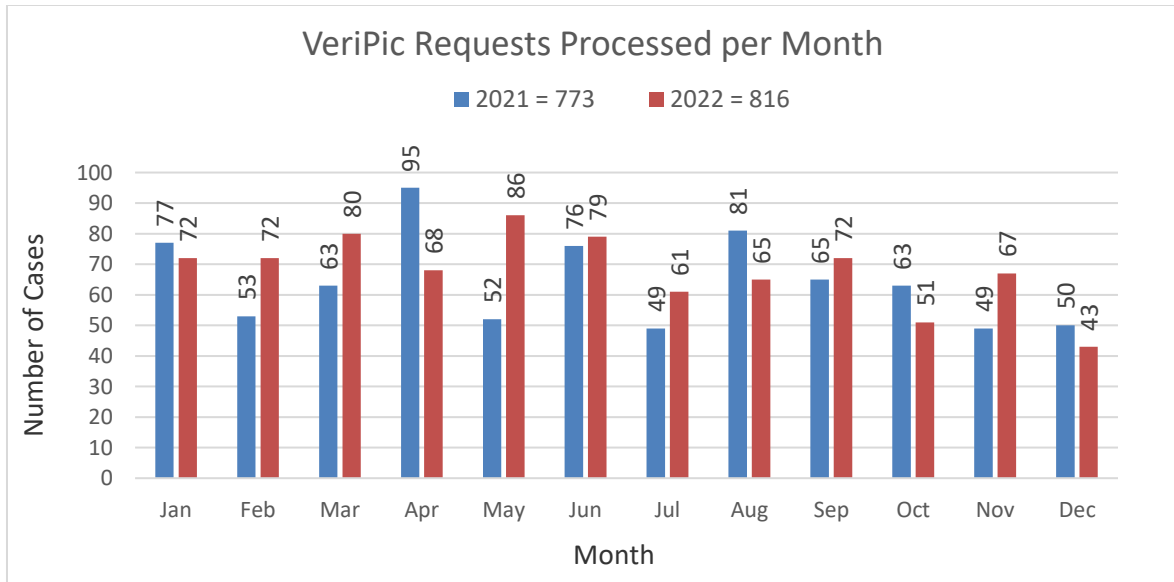
In 2023, the Photography Unit will implement replacement of the ID card system adding in iClass SEOS cards for the transition of the Department to a high security card. The goal of this change is to replace an aging system and create a more secure system for the Department.

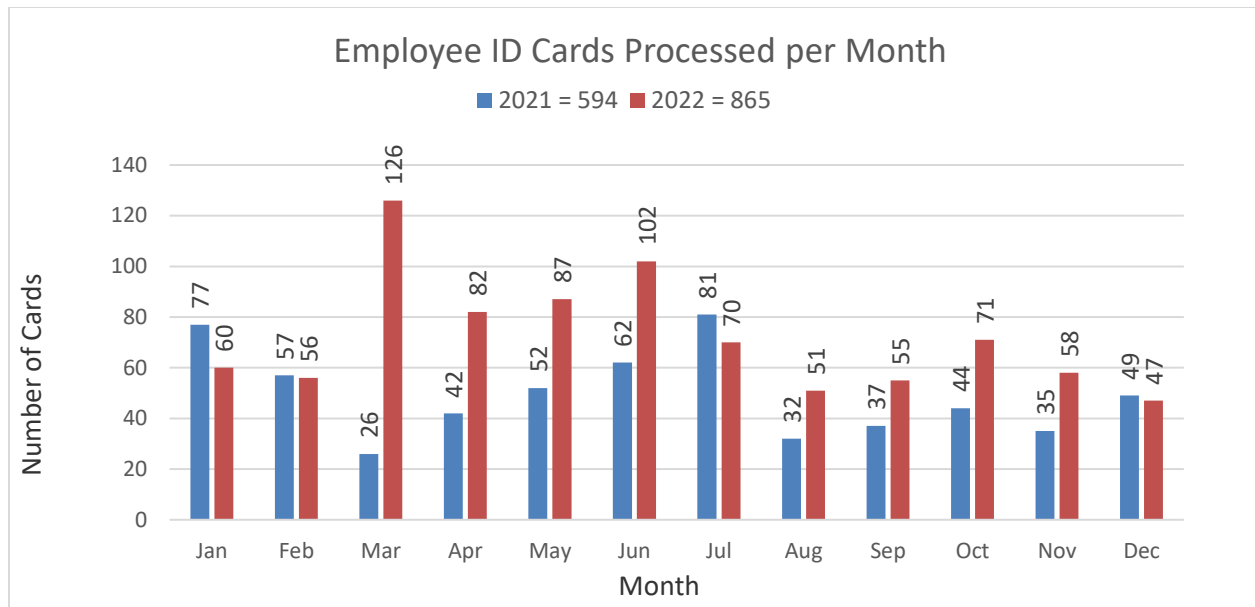
Photography Unit personnel serve as members of the Disaster Identification Team and provide technical training and equipment recommendations in photography.



Photography Requests	
MSP Requestors	Requests
Portraits ( <i>by # of days, not requestors</i> )	146
Headquarters	26
SSB	25
CIB	17
FOB	16
Casework	9
<b>TOTAL</b>	<b>239</b>







## **CENTRAL RECEIVING UNIT**

The Central Receiving Unit (CRU) functions as the liaison between the MSP-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. 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 unit reports directly to the MSP-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. 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**

In 2022, the Hagerstown site had a MSP-FICO vacancy. CDS and Latent Print evidence as well as rush requests and outsourcing were taken care of by the respective Unit Supervisors in Hagerstown. A second FICO position was authorized for that location to assist with the increased workload with the expansion of the Toxicology Unit scheduled for 2023. Two new employees were hired in late 2022, one with a starting date in November 2022 and the second starting in January 2023 for these vacancies. Both new employees are received training under the supervision and tutelage of the Training Coordinator and Central Receiving Unit Supervisor at Pikesville.

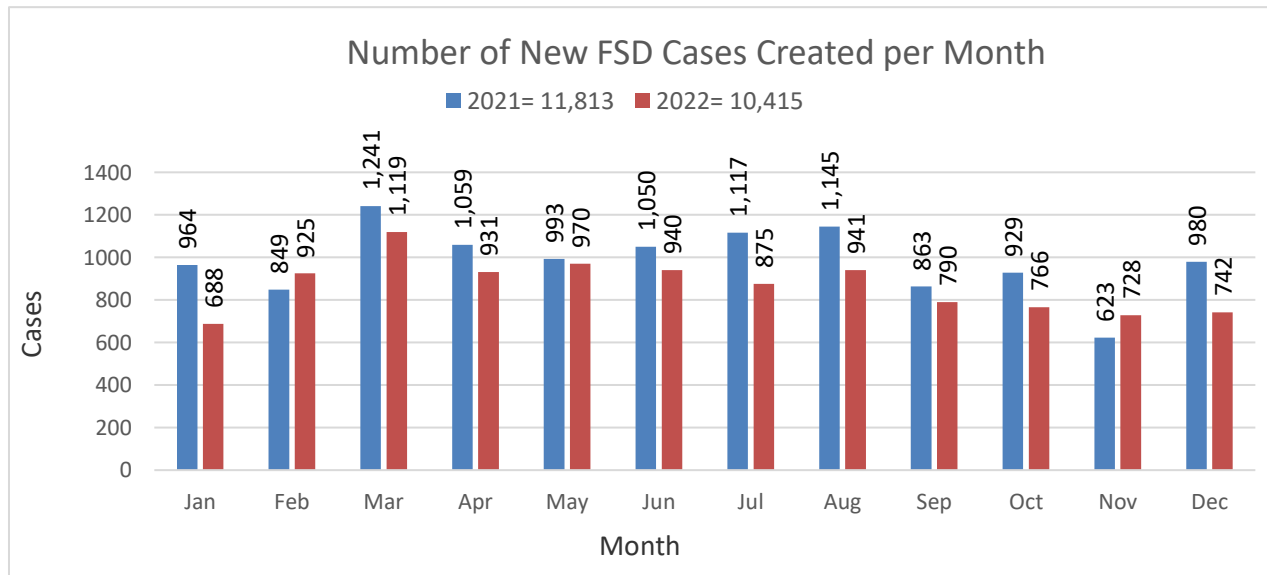
### **Pikesville Headquarters Location**

This location has one Administrative Officer (CRU Supervisor) and three MSP-FICO's. The Pikesville location manages evidence submissions for the Chemistry, Trace Evidence, DNA, and Pattern Evidence sections. These Sections are comprised of 7 scientific disciplines. In addition to evidence handling responsibilities, 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 Pikesville CRU is also responsible for archiving scientific analytical reports for all sections of the MSP-FSD and coordinates the transmittal of files to and from the State Records Management Center. The CRU maintains expunged records for the Division.

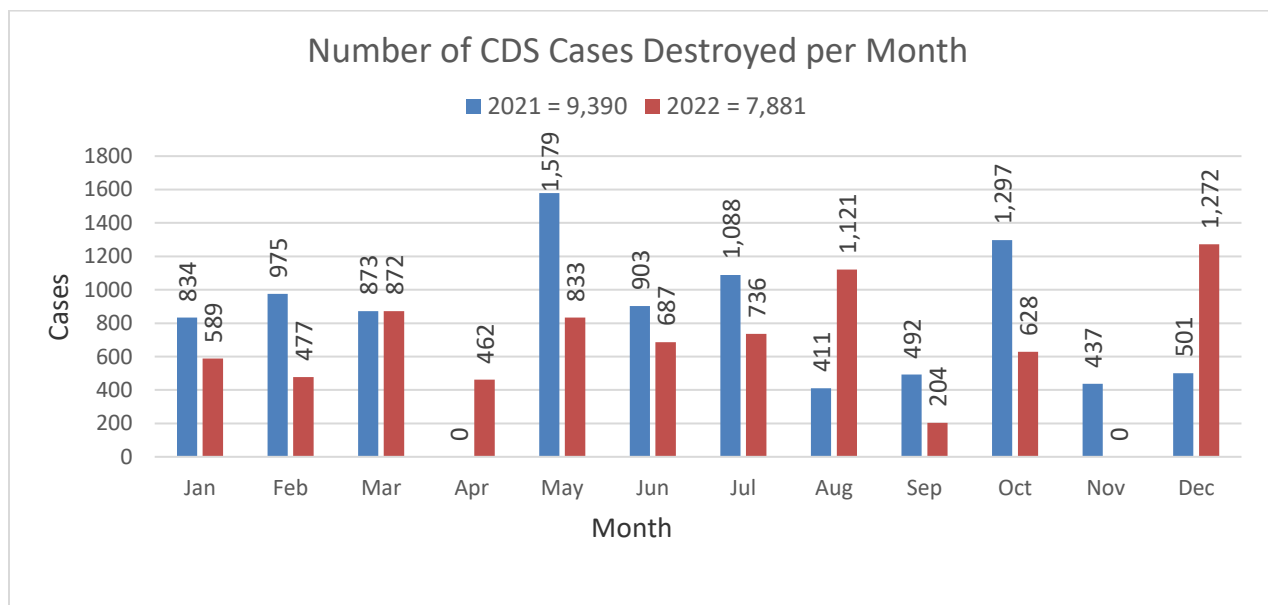
Additionally, the CRU plays an essential role in the use of StarLIMS, the laboratory information management system, utilized by MSP-FSD. The CRU supervisor functions as a StarLIMS Administrator and acts as the primary liaison between FSD end users and the project managers.

In 2022, all CRU employees, except for the newest hires in Hagerstown, successfully completed the International Association of Property and Evidence training course, Managing Property and Evidence in Law Enforcement.



Number of Containers Received by Lab in 2022			
	Berlin	Hagerstown	Pikesville
Jan	77	201	703
Feb	88	228	1,042
Mar	122	276	1,112
Apr	86	297	905
May	111	271	939
Jun	147	241	931
Jul	118	266	842
Aug	124	290	939
Sep	93	269	805
Oct	79	187	830
Nov	85	170	835
Dec	115	176	741
<b>Total</b>	<b>1,245</b>	<b>2,872</b>	<b>10,624</b>

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



## **LABORATORY SERVICES BRANCH**

The Laboratory Services Branch is comprised of the Pattern Evidence Section, the Chemistry Section, the Biology Section and the Trace Evidence Section of MSP-FSD. The Deputy Director of MSP-FSD is responsible for the planning, organization, direction and control of this branch.

### **PATTERN EVIDENCE SECTION**

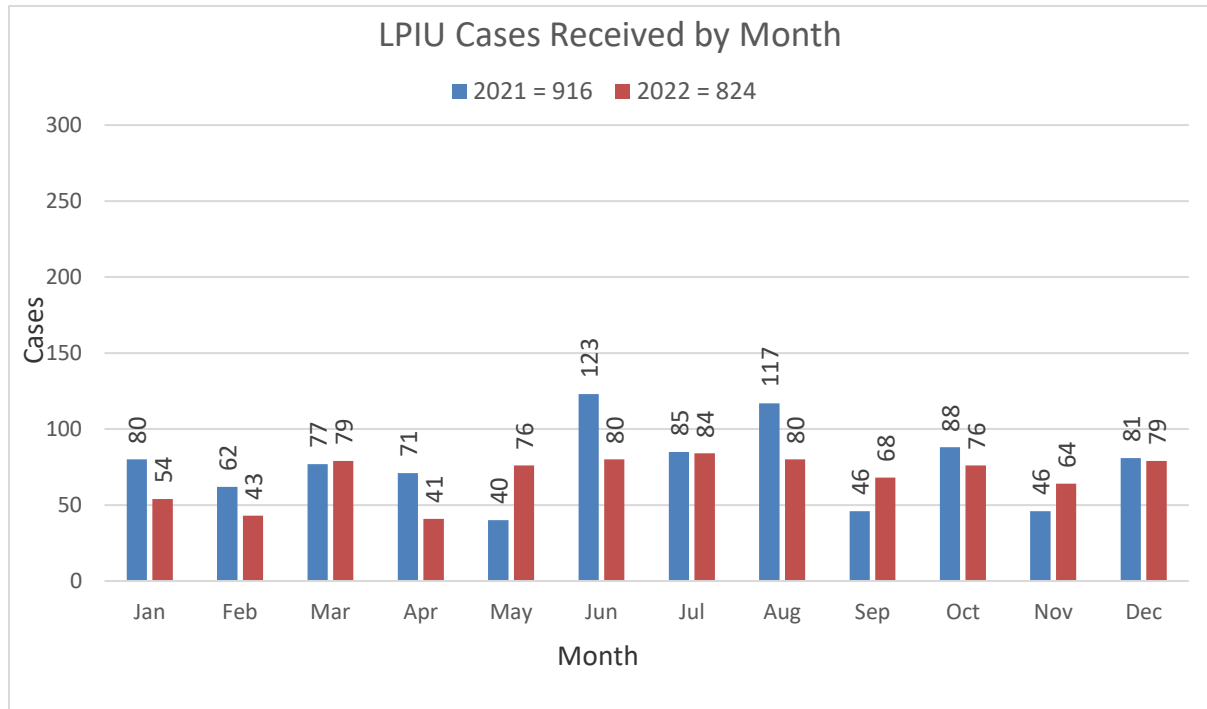
The Pattern Evidence Section is comprised of two units: the Latent Prints/Impressions Unit (LPIU) and the Firearms/Toolmarks Unit (FATMU). Both units operate out of the Pikesville laboratory and there is an additional LPIU in Hagerstown. The FATMU performs analysis on firearms and toolmarks using comparison microscopy and conducts serial number restoration. The LPIU performs analysis of latent friction ridge impression, footwear, and tire track related evidence. One Forensic Scientist Manager oversees both units. The LPIU consists of two supervisors (Pikesville/Hagerstown), two Forensic Scientist Advanced positions and three Forensic Scientist III's. The FATMU consists of one supervisor, two Forensic Scientist Advanced positions (one of these positions is vacant), three Forensic Scientist III's, two Laboratory Technicians, and one vacant Forensic Scientist I position. One Forensic Scientist III is fully trained in LPIU and is currently being cross-trained in FATMU.

### **LATENT PRINTS/IMPRESSIONS UNITS**

The LPIU 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 source. 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).

The LPIU is also 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 SoleMate FPX system for brand recognition. Tire images can be searched through the Tread Design Guide for brand recognition. In cases where either an "identification" or "could have been made" conclusion is reached, a second examiner performs an independent verification.

## **Latent Prints/Impressions Casework Statistics**

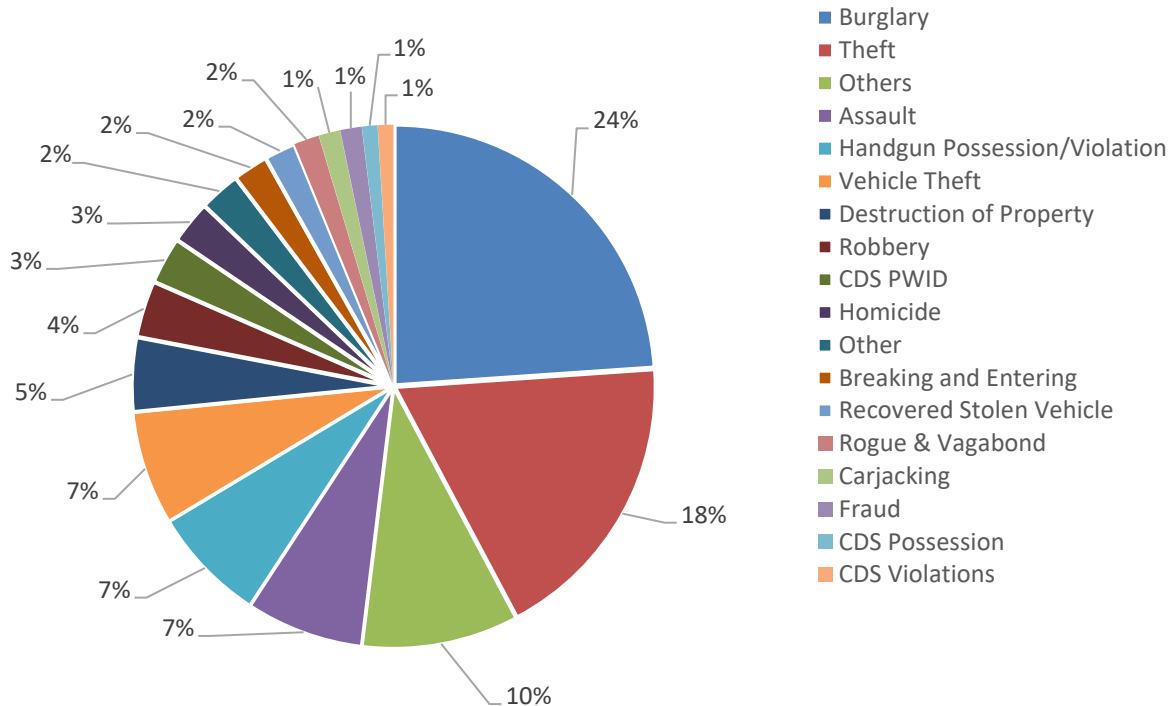




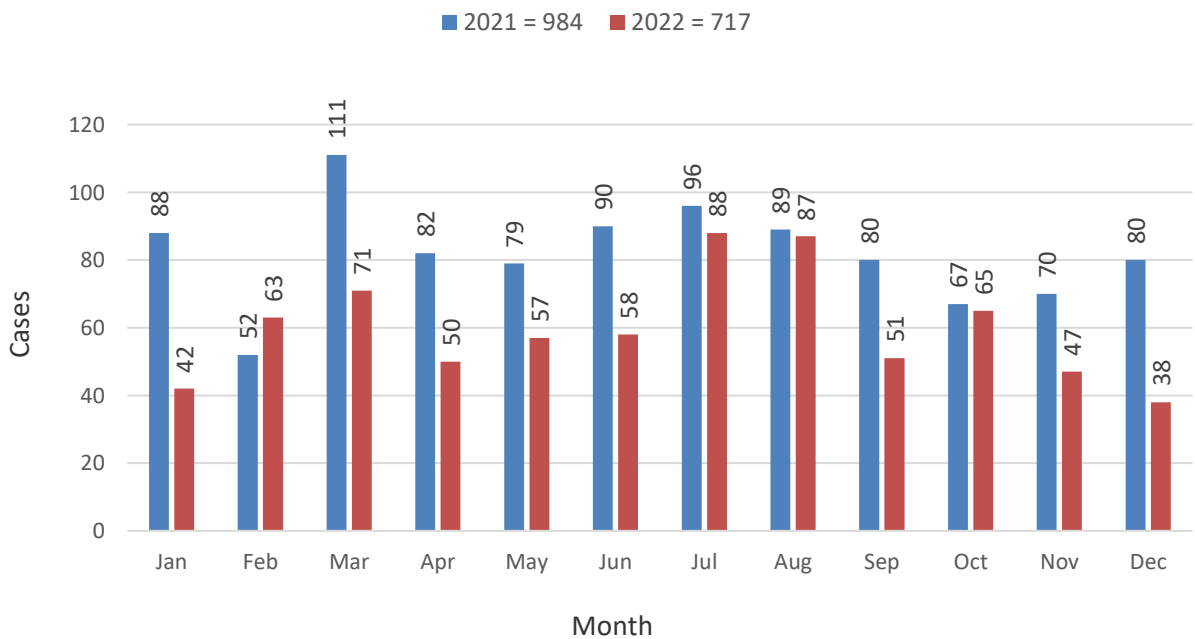
<b>LPIU Cases Received per MSP Installation</b>		
<b>MSP Installation</b>	<b>Counties Served</b>	<b>Submissions</b>
MSP-CID/CED	Statewide	34
MSP-North East	Cecil	19
MSP-Hagerstown	Washington	15
MSP-Westminster	Carroll	11
MSP-Golden Ring	Baltimore	10
MSP-Centerville	Kent, Queen Anne's	10
MSP-Bel Air	Harford	9
MSP-Easton	Talbot, Caroline, Dorchester	9
MSP-Homicide	Statewide	8
MSP-Berlin	Worcester	8
MSP-Frederick	Frederick	5
OSFM	Statewide	5
MSP-Salisbury	Wicomico	4
MSP-Leonardtown	St. Mary's	4
MSP-Cumberland	Allegany	3
MSP-DED/C3I	Allegany	3
MSP-JFK Highway	Cecil, Harford, Baltimore	3
MSP-Glen Burnie	Anne Arundel	3
MSP-McHenry	Garrett	3
MSP-Princess Anne	Somerset	2
MSP-Crash Team	Statewide	2
MSP-Prince Frederick	Calvert	2
MSP-Rockville	Montgomery	2
MSP-Forestville	Prince George's	2
MSP-Annapolis	Anne Arundel	1
MSP-La Plata	Charles	1
MSP-Waterloo	Howard	1
	<b>TOTAL</b>	<b>179</b>

<b>Allied Agency Cases Received by LPIU per County</b>	
<b>County</b>	<b>Submissions</b>
St. Mary's	121
Worcester	117
Frederick	90
Wicomico	48
Dorchester	45
Carroll	35
Prince George's	32
Washington	23
Cecil	23
Queen Anne's	19
Anne Arundel	14
Baltimore City	13
Talbot	10
Garrett	10
Calvert	8
Allegany	8
Somerset	7
Caroline	7
Baltimore	5
Montgomery	4
Kent	2
Charles	2
Out of State	2
<b>TOTAL</b>	<b>645</b>

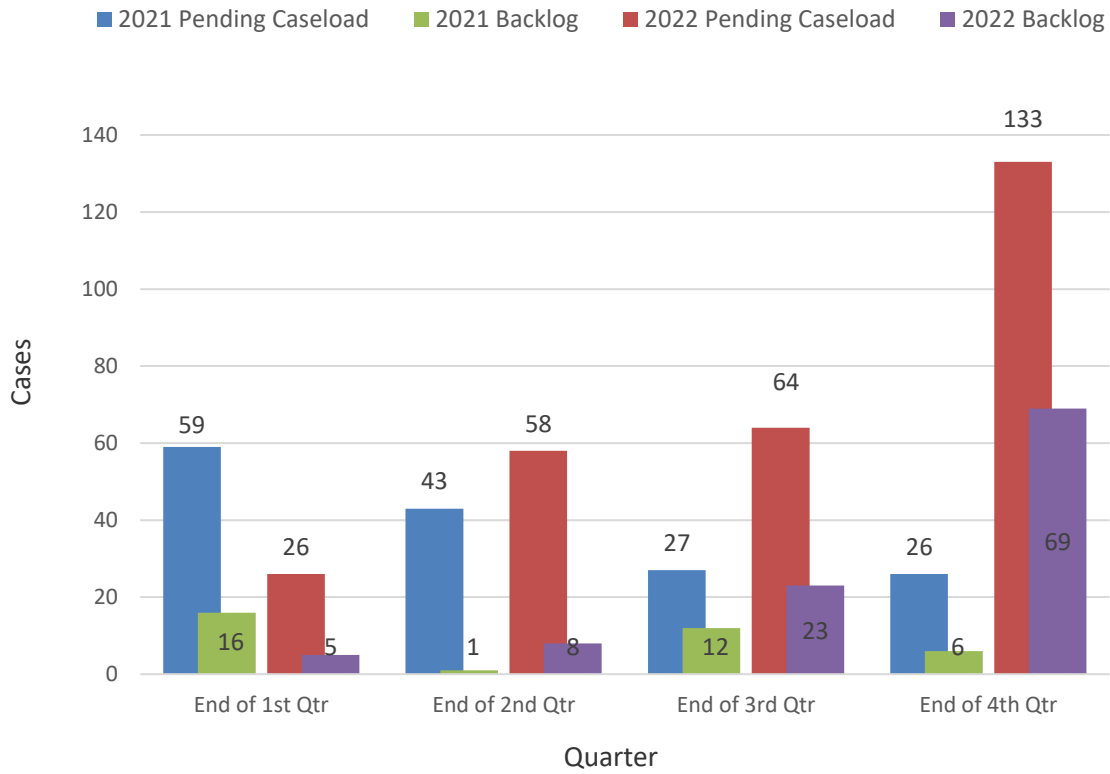
### LPIU Cases Received per Crime Type



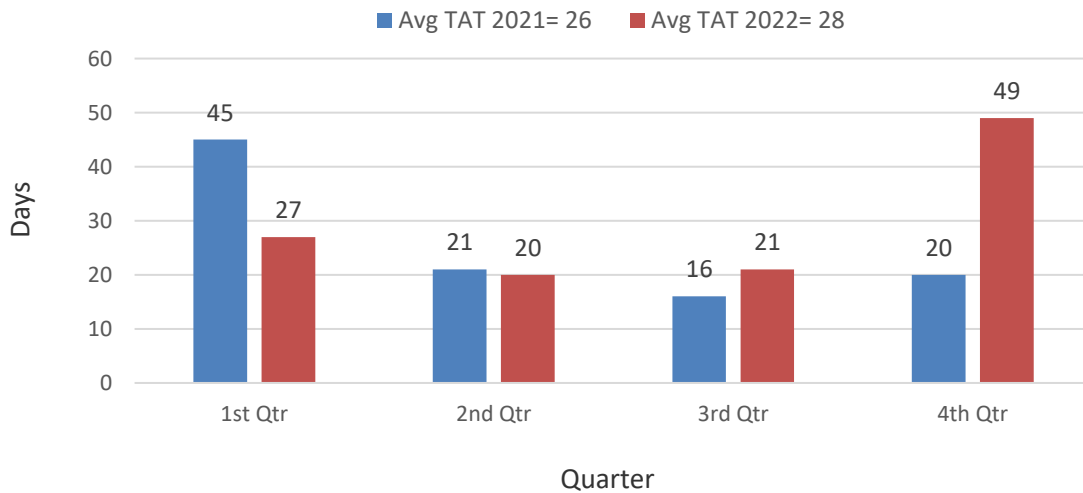
### LPIU Cases Completed per Month



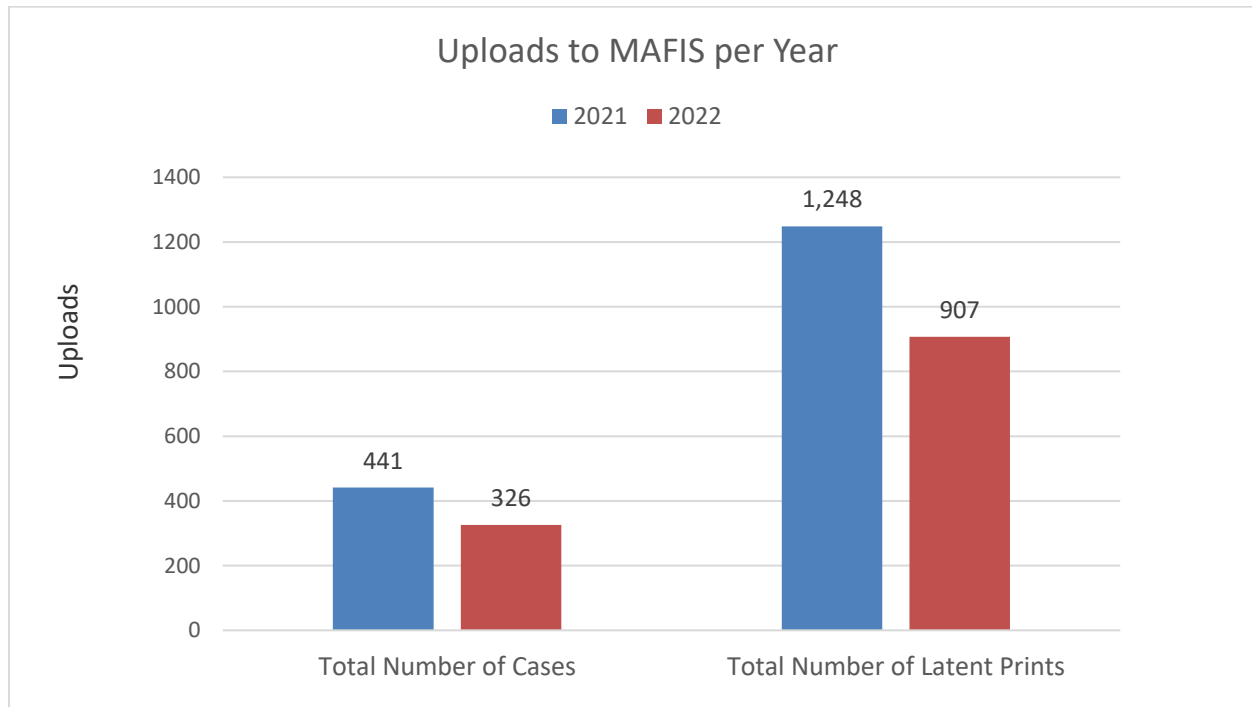
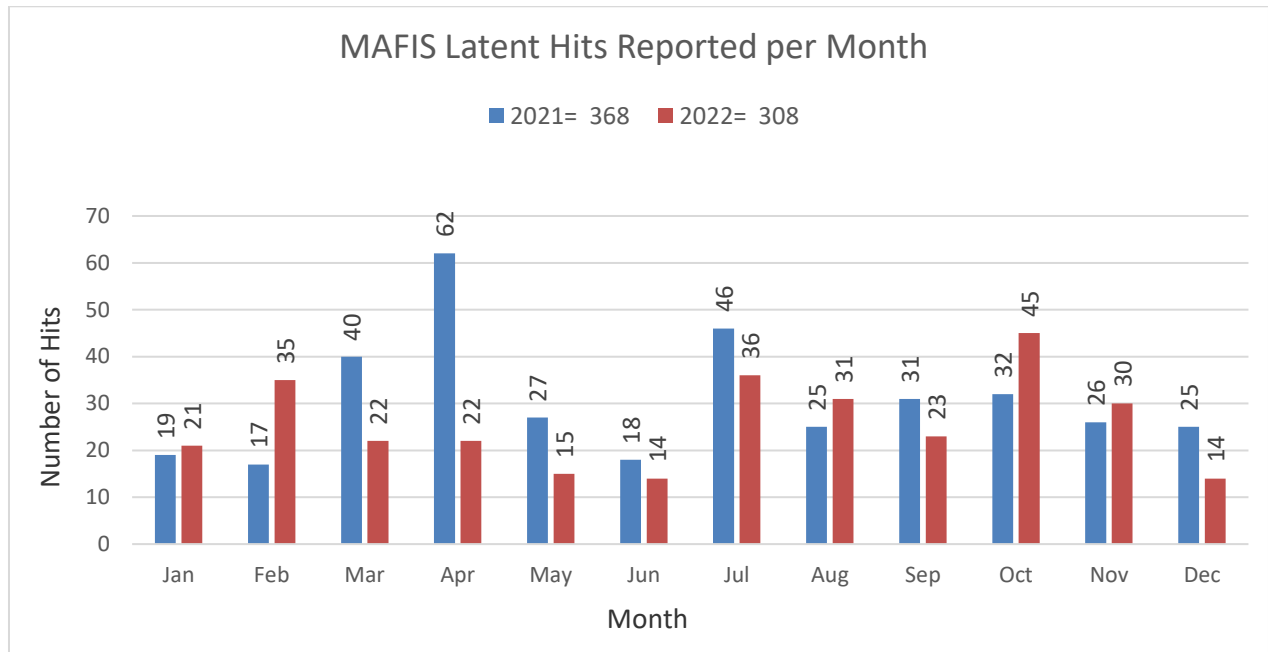
### LPIU Pending Caseload and Backlog per Quarter



### LPIU Case Turn Around Time per Quarter



## Latent Prints/Impressions Database Statistics



## **FIREARMS/TOOLMARKS UNIT**

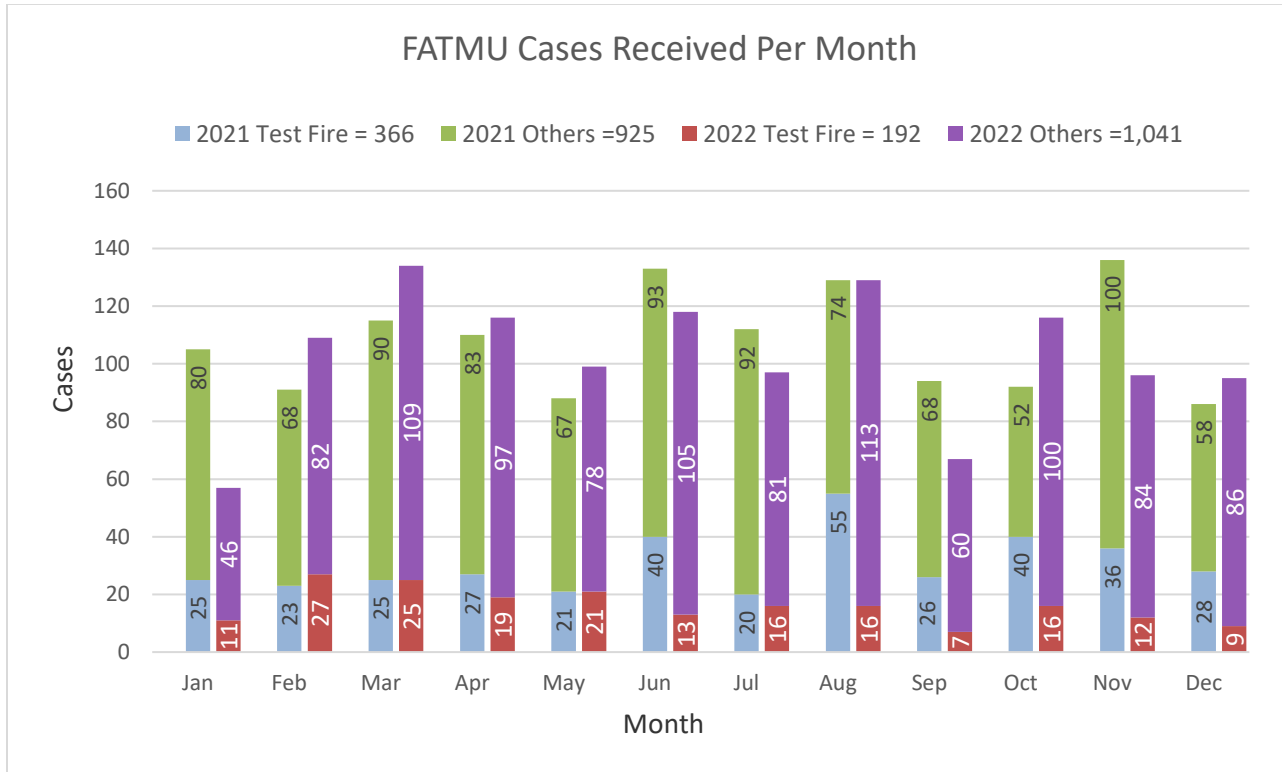
The Firearms/Toolmarks Unit (FATMU) provides microscopic and functional examination of firearms and firearm-related evidence. Examiners in this unit also perform restoration of obliterated serial numbers and toolmark examinations. Evidence and test fired cartridge cases that meet system requirements are entered into the ATF National Integrated Ballistic Information Network (NIBIN) and searched against the regional and/or national database.

The unit has two programs assisting with decreasing the turnaround time for both firearm function testing and NIBIN entries: the Walk-In Test Fire (WITF) program and the Operation Test Shot (OTS) program. The WITF program allows state and local law enforcement agencies to bring firearms, by appointment only, directly to the FATMU for function-testing. This program allows the agency representative to observe the test fire and then serve as a witness in court in lieu of the examiner. The OTS program equips law enforcement agencies with a Forensic Buddy® System (portable bullet trap), which enables the agency to test fire handguns at their location and submit fired bullets/cartridge cases to FATMU. These programs have been effective and instrumental in the unit's success with obtaining actionable, investigative NIBIN leads.

FATMU has noticed a significant increase in the submission of privately made firearms (PMF) or "ghost guns" as well as auto sears that can allow for fully automatic firing.

The FATMU also provides a service to the Maryland Handgun Roster Board (HRB), which 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 non-forensic examination of the petitioned firearms specifically for the qualifying criteria established in COMAR.

## Firearms/Toolmarks Casework Statistics



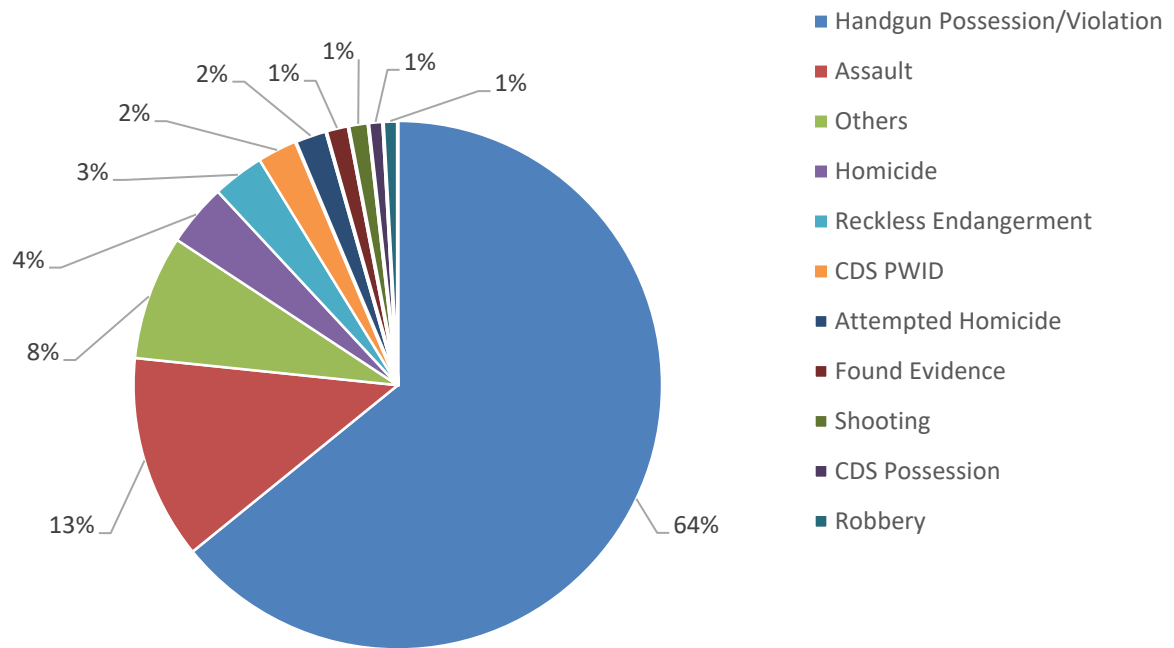
Note: Test fire = operability with and without serial number restoration. Others = all other types including OTS and microscopic comparisons.

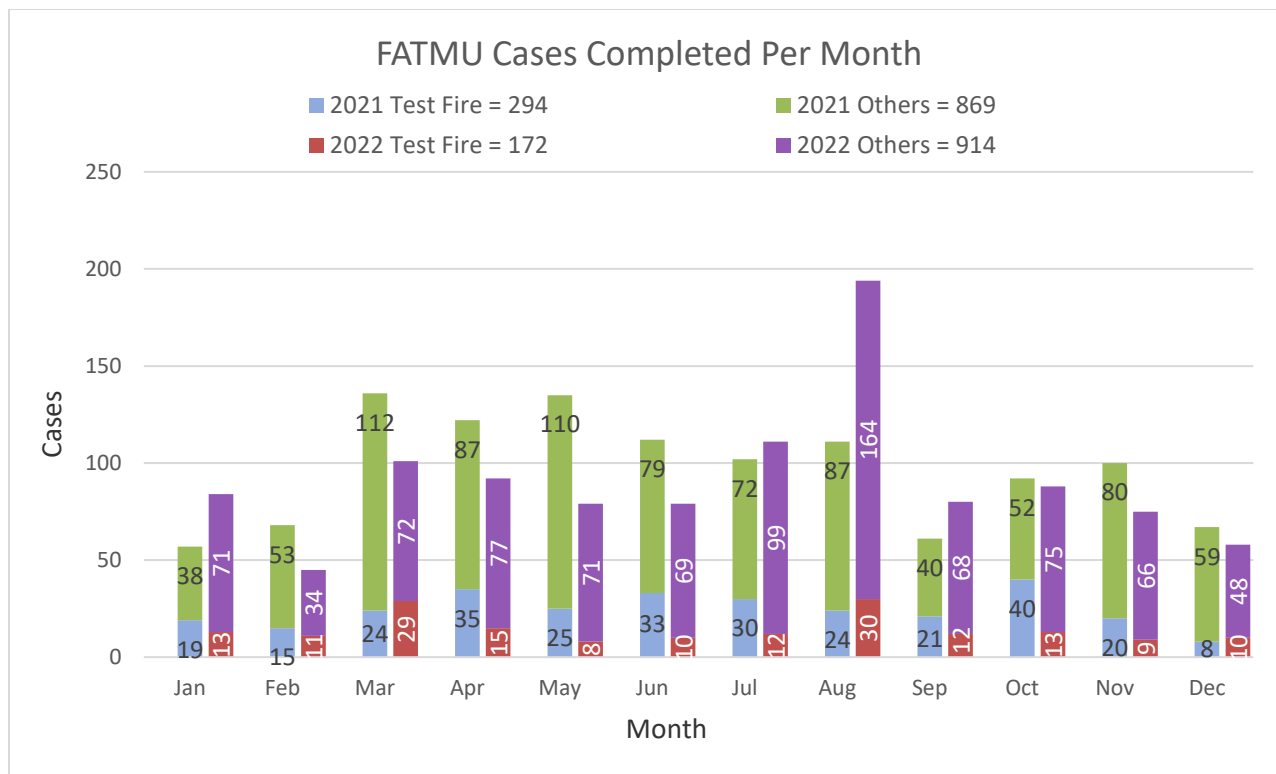
<b>FATMU Cases Received per MSP Installation</b>				
<b>Installation</b>	<b>Counties Served</b>	<b>Test Fire</b>	<b>Others</b>	<b>Total</b>
MSP-CID/CED	Statewide	27	70	97
MSP-La Plata	Charles	1	31	32
MSP-Forestville	Prince George's	2	27	29
MSP-College Park	Prince George's	2	26	28
MSP-Homicide	Statewide	3	22	25
MSP-JFK Highway	Cecil, Harford, Baltimore	11	13	24
MSP-Leonardtown	St. Mary's	5	19	24
MSP-Frederick	Frederick	7	17	24
MSP-Glen Burnie	Anne Arundel	3	20	23
MSP-North East	Cecil	5	17	22
MSP-Rockville	Montgomery	7	15	22
MSP-Golden Ring	Baltimore	3	18	21
MSP-Easton	Talbot, Caroline, Dorchester	0	18	18
MSP-Cumberland	Allegany	2	16	18
MSP-Princess Anne	Somerset	6	10	16
MSP-Bel Air	Harford	4	12	16
MSP-Centerville	Kent, Queen Anne's	3	9	12
MSP-Hagerstown	Washington	0	12	12
MSP-Prince Frederick	Calvert	1	10	11
MSP-Berlin	Worcester	0	10	10
MSP-Waterloo	Howard	0	10	10
MSP-Annapolis	Anne Arundel	3	5	8
MSP-Westminster	Carroll	4	2	6
MSP-Salisbury	Wicomico	2	3	5
MSP-DED/C3I	Allegany	1	4	5
MSP-McHenry	Garrett	0	4	4
MSP-Crash Team	Statewide	1	1	2
OSFM	Statewide	0	1	1
	<b>TOTAL</b>	<b>103</b>	<b>422</b>	<b>525</b>



<b>Allied Agency Cases Received by FATMU per County</b>			
<b>County</b>	<b>Test Fire</b>	<b>Others</b>	<b>Total</b>
Washington	3	131	134
St. Mary's	16	88	104
Worcester	2	90	92
Cecil	19	64	83
Wicomico	5	56	61
Anne Arundel	6	49	55
Baltimore City	15	28	43
Calvert	3	20	23
Charles	2	17	19
Harford	1	15	16
Baltimore	2	10	12
Dorchester	5	7	12
Frederick	3	8	11
Montgomery	0	8	8
Howard	0	7	7
Carroll	1	5	6
Prince George's	3	3	6
Talbot	2	3	5
Queen Anne's	0	4	4
Somerset	1	2	3
Kent	0	3	3
Caroline	0	1	1
<b>TOTAL</b>	<b>89</b>	<b>619</b>	<b>708</b>

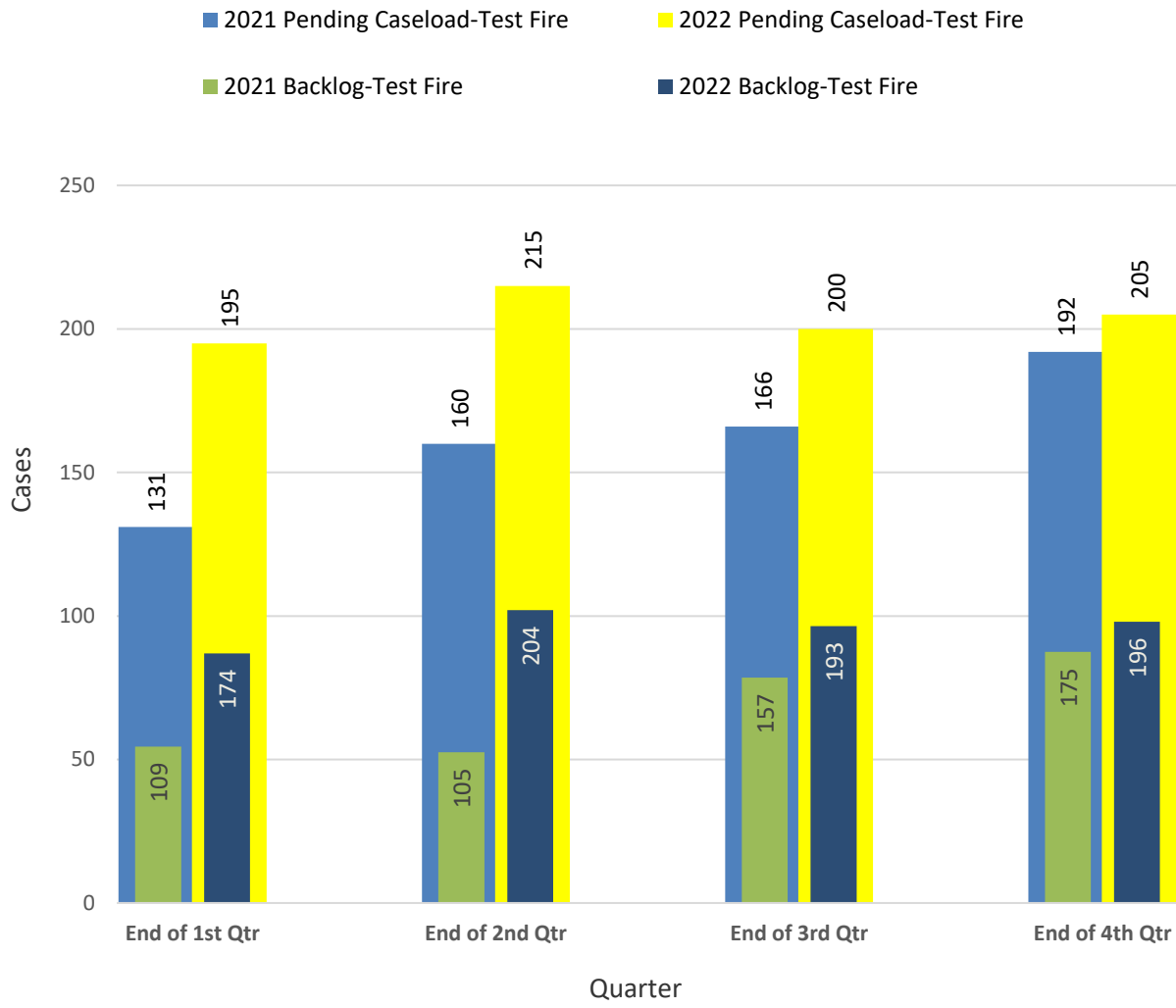
FATMU Cases Received per Crime Type

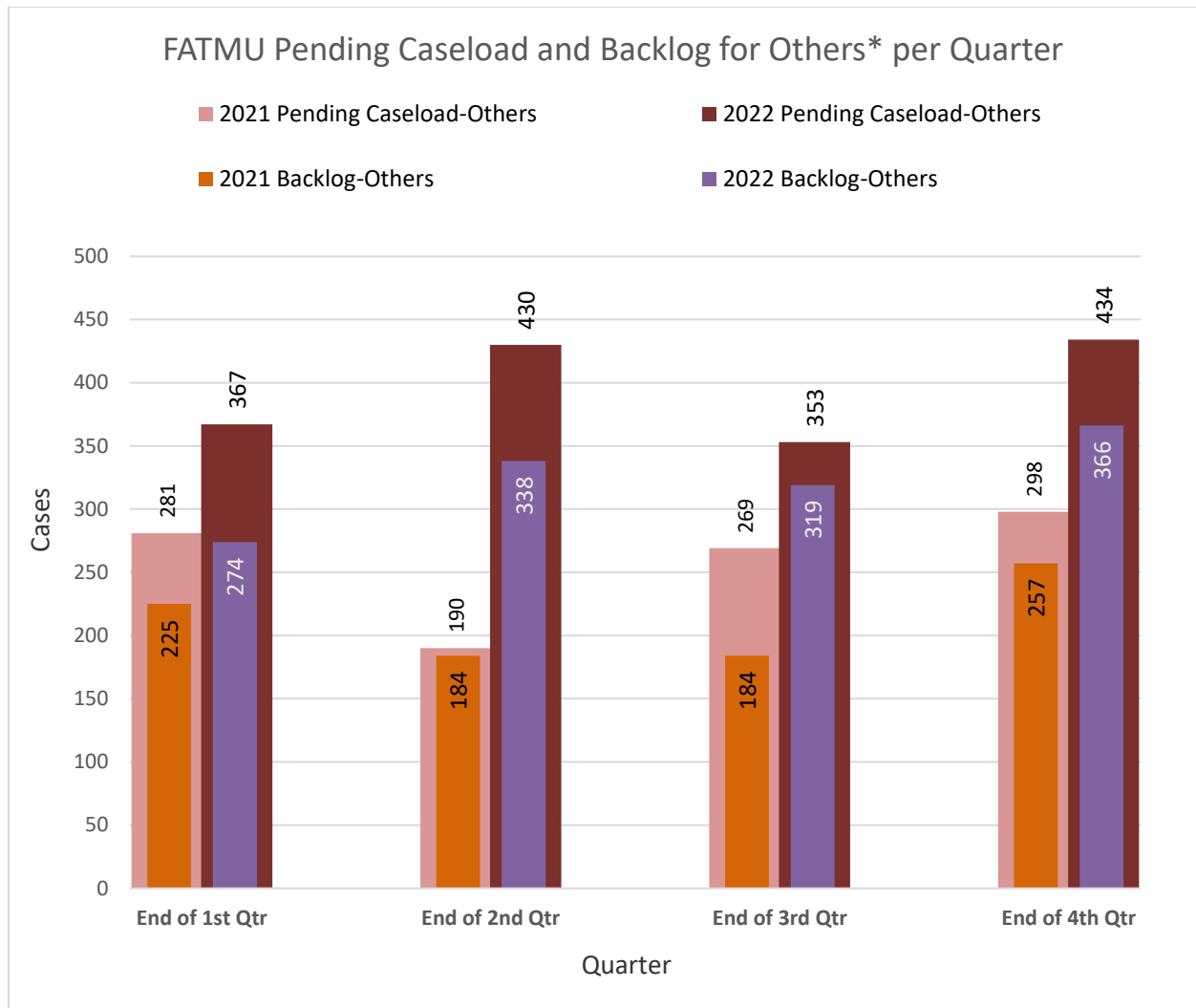




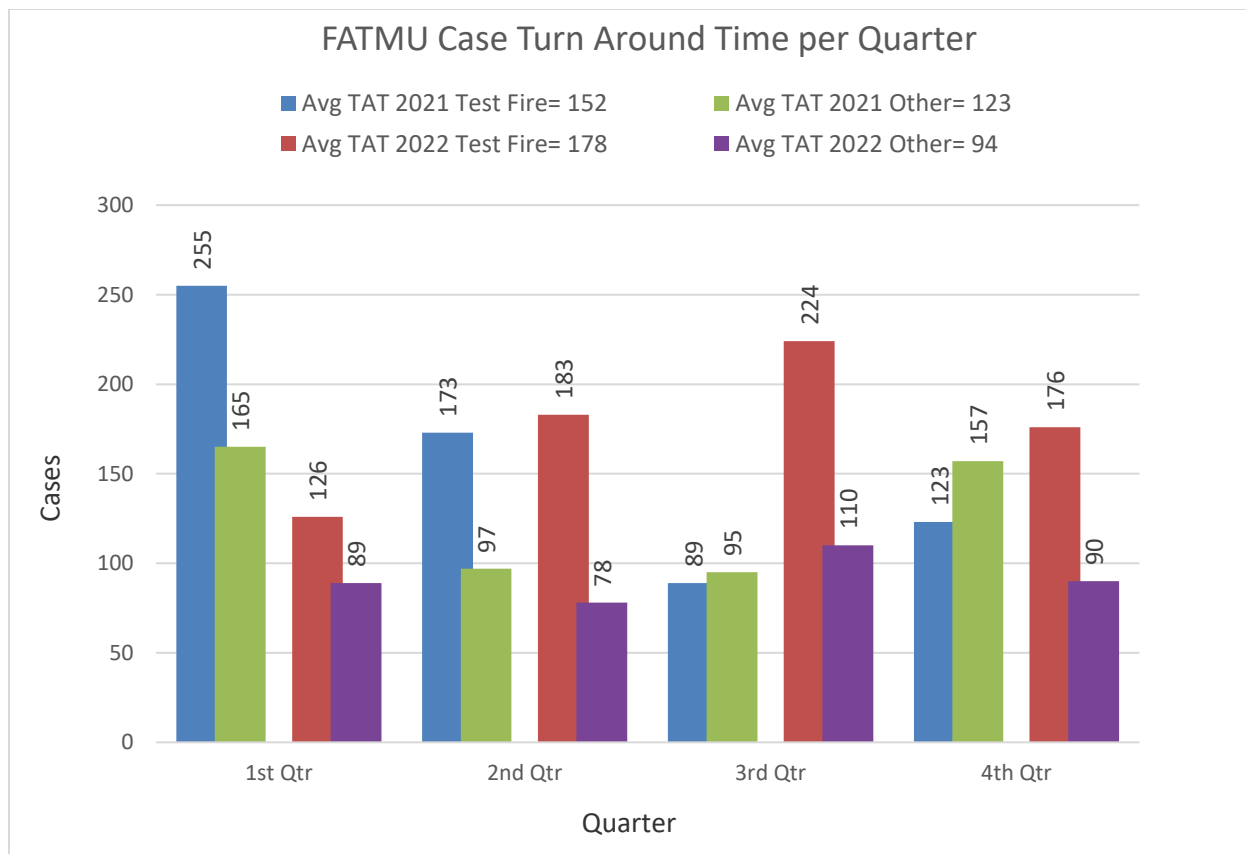
Note: Test fire = operability with and without serial number restoration. Others = all other types including OTS and microscopic comparisons.

## FATMU Pending Caseload and Backlog for Test Fires per Quarter

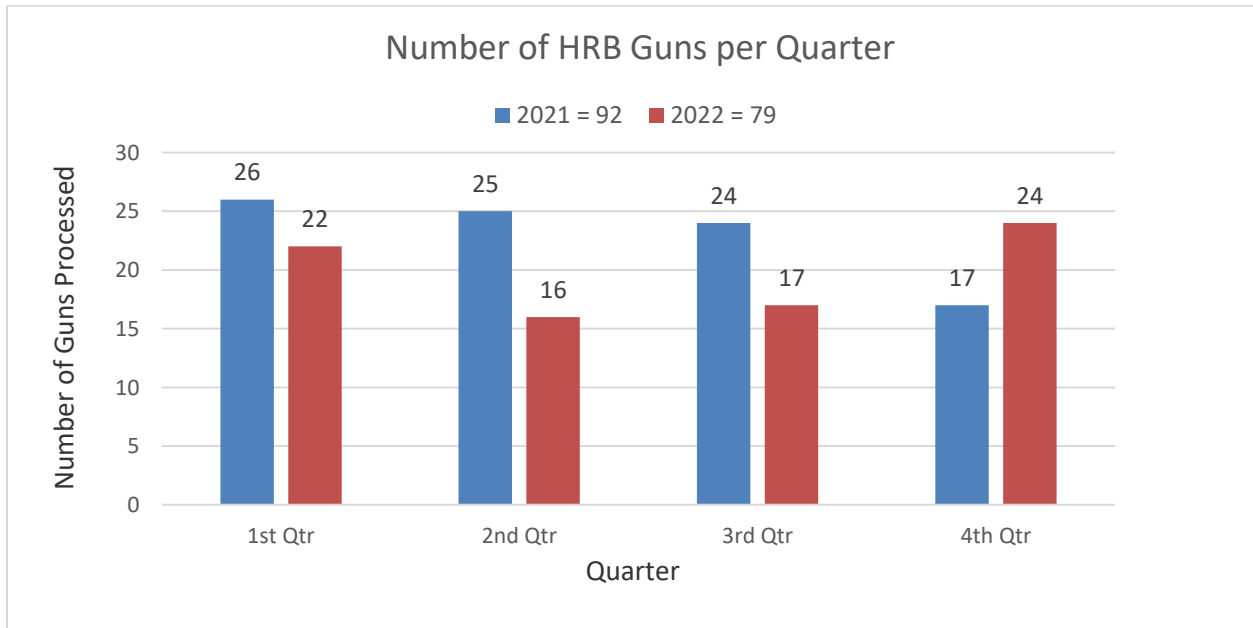




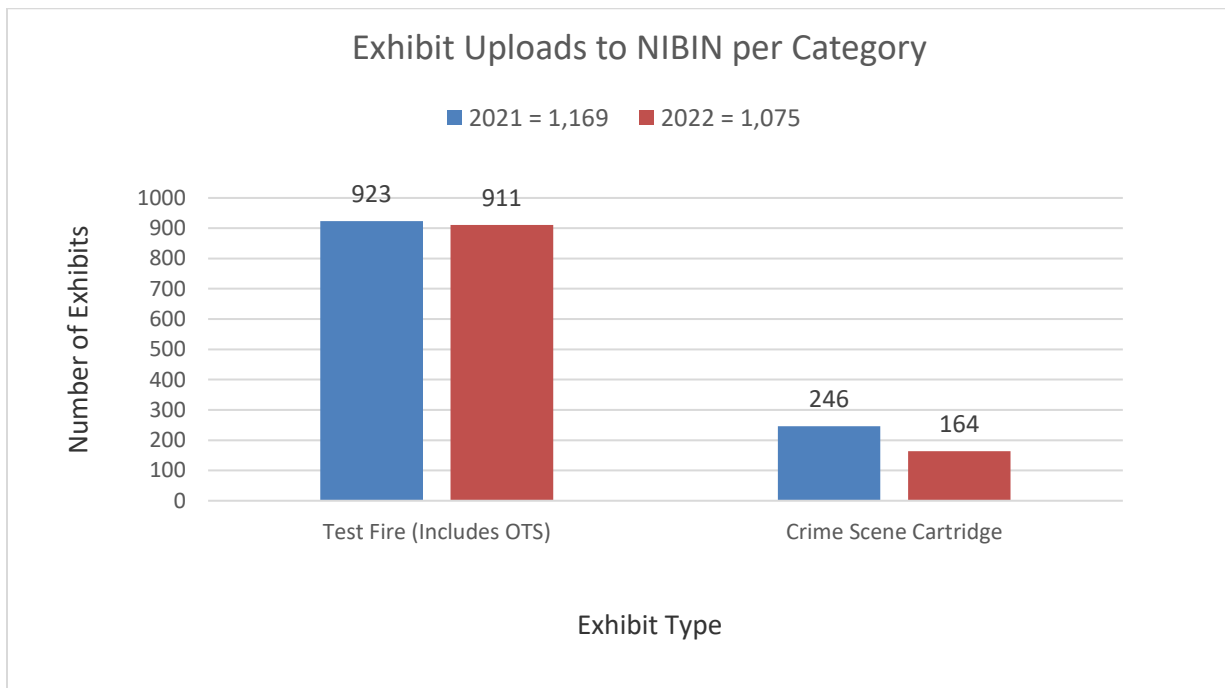
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Note: Test fire = operability with and without serial number restoration. Others = all other types including OTS and microscopic comparisons.

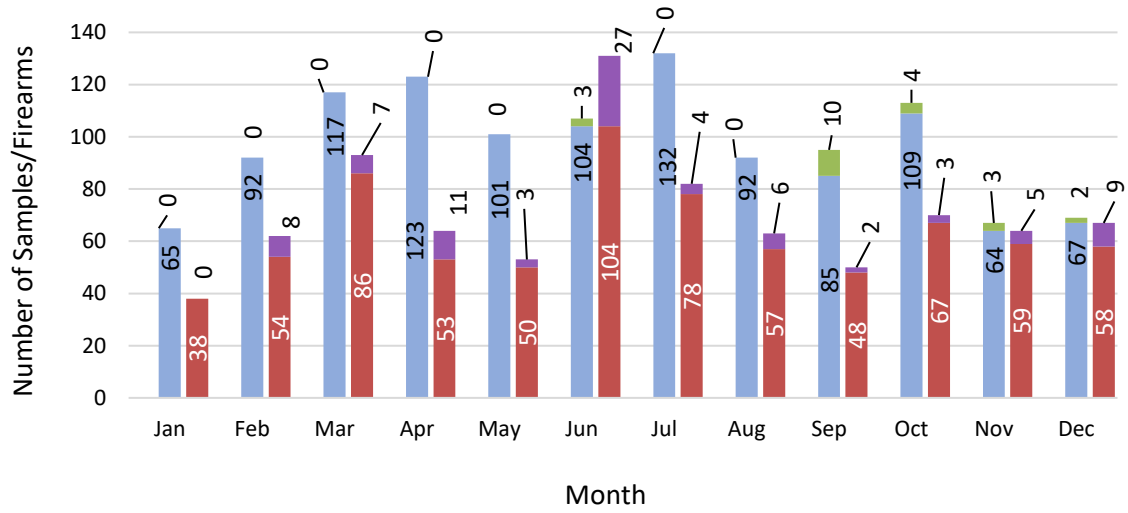


## **Firearms/Toolmarks Database Statistics**



## Operation Test Shot & Walk In Test Fire Activity

■ OTS 2021 = 1,151 Samples Entered into NIBIN     ■ WITF 2021 = 22 Firearms Processed  
■ OTS 2022 = 752 Samples Entered into NIBIN     ■ WITF 2022 = 85 Firearms Processed





NIBIN Associations			
Associated Agencies		Number of Leads	Number of Confirmed Hits
Calvert Co. SO	DC Metro PD	3	0
Calvert Co. SO	St. Mary's Co. SO	1	0
Cambridge PD	Cambridge PD	5	0
Caroline County SO	Salisbury PD	1	0
Crisfield PD	Salisbury PD	1	0
Elkton PD	DE- Wilmington City PD	7	0
Elkton PD	DE- New Castle Co PD	2	0
Elkton PD	MSP North East	1	0
Elkton PD	Elkton PD	3	0
Elkton PD	Baltimore City PD	2	0
Elkton PD	Anne Arundel County PD	1	0
Elkton PD	DE - SP HDQ Dover	2	0
Hagerstown PD	Prince George's Co. PD	2	0
Hagerstown PD	Baltimore City PD	3	0
Hagerstown PD	Washington Co SO	2	0
Hagerstown PD	Hagerstown PD	5	0
Hagerstown PD	Montgomery County PD	2	0
Hagerstown PD	DC Metro PD	2	0
Hagerstown PD	ATF Baltimore	1	0
MDTAP*	Baltimore PD	2	0
MDTAP/HQ	DC Metro PD	1	0
MDTAP/ICC	Baltimore City PD	1	0
MDTAP/LANE	Anne Arundel County PD	1	0
MDTAP/NICE	NC- Charlotte Mecklenburg PD	1	0
Metro Transit PD	Montgomery County PD	1	0
Metro Transit PD	DC Metro PD	1	0
MSP Annapolis	DC Metro PD	1	0
MSP Bel Air	Baltimore County PD	2	0
MSP Bel Air	Baltimore City PD	1	0
MSP CED	Baltimore PD	8	0
MSP CED	DE - Wilmington City PD	2	0

\*MDTAP = Maryland Transportation Authority PD

NIBIN Associations			
Associated Agencies		Number of Leads	Number of Confirmed Hits
MSP CED	Cambridge PD	1	0
MSP CED	DE- SP HDQ Dover	1	0
MSP CED	Prince Georges County PD	1	0
MSP CED	DC Metro PD	5	0
MSP CED Homicide	Baltimore City PD	1	0
MSP CED/SIS	VA- Accomack Co. SO	1	0
MSP College Park	PGPD (Riverdale Park PD)	1	0
MSP College Park	DC Metro PD	1	0
MSP Cumberland	Baltimore City PD	2	0
MSP Easton	DC Metro PD	1	0
MSP Glen Burnie	Baltimore City PD	1	0
MSP Golden Ring	Baltimore City PD	6	0
MSP Golden Ring	Baltimore County PD	1	0
MSP Hagerstown	VA-Prince William Co PD	1	0
MSP Homicide	Somerset County SO	1	0
MSP Homicide	DC Metro PD	1	0
MSP Homicide	Charles Co S.O.	1	0
MSP Homicide	Prince George's Co. PD	1	0
MSP Homicide	VA-Newport News PD	1	0
MSP Homicide	Cambridge PD	10	1
MSP Homicide IID	Virginia DFS-Richmond	1	0
MSP JFK	DC Metro PD	1	0
MSP JFK	Baltimore City PD	1	0
MSP La Plata	DC Metro PD	1	0
MSP Leonardtown	NC- Greensboro PD	1	0
MSP Leonardtown	St. Mary's Co. SO	2	0
MSP Leonardtown	MSP Leonardtown	1	0
MSP North East	Wilmington City PD	3	0
MSP North East	DE- New Castle Co PD	1	0
Ocean City PD	DE - SP HDQ Dover	3	0
Ocean City PD	VA-Chesapeake City PD	1	0
Ocean City PD	Montgomery County PD	1	0
Ocean City PD	Cambridge PD	1	0
Ocean City PD	Baltimore City PD	1	0

NIBIN Associations			
Associated Agencies		Number of Leads	Number of Confirmed Hits
Ocean City PD	Prince Georges County PD	3	0
Ocean City PD	Fairfax Co PD	1	0
Ocean City PD	VA-Accomack Co. SO	1	0
Salisbury PD	Salisbury PD	1	0
Salisbury PD	Wicomico Co SO	3	0
Salisbury PD	MSP Berlin / WCBI	1	0
Salisbury PD	DE - SP HDQ Dover	4	0
St. Mary's Co. SO	MSP CED	5	1
St. Mary's Co. SO	Baltimore City PD	1	0
St. Mary's Co. SO	Charles Co S.O.	1	0
St. Mary's Co. SO	VA-Chesapeake City PD	1	0
St. Mary's Co. SO	VA-Virginia Beach PD	2	0
St. Mary's Co. SO	MSP Leonardtown	1	1
St. Mary's Co. SO	St. Mary's Co. SO	44	7
Talbot Co SO	Salisbury PD	1	0
Talbot Co SO	Cambridge PD	1	0
Washington Co SO	Howard Co PD	2	0
Washington County NTF	Hagerstown PD	3	0
Washington County SO	Hagerstown PD	1	0
Washington County SO	OH- Garfield Heights PD	1	0
Wicomico Co. SO	Salisbury PD	1	0
Howard Co. PD*	Howard Co. PD	0	1
DC Metro PD*	MSP Homicide	0	1
	<b>TOTAL</b>	<b>205</b>	<b>12</b>

\*Confirmed Non-MSP Leads

Note: NIBIN leads are developed through a correlation review of NIBIN data. Confirmed hits have been verified microscopically by an examiner.

## **NOTEWORTHY CASES**

In February 2022, two firearms were recovered and test fired by St. Mary's County Sheriff's Office using a Forensic Buddy provided by MSP-FSD. The test fires were then submitted to FSD's Firearms/Toolmarks Unit (FATMU) through the Operation Test Shot (OTS) program and entered into NIBIN by FATMU staff. One OTS test fire was linked via NIBIN to a previous St. Mary's County assault from February 2022. The other OTS test fire was linked via NIBIN to six additional St. Mary's County crimes committed between December 2021 through February 2022, including three additional assaults, a weapons violation, and a recovered property crime.

In October 2022, Carroll County Sheriff's Office submitted unknown deceased prints to the LPIU Hagerstown. The Sheriff's Office had found the victim decapitated with a mutilated body wrapped in a bedsheet on the side of the road. By tracking the cell phone of the victim, the Sheriff's Office was led to another site, where they found what they believed to be the victim's head and hands duct taped inside a bedsheet in a stream. Examiners from LPIU Hagerstown were able to confirm that the found hands were indeed the victim's hands. After a LPIU Hagerstown Examiner processed the duct tape removed from the secured bedsheets, the examiner identified a print on the adhesive side of the tape, which then led to an identification of a suspect.

## **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 five units: CDS-Pikesville, CDS-Berlin, CDS-Hagerstown, Toxicology-Pikesville and Toxicology-Hagerstown. The Toxicology-Hagerstown Unit is still in the planning and construction phase to eventually receive casework in 2023. The CDS Units focus on identifying submitted evidence as being a specific type of drug while the Toxicology Units focus 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 five units.

The CDS-Pikesville Unit consists of one Forensic Scientist Supervisor, and four Forensic Scientist III's. In addition, four Allied Forensic Scientists work in the CDS-Pikesville laboratory. Allied Forensic Scientists follow the same procedures as MSP Chemists, but they are employees of specific counties and work on cases submitted from those counties. One Allied Forensic Scientist is employed by the Cecil County State's Attorney's Office. One Allied Forensic Scientist is employed by the St. Mary's County State's Attorney's Offices. One Allied Forensic Scientist has just completed training for the Howard County Police Department. And, one Allied Forensic Scientist is in training for the Charles County Sheriff's Office.

The CDS-Berlin Unit consists of one Forensic Scientist Supervisor, one Forensic Scientist III, and one Forensic Scientist I who is currently in training. 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, one Forensic Scientist Advanced, and one Forensic Scientist III. In addition, one Allied Forensic Scientist is employed by the Frederick County State's Attorney's Office. The CDS-Hagerstown Unit operates out of the Hagerstown Regional Laboratory located at the MSP-Hagerstown Barrack.

The Toxicology-Pikesville Unit consists of one Forensic Scientist Supervisor, one Forensic Scientist III, one Forensic Scientist I, and one Laboratory Technician I. There is a vacant Forensic Scientist Advanced position. The Toxicology-Pikesville Unit operates out of the main laboratory in Pikesville. The expansion of the Toxicology Unit to Hagerstown is underway, as well as the process to hire a Ph.D. Toxicologist to oversee both the Units.

The Toxicology-Hagerstown Unit consists of one Forensic Scientist Supervisor, and one Forensic Scientist III. The Toxicology-Hagerstown Unit will operate out of the Hagerstown Regional Laboratory located at the MSP-Hagerstown Barrack.

## **CDS UNITS**

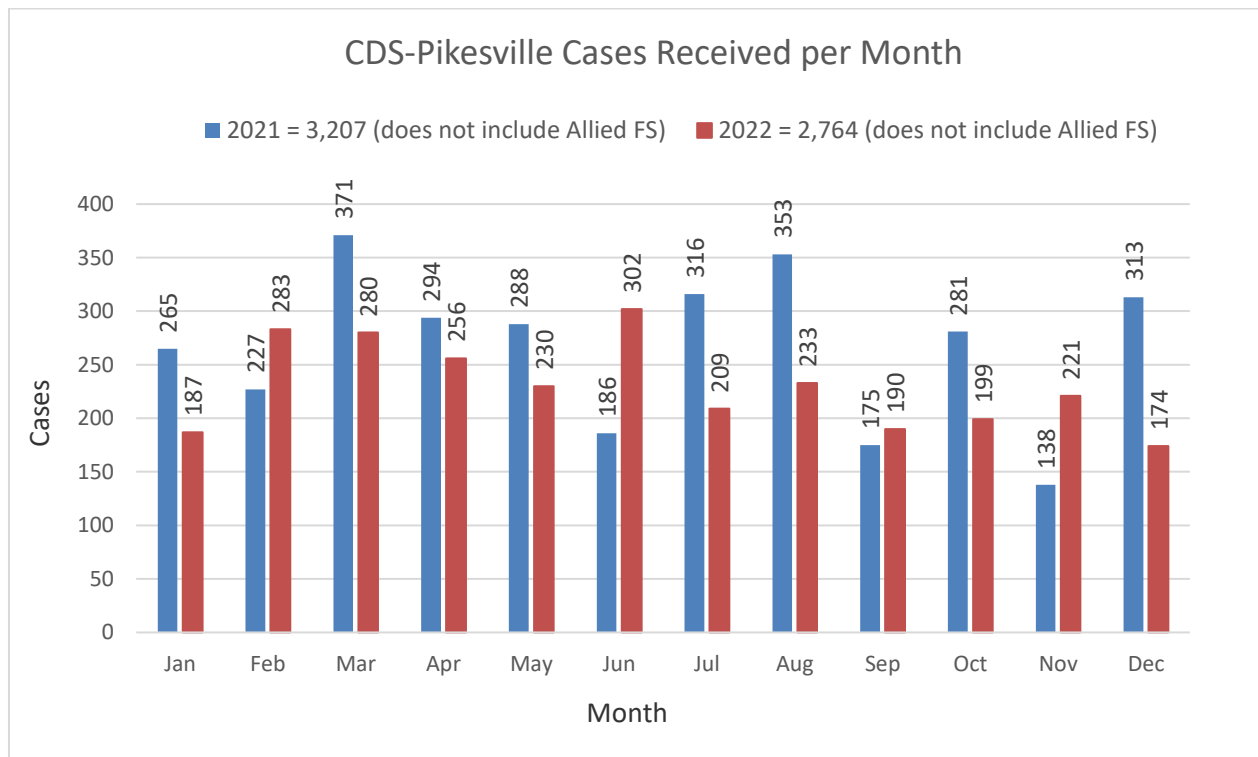
In order to confirm the presence of Controlled Dangerous Substances (CDS) in a sample, several different types of analyses are performed in the CDS Units, including microscopy, color tests, microcrystalline tests, gas chromatography (GC), gas chromatography/mass spectrometry (GC/MS), and Fourier transform infrared (FTIR) spectroscopy. In 2022, the Direct Analysis in Real Time-Time of Flight Mass Spectrometer (DART-TOF MS) was validated for use in casework, and chemists are currently training to be competent to use this instrument for screening purposes. Another important component of CDS analysis is obtaining accurate net and gross weights of the suspected CDS material through the use of analytical balances, precision 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. This data is also shared with the Washington/Baltimore High Intensity Drug Trafficking Area (HIDTA) program to track trends of which drugs are being identified in casework throughout the state and region.

The FSD has noted a significant increase in fentanyl submissions, as well as analogs of fentanyl. Fentanyl and fentanyl analogs are now more common in samples than heroin. Although for 2022, cocaine was the most common drug found in samples for all three lab locations.

## **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, Kent County, Harford County, Howard County, Queen Anne's County, Caroline County, Dorchester County, and Talbot County.



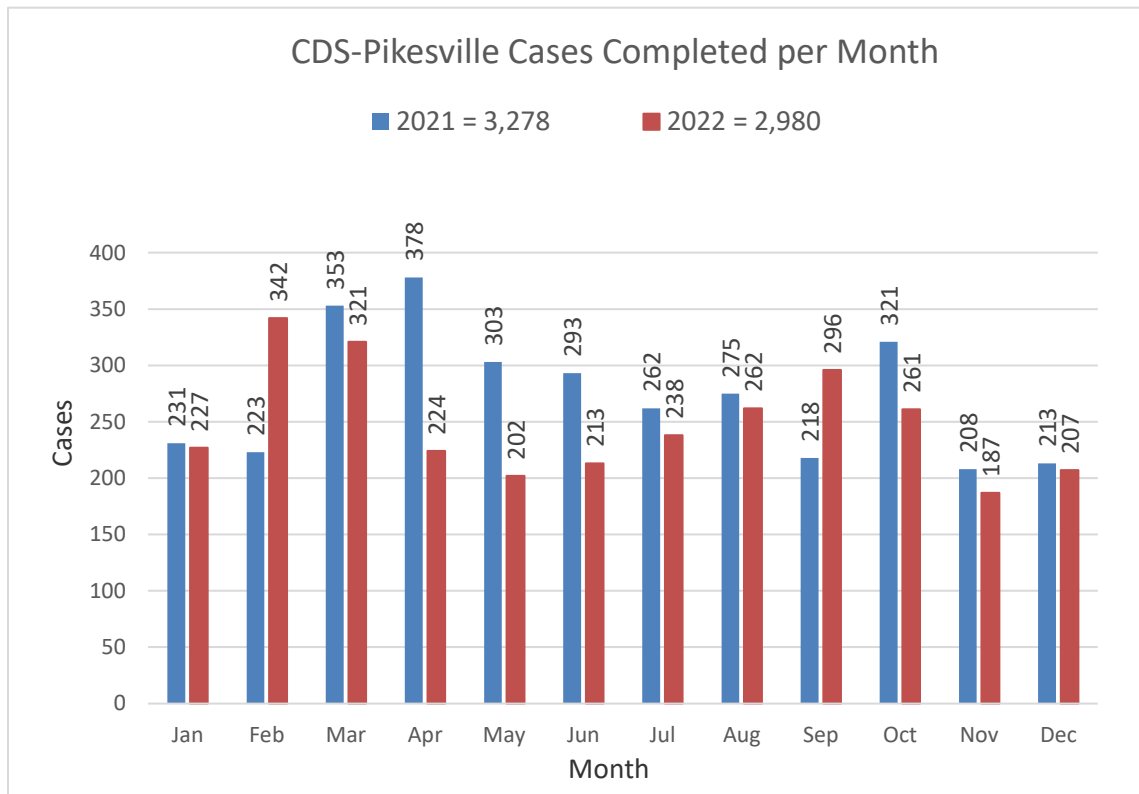
<b>CDS-Pikesville Cases Received per MSP Installation*</b>		
	<b>Counties Served</b>	<b>Submissions</b>
MSP-Easton	Talbot, Caroline, Dorchester	205
MSP-Centerville	Kent, Queen Anne's	178
MSP-CID/CED	Statewide	174
MSP-Leonardtown	St. Mary's	97
MSP-Prince Frederick	Calvert	84
MSP-Glen Burnie	Anne Arundel	76
MSP-Bel Air	Harford	63
MSP-Annapolis	Anne Arundel	52
MSP-Golden Ring	Baltimore	47
MSP-JFK Highway	Cecil, Harford, Baltimore	42
MSP-La Plata	Charles	35
MSP-Forestville	Prince George's	25
MSP-College Park	Prince George's	14
MSP-North East	Cecil	1
MSP-Crash Team	Statewide	1
MSP-Salisbury	Wicomico	1
	<b>TOTAL</b>	<b>1,095</b>

\* Does not include Allied FS

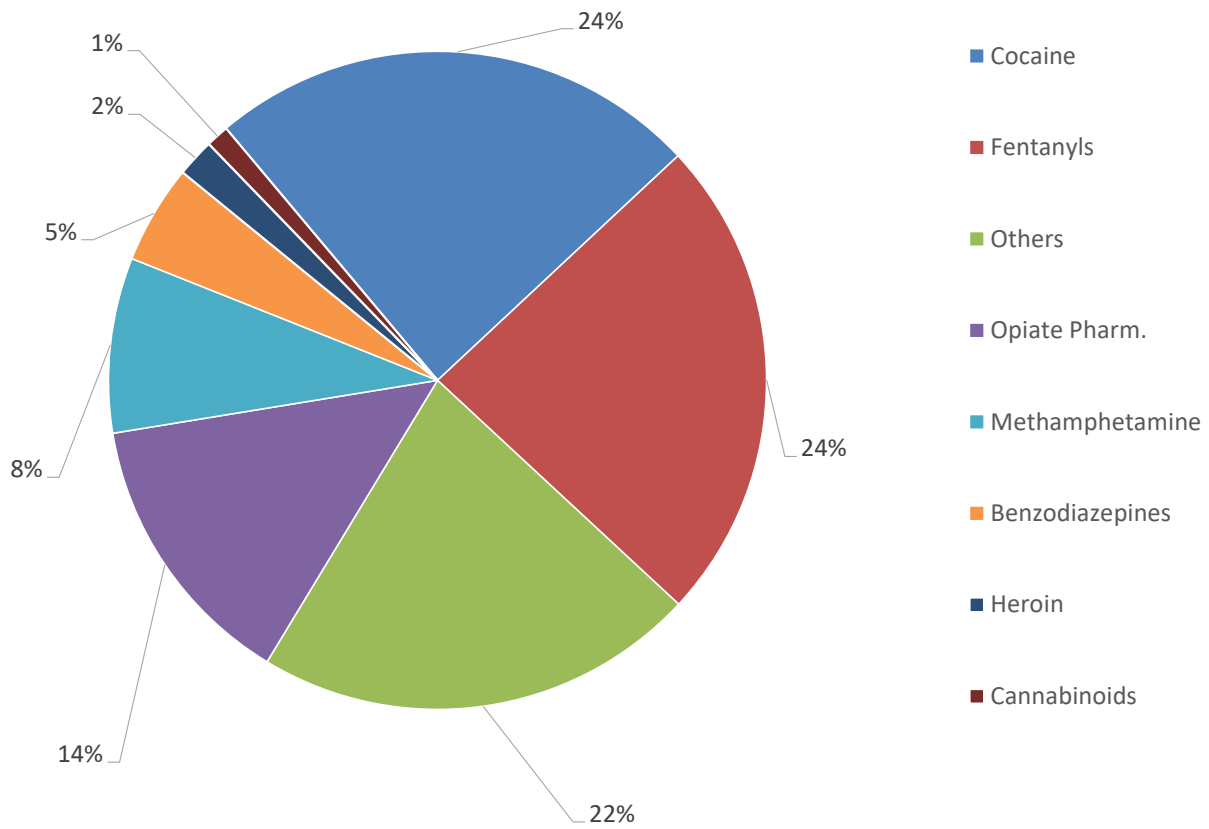
<b>Allied Agency Cases Received by CDS-Pikesville per County*</b>	
<b>County</b>	<b>Submissions</b>
Harford	376
Charles	271
Calvert	242
St. Mary's	216
Talbot	108
Dorchester	102
Baltimore City	84
Queen Anne's	56
Kent	54
Caroline	52
Anne Arundel	47
Baltimore	29
Out of State	11
Montgomery	10
Prince George's	8
Somerset	2
Cecil	1
<b>TOTAL</b>	<b>1,669</b>

\* Does not include Allied FS

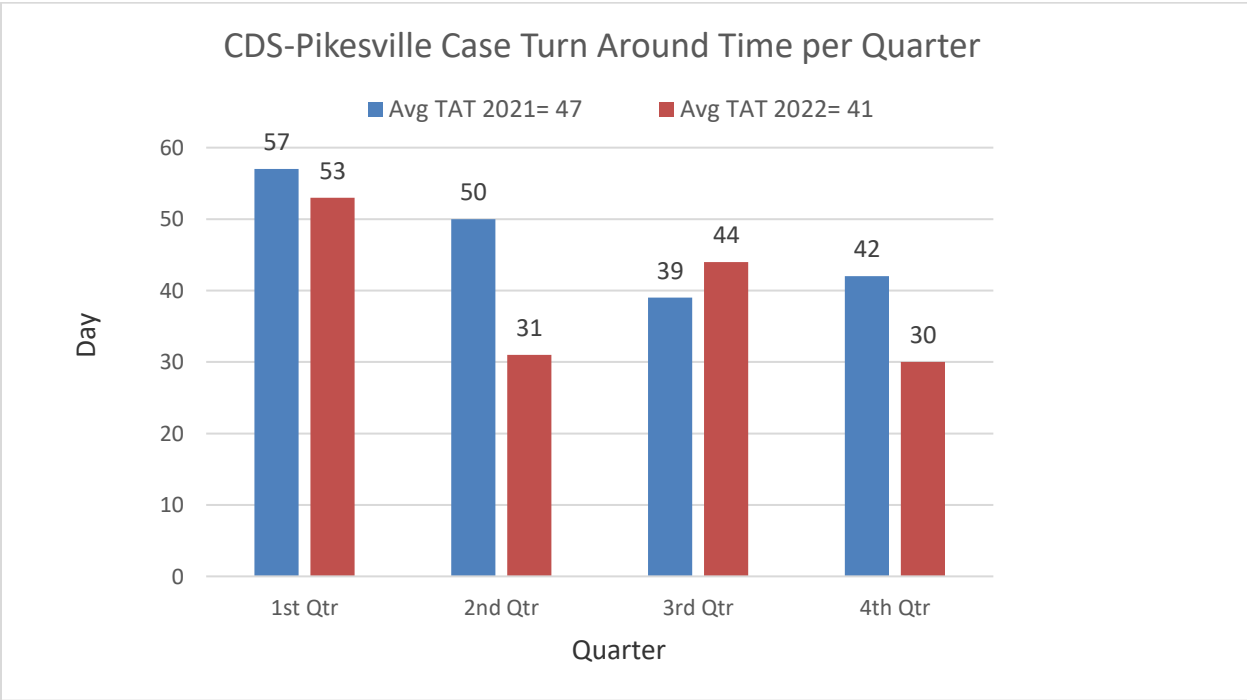
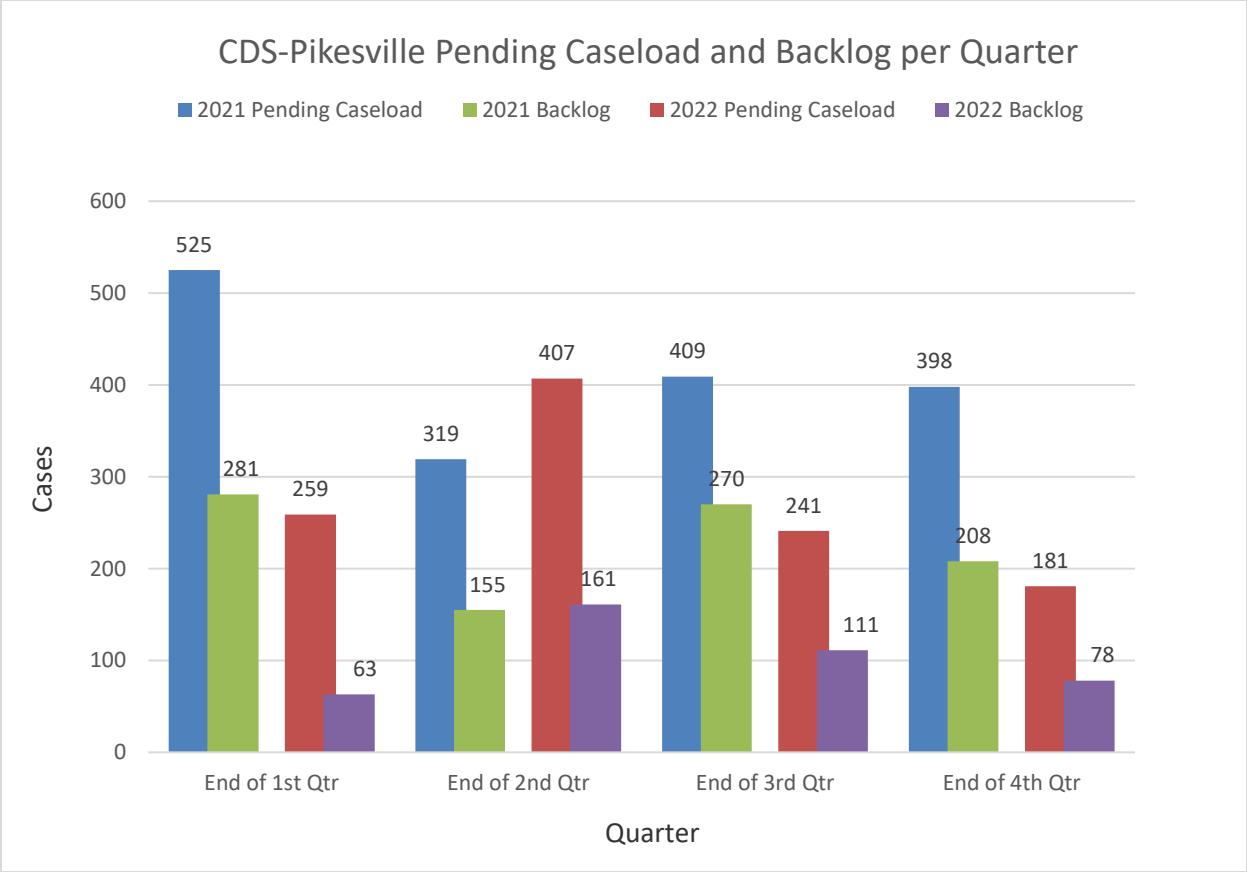




CDS-Pikesville Analyses Reported per Drug Type  
(Includes Allied FS)

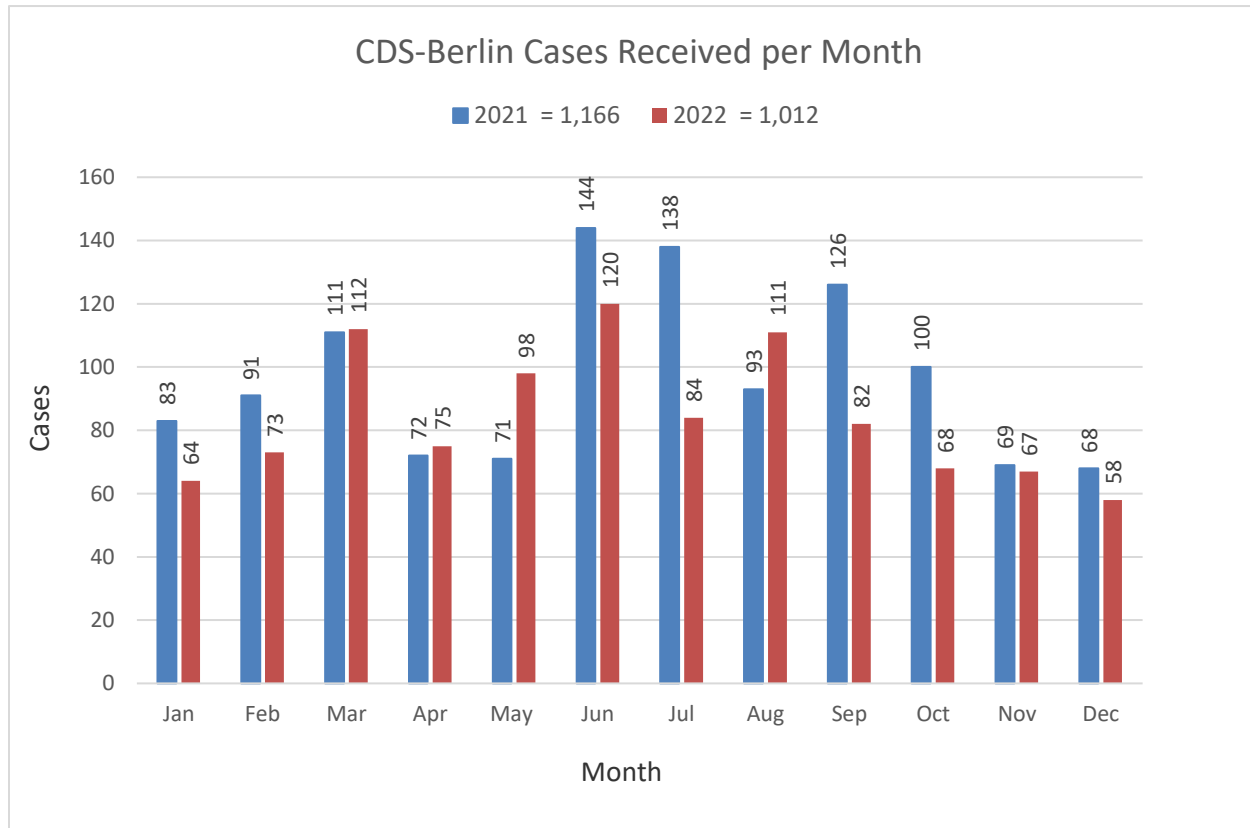


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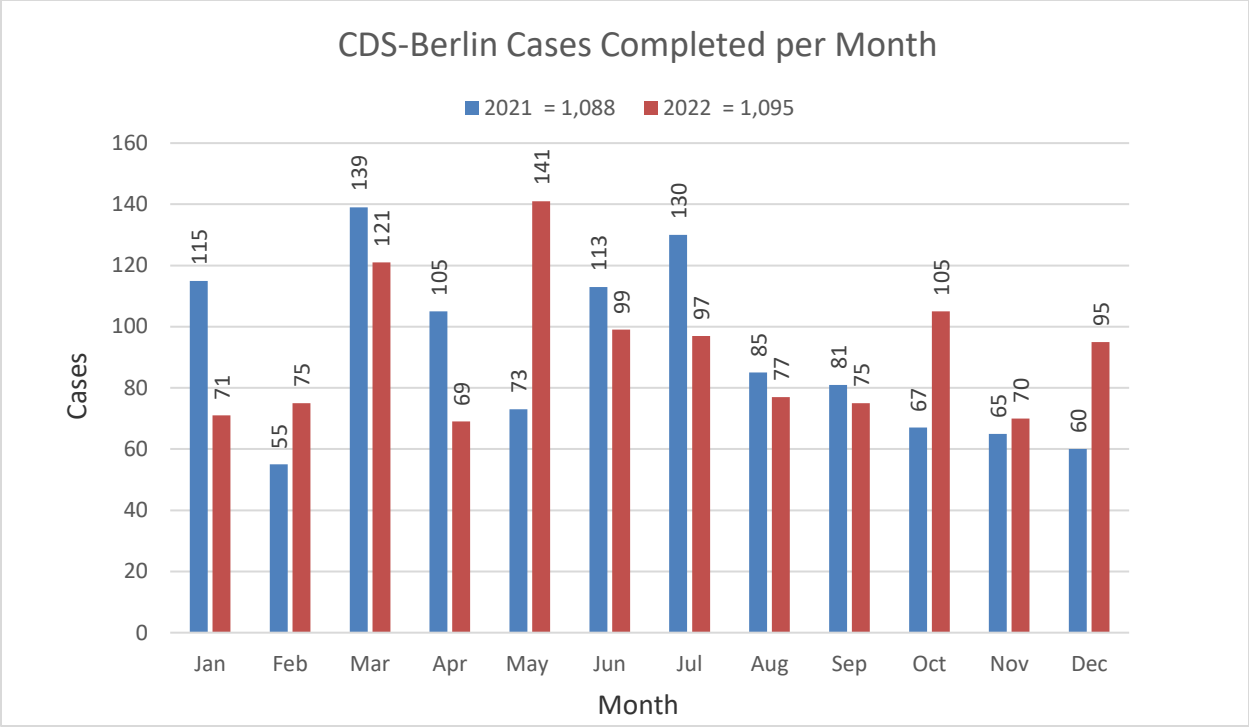
## **CDS-BERLIN UNIT**

The CDS-Berlin laboratory services primarily the Eastern Maryland counties including Somerset County, Wicomico County and Worcester County.

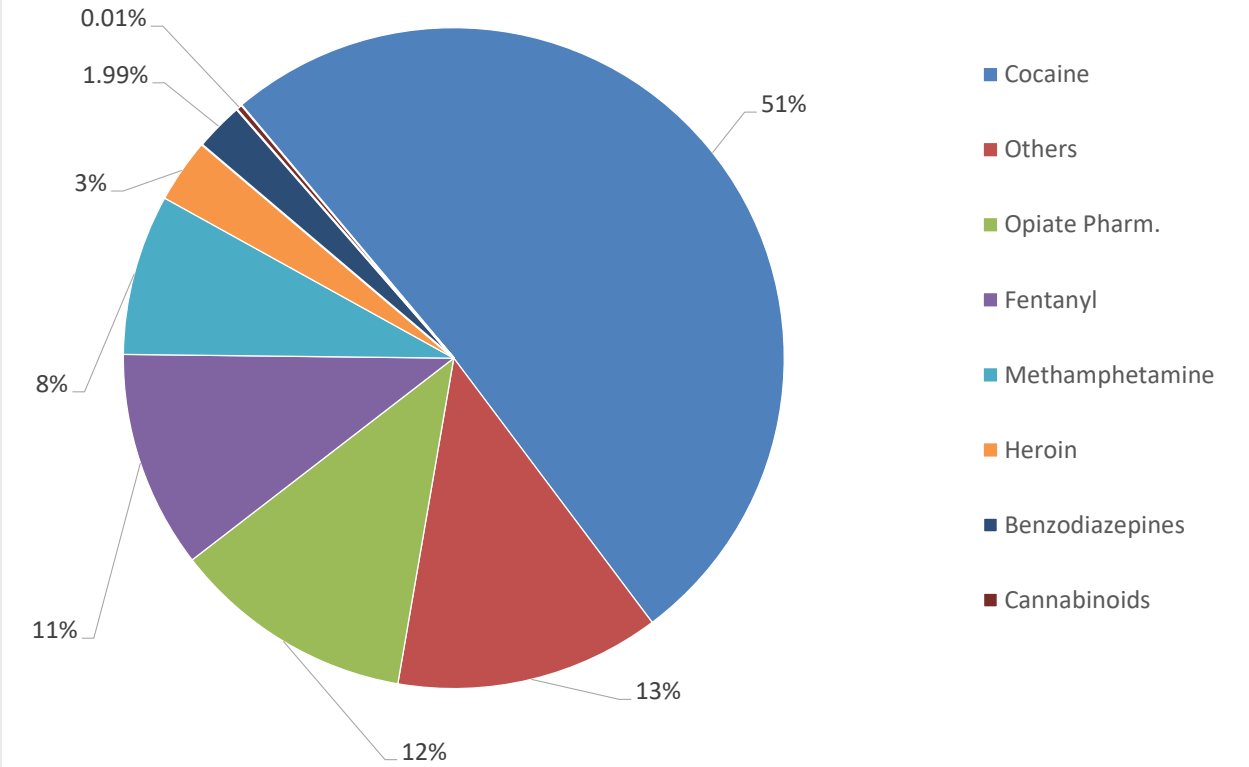


CDS-Berlin Cases Received per MSP Installation		
MSP Installation	Counties Served	Submissions
MSP-Salisbury	Wicomico	91
MSP-Berlin	Worcester	54
MSP-CID/CED	Statewide	38
MSP-Princess Anne	Somerset	23
	<b>TOTAL</b>	<b>206</b>

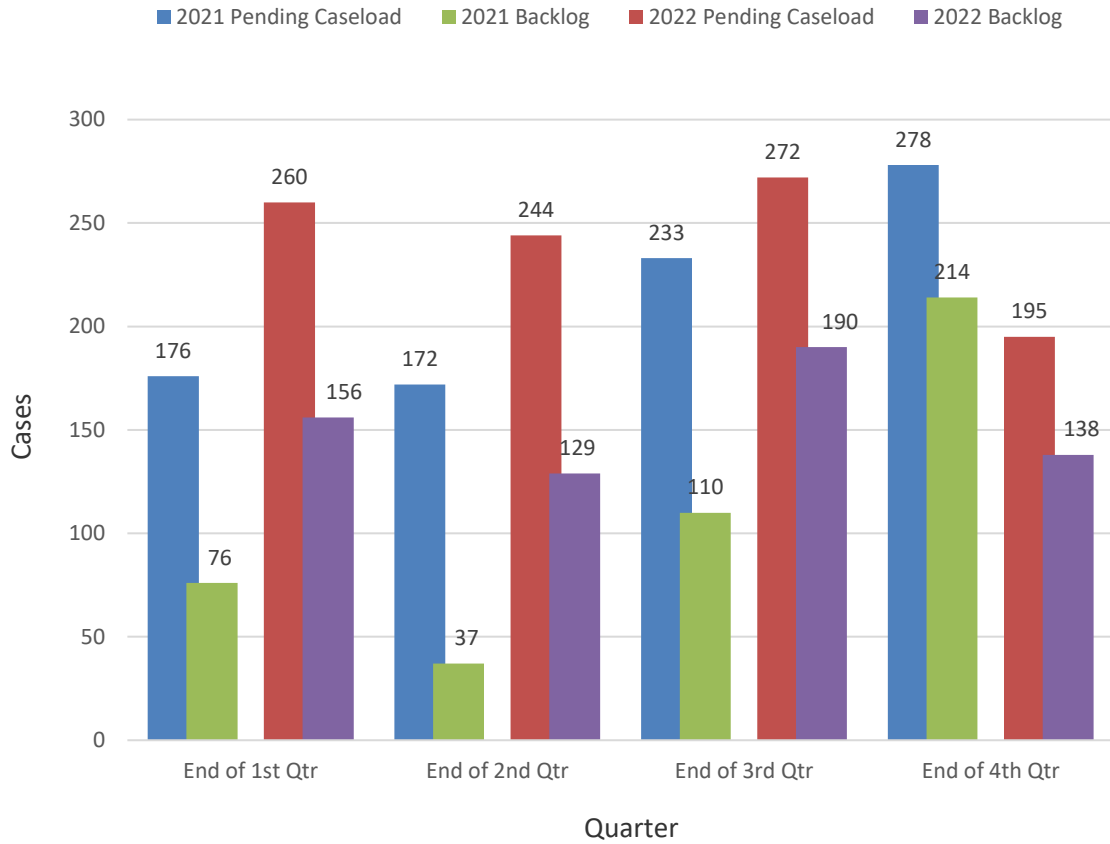
Allied Agency Cases Received by CDS-Berlin per County	
County	Submissions
Wicomico	415
Worcester	348
Somerset	43
<b>TOTAL</b>	<b>806</b>



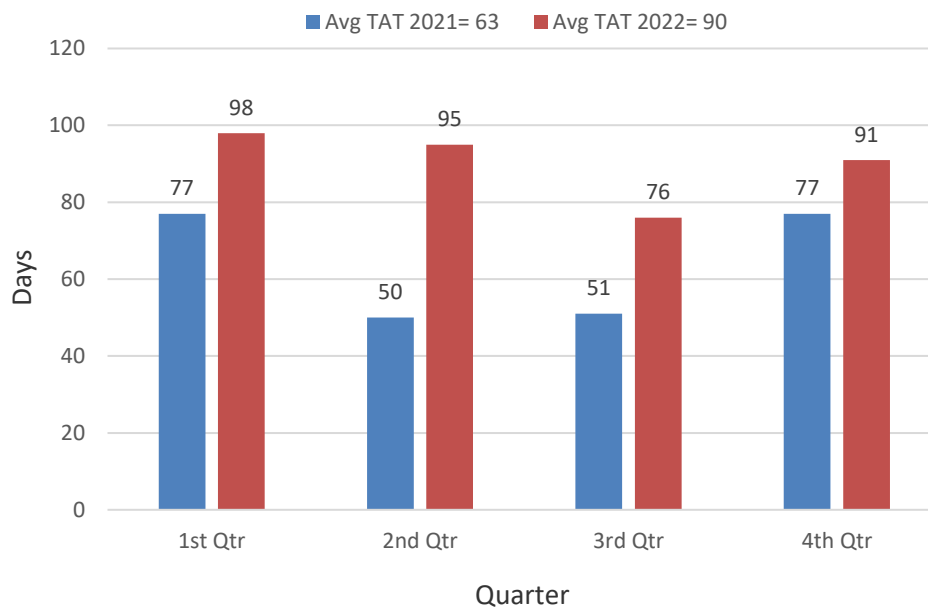
CDS-Berlin Analyses Reported per Drug Type



### CDS-Berlin Pending Caseload and Backlog per Quarter



### CDS-Berlin Case Turn Around Time per Quarter

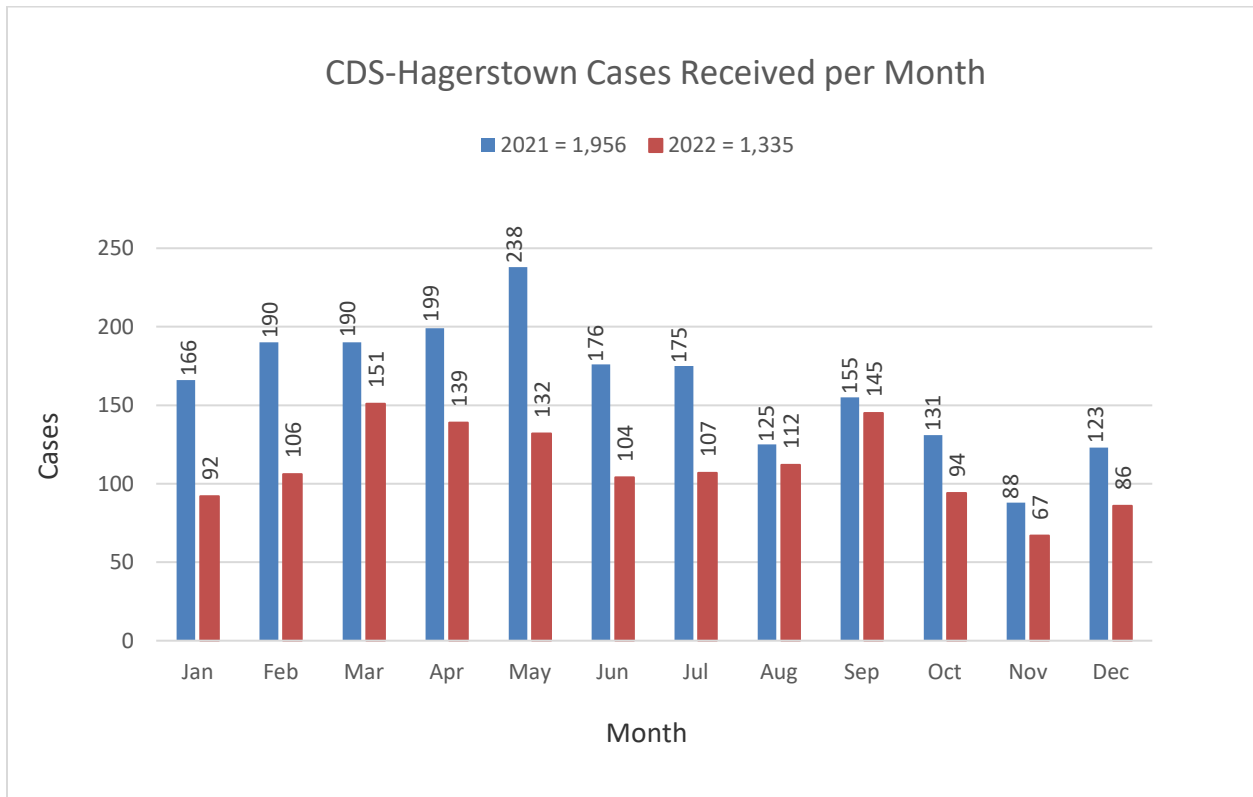




## **CDS-HAGERSTOWN UNIT**

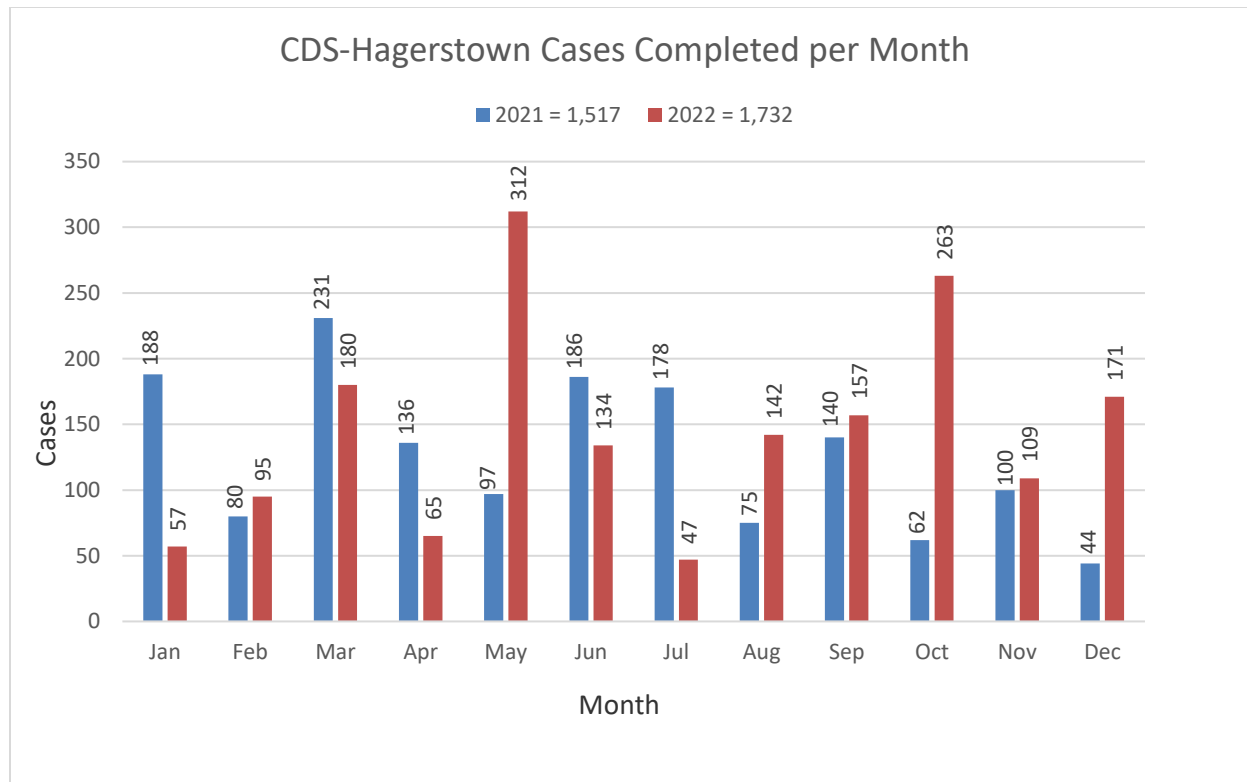
The Hagerstown CDS laboratory services primarily the Western Maryland counties including Washington County, Allegany County, Carroll County, Garrett County, Montgomery County and Frederick County.

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

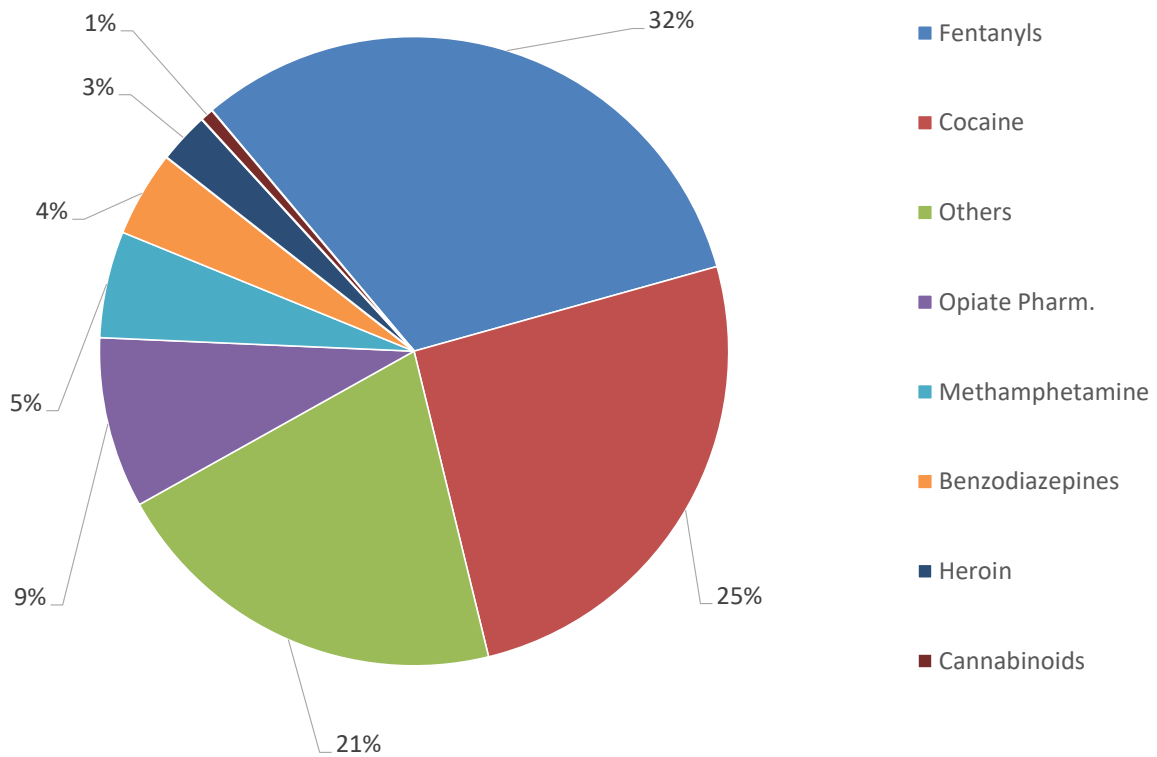


<b>CDS-Hagerstown Cases Received per MSP Installation</b>		
<b>MSP Installation</b>	<b>Counties Served</b>	<b>Submissions</b>
MSP-Cumberland	Allegany	290
MSP-Hagerstown	Washington	153
MSP-Westminster	Carroll	50
MSP-Rockville	Montgomery	33
MSP-McHenry	Garrett	30
MSP-CID/CED	Statewide	8
MSP-DED/C3I	Allegany	2
MSP-JFK Highway	Cecil, Harford, Baltimore	1
	<b>TOTAL</b>	<b>567</b>

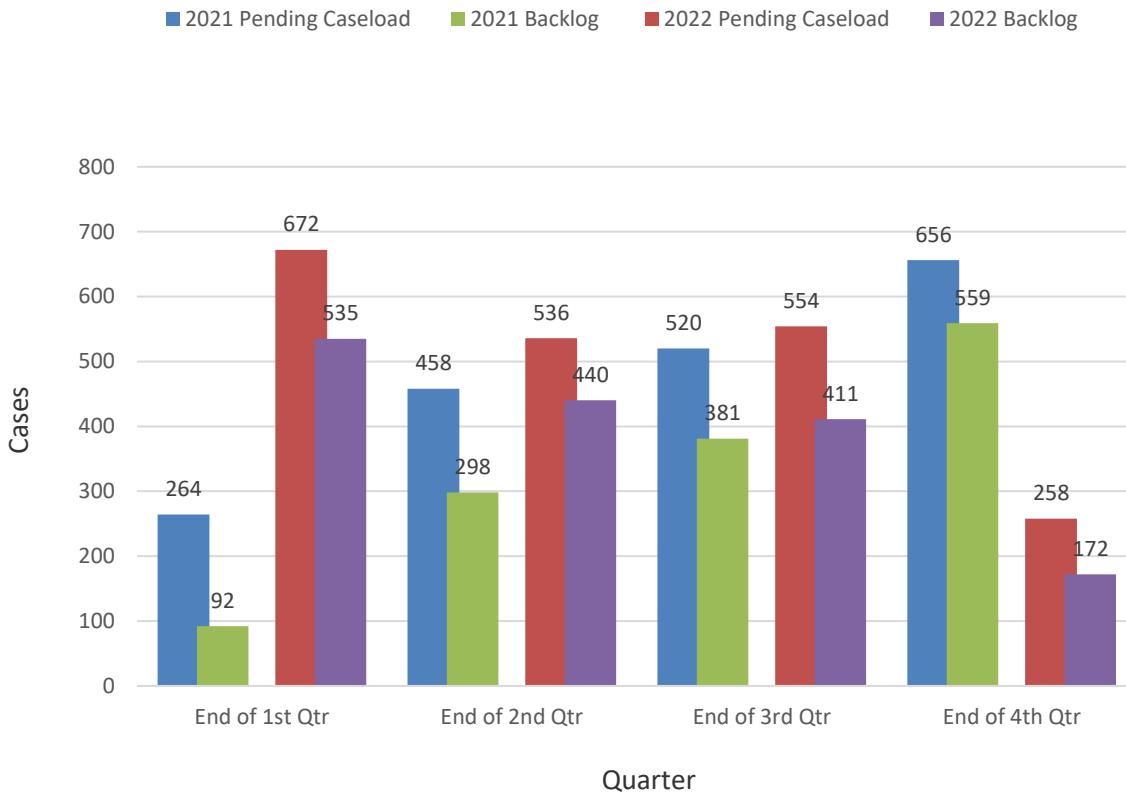
<b>Allied Agency Cases Received by CDS-Hagerstown per County</b>	
<b>County</b>	<b>Submissions</b>
Carroll	387
Allegany	271
Garrett	83
Washington	25
Harford	1
Anne Arundel	1
<b>TOTAL</b>	<b>768</b>



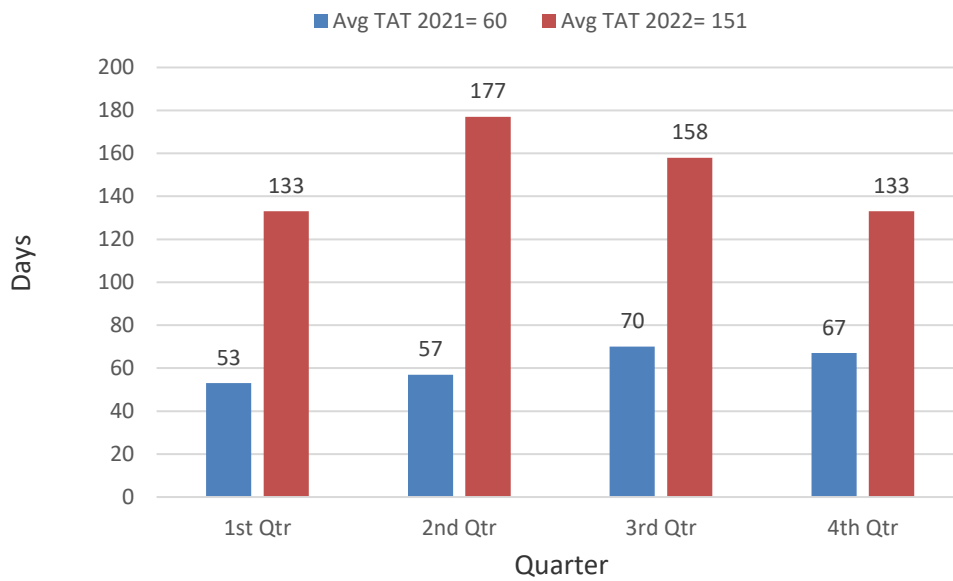
CDS-Hagerstown Analyses Reported per Drug Type  
(Includes Allied FS)



### CDS-Hagerstown Pending Caseload and Backlog per Quarter



### CDS-Hagerstown Case Turn Around Time per Quarter

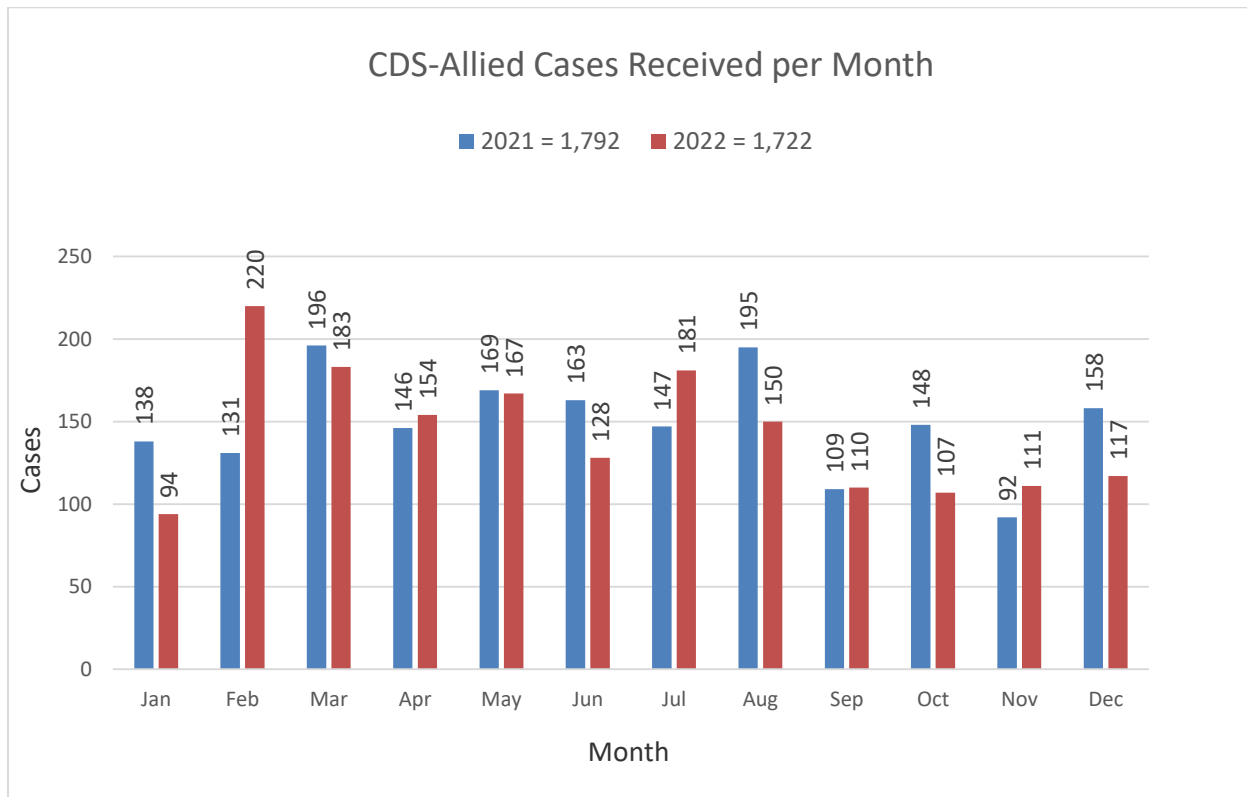


## **CDS-ALLIED FORENSIC SCIENTIST PROGRAM**

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 MSP-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 MSP-FSD management system by complying with the MSP-FSD Quality Assurance Manual and following the MSP-FSD standard operating procedures.

Five Allied Forensic Scientists, representing the following agencies, work in the CDS Units: Howard County Police Department, Cecil County State's Attorney's Office, Frederick County State's Attorney's Office, Charles County Sherriff's Office, and St. Mary's County State's Attorney's Office.

The St. Mary's County Allied Chemist completed their training and will be analyzing cases independently in 2023. The Howard County Allied Chemist and Charles County Allied Chemist are still in training. In this report casework statistics for those counties is included under the CDS-Pikesville Unit for 2022.



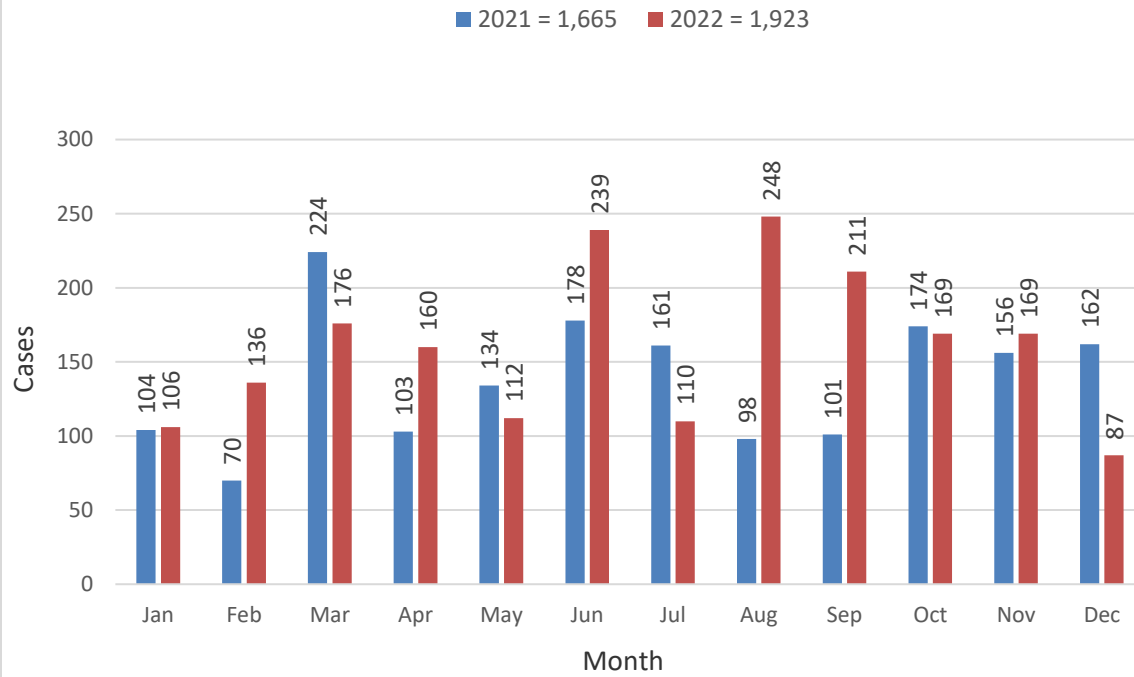
<b>CDS Cases Received by Allied Forensic Scientists per MSP Installation</b>		
<b>MSP Installation</b>	<b>Counties Served</b>	<b>Submissions</b>
MSP-North East	Cecil	181
MSP-Frederick	Frederick	157
MSP-CID/CED	Statewide	45
MSP-Waterloo	Howard	33
MSP-JFK Highway	Cecil, Harford, Baltimore	25
	<b>TOTAL</b>	<b>441</b>

Note: Cases designated above are received by FSD from an Allied Forensic Scientist's County, but cases may be completed by FSD staff or Outsourced.

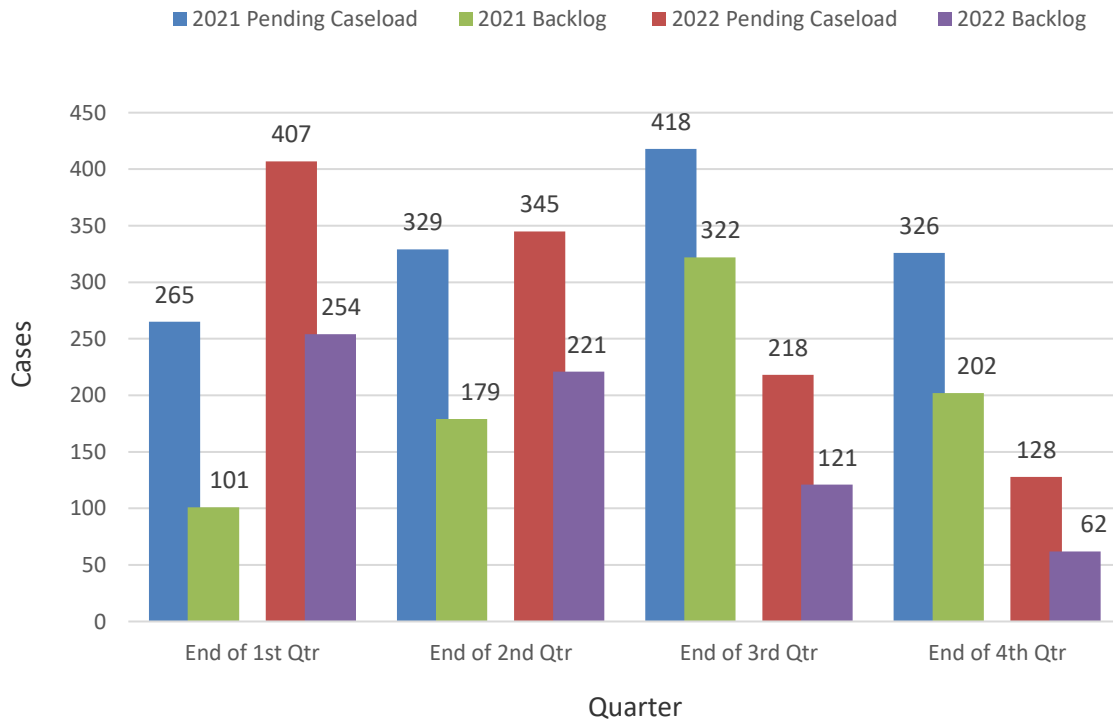
<b>CDS Cases Received by Forensic Scientists from Allied Agencies per County</b>	
<b>County</b>	<b>Submissions</b>
Frederick	785
Cecil	362
Howard	134
<b>TOTAL</b>	<b>1,281</b>

Note: Cases designated above are received by FSD from an Allied Forensic Scientist's County, but cases may be completed by FSD staff or Outsourced.

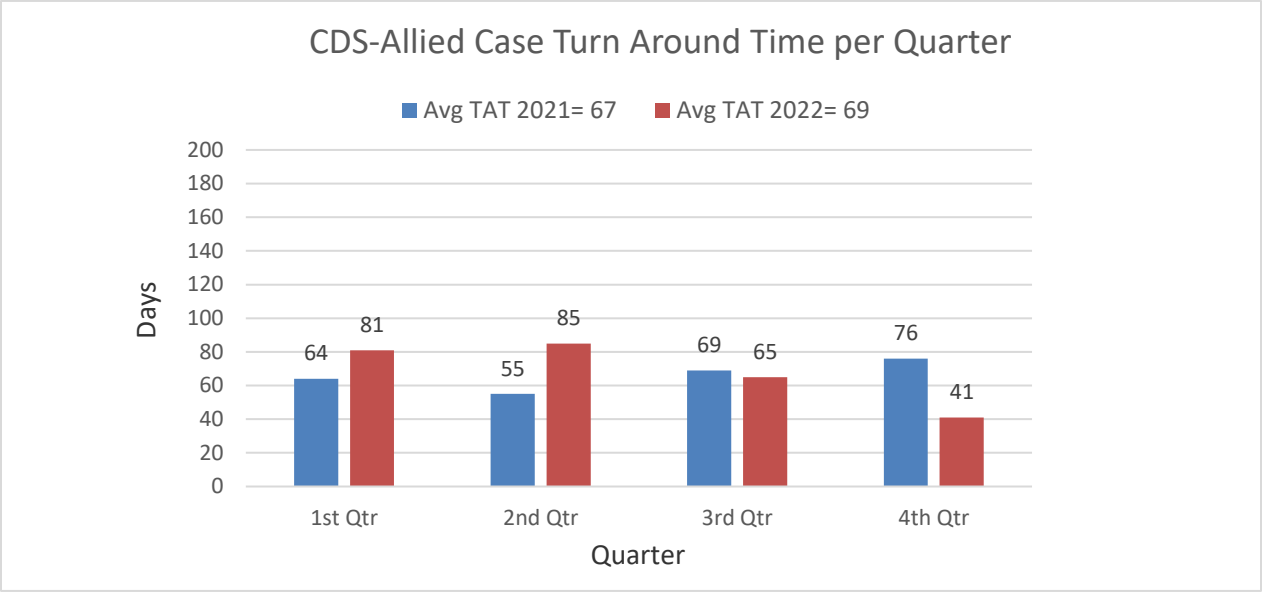
### CDS-Allied Cases Completed per Month



### CDS-Allied Pending Caseload and Backlog per Quarter







## CDS UNIT/ HIDTA DATA ANALYSIS

### Drug Categories Identified in 2022\*

Quarter	Cocaine	Cannabis	Heroin	Fentanyl	Fentanyl Analogs	Other Opioids**	Methamphetamine	Phenethylamine***	Synthetic Cannabinoid	Controlled Rx	Rx	Over-the-Counter	PCP/Analog	Psychedelic	Cathinones	Designer Benzodiazepines	Xylazine	Other	Drug Positive Total
Total 1Q	1019	276	88	728	27	253	261	93	60	352	76	0	20	39	34	25	372	19	3742
%	27.2	7.4	2.4	19.5	0.7	6.8	7	2.5	1.6	9.4	2.0	-	0.5	1.0	0.9	0.7	9.9	0.5	
Total 2Q	1285	584	129	944	213	629	394	111	71	447	109	79	19	69	32	66	371	116	5668
%	22.7	10.3	2.3	16.7	3.8	11.1	7	2	1.3	7.9	1.9	1.4	0.3	1.2	0.6	1.2	6.5	2	
Total 3Q	1201	462	95	866	240	452	323	104	10	414	69	28	38	80	36	20	320	23	4781
%	25	9.7	2	18	5	9.5	6.8	2.2	0.2	8.7	1.4	0.6	0.8	1.7	0.8	0.4	6.7	0.5	
Total 4Q	946	462	103	694	108	434	326	80	6	156	73	25	32	59	43	9	268	34	3858
%	24.5	12	2.7	18	2.8	11.2	8.4	2.1	0.2	4	2	0.6	0.8	1.5	1.1	0.2	7	0.9	

\*This is an overview of samples submitted to the MSP labs only, and does not represent all drugs seized in the State of Maryland.

\*\*The Other Opioids group includes oxycodone, tramadol, methadone, hydrocodone, morphine, oxymorphone, codeine mixtures, tarpentadol, a fentanyl precursor 4-Anilino-N-phenethyl-4-piperidine (ANPP) and other less common opioids. The Designer Benzodiazepines group may include Etizolam, Deschloroetizolam, Bromazolam, Clobromazolam, Clonazolam, Flualprazolam, or Flubromazolam, if any of the listed drugs are identified as positive.

\*\*\*The Phenethylamines group includes amphetamine and MDMA.

## **TOXICOLOGY UNIT**

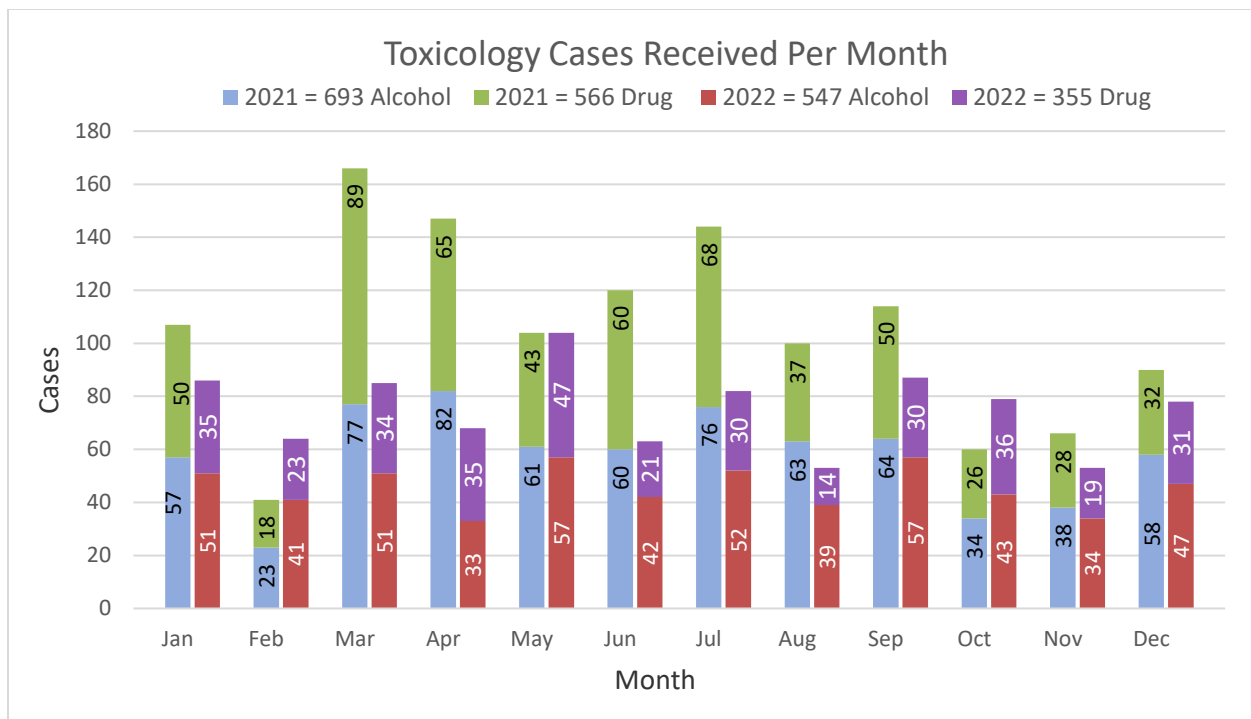
The Toxicology Unit is responsible for the analysis of alcohol and drugs contained in blood specimens submitted to the MSP-FSD. Testing is performed in conjunction with the Driving While Impaired (DWI) program of the Maryland State Police. Testing for alcohol and drugs is performed for both the Maryland State Police and allied law enforcement agencies requiring laboratory support for impaired driving programs.

The Toxicology Unit is the only public laboratory within the state approved to analyze blood samples for alcohol and drugs in cases related to DWI arrests. Blood specimens submitted to the Toxicology Unit for testing are collected by qualified medical personnel when requested by police. Blood is collected from suspected impaired drivers after being taken to hospital for injury, or at the request of a Drug Recognition Expert Officer when drug impairment is suspected. Many cases, therefore, involve serious personal injury and manslaughter/vehicle homicide charges that require the Forensic Scientist's expert testimony at trial.

In October 2022, a Maryland law shifted oversight of all driving under the influence (DUI) toxicology operations within the State from the Office of the Chief Medical Examiner (OCME) specializing in post mortem analysis to MSP-FSD specializing in ante mortem analysis. This included the creation of a new Ante Mortem Chief Toxicologist within MSP-FSD who will be responsible for consolidating the unaccredited breath alcohol program currently operating independent of the crime laboratory with the accredited blood alcohol and blood drug programs that currently operate within the crime laboratory. Dr. Yale Caplan was hired contractually in October 2022 as the Acting Chief Toxicologist to fill this role until the full time Chief Toxicologist is hired in 2023.

The Toxicology Unit continues to grow. There are currently three fully trained Forensic Scientists and two Forensic Scientists in training. There are two remaining vacancies: Forensic Scientist Advanced and the Chief Toxicologist.

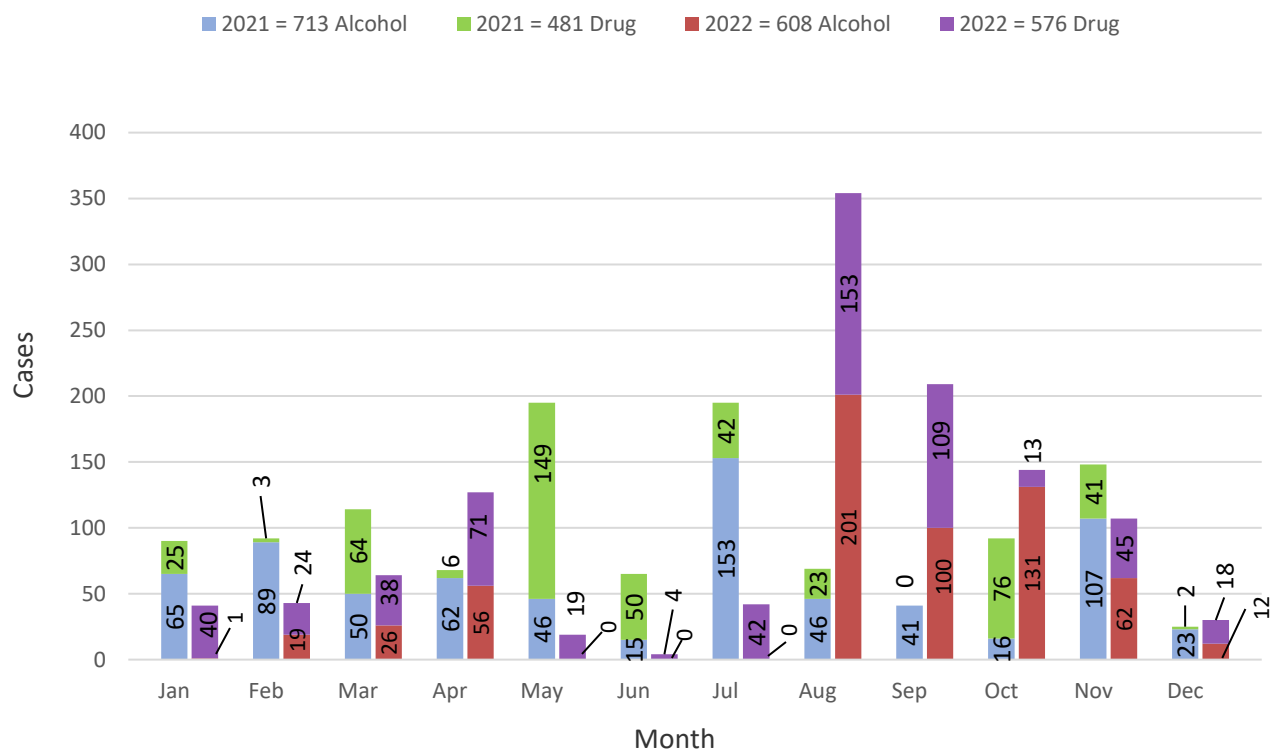
The Hagerstown laboratory underwent renovations in 2022 to accommodate the new Hagerstown Toxicology Unit. This Unit location will begin casework operations in 2023.



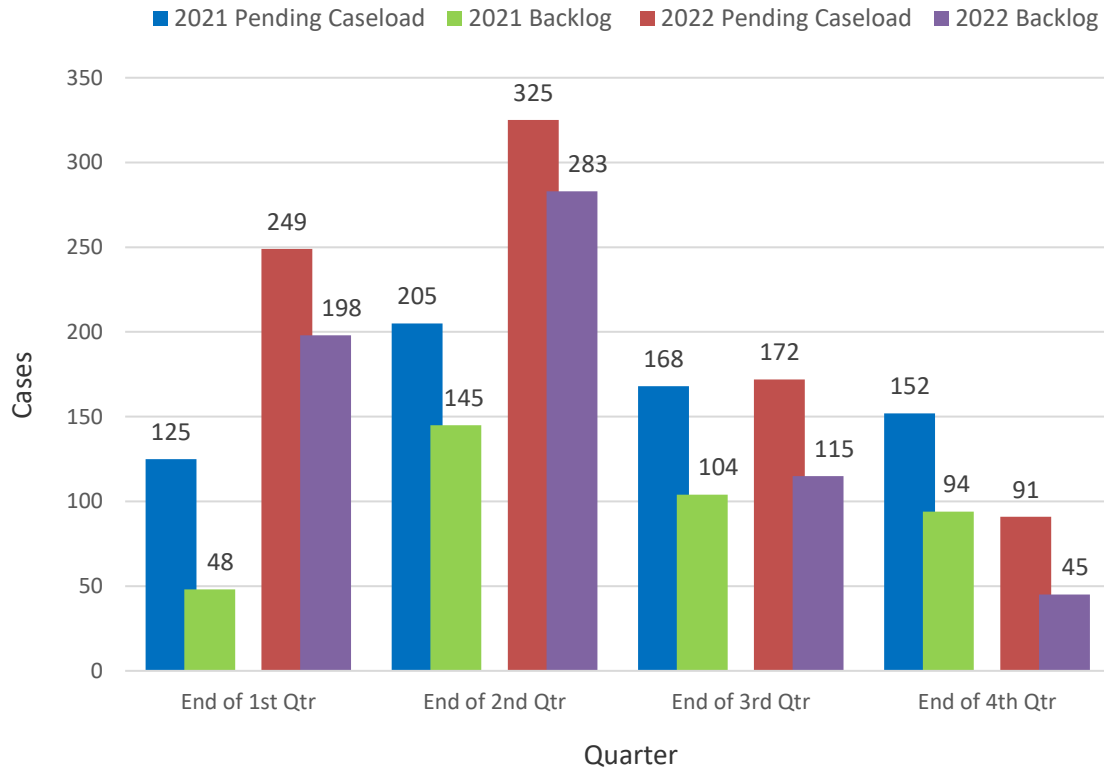
Toxicology Cases Received per MSP Installation		
MSP Installation	Counties Served	Submissions
MSP-Golden Ring	Baltimore	46
MSP-Bel Air	Harford	44
MSP-Frederick	Frederick	34
MSP-Westminster	Carroll	24
MSP-Salisbury	Wicomico	18
MSP-Easton	Talbot, Caroline, Dorchester	18
MSP-Hagerstown	Washington	16
MSP-Waterloo	Howard	15
MSP-Centerville	Kent, Queen Anne's	14
MSP-Rockville	Montgomery	13
MSP-JFK Highway	Cecil, Harford, Baltimore	11
MSP-Berlin	Worcester	11
MSP-Forestville	Prince George's	11
MSP-Glen Burnie	Anne Arundel	11
MSP-Annapolis	Anne Arundel	9
MSP-La Plata	Charles	8
MSP-College Park	Prince George's	7
MSP-North East	Cecil	7
MSP-Princess Anne	Somerset	5
MSP-McHenry	Garrett	4
MSP-Prince Frederick	Calvert	2
MSP-Cumberland	Allegany	2
MSP-Leonardtown	St. Mary's	1
	<b>TOTAL</b>	<b>331</b>

<b>Toxicology Cases Received from Allied Agencies by County</b>	
<b>County</b>	<b>Submissions</b>
Anne Arundel	107
Baltimore	84
Montgomery	73
Frederick	42
Baltimore City	38
Harford	35
Carroll	34
Washington	26
Howard	23
St. Mary's	21
Allegany	18
Prince George's	15
Charles	13
Worcester	10
Wicomico	7
Calvert	4
Talbot	4
Queen Anne's	4
Dorchester	3
Cecil	3
Caroline	2
Somerset	2
Garrett	2
Kent	1
<b>TOTAL</b>	<b>571</b>

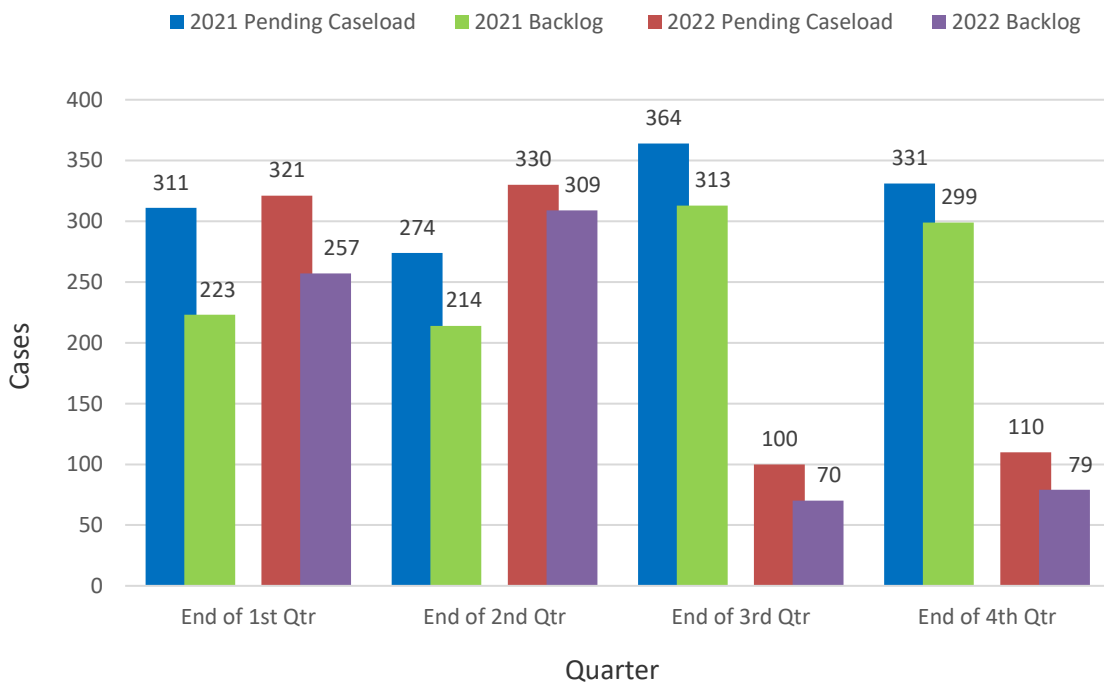
## Toxicology Cases Completed Per Month



### Blood Alcohol Pending Caseload and Backlog per Quarter

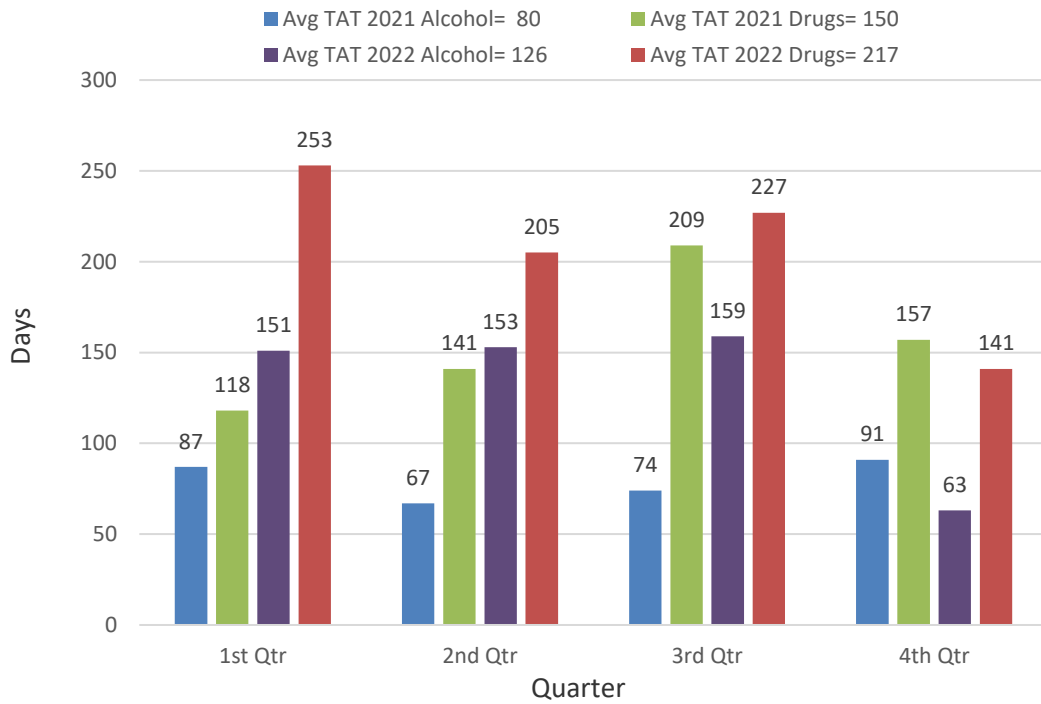


### Blood Drug Pending Caseload and Backlog per Quarter

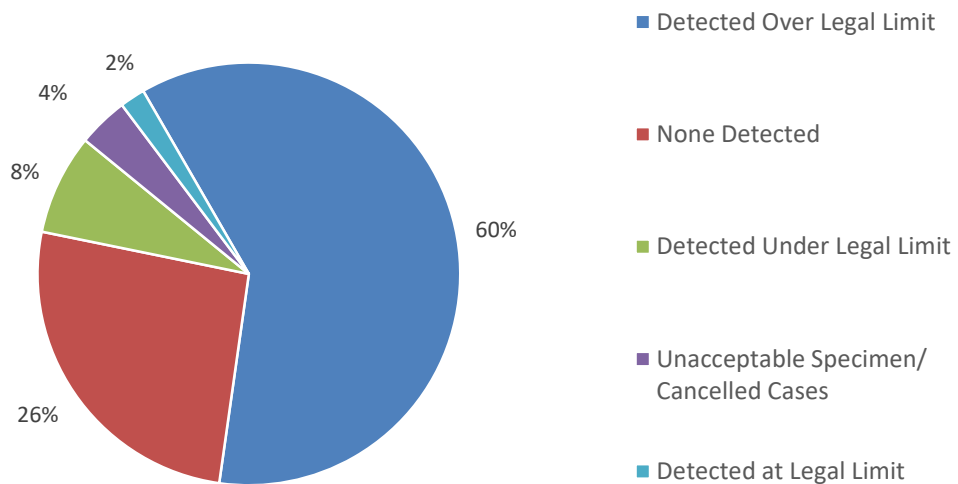




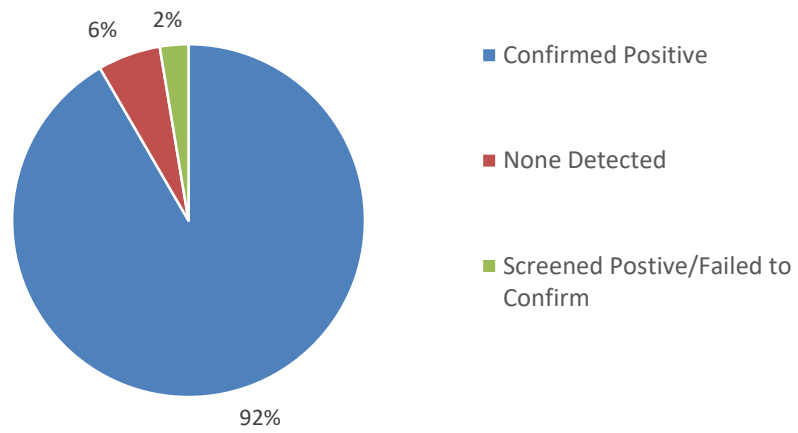
### Toxicology Case Turn Around Time



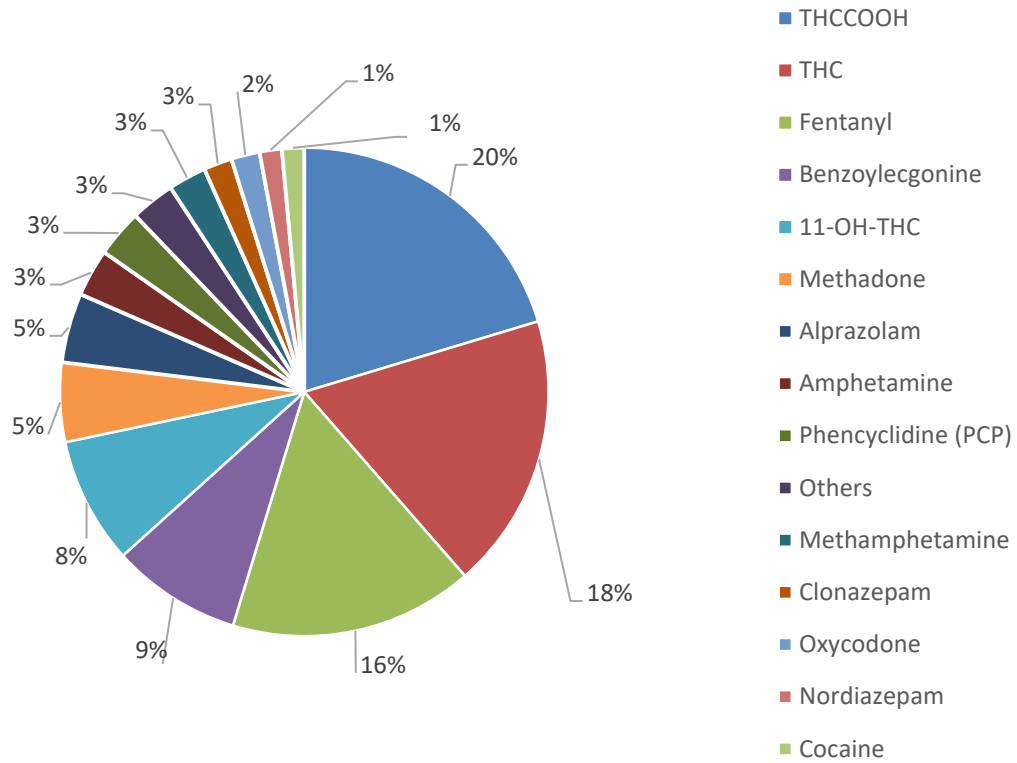
### Blood Alcohol Cases Reported per Detection Level -In house



Blood Drug Cases Reported per Result Type  
(excludes cancelled cases )

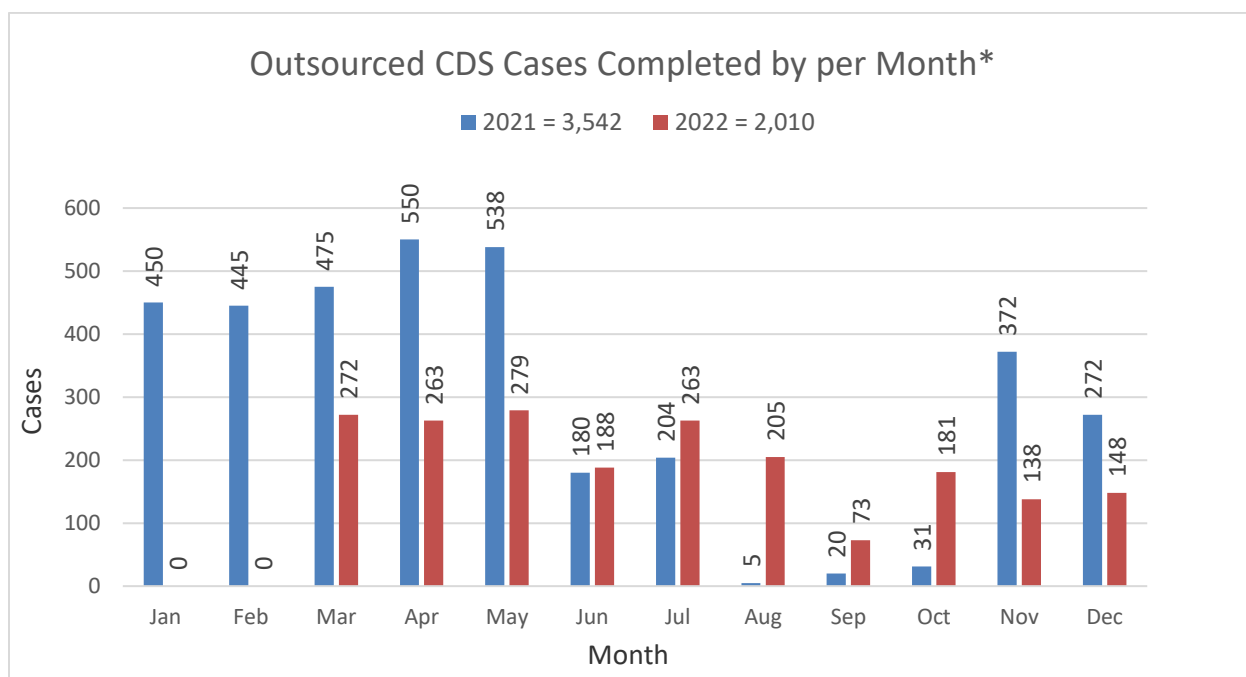


Confirmed Results of Blood Drug In-House Cases  
per Drug Type



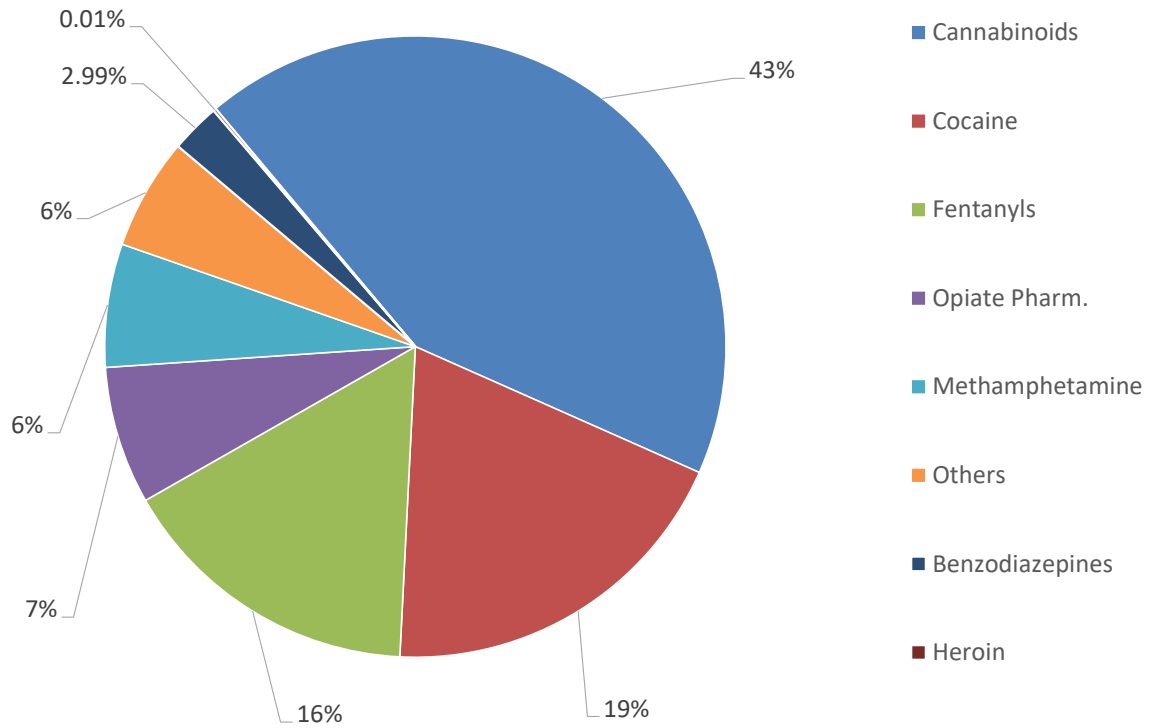
## **CHEMISTRY SECTION OUTSOURCING**

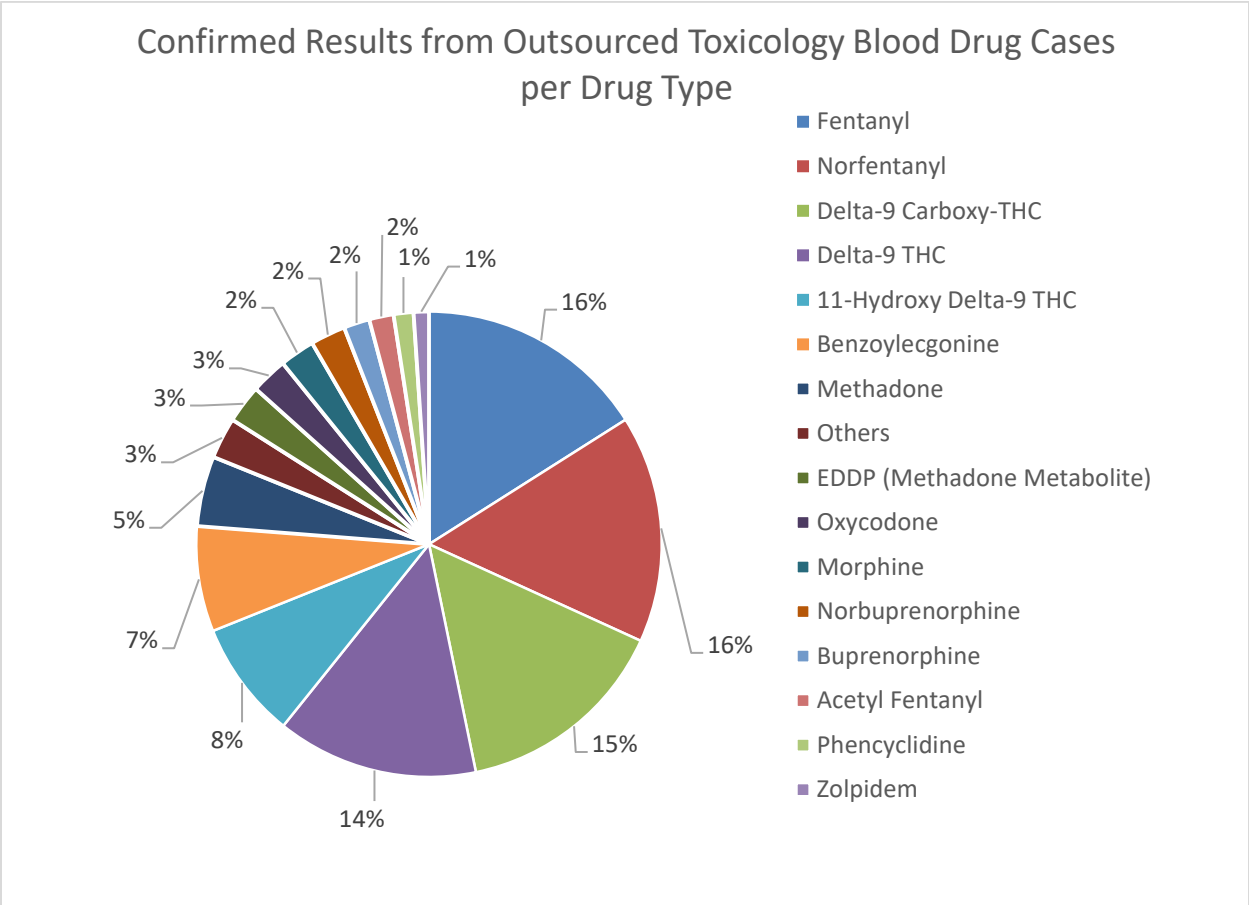
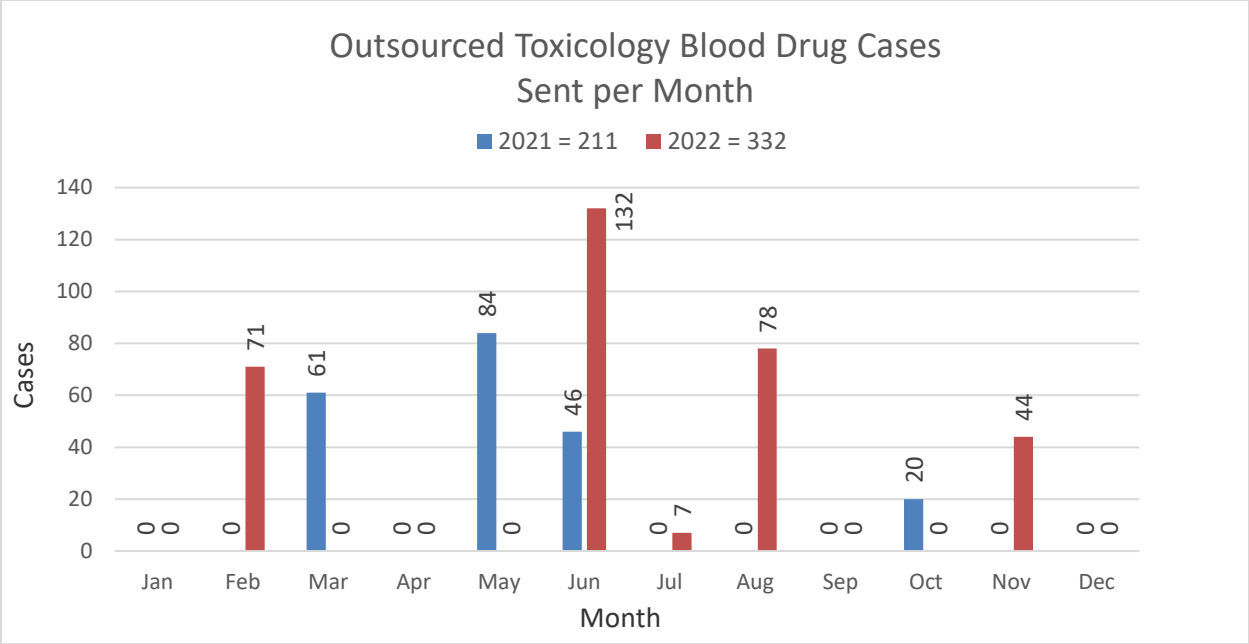
In an effort to eliminate the CDS and Toxicology case backlog, FSD began outsourcing CDS cases as well as Toxicology Blood Alcohol and Toxicology Blood Drug cases for analysis to two accredited private laboratories. Using multiple US DOJ Office of Community Oriented Policing Services grants under the Anti-Heroin Task Force Program to fund both Toxicology and CDS cases, both Units were able to successfully reduce their backlogs in 2022. The Toxicology Unit also used grant funding from the Maryland Highway Safety Office for outsourcing in 2022. These grants cover the outsourcing costs of both the analysis and courtroom testimony for casework.

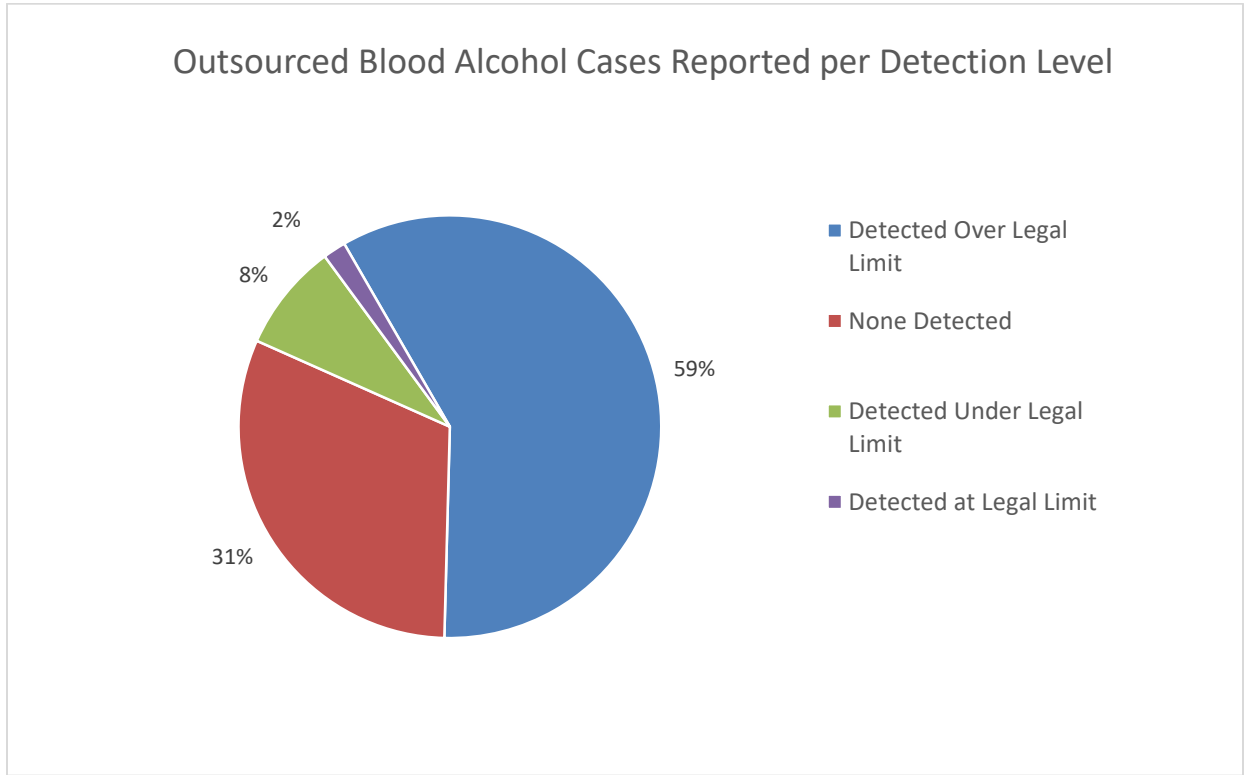
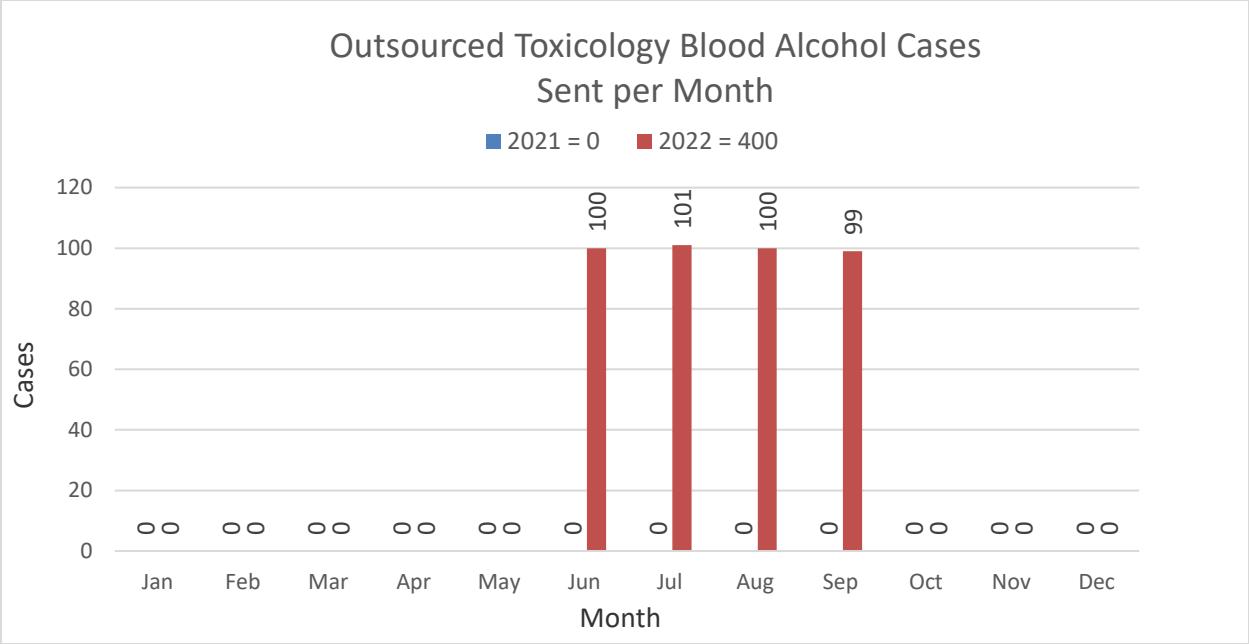


\*These numbers are also counted in the individual Unit totals for completed cases per month

### Outsourced CDS Analyses Reported per Drug Type (Includes all three labs)







## **NOTEWORTHY CASES**

In March 2022, the Harford County State's Attorney's Office announced the conviction of an Aberdeen, Maryland resident. Several Units within FSD assisted in the testing of evidence from this 2021 case. The suspect was convicted for possession of fentanyl in the amount of five grams or more and for possession of a regulated firearm after having been convicted of a disqualifying crime. Three FSD Forensic Scientists issued a total of eight CDS reports while NMS (FSD CDS Outsourcing Lab) issued two reports related to this case, which included multiple co-conspirators. Biology tested swabs from three guns and a known sample from the suspect.

Also in March 2022, a Sykesville man was driving erratically when he struck the corner of another vehicle and caused that vehicle to flip multiple times. The occupant of that vehicle was flown to Shock Trauma and was pronounced dead six days after the collision. Evidence was submitted to the Toxicology Unit for Blood Alcohol and Blood Drug testing. Alcohol was not detected in the blood sample, but the sample did test positive for Alprazolam and Benzoyllecognine (a cocaine metabolite). The CDS - Pikesville Unit tested a vial of substance which was found to contain cocaine. The driver pled guilty to the charge of vehicular manslaughter and possession of a controlled dangerous substance and was sentenced to 10 years in prison.

Analysis done by scientists in the FSD CDS Unit led to a 17 year federal prison sentence in October 2022. The defendant will be deported to Jamaica following his prison sentence. The case was a CDS Distribution investigation conducted by the Cecil County Narcotics Task Force, DEA Group 51, and USPIS. A FSD CDS Forensic Scientist tested multiple pieces of evidence under five separate FSD cases.



## **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 conjunction with the FBI's Combined DNA Index System (CODIS). 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 six individuals, including one Forensic Scientist Supervisor, one Forensic Scientist Advanced, one Forensic Scientist III, one Forensic Scientist I, and one Forensic Inventory Control Officer. There is one vacant Forensic Scientist I position. The Trial Casework Unit is staffed by five forensic scientists, including one Forensic Scientist Supervisor, one Forensic Scientist Advanced, two Forensic Scientist III's, and one vacant Forensic Scientist I position.

The Database Unit is staffed by nine individuals, including one Forensic Scientist Supervisor (CODIS Administrator), three Forensic Scientists Advanced, three Forensic Scientist III's, one Forensic Scientist I, and one contractual paralegal II.

The Technical/Validation Unit is staffed by five individuals, including one Forensic Scientist Supervisor (Technical Leader), one Forensic Scientist Advanced, and two Forensic Scientist III's, and a Forensic Laboratory Technician I.

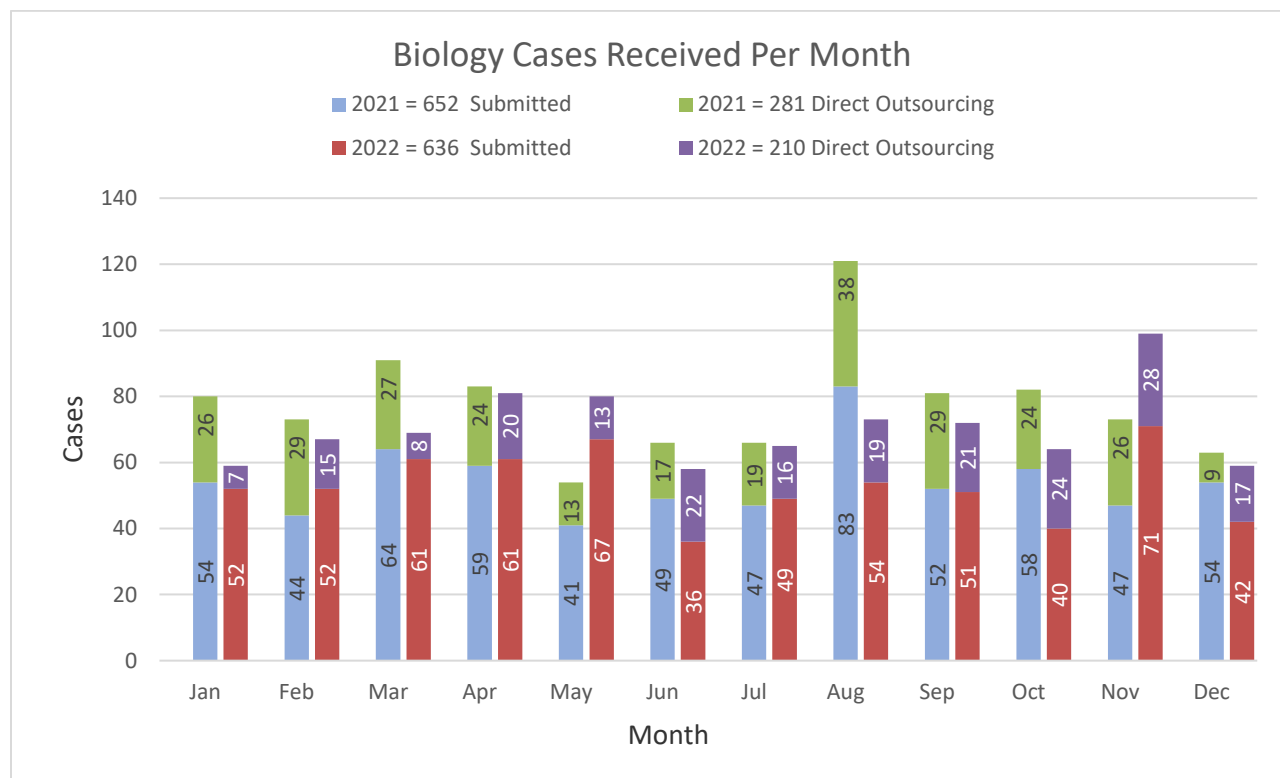
## **BIOLOGY CASEWORK UNITS**

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 an investigation or making an arrest. This unit is responsible for handling high-priority/high-profile investigative cases, routine investigative cases, cold cases, and Independent Investigation Division (IID) 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.

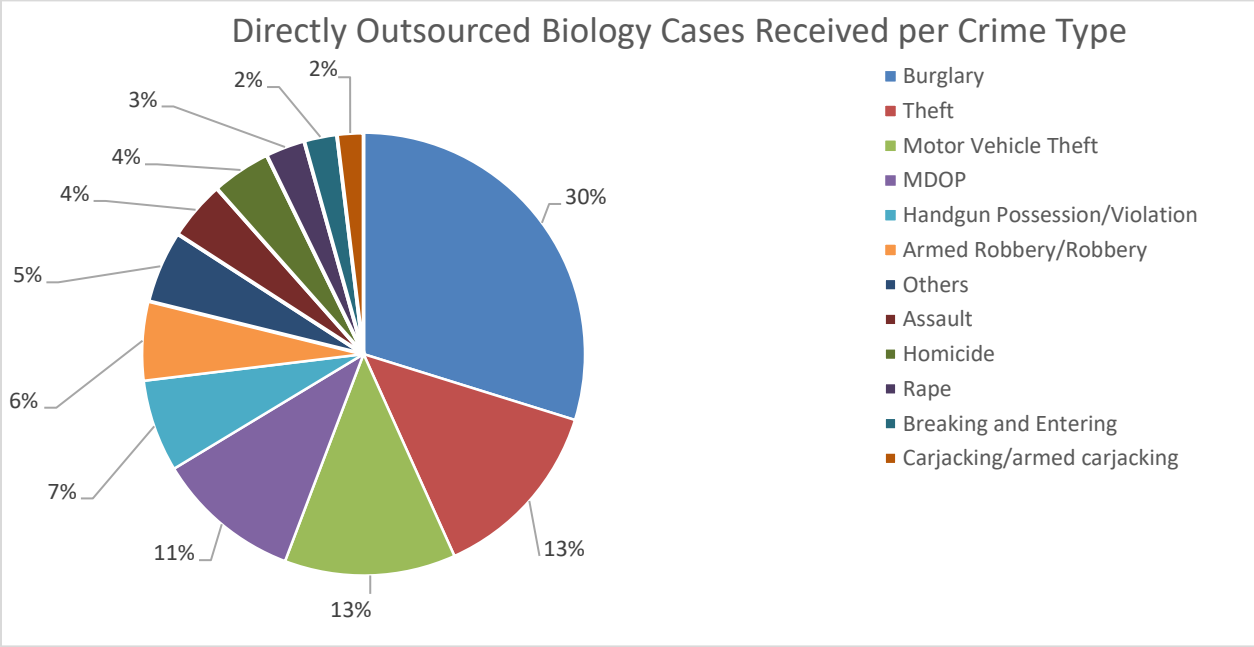
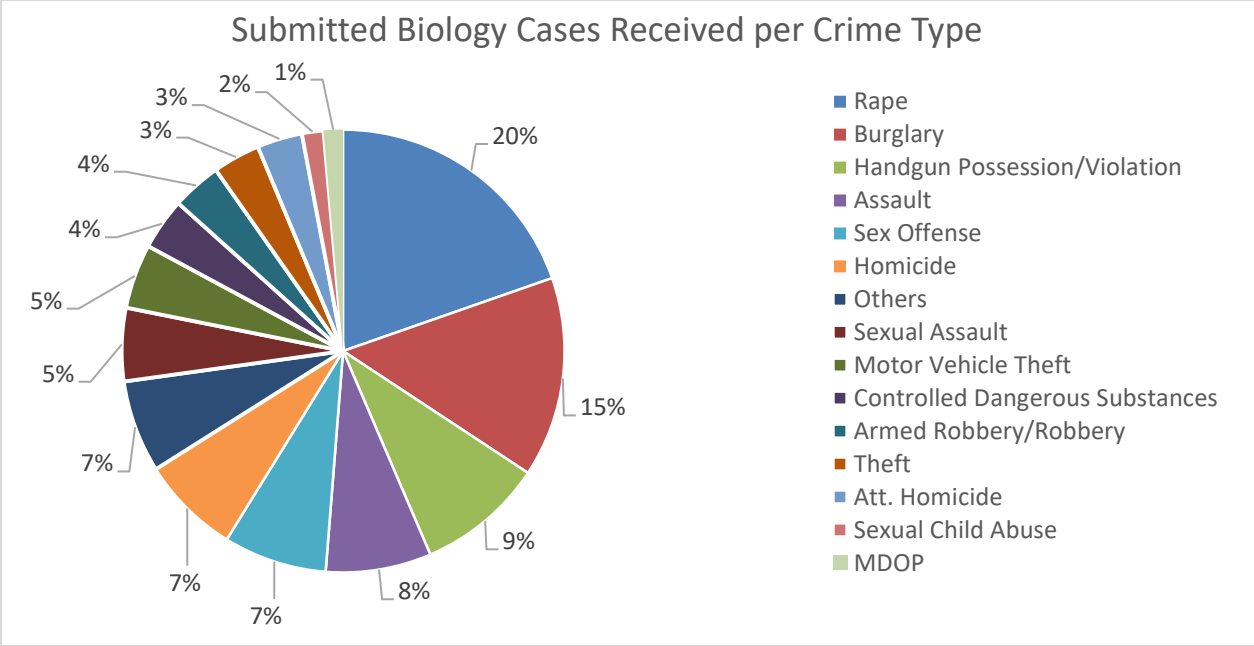
The overall number of case submissions to the Biology Section slightly decreased in 2022. There were 636 cases received in the Biology Section, which is approximately a 2.5% decrease from 2021. There was a 24.9% decrease in the number of cases that were directly outsourced in 2022. Even though these cases were directly outsourced from the investigating agency to the contract lab, they were still monitored and tracked by Biology Section staff. Upon completion of

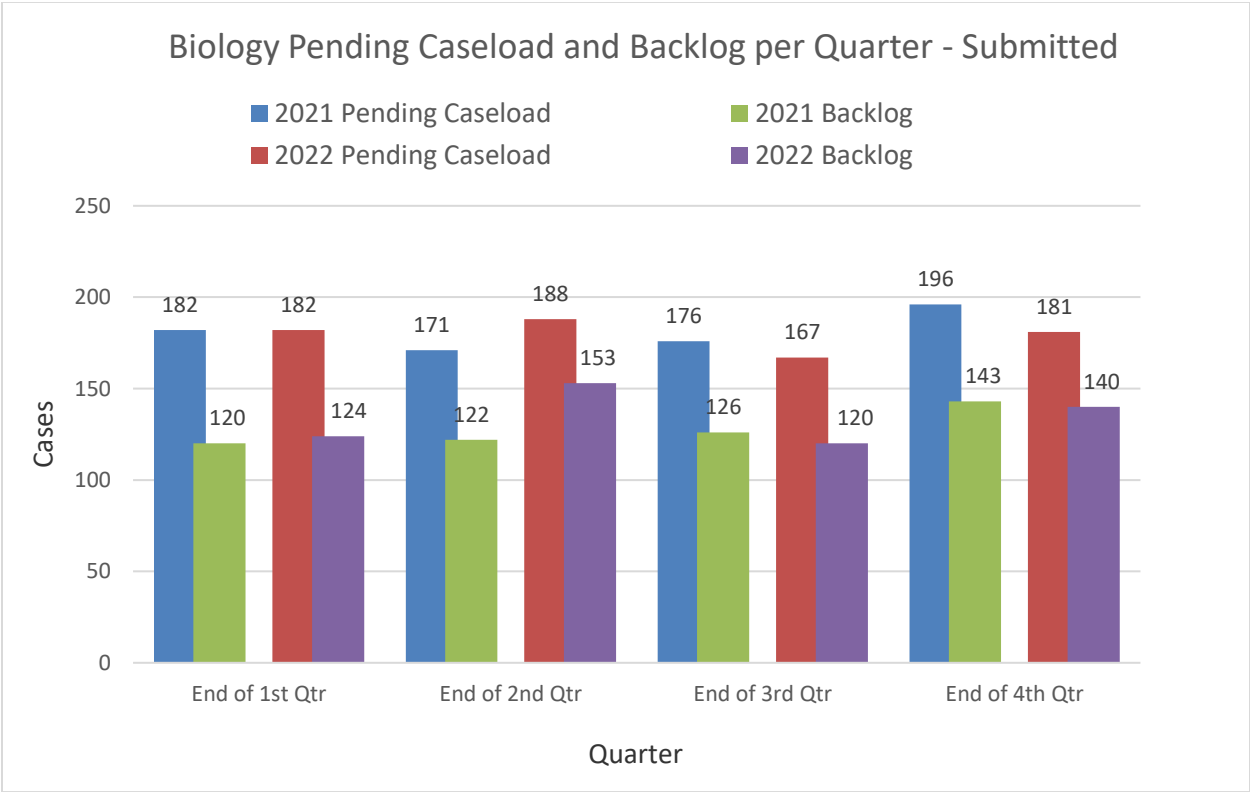
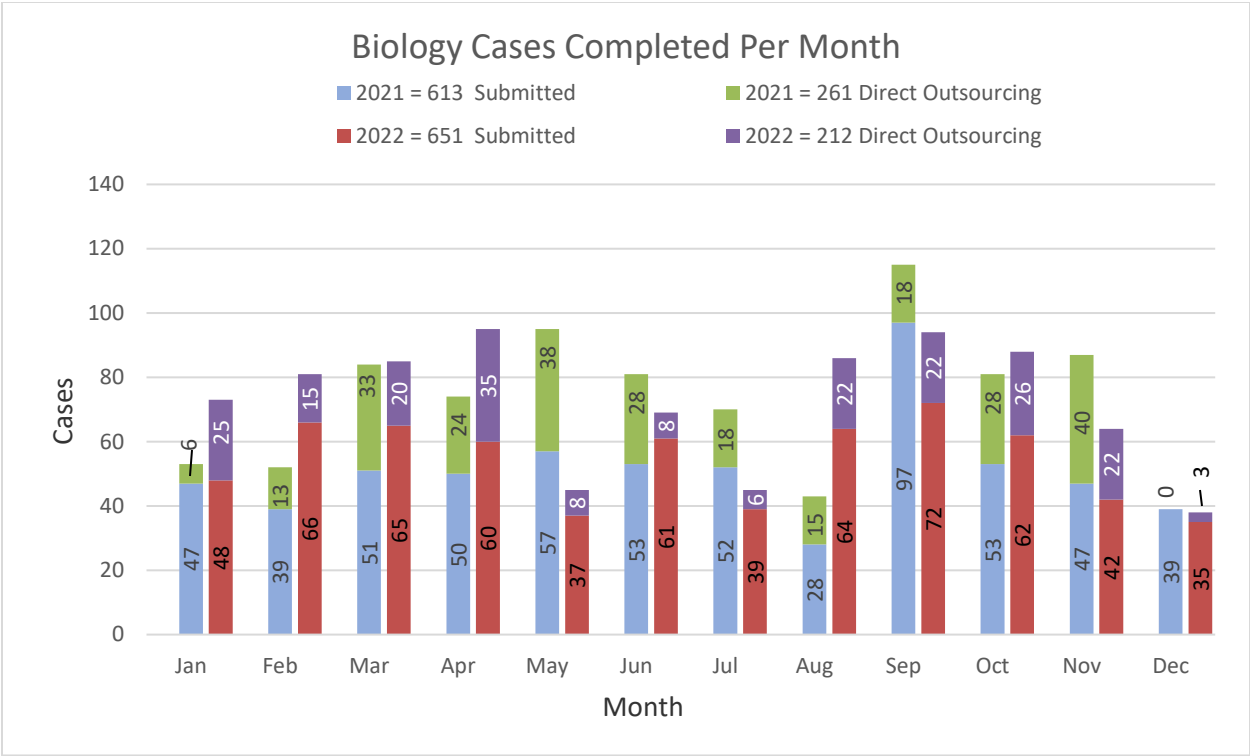
all outsourced cases, the data is reviewed and suitable profiles are uploaded to the CODIS database. When considering both in-house cases and directly outsourced cases, the total number of cases completed within the Biology Section decreased by 1.3% in 2022. By utilizing a combination of direct outsourcing, in-house outsourcing (evidence is received at MSP-FSD and then either the entire case or a portion of it is forwarded to a contracted laboratory for analysis), and in-house casework, the casework units have been able to continue to monitor and maintain the backlog at manageable levels.



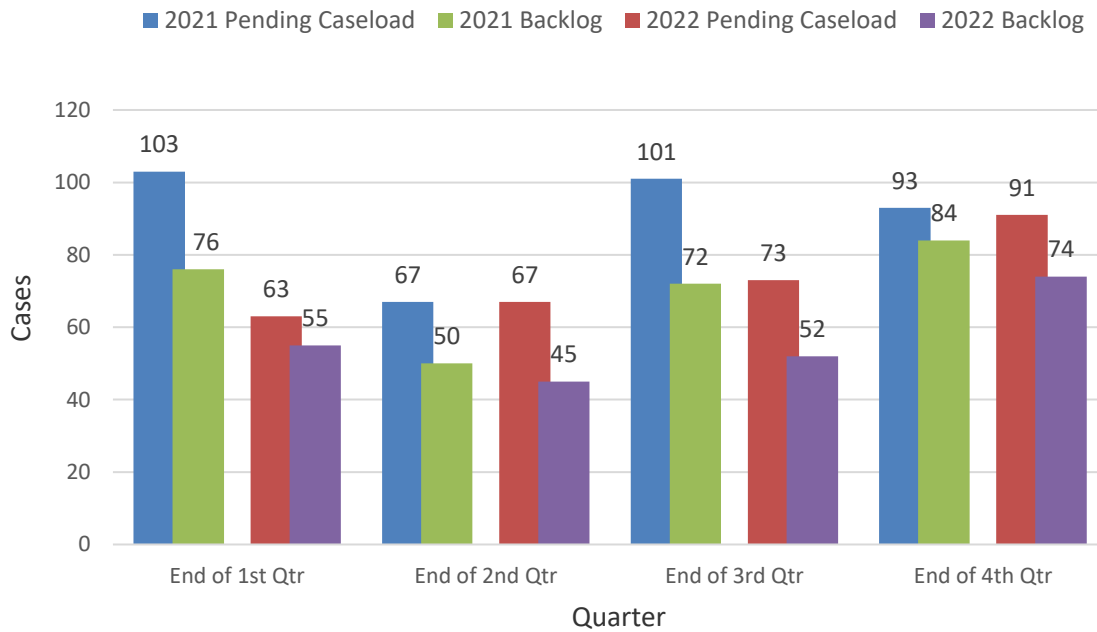
Biology Cases Received per MSP Installation				
MSP Installation	Counties Served	Case Type		
		Submitted	Directly Outsourced	Combined
MSP-CID/CED	Statewide	63	3	66
MSP-Homicide	Statewide	20	2	22
MSP-DED/C3I	Allegany	15	2	17
MSP-North East	Cecil	9	0	9
MSP-Easton	Talbot, Caroline, Dorchester	8	0	8
MSP-Frederick	Frederick	5	0	5
MSP-Crash Team	Statewide	5	0	5
MSP-Salisbury	Wicomico	4	0	4
MSP-McHenry	Garrett	4	0	4
MSP-Princess Anne	Somerset	3	0	3
MSP-Westminster	Carroll	3	0	3
MSP-Centerville	Kent, Queen Anne's	3	0	3
OSFM	Statewide	2	0	2
MSP-Hagerstown	Washington	1	1	2
MSP-Cumberland	Allegany	2	0	2
MSP-Waterloo	Howard	1	0	1
MSP-Forestville	Prince George's	1	0	1
	<b>TOTAL</b>	<b>149</b>	<b>8</b>	<b>157</b>

Allied Agency Cases Received by Biology per County			
County	Case Type		
	Submitted	Directly Outsourced	Combined
Charles	82	102	184
St. Mary's	69	47	116
Wicomico	53	0	53
Frederick	45	5	50
Harford	37	2	39
Worcester	15	22	37
Cecil	35	1	36
Washington	21	7	28
Carroll	24	2	26
Dorchester	22	1	23
Prince George's	13	9	22
Anne Arundel	14	3	17
Calvert	15	0	15
Talbot	13	1	14
Statewide/Not Determined*	8	0	8
Caroline	6	0	6
Somerset	5	0	5
Kent	4	0	4
Queen Anne's	3	0	3
Out of State	2	0	2
<b>TOTAL</b>	<b>486</b>	<b>202</b>	<b>688</b>

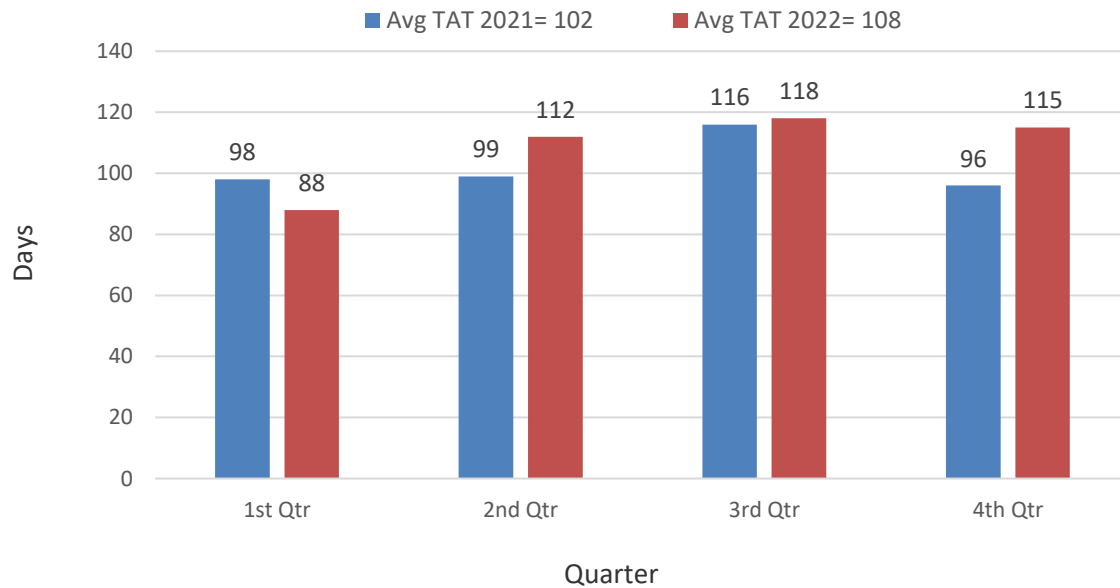




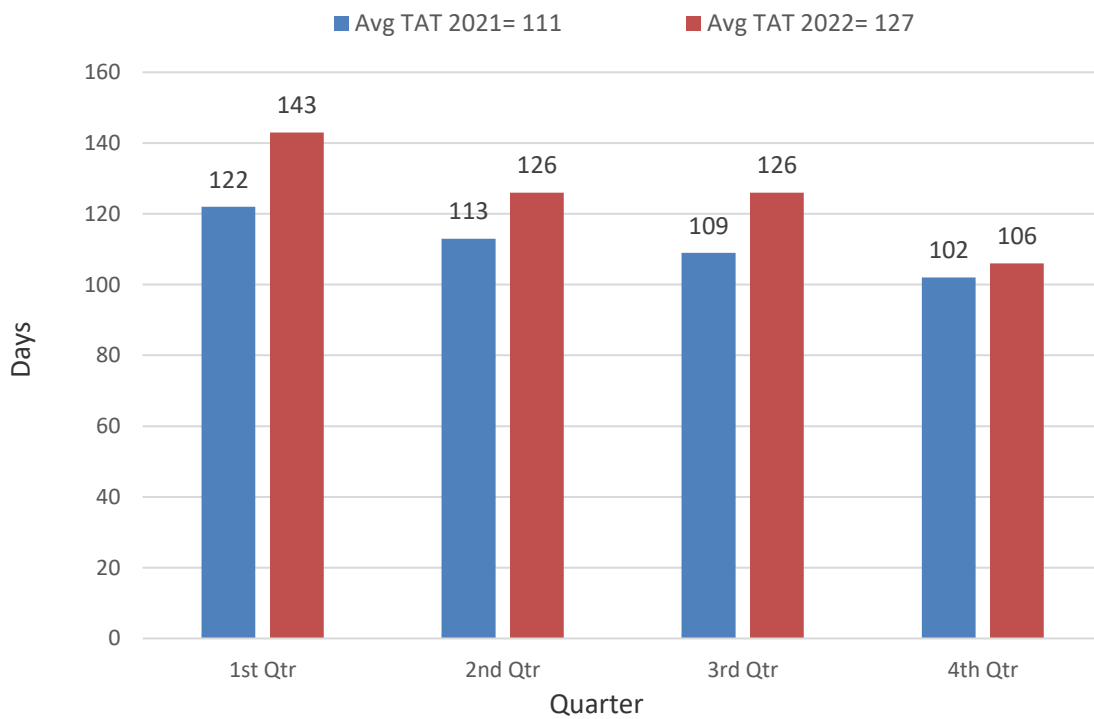
### Biology Pending Caseload and Backlog per Quarter - Directly Outsourced



### Biology Case Turn Around Time per Quarter - Submitted



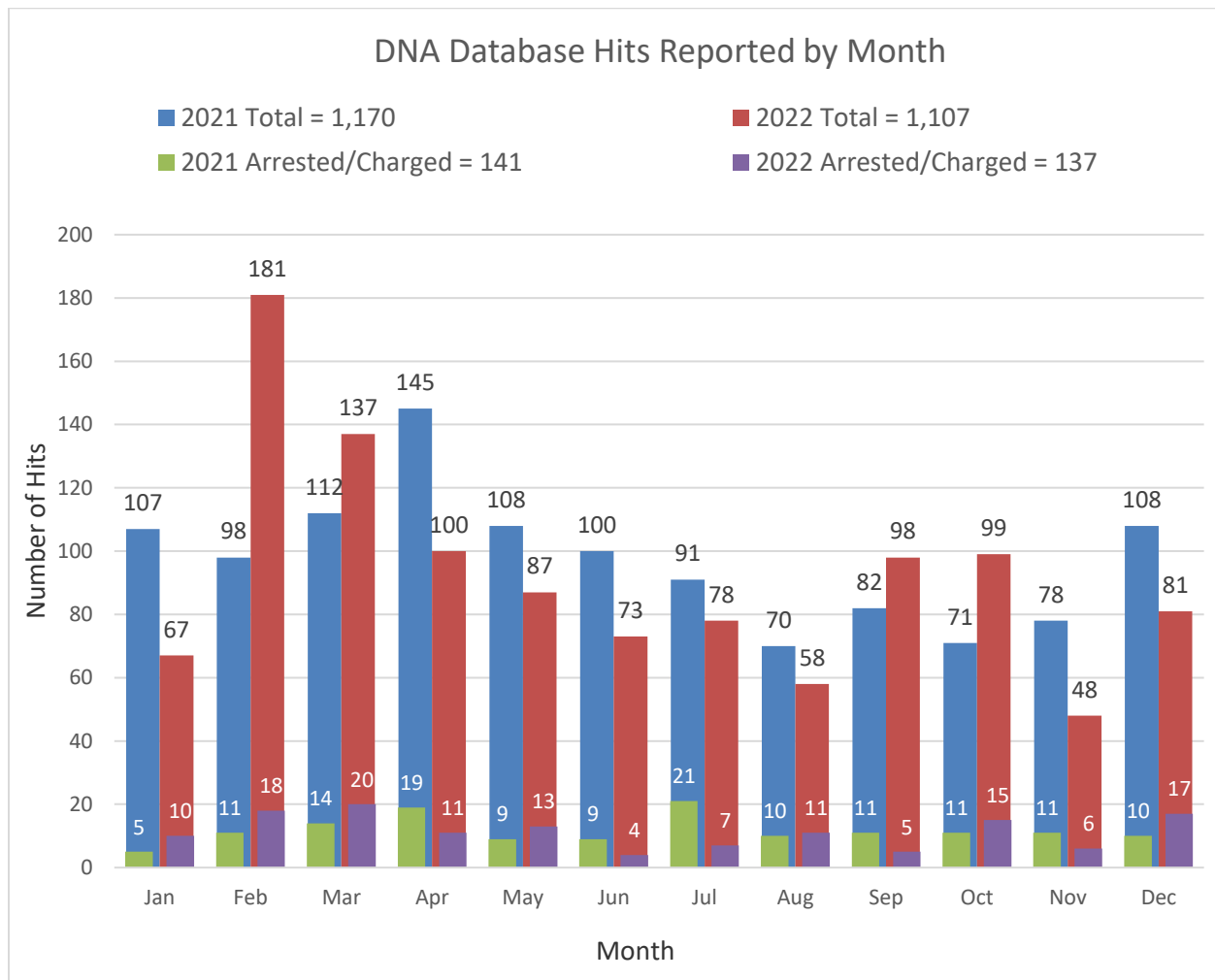
### Biology Case Turn Around Time per Quarter - Directly Outsourced





## **BIOLOGY DATABASE UNIT**

The Biology Database Unit is responsible for processing 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 Biology Database Unit is responsible for ensuring that all samples that were collected are received. The Biology Database Unit is also responsible for analyzing 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 Biology Database Unit also oversees the entry of DNA profiles from casework evidence into the database.



Note: Arrested/Charged DNA Database Hits do not include Convicted Offender DNA Database Hits

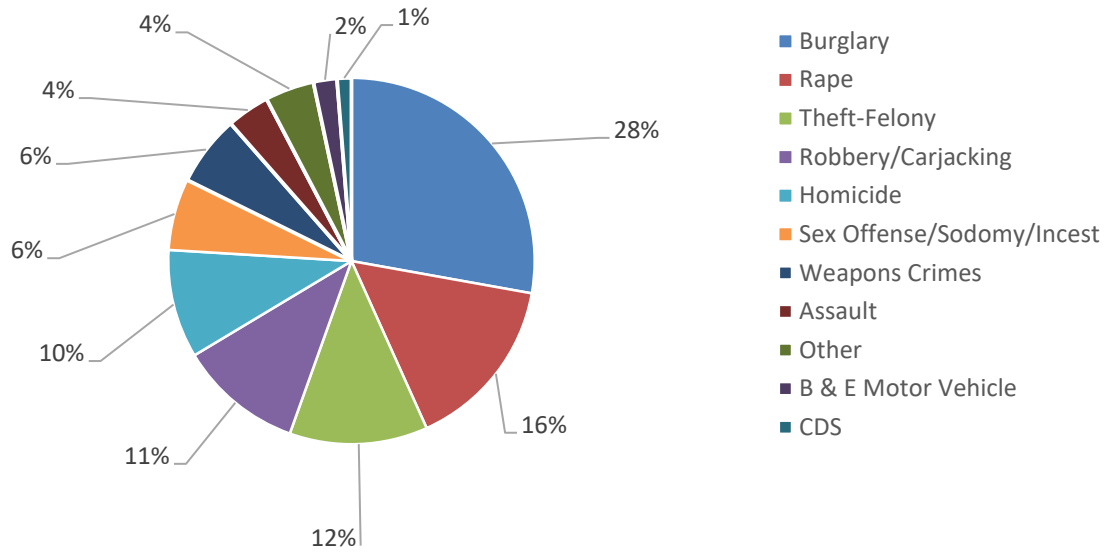
Maryland Case DNA Database Hits	
	Hits
Hits to Offenders/Arrestees (MD or National)	430
Hits to Cases (MD or National)	677
<b>Total</b>	<b>1,107</b>

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 the National DNA Index System (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	335
Charles	124
Montgomery	118
Prince George's	105
Baltimore	97
Anne Arundel	93
St. Mary's	60
Howard	31
Dorchester	19
Harford	19
Cecil	18
Wicomico	13
Carroll	11
Frederick	11
Washington	10
Worcester	10
Allegany	8
Calvert	7
Somerset	6
Talbot	6
Caroline	3
Kent	2
Queen Anne's	1
<b>TOTAL</b>	<b>1,107</b>

Maryland DNA Database Case Hits by Crime Year	
Crime Year	Hits
1978	2
1979	3
1981	1
1982	2
1986	1
1989	1
1991	8
1992	2
1993	1
1994	3
1997	1
1998	5
1999	5
2000	5
2001	1
2002	3
2003	4
2004	7
2005	3
2006	11
2007	7
2008	7
2009	15
2010	19
2011	22
2012	16
2013	13
2014	26
2015	29
2016	36
2017	102
2018	82
2019	82
2020	140
2021	318
2022	115
Unknown	9
<b>Total</b>	<b>1,107</b>

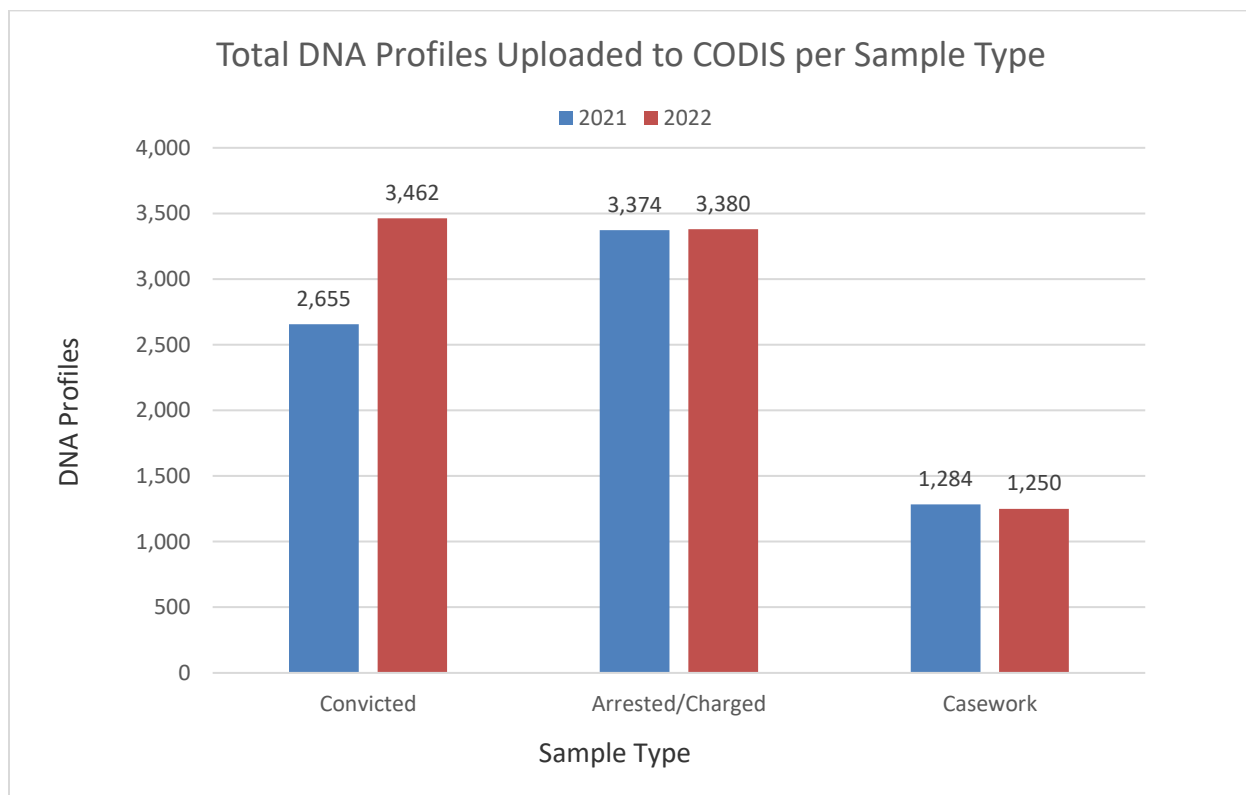
Maryland Case DNA Database Hits per Crime Type



Maryland Offender/Arrestee DNA Database Hits per Crime Jurisdiction\*

Jurisdiction	Number of Hits
Maryland	337
District of Columbia (Metro PD)	19
Virginia	12
New York	6
FBI	5
Pennsylvania	3
ATF	2
California	2
Delaware	2
Ohio	2
New Jersey	2
West Virginia	1
Florida	1
Georgia	1
Illinois	1
South Carolina	1
Alabama	1
Arizona	1
Missouri	1
Tennessee	1
Indiana	1
Homeland Security	1
<b>Total</b>	<b>403</b>

\*Includes both Convicted Offender and Arrestee/Charged DNA Database Hits



## **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 2022, the Technical Unit:

- Implemented the Y-Screen procedure for streamlining analysis of sexual assault cases,
- Implemented the use of the Yfiler Plus amplification kit,
- Implemented all software upgrades associated with the upgrade to using Windows 10,
- Initiated validation on the STRmix probabilistic genotyping software,
- Performance checked the updated software used for YSTR statistics (YHRD R68),
- Performed an internal audit against the FBI Quality Assurance Standards, and
- Performed continual trouble shooting for the Hamilton instrument used for database sample processing.

## **NOTEWORTHY CASES**

In 2022, the 10,000th positive DNA comparison through the use of Maryland's DNA database was connected to an open 2020 drug case being investigated by Homeland Security Investigations and the Prince George's County Police Department. The case dates back to June 2020, when law enforcement intercepted a parcel containing a kilogram of fentanyl. During the search, a respirator that contained fentanyl residue was seized and subsequently swabbed for DNA. The DNA profile matched that of a male individual whose DNA had previously been collected and added to the State of Maryland DNA Database after a previous conviction for a drug offense.

In March 2022, a suspect from a 2021 homicide case was found guilty of first degree murder. In April 2021, MSP-FSD CSTs were called to process a homicide scene in Cambridge, MD. Several items of evidence were collected including clothing and swabs for possible DNA from a handgun, a magazine, and cartridge casings found at the scene. Additional evidence was collected after a search warrant was conducted, including swabs of possible DNA from three more handguns as well as magazines and ammunition. All of this biological evidence was submitted to the Biology Trial Casework Unit for testing. The biology evidence results connected four previously arrested suspects to the homicide incident. One suspect plead guilty to conspiracy to commit assault and another suspect plead guilty to lesser charges in exchange for testimony against the remaining two suspects. Out of the two remaining suspects, one was found guilty of first degree murder after biology evidence and testimony was presented in the 2022 trial. The last suspect has a trial set for early 2023 where additional biology evidence and testimony will be presented.

## **TRACE EVIDENCE SECTION**

The Trace Evidence Section (TES) consists of two units, the Trace Evidence Unit and the Forensic Documents Unit. The Trace Evidence Section consists of one Forensic Scientist Supervisor, one Forensic Scientist Advanced, and two Forensic Scientist III's.

Being the only laboratory in Maryland to provide trace evidence and forensic document examinations, 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.

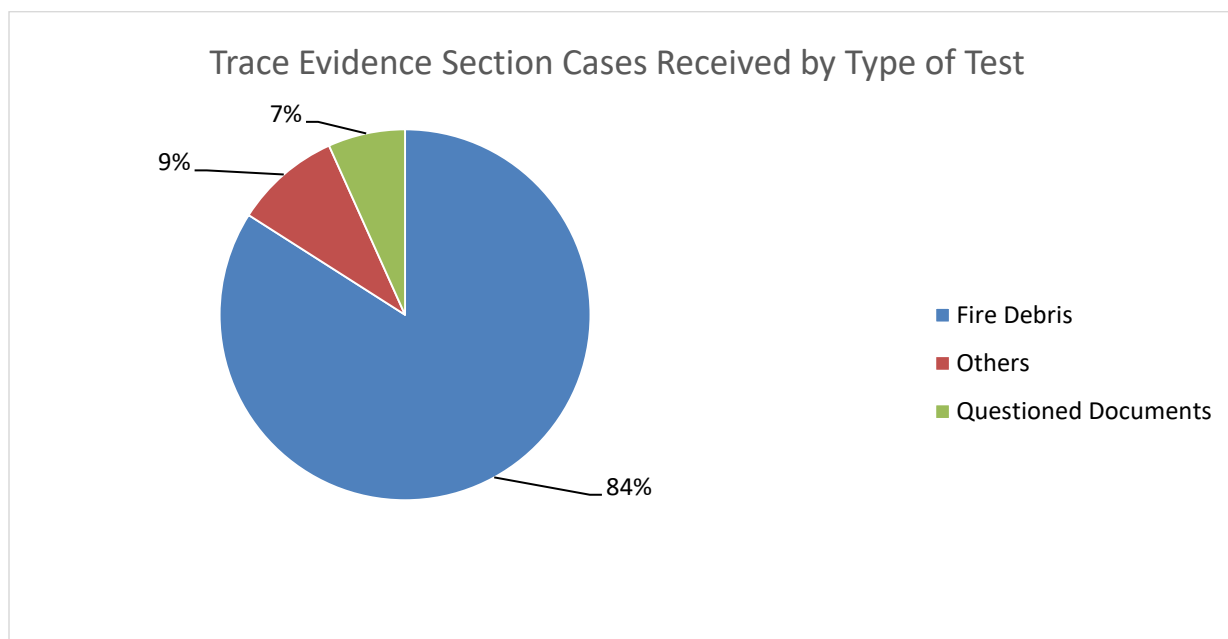
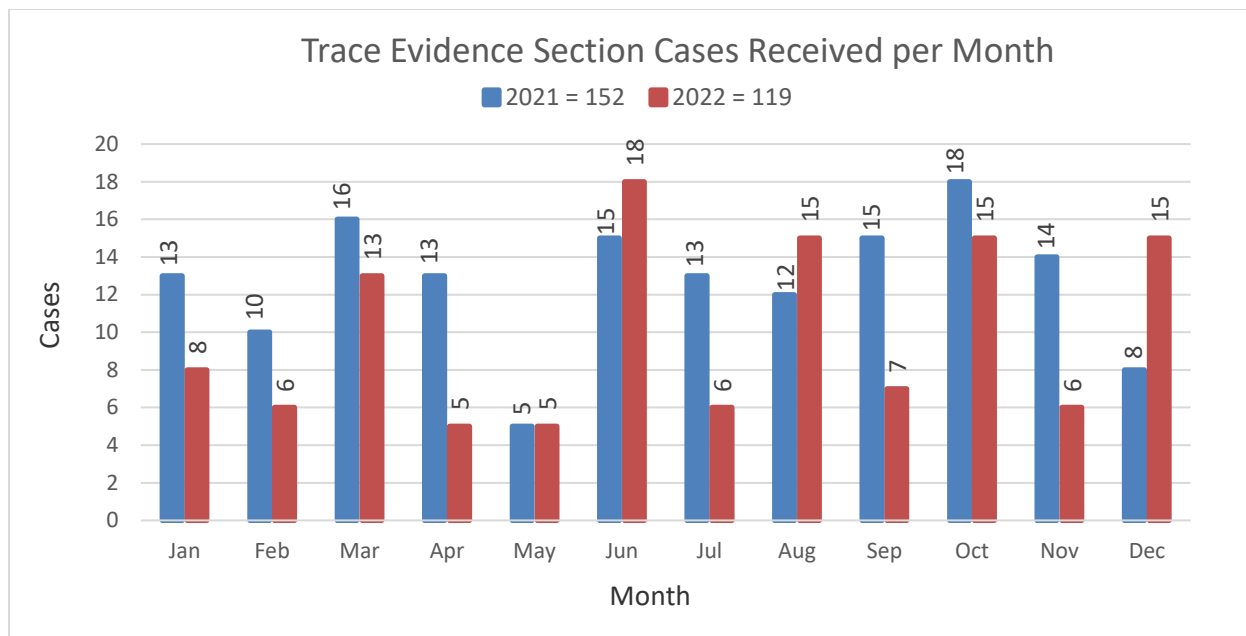
The TES has purchased a new FTIR for fiber, paint, tapes and adhesives and general chemical unknown's casework. The Section is also obtaining access to the Paint Database Query and "Know-It-All" software for identifications for paint cases. This access will provide important information about paint samples submitted and allow us to identify a source.

### **TRACE EVIDENCE UNIT**

The Trace Evidence Unit performs analyses on evidence that either contain or produce unique characteristics that provides beneficial information to the investigators of the case. These include analyses in the areas of Fire Debris, Paint, Fibers/Textiles, Tapes and Adhesives, Physical Matches/Fracture Matches, Hair to determine suitability for DNA analysis and the identification of miscellaneous liquids, powders and solids. In 2022, the Unit evaluated less common analyses and discontinued the analysis of Bank Dyes, Lamp Filaments, Soil, Knots/Ligatures and Plastic Bags.

### **FORENSIC DOCUMENTS UNIT**

The Forensic Documents Unit performs analyses and comparisons of handwriting as well as hand-printed and machine-printed materials. This unit also performs examinations of obliterated and indented writing. The MSP-FSD has two Forensic Document examiners within the Unit. This second examiner has allowed FSD to no longer rely on outside MSP-FSD technical reviewers of casework.

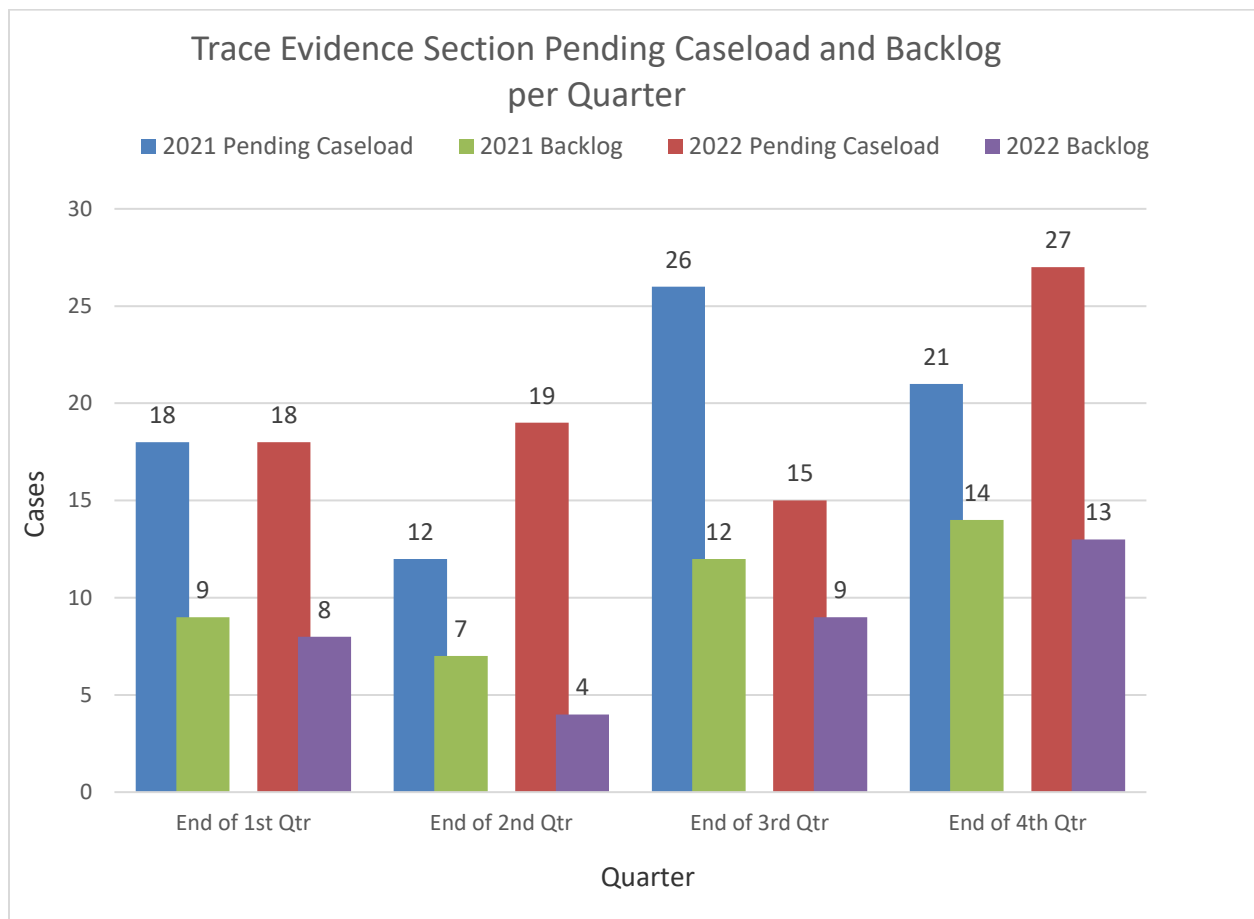
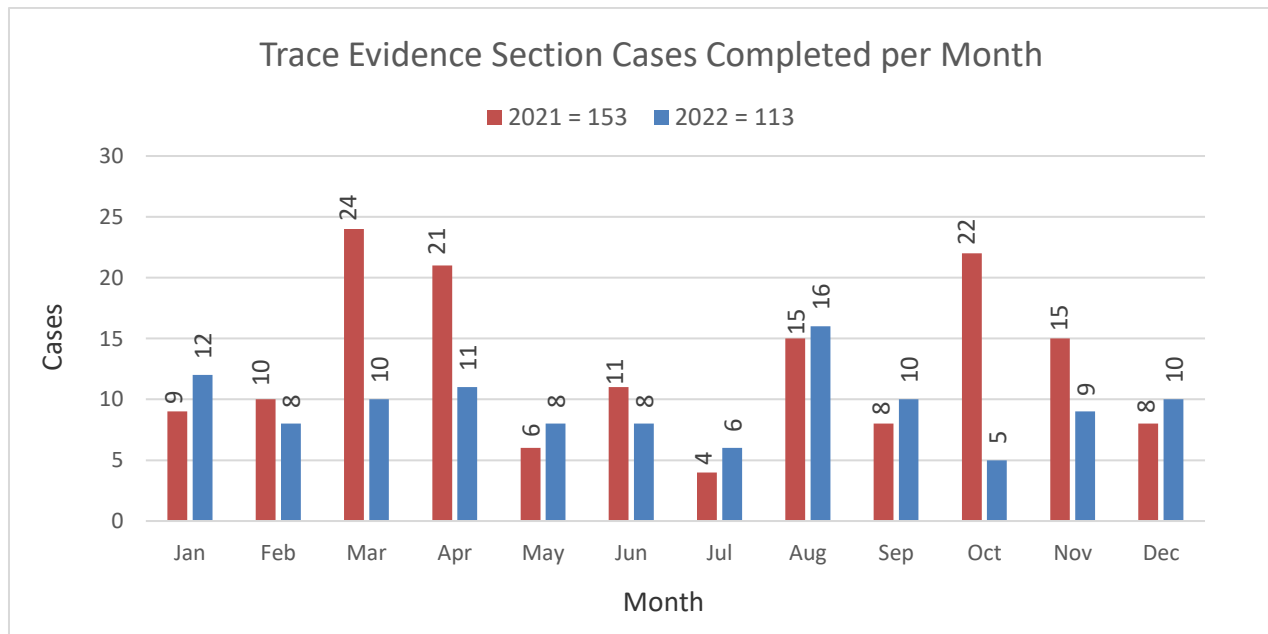


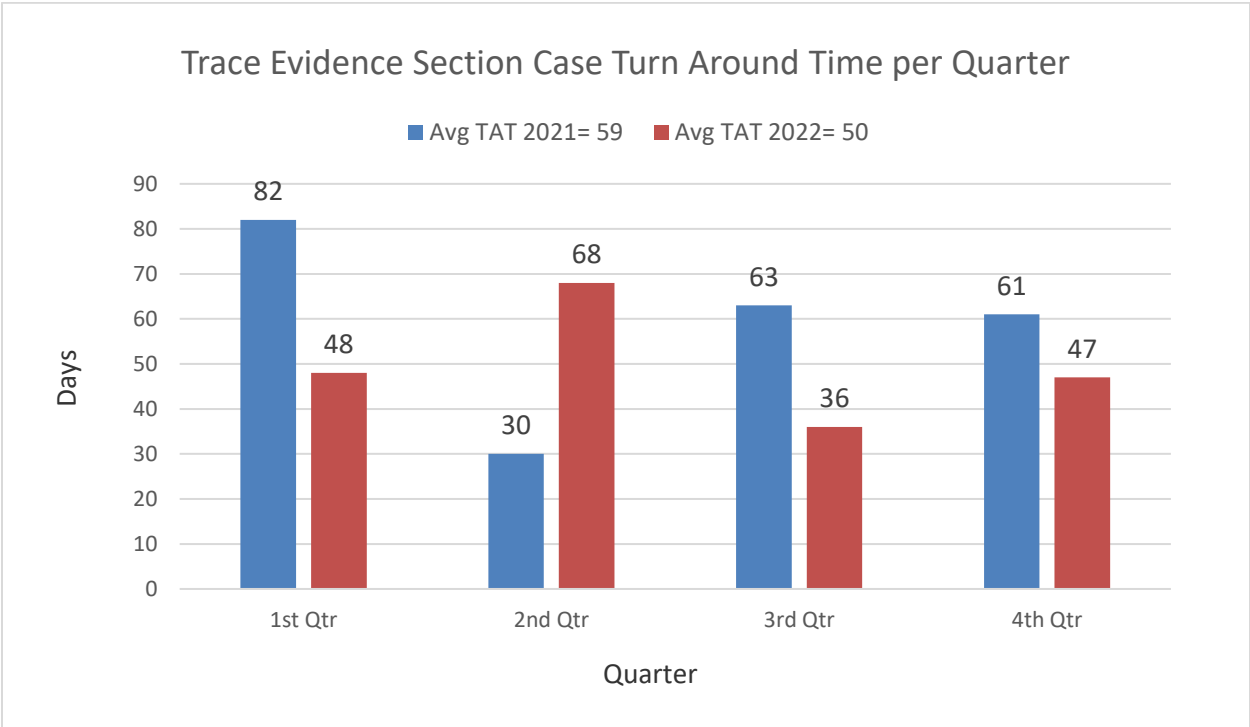


Trace Evidence Section Cases Received per MSP Installation		
Installation	Counties Served	Submissions
MSP-CID/CED	Statewide	1
MSP-Crash Team	Statewide	1
MSP-Annapolis	Anne Arundel	1
MSP-Westminster	Carroll	1
	<b>TOTAL</b>	<b>4</b>

OSFM Cases Received by the Trace Evidence Section per OSFM Region		
Region	Counties Served	Submissions
OSFM – Lower Shore	Dorchester, Somerset, Wicomico, Worcester	8
OSFM – North East	Baltimore, Harford, Cecil	11
OSFM – Southern	Calvert, Charles, St. Mary's	3
OSFM – Upper Shore	Caroline, Kent, Queen Anne's, Talbot	1
OSFM – Western	Allegany, Carroll, Garrett, Washington	4
Montgomery County	Montgomery	4
	<b>TOTAL</b>	<b>31</b>

Allied Agency Cases Received by TES per County	
County	Submissions
Anne Arundel	31
Baltimore City	16
Baltimore	13
Montgomery	8
Prince George's	4
Washington	3
Charles	3
Howard	2
Frederick	1
St. Mary's	1
Wicomico	1
Talbot	1
<b>TOTAL</b>	<b>84</b>





## **NOTEWORTHY CASES**

One noteworthy case for the Trace Evidence Section was submitted in December of 2021 and examined in January 2022. The case contained evidence pertaining to several fraudulent Governor Citations and was submitted to the Forensic Document Unit for analysis. Using the Video Spectral Comparator 5000, and other examination techniques, the questioned citations were compared to a known citation. The seal as well as the Governor's signature were suspected to be fraudulent. After thorough analysis it was determined the citations were fraudulent. The Examiner was able to provide results quickly to MSP investigators which allowed them to stop the fraudulent citations from being disseminated.

## **EMPLOYEE RECOGNITION**

### **Special Appointments**

Theresa DeAngelo, Quality Assurance/Safety Manager, served as the Chair-Elect for the Ethics Subdivision of the American Chemical Society's Division of Professional Relations and also served on Stevenson University's Forensic Advisory Board for 2022.

Mitchell Dinterman, Crime Scene Section Manager, continued to serve on Loyola University's Forensic Studies Advisory Board in 2022.

Michelle Groves, Forensic Scientist Supervisor and CODIS State Administrator, continued to serve on the Maryland Sexual Assault Evidence Kit Policy and Funding Committee for 2022.

Bruce Heidebrecht, Forensic Scientist Supervisor in the Biology Section, continued to serve as the Vice-Chair of the Scientific Working Group on DNA Analysis Methods, Autosomal STR Interpretation Committee in 2022.

Daniel Katz, Director, continued to serve on the Maryland Sexual Assault Evidence Kit Policy and Funding Committee as well as the Maryland Forensic Laboratory Advisory Committee for 2022.

Amy Kelly served on the Mid-Atlantic Cold Case Homicide Investigators Association (MACCHIA) Executive Board in 2022.

Dr. Wanda Kuperus, Deputy Director, continued to serve on Towson University's MSFS Academic Advisory Board and Loyola University's Forensic Studies Advisory Board for 2022.

Diane Lawder, Supervisor for the Trace Evidence Section, served as the Questioned Documents Chair for the Mid-Atlantic Association of Forensic Scientists (MAAFS) in 2022.

Argi Magers, Forensic Scientist Manager for the Biology Section, continued to serve on the Maryland Sexual Assault Evidence Kit Policy and Funding Committee, the Mid-Atlantic Cold Case Homicide Investigators Association (MACCHIA) Executive Board, as well as the FBI Rapid DNA Task Force for 2022.

Amber McConnell, Forensic Scientist Manager for the Chemistry Section, served as a NIST Visiting Scientist for 2022.

Catherine Savage, Forensic Scientist Supervisor in CDS-Pikesville, served as the Criminalistics Chair-Elect for MAAFS in 2022.

Angela Spessard, Forensic Scientist III in the Biology Section, served on the NIJ/NIST Human Factors Group in 2022.

## **Promotions**

Several MSP-FSD staff members were promoted in 2022. Diane Lawder and Wayne Shu were both promoted from Forensic Scientist III to Forensic Scientist Supervisor. Laurel Bobka was promoted to Forensic Scientist Advanced and became the new Training Coordinator for the CDS Units. Ying Ren was promoted from Forensic Scientist II to Forensic Scientist III. Delaney Berryman was promoted from Laboratory Technician I to Forensic Scientist I. Maggie Iman and Samuel Woods were promoted from CST II to CST Supervisor.

## **Publication of Scientific Papers**

[“Evaluation of an Internal Standard for Qualitative DART-MS Analysis of Seized Drugs.”](#)

Edward Sisco, Amber Burns, Elizabeth Schneider, Ikenna Ikpeama, Forensic Chemistry, 2022(29)100392.

[“Template for the Validation of DART-MS for Qualitative Seized Drug Analysis.”](#) Edward

Sisco, Amber Burns, Elizabeth Schneider, Laurel Bobka, Ikenna Ikepeama, Forensic Chemistry, 2022(29)100415.

## **Presentations at Regional/National Conferences**

In February of 2022, Delaney Berryman participated as a Panel Member during the “International Day of Women and Girls in Science: Panel Discussion” in Huntingtown, MD.

In May 2022, Daniel Katz presented “Maryland’s New Forensic Genetic Genealogy Legislation – A Success Story in Compromise and Hope for the Future” at the ASCLD Annual Symposium in Reno, NV.

In August 2022, Theresa DeAngelo presented “Ethics and ACS: The Transitions of Ethics Over Time” virtually for the ACS Fall Symposium.

In October 2022, Theresa DeAngelo presented “The Importance of Employee Wellness for Quality” virtually for the AFQAM Annual Conference.

## **Commander's Award for Outstanding Performance**

### **Forensic Scientist Supervisor Catherine Savage and Forensic Scientist III Barbara Solomon**

Director Katz awarded two Commander's Awards in November 2022: one to Forensic Scientist Supervisor Catherine Savage and the other to Forensic Scientist III Barbara Solomon.



Dan Katz and Cathy Savage



Dan Katz and Barbara Solomon

Catherine Savage demonstrated exceptional leadership skills that have greatly benefitted FSD. Her hands-on approach as a Supervisor provides the chemists within the Pikesville CDS Unit with a work environment that allows them to excel at their jobs and achieve their goals. In addition, Cathy's active involvement with planning FSD's 50th Anniversary party as well as events during National Forensic Science Week raised the morale of the entire Division. Moreover, through her involvement with MAAFS and ABC certification, Cathy continues to make an impact on the forensic community beyond FSD. Her dedication, initiative, and desire to make a difference serves as an example for all of MSP-FSD.

Barbara Solomon has been on a mission to ensure that all individuals currently registered on Maryland's Sex Offender Registry have had their DNA sample collected and forwarded to MSP-FSD for entry into the DNA Database. In 2017, it was discovered that DNA samples from 12% of the individuals on the SOR had not been submitted for inclusion in the DNA Database as required by law. Through Barb's tireless efforts researching the missing samples and coordinating their collection with our SOR partners, that statistic is now less than 1%. Her commitment, tenacity, and desire to make Maryland a safer place to live, work, and visit serves as an example for all of MSP-FSD.

## **FSD's Civilian of the Year Award**

Forensic Scientist Supervisor Stephanie Roberg was awarded the FSD Civilian of the Year Award in 2022. Stephanie began her career with FSD in 2011, as a Forensic Scientist I and in 2016 was promoted to Supervisor of the Pikesville Latent Prints and Impressions Unit (LPIU). In October 2020, Stephanie's role was further expanded when she was named the Latent Prints and Impressions Technical Leader.

In 2021, Stephanie oversaw the elimination of the LPIU casework backlog, and in 2022 the Unit maintained its gains as the turnaround time for LPIU casework remained under 30 days. While all of the members of LPIU have been integral to this achievement, Stephanie's role is especially noteworthy as she is tasked with managing the caseload of the Pikesville Unit in addition to performing her own casework and reviewing the casework of others.

In 2022, Stephanie completed the validation of the new RECOVER LFT system that allows for the development of fingerprints on metallic surfaces that are notoriously difficult to successfully recover prints from. Stephanie plans on presenting her work on the RECOVER LFT system at future professional meetings and publishing it in professional journals.

Stephanie Roberg also leads in a manner consistent with the definition of a transformational leader. Stephanie exemplifies four elements of transformational leadership: Inspirational Motivation, Idealized Influence, Individual Consideration, and Intellectual Stimulation. Stephanie continues to bring a smile and positive attitude to work everyday while consistently and reliably presenting herself as a team player, hard worker, and problem solver. She evokes trust and admiration from within and outside the organization.



MSP Superintendent Col. Roland Butler and Stephanie Roberg





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