



Central (Richmond)



Northern (Manassas)



Eastern (Norfolk)



Western (Roanoke)

# DEPARTMENT OF FORENSIC SCIENCE UPDATE

---

Linda C. Jackson, Director

Presented to the Forensic Science Board

October 19, 2022





# Virginia Forensic Science Week



## CERTIFICATE of RECOGNITION

*By virtue of the authority vested by the Constitution in the Governor of the Commonwealth of Virginia, there is hereby officially recognized:*

### FORENSIC SCIENCE WEEK

**WHEREAS**, in 1972, the Virginia General Assembly enacted legislation creating the Division of Consolidated Laboratory Services (DCLS), which included a Bureau of Forensic Science that in 2005 became a department within the Governor's Public Safety Secretariat known as the Department of Forensic Science (collectively "DFS"); and,

**WHEREAS**, in 1972, a Breath Alcohol Section was formed to maintain and calibrate breath alcohol instruments, as well as to train law enforcement officers in their use; and,

**WHEREAS**, in 1974, the Virginia Science Academy conducted its first session training law enforcement officers in on-scene evidence preservation and collection techniques; and,

**WHEREAS**, in 1989, DFS initially became accredited by the American Society of Crime Laboratory Directors Laboratory Accreditation Board (ASCLD/LAB) and also became the first state laboratory to begin offering DNA analyses for law enforcement agencies; and,

**WHEREAS**, in 1994, a Virginia conviction resulted from a "cold hit" from the DNA database, which as of now has identified over 15,000 "hits"; and,

**WHEREAS**, in 2022, DFS maintains the highest standards for accurate and reliable analysis of recovered evidence in the Controlled Substances, Digital & Multimedia Evidence, Firearms & Toolmarks, Forensic Biology, Latent Prints & Impressions, Toxicology, and Trace Evidence Sections; and,

**WHEREAS**, for 50 years the dedicated DFS staff have embraced continual improvement and innovation, which has advanced the understanding of forensic science to aid in the exoneration of the innocent and the prosecution of the guilty;

**NOW, THEREFORE**, I, Glenn Youngkin, do hereby recognize October 16-22, 2022 as **FORENSIC SCIENCE WEEK** in the COMMONWEALTH OF VIRGINIA, and I call this observance to the attention of our citizens.



  
Governor  
  
Secretary of the Commonwealth

- October 16 – 22, 2022
- While commemorating the agency's 50<sup>th</sup> anniversary
- Off cycle from National Forensic Science Week

# 50th Anniversary



**1972-2022**

The Bureau of Forensic Science was established within the Division of Consolidated Laboratory Services in 1972.

The Central Laboratory in Richmond and Regional Laboratories in Norfolk, Roanoke and Merrifield (Fairfax), VA were created.



# Central Laboratory Capital Project

---

- Construction permit has been issued by the Division of Engineering and Buildings (DEB)
- Request for additional funding for the project (due to price escalation based upon subcontractor bidding) is in approval process
- Ground-breaking and other pre-construction related activities can be scheduled once funding approved
- Project completion anticipated late 2024/early 2025











## CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

**Virginia Department of Forensic Science  
Crime Laboratory System**

Fulfills the requirements of

**ISO/IEC 17025:2017**

ANAB Forensic Testing & Calibration AR 3125:2019

FBI Quality Assurance Standards for Forensic DNA Testing Laboratories:2020

FBI Quality Assurance Standards for DNA Databasing Laboratories:2020

In the field of

**Forensic Testing & Calibration**

This certificate is valid only when accompanied by a current scope of accreditation document.  
The current scopes of accreditation can be verified at [www.anab.org](http://www.anab.org).

  
Pamela L. Sale, Vice President, Forensics

Expiry Date: 30 September 2026

Certificate Numbers:

FT-0051

FT-0052

FT-0053

FT-0054

FC-0004



# Accreditation

- Full reassessment occurred the week of June 6<sup>th</sup>
- Accreditation renewed on August 24, 2022
- Expires September 30, 2026
- Updated Certificates and Scopes are available on the DFS website:  
<https://www.dfs.virginia.gov/about-dfs/accreditation/accreditation-documentation/>
- Trigger pull examinations are again within our scope of accreditation



# Forensic Training

---

- 107<sup>th</sup> FSA Session began September 19 and is scheduled to graduate on November 18
- Annual Retraining was held September 7 – 9, 2022
- Two Forensic Trainer Senior positions in hiring process
- New Forensic Administrative Specialist begins October 25







# Outreach

---

- Website Refresh – Launch by end of 2022
- Recent Presentations
  - CASC Summer Conference – DFS Counsel Amy Jenkins
  - Virginia Sheriff's Association – Chief Deputy Director Mason Byrd
- Upcoming Presentations
  - Secure & Resilient Commonwealth Panel (October 20) – Controlled Substances Forensic Scientist Senior Jennifer Clary
  - Virginia State Crime Commission (November 16) – Director Linda Jackson and Toxicology Program Manager Jim Hutchings



# Training for Attorneys and Judges

---

Join us virtually for

## **Controlled Substances Training**

For Virginia Criminal Attorneys and  
Judges

---

- Planning in-person sessions at all 4 Laboratories
  - Spring 2023
  - Half-day
- No registration fee or CLE credits



# Board of Pharmacy Expedited Scheduling

---



DFS recommended five (5) compounds in October 2022. The compounds will be considered at the Board's December 6<sup>th</sup> meeting.

## **Synthetic Opioid:**

- 2-methyl butyryl fentanyl

## **Cannabimimetic Agent:**

- MDMB-5Br-INACA

## **Hallucinogenic Properties:**

- 3-methoxy MDA
- 3-chloro PCP

## **Depressant Properties:**

- Bromonordiazepam



# Cannabis Update

---

## Semi-Quantitative Method Expansion

- Semi-quant method for plant material & cannabis extracts ( $\Delta 9$ -THC) since December 2020
- Expansion includes other tetrahydrocannabinols:  $\Delta 8$ -THC,  $\Delta 10$ -THC, and  $\Delta 6a,10a$ -THC
- Administrative threshold will remain at 1%
- Not applicable to edibles or residues
- Finalizing validation documentation
- Secondary method expansion
  - Expand method to include cis- $\Delta 9$ -THC and  $\Delta 7$ -THC





# Cannabis Edibles Update

---



- Semi/Quantitative Method for Edibles Needed
  - Currently: identify cannabinoids present, do not quantify THC concentration
- Seeking outsourcing for testing
- Request For Proposal (RFP) in process
- Once outsourcing is available, DFS will evaluate caseload to determine if internal method will be developed



# Field Test Regulation Update

---

## 6 VAC 40-30 Regulations for the Approval of Field Tests for Detection of Drugs

- Received the first request for mobile instrument evaluation
- Currently evaluating chemical field tests, including reevaluating those already listed, if manufacturers confirmed continued need (8 manufacturers contacted)





# Forensic Biology Validation Update

---

- STRmix and True Allele validation
  - Future new version STRmix
  - Future 4-person mixtures
  - Future Data Bank searches
- New Real Time PCR instruments
- New DNA quantitation kit
- New Thermal cyclers
- New Y-STR Kit evaluation

Performance Checks - Regional Labs



# DNA Direct Amplification

---

- Currently used for DNA Data Bank samples
- Casework reference samples
  - Deployment stage
  - Regional laboratory performance checks
  - Staff training and competency
  - Validation and performance checks for your review next meeting



# NIJ Funded Research

---

- Automated differential lysis on robotics
  - Biomek NX
  - Good progress
  - Grant ends early 2023



# Outsourced Sexual Assault Kit Testing

---

- SAKI Grant with Virginia Office of the Attorney General
  - Pre-CODIS kits prior to 1997 and terminated kits 1997-2016
  - Approximately 600 kits
  - DNA Labs International (DLI) in Florida
  - Ownership reviews and CODIS uploads start in November
  - Grant-funded overtime



# Firearms & Toolmarks

## NIBIN

---



### National Integrated Ballistic Information Network (NIBIN)

- 18 hits have been confirmed this year
- 1,342 potential NIBIN associations
  - Western = 96
  - Northern = 63
  - Eastern = 809
  - Central = 374

\*As of September 16, 2022

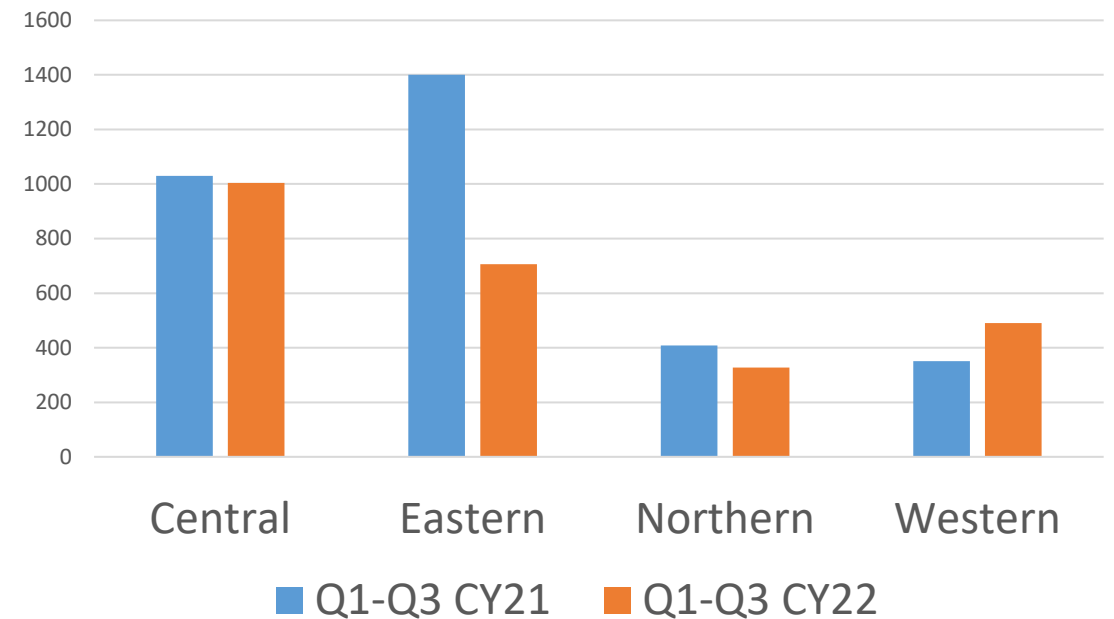


# Firearms & Toolmarks - NIBIN

## Local agencies with NIBIN

- Chesapeake
- Fairfax
- Newport News/Hampton (entry & correlation)
- Norfolk
- Richmond
- Virginia Beach

## DFS NIBIN Examinations





# Firearms & Toolmarks

---

## Ballistics IQ

- Portable device that captures a scan of a cartridge case
- Generates a report that groups the cartridge cases by number of possible firearms involved
- Highlights the best cartridge case(s) for entry into NIBIN
- Three agencies in Western part of VA have implemented this technology
- Western Supervisor assisted agencies with how best to submit evidence to the laboratory for NIBIN entry



# Digital & Multimedia Evidence Successes

---

1. Analyzed a Dive Computer to identify any problems that may have occurred during an underwater dive
2. Removed and extracted data from a memory chip from a vehicle's infotainment center to obtain data stored by the vehicle (e.g., locations, vehicle parameters, etc.) and connected device data (e.g., contacts, call logs, etc.)
3. Unlocked and extracted data from a mobile device most likely run over by a vehicle, obliterating the entire screen, case, battery, and most peripheral components
4. Recovered Audit Trail Log from an Electronic Deadbolt Lock





# Toxicology Updates

---

## DFS Notice - September 14, 2022

- Blood Tube Shortage
- Reduced number of DUI/DUID Kits available
- Reduced distribution to agencies
- Partial shipment received
- Updated Notice – October 17

## DUI/DUID Testing Policy - January 1, 2023

- All DUI/DUID samples will be screened for cannabinoids and alcohol
- Additional drug screening will be performed on samples with an BAC < 0.100%
- Updated THC method in process
  - Cannabinoid Quantitation and Confirmation by Supported Liquid Extraction Using LCMSMS



# Breath Alcohol Updates

---

- New Breath Alcohol Instrument
  - Developing Invitation for Bids for new instrumentation
  - Desires
    - High Speed Communication
    - Laser Printer
- Paper Shortage
  - Reduced supplies of green and yellow paper
  - Modified colors to bars at the bottom of the page



# New Breath Alcohol Paper



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF FORENSIC SCIENCE

CERTIFICATE OF BLOOD ALCOHOL ANALYSIS  
AS DETERMINED BY A CHEMICAL TEST OF THE ACCUSED'S BREATH



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF FORENSIC SCIENCE

CERTIFICATE OF BLOOD ALCOHOL ANALYSIS  
AS DETERMINED BY A CHEMICAL TEST OF THE ACCUSED'S BREATH



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF FORENSIC SCIENCE

CERTIFICATE OF BLOOD ALCOHOL ANALYSIS  
AS DETERMINED BY A CHEMICAL TEST OF THE ACCUSED'S BREATH

NAME OF ACCUSED	NAME OF COURT
-----------------	---------------

NAME OF ACCUSED	NAME OF COURT
-----------------	---------------

NAME OF ACCUSED	NAME OF COURT
-----------------	---------------

### BREATH ANALYSIS

### BREATH ANALYSIS

### BREATH ANALYSIS

SAMPLE EXAMINED AND TEST CONDUCTED BY		AGENCY
DFS LICENSE NUMBER	LICENSE EXPIRES	DATE TEST CONDUCTED
TEST EQUIPMENT NUMBER		

SAMPLE EXAMINED AND TEST CONDUCTED BY		AGENCY
DFS LICENSE NUMBER	LICENSE EXPIRES	DATE TEST CONDUCTED
TEST EQUIPMENT NUMBER		

SAMPLE EXAMINED AND TEST CONDUCTED BY		AGENCY
DFS LICENSE NUMBER	LICENSE EXPIRES	DATE TEST CONDUCTED
TEST EQUIPMENT NUMBER		

RESULTS: TIME SAMPLE TAKEN \_\_\_\_\_  
 SAMPLE'S ALCOHOL CONTENT \_\_\_\_\_ GRAMS PER 210 LITERS OF BREATH

RESULTS: TIME SAMPLE TAKEN \_\_\_\_\_  
 SAMPLE'S ALCOHOL CONTENT \_\_\_\_\_ GRAMS PER 210 LITERS OF BREATH

RESULTS: TIME SAMPLE TAKEN \_\_\_\_\_  
 SAMPLE'S ALCOHOL CONTENT \_\_\_\_\_ GRAMS PER 210 LITERS OF BREATH

**ATTEST:**  
 I CERTIFY THAT THE ABOVE IS AN ACCURATE RECORD OF THE TEST CONDUCTED; THAT THE TEST WAS CONDUCTED WITH THE TYPE OF EQUIPMENT AND IN ACCORDANCE WITH THE METHODS APPROVED BY THE DEPARTMENT OF FORENSIC SCIENCE; THAT THE TEST WAS CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S SPECIFICATIONS; THAT PRIOR TO ADMINISTRATION OF THE TEST THE ACCUSED WAS ADVISED OF HIS RIGHT TO OBSERVE THE PROCESS AND SEE THE BLOOD ALCOHOL READING ON THE EQUIPMENT USED TO PERFORM THE BREATH TEST, AND THAT I POSSESS A VALID LICENSE TO CONDUCT SUCH TEST, GIVEN UNDER MY HAND THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_\_.

**ATTEST:**  
 I CERTIFY THAT THE ABOVE IS AN ACCURATE RECORD OF THE TEST CONDUCTED; THAT THE TEST WAS CONDUCTED WITH THE TYPE OF EQUIPMENT AND IN ACCORDANCE WITH THE METHODS APPROVED BY THE DEPARTMENT OF FORENSIC SCIENCE; THAT THE TEST WAS CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S SPECIFICATIONS; THAT PRIOR TO ADMINISTRATION OF THE TEST THE ACCUSED WAS ADVISED OF HIS RIGHT TO OBSERVE THE PROCESS AND SEE THE BLOOD ALCOHOL READING ON THE EQUIPMENT USED TO PERFORM THE BREATH TEST, AND THAT I POSSESS A VALID LICENSE TO CONDUCT SUCH TEST, GIVEN UNDER MY HAND THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_\_.

**ATTEST:**  
 I CERTIFY THAT THE ABOVE IS AN ACCURATE RECORD OF THE TEST CONDUCTED; THAT THE TEST WAS CONDUCTED WITH THE TYPE OF EQUIPMENT AND IN ACCORDANCE WITH THE METHODS APPROVED BY THE DEPARTMENT OF FORENSIC SCIENCE; THAT THE TEST WAS CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S SPECIFICATIONS; THAT PRIOR TO ADMINISTRATION OF THE TEST THE ACCUSED WAS ADVISED OF HIS RIGHT TO OBSERVE THE PROCESS AND SEE THE BLOOD ALCOHOL READING ON THE EQUIPMENT USED TO PERFORM THE BREATH TEST, AND THAT I POSSESS A VALID LICENSE TO CONDUCT SUCH TEST, GIVEN UNDER MY HAND THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_\_.

BREATH TEST OPERATOR

BREATH TEST OPERATOR

BREATH TEST OPERATOR

I HAVE RECEIVED A COPY OF THIS CERTIFICATE OF ANALYSIS \_\_\_\_\_ SUBJECT'S SIGNATURE

I HAVE RECEIVED A COPY OF THIS CERTIFICATE OF ANALYSIS \_\_\_\_\_ SUBJECT'S SIGNATURE

I HAVE RECEIVED A COPY OF THIS CERTIFICATE OF ANALYSIS \_\_\_\_\_ SUBJECT'S SIGNATURE

SUBJECT REFUSED TO SIGN FOR COPY OF CERTIFICATE OF ANALYSIS \_\_\_\_\_ OPERATOR'S SIGNATURE

SUBJECT REFUSED TO SIGN FOR COPY OF CERTIFICATE OF ANALYSIS \_\_\_\_\_ OPERATOR'S SIGNATURE

SUBJECT REFUSED TO SIGN FOR COPY OF CERTIFICATE OF ANALYSIS \_\_\_\_\_ OPERATOR'S SIGNATURE



# September Workload Statistics

---

Section	Ending Backlog As of 09/30/2022	Average TAT (in days) Sept. 2022
Controlled Substances	2,256	33
Digital & Multimedia Evidence	47	76
Firearms & Toolmarks	1,582	129
Forensic Biology (DNA)	2,185	150
Latent Prints & Impressions	373	59
Toxicology	1,328	46
Trace Evidence	117	113

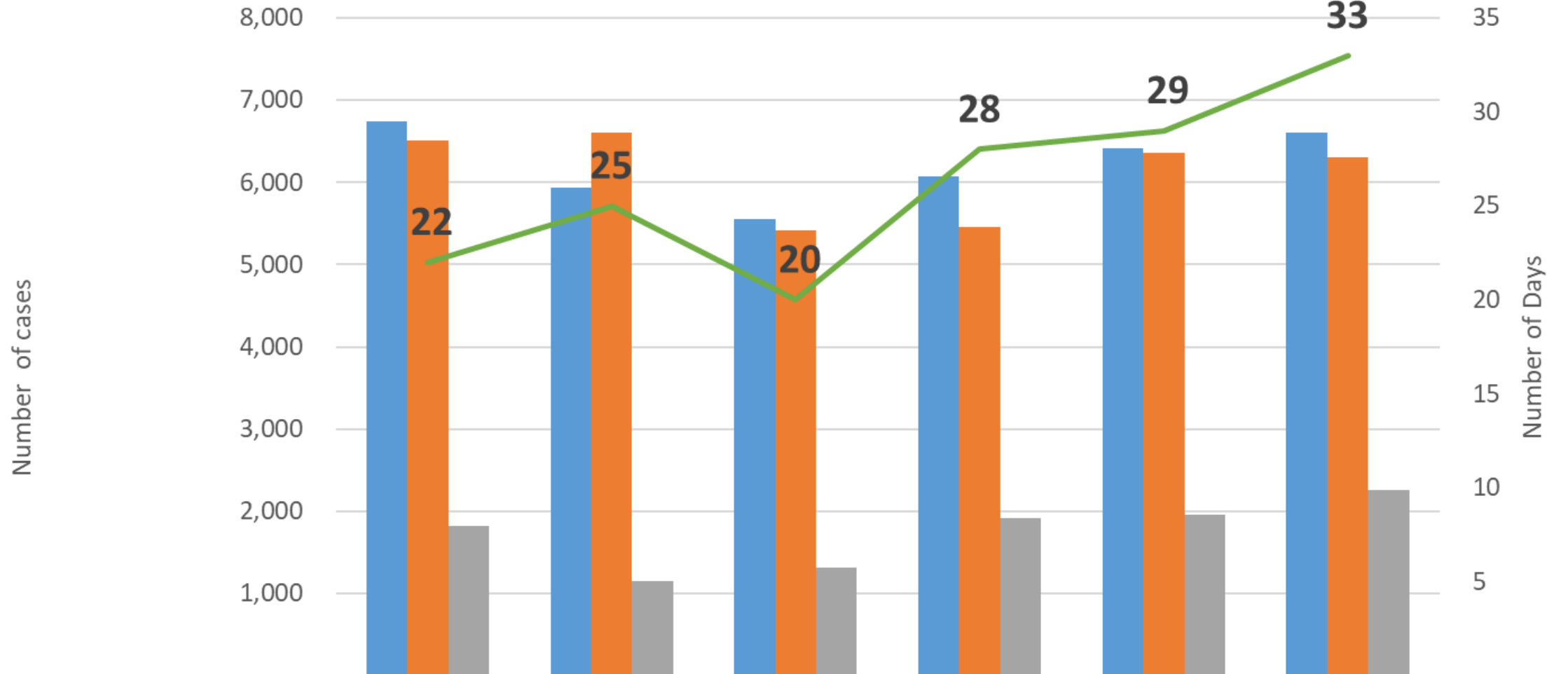




# Case Submission Comparison – CY Q3

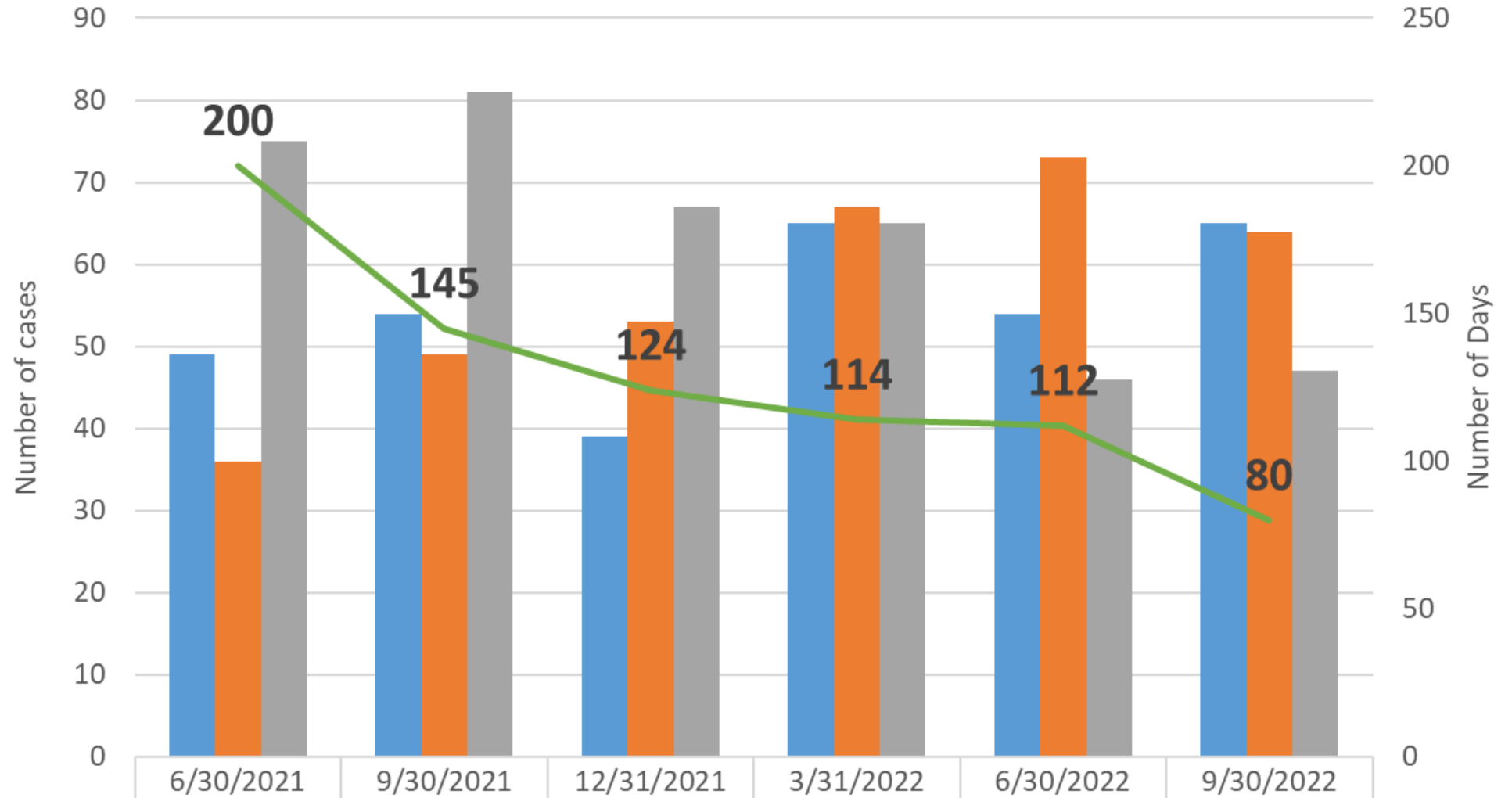
<b>Discipline</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>% change (19 to 22)</b>
Controlled Substances	9,325	7,239	5,943	6,598	-29%
Digital Evidence	50	39	55	65	30%
Firearms	1,793	2,092	1,835	1,575	-12%
Forensic Biology (DNA)	1,595	1,702	1,651	1,795	13%
Latent Prints	821	624	512	613	-25%
Toxicology	2,545	3,094	2,749	2,721	7%
Trace Evidence	185	190	171	165	-11%

## Controlled Substances



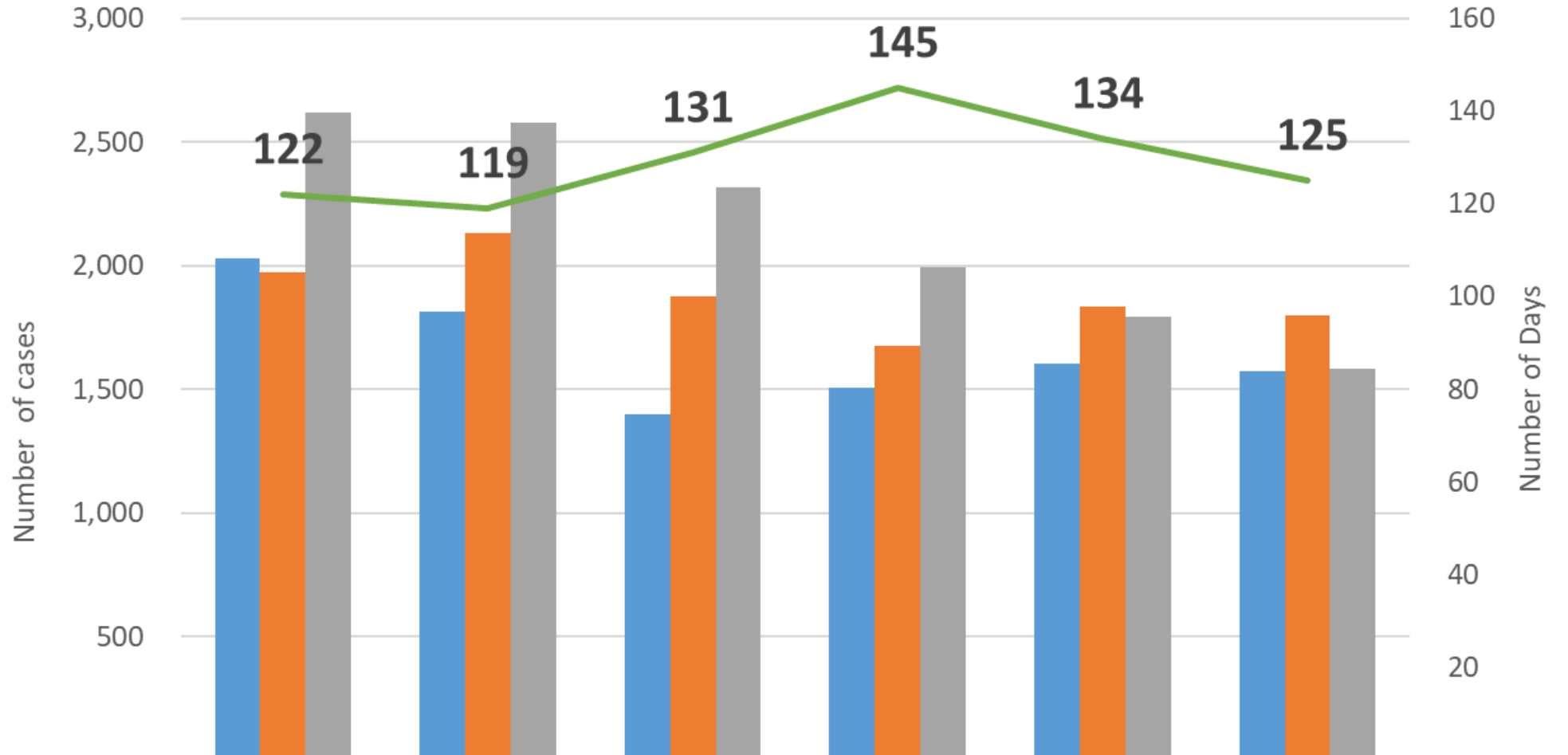
	6/30/2021	9/30/2021	12/31/2021	3/31/2022	6/30/2022	9/30/2022
<span style="color: blue;">■</span> Cases Received*	6,739	5,933	5,555	6,066	6,410	6,598
<span style="color: orange;">■</span> Cases Completed	6,514	6,603	5,416	5,459	6,364	6,304
<span style="color: gray;">■</span> Caseload	1,818	1,158	1,309	1,916	1,962	2,256
<span style="color: green;">—</span> Average Days in System	22	25	20	28	29	33

## Digital & Multimedia Evidence



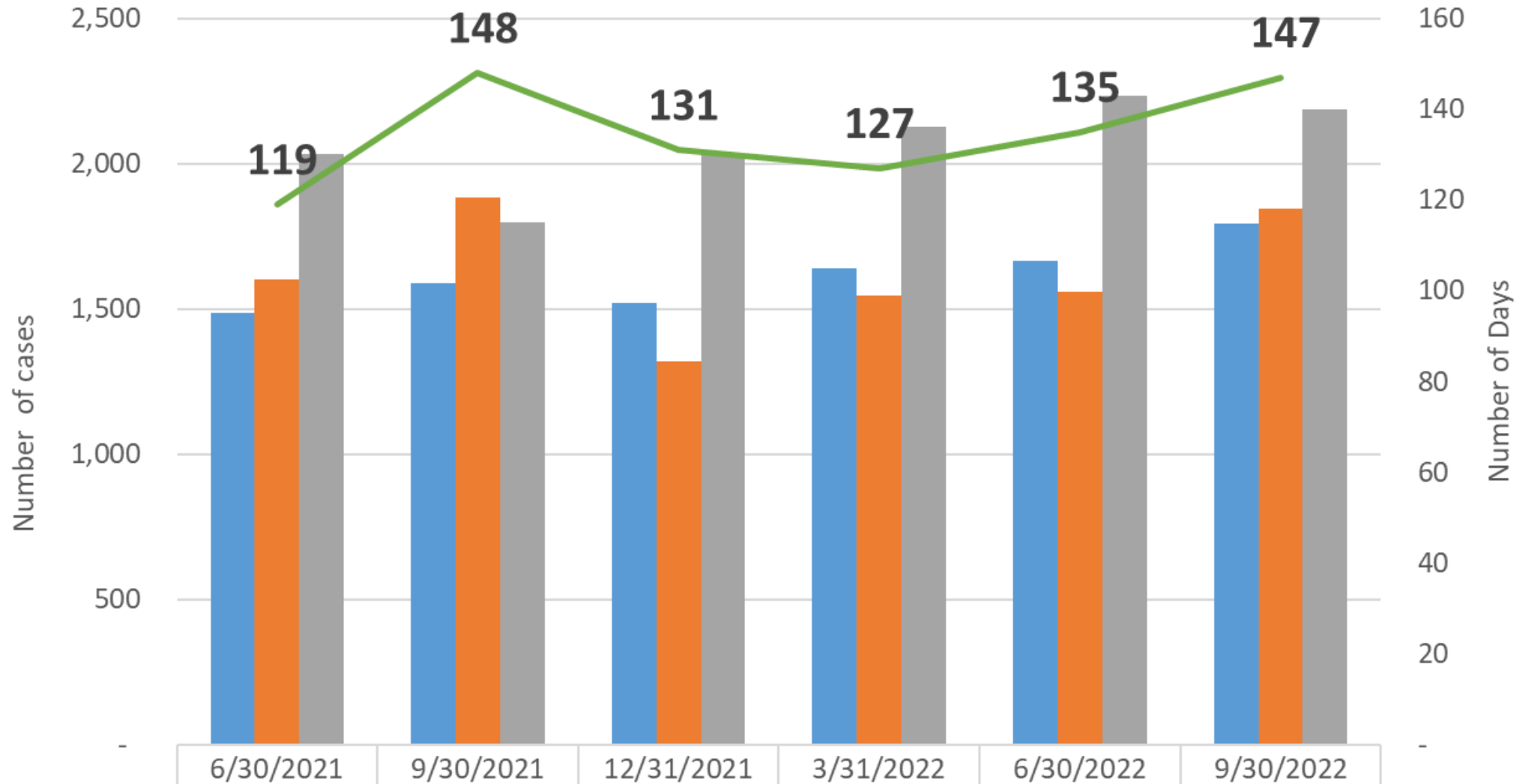
	6/30/2021	9/30/2021	12/31/2021	3/31/2022	6/30/2022	9/30/2022
Cases Received*	49	54	39	65	54	65
Cases Completed	36	49	53	67	73	64
Caseload	75	81	67	65	46	47
Average Days in System	200	145	124	114	112	80

## Firearms & Toolmarks



	6/30/2021	9/30/2021	12/31/2021	3/31/2022	6/30/2022	9/30/2022
Cases Received*	2,030	1,812	1,401	1,509	1,603	1,575
Cases Completed	1,975	2,130	1,875	1,674	1,834	1,799
Caseload	2,618	2,578	2,317	1,992	1,796	1,582
Average Days in System	122	119	131	145	134	125

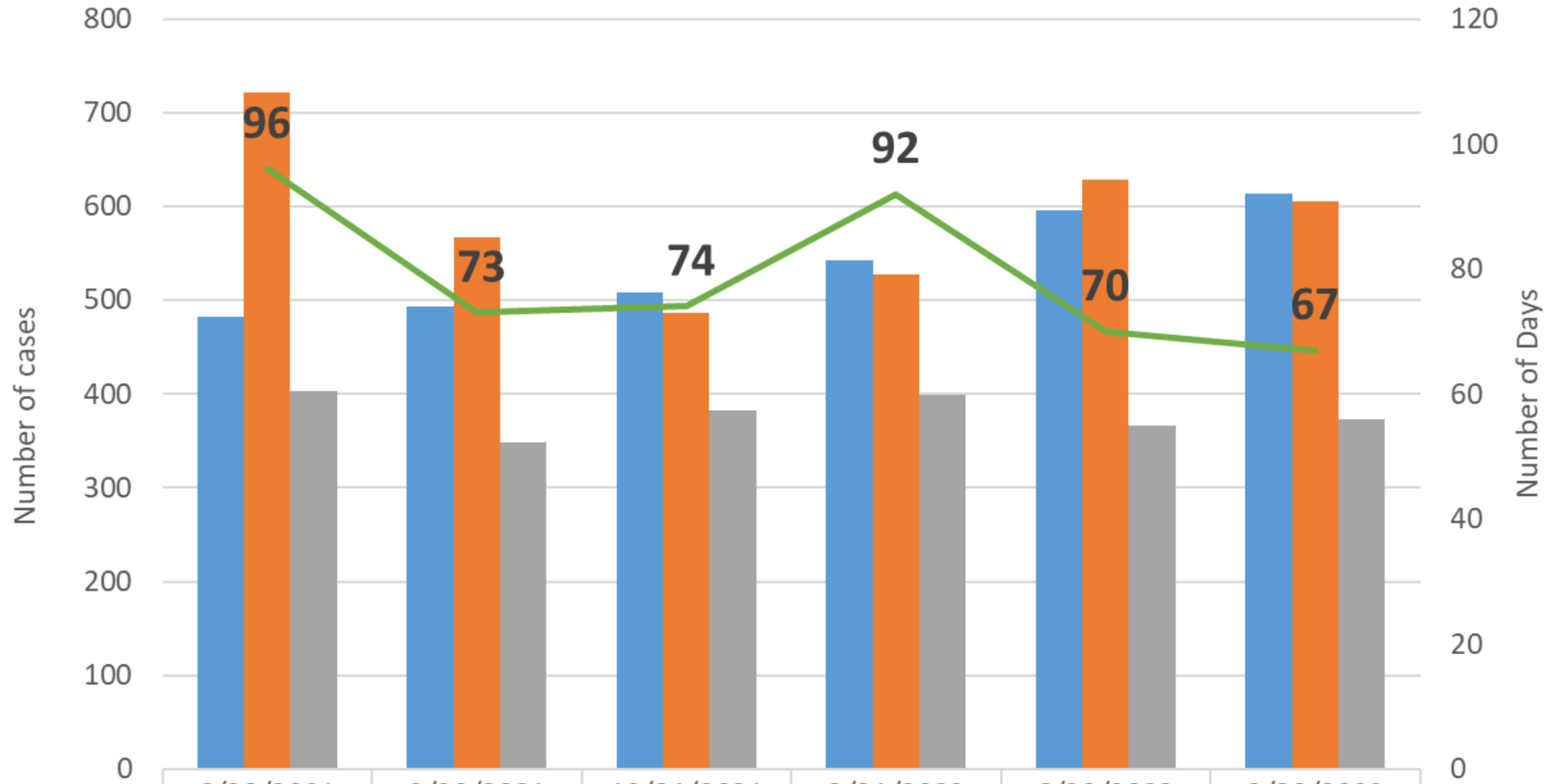
### Forensic Biology (DNA)



<span style="color: blue;">■</span> Cases Received*	1,488	1,589	1,519	1,641	1,664	1,795
<span style="color: orange;">■</span> Cases Completed	1,600	1,885	1,318	1,547	1,557	1,844
<span style="color: gray;">■</span> Caseload	2,033	1,799	2,033	2,127	2,234	2,185
<span style="color: green;">—</span> Average Days in System	119	148	131	127	135	147

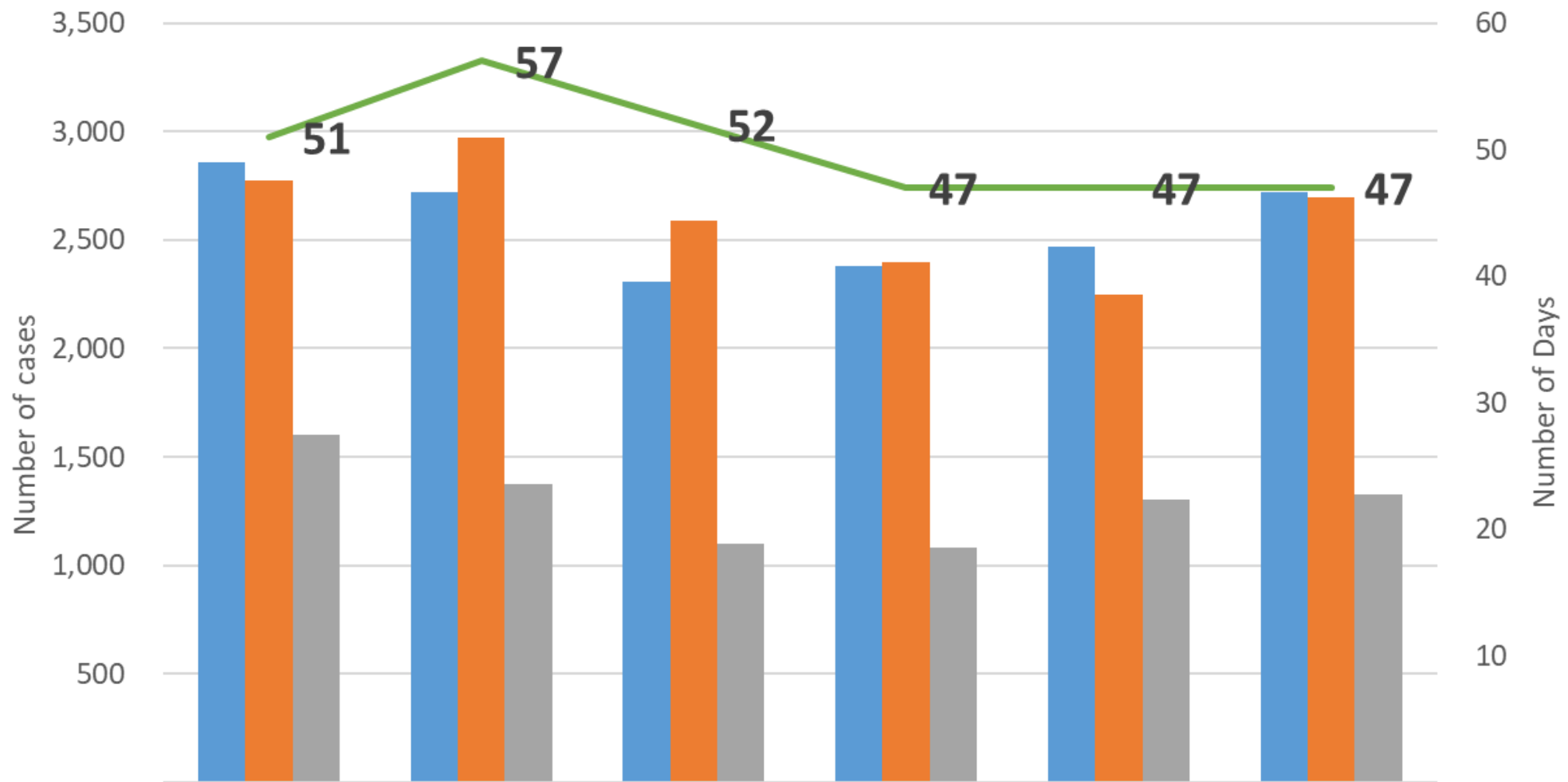


## Latent Prints & Impressions



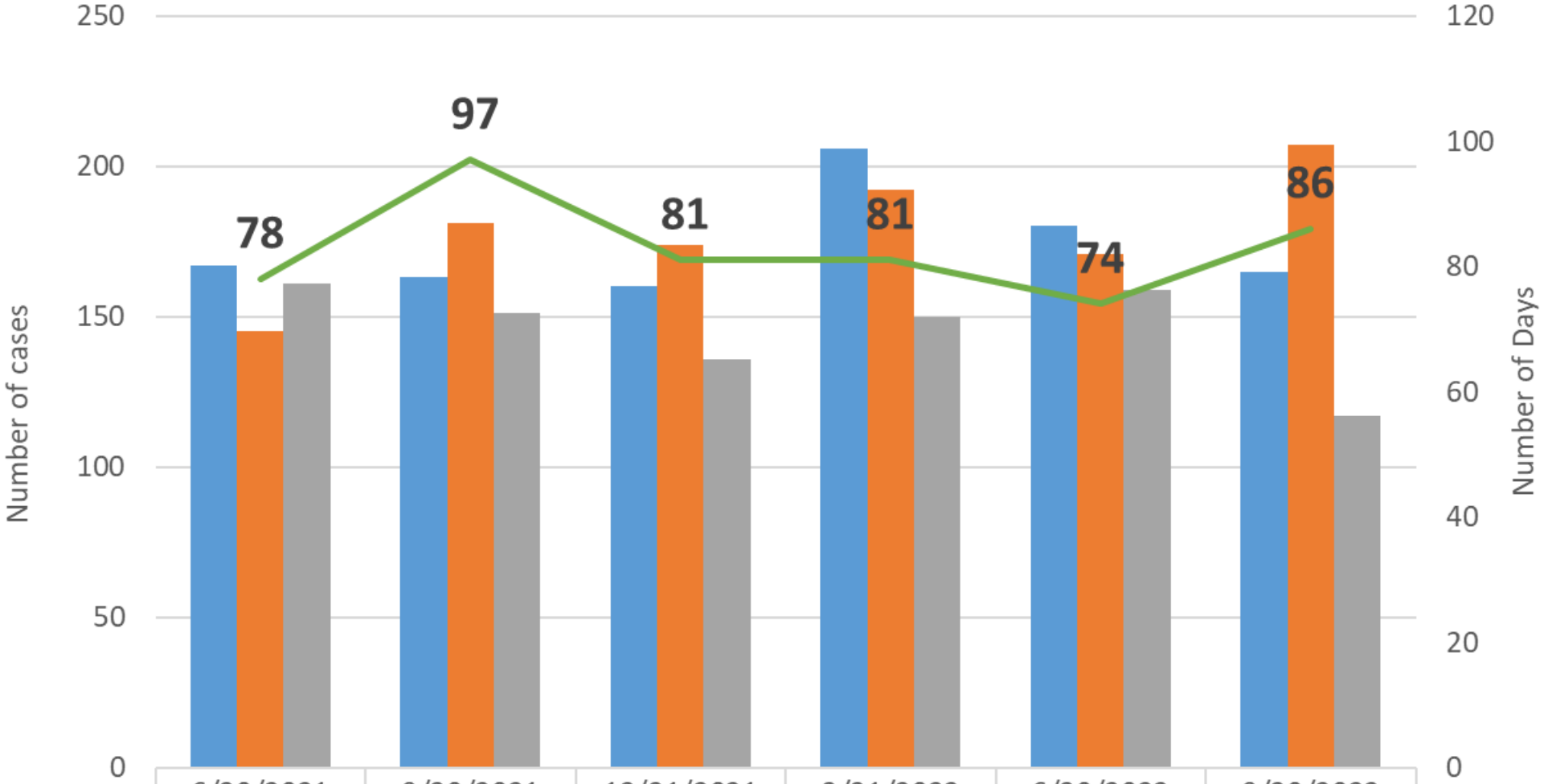
	6/30/2021	9/30/2021	12/31/2021	3/31/2022	6/30/2022	9/30/2022
Cases Received*	482	493	509	543	596	613
Cases Completed	722	567	486	527	629	606
Caseload	403	348	383	399	366	373
Average Days in System	96	73	74	92	70	67

## Toxicology



	6/30/2021	9/30/2021	12/31/2021	3/31/2022	6/30/2022	9/30/2022
<span style="color: blue;">■</span> Cases Received*	2,858	2,723	2,306	2,379	2,468	2,721
<span style="color: orange;">■</span> Cases Completed	2,774	2,974	2,587	2,398	2,248	2,694
<span style="color: gray;">■</span> Caseload	1,602	1,377	1,100	1,081	1,301	1,328
<span style="color: green;">—</span> Average Days in System	51	57	52	47	47	47

### Trace Evidence



<span style="color: blue;">■</span> Cases Received*	167	163	160	206	180	165
<span style="color: orange;">■</span> Cases Completed	145	181	174	192	171	207
<span style="color: gray;">■</span> Caseload	161	151	136	150	159	117
<span style="color: green;">—</span> Average Days in System	78	97	81	81	74	86

# Budget and Resources

---



# DFS Biennial Budget – FY23/FY24

Service Areas	First Year FY23	Second Year FY24	% of overall budget
Forensic Biology	\$ 14,487,439	\$ 14,487,439	25%
Chemistry	\$ 14,465,511	\$ 14,465,511	24%
Toxicology	\$ 12,453,980	\$ 11,647,080	21%
Physical Evidence	\$ 9,688,531	\$ 9,688,531	16%
Forensic Training	\$ 590,966	\$ 590,966	1%
Administration/Facilities	\$ 7,440,951	\$ 7,440,951	13%
<b>Grand Total</b>	<b>\$ 59,127,378</b>	<b>\$ 58,320,478</b>	<b>100%</b>

Service Areas	First Year FY23	Second Year FY24
General Fund Positions	341	341
Nongeneral Fund Positions	14	14
Position Level (MEL)	355	355
Fund Sources: General	\$ 56,446,890	\$ 55,639,990
Fund Sources: Federal	\$ 2,680,488	\$ 2,680,488
<b>Grand Total</b>	<b>\$ 59,127,378</b>	<b>\$ 58,320,478</b>



# Grants

---



# Previously Approved Grants Received

---

- FY 2022 Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories
  - Fire Debris Research - Amount requested = \$141,921
- FY 2022 DMV Highway Safety Grant Program – \$869,591 (combined, includes 25% in-kind match)
- FY 2022 DNA Capacity Enhancement and Backlog Reduction (CEBR) - \$1,890,845
- FY 2022 Paul Coverdell Forensic Science Improvement Grant - \$251,359

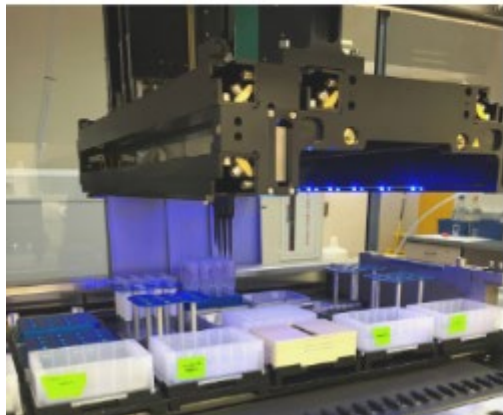
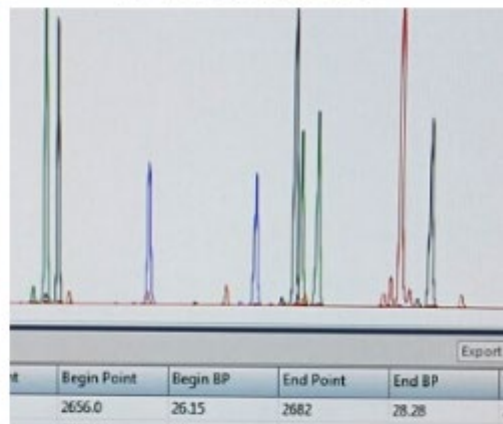
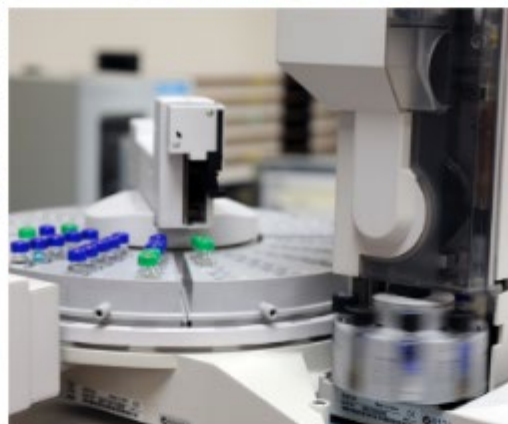
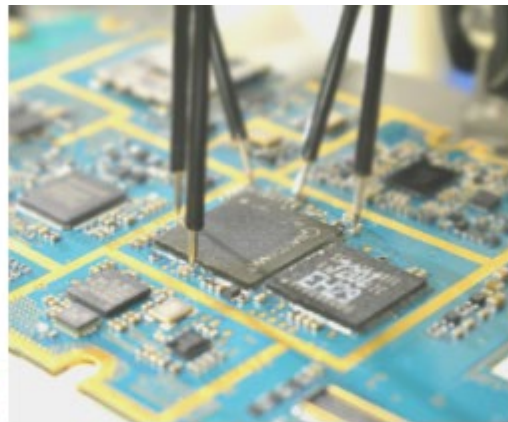


# Full Board Permission Needed

---

## **Opioid Joint Project (VDH/OCME and DFS) – Overdose Data to Action Project Continuation.**

The Department received funds from the OCME in 2019 to support additional personnel, supplies, and equipment in the DFS Toxicology Section to improve both the timeliness and comprehensiveness of toxicological studies in deaths suspected as opioid overdoses. The Department has been notified that it will be awarded continuation funds for a fourth year at the same level of \$164,807 for the same activities. The new award period is September 1, 2022 through August 31, 2023.



Thank you!