

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF FORENSIC SCIENCES



**Fiscal Year 2019
Performance Oversight Hearing**

Testimony of
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Director

Before the
Committee on the Judiciary & Public Safety
Council of the District of Columbia
The Honorable Charles Allen, Chairperson

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Good morning Chairperson Allen, members, and staff of the Committee on the Judiciary & Public Safety. My name is Jenifer Smith, and I am the Director of the Department of Forensic Sciences (DFS). Thank you for inviting me to testify on behalf of Mayor Muriel Bowser in today's hearing to discuss the activities and accomplishments of the Department of Forensic Sciences in Fiscal Year 2019.

Mayor Bowser's Fiscal Year 2019 budget made investments that supported our efforts to deliver on the promise of our shared DC values. These efforts include creating economic opportunity, making our neighborhoods safer, and providing more effective and efficient government services. We continue that effort as we work each day to fulfill our commitment to provide every District resident a fair shot at opportunity.

I am pleased to report on the progress that DFS has made over the past year utilizing the enhanced resources provided by Mayor Bowser in her efforts to provide safer streets for DC citizens and visitors. I value this opportunity to recognize DFS's efforts to engage our customers, improve our timeliness, maintain our quality, build toward the future, and help create a safer, stronger DC.

The progress that has occurred has only been possible due to the Mayor's serious commitment to provide resources to the Department, complemented by the support of the Council. In addition to our state of the art laboratories, DFS's people continue to meet every need of our critical stakeholders. Our facilities are second to none, providing exceptional laboratories and workspaces, but this alone cannot accomplish the work of DFS. Our labs and offices are filled with capable and dedicated scientists and staff who strive daily to deliver high-quality and reliable forensic science services to critical stakeholders. I would be remiss if I didn't pause to acknowledge the incredible and consistent efforts of the women and men who have led their teams forward through the necessary improvements to achieve many of our substantial accomplishments, and help make all of our friends and neighbors in the District safer.

Under the management of Chief Operating Officer Yi-Ru Chen, our Directorate Operations and Agency Management team performs several critical functions, including procurement of supplies and equipment, hiring staff, assuring health and safety awareness, and compliance and maintenance of IT infrastructural support of vital DFS databases and information systems.

In FY19, her team worked closely with DCHR to fill 25 vacancies, always ensuring that our hiring practices encouraged appropriate recruitment, unbiased selection, and efficient placement. DFS added its first Human Relations Manager and Director of Communications. Two firearms examiners and a Supervisor were also recruited for the Firearms Examination Unit (FEU). These qualified scientists are highly-sought after with a shortage of candidates across the country.

The DFS Legal Team received and handled 1,226 discovery requests. They also received and uploaded to our Laboratory Information Management System (LIMS) 1,544 subpoenas and responded to 16 Freedom of Information Act (FOIA) requests. The Legal Team has put in place



core turnaround times to assess FOIA response processing, with an average response of 10.5 business days. They also oversaw the creation and approval of 11 MOA/MOUs between the Department and other agencies. This team was instrumental in the creation of the rulemaking that defines the roles and responsibilities of the Science Advisory Board and establishes the reporting requirements and outside complaint and inquiry process for DFS. Additionally, they continued to work closely with DC's Office of Labor Relations and Collective Bargaining (OLRCB) to maintain a healthy and collaborative relationship with DFS's three labor unions, both in the negotiation of updates to collective bargaining agreements and in the timely and efficient response to employee concerns whenever they might arise.

An experienced team of in-house, quality assurance professionals and training specialists led by our newly appointed Senior Deputy Director Abdel Maliky, provides oversight of all DFS units to ensure quality-driven results, and that the DFS workforce is highly trained and skilled in maintaining appropriate forensic and public health scientific programs. In FY19, the training program delivered more than 3,700 hours of instruction for all three divisions of DFS, covering numerous discipline-specific subject matter areas for forensic DNA scientists, firearms examiners, fingerprint examiners, and public health lab scientists.

In FY19, the Forensic Intelligence Unit (FIU) supported critical reviews, such as MPD's TOPS Open District Homicides. FEU was able to determine linkages between offenses using the National Integrated Ballistic Information Network (NIBIN), ATF's database system, that allows scientists to upload and check digital images of fired cartridge casings against similar images uploaded by other forensics laboratories nationwide.

The Quality Team successfully led DFS through several external audits of the Forensic Science Laboratory Division (FSL) and the Public Health Laboratory Division (PHL). All FSL units continue to maintain ISO/IEC 17025:2017 accreditation in critical disciplines. Additionally, the Forensic Biology Unit (FBU) successfully passed an external National DNA Standard audit and, for the fourth year in a row, received no findings of noncompliance. The PHL successfully demonstrated compliance with the Centers for Medicare & Medicaid Services' Clinical Laboratory Improvement Amendments (CLIA) regulatory guidelines, as well as CDC's Division of Select Agents and Toxins (DSAT). PHL also passed inspection by DC Health's Health Regulation and Licensing Administration (HRLA) and received certification to conduct laboratory testing in the District.

DFS continued to conduct several educational outreach programs to help create the next generation of public service scientists. As a former educator, I know the importance of engaging students as early as possible and exposing them to jobs in real world laboratories. At DFS, we have made a conscious effort to open our labs and initiate partnerships with schools and universities so that, through immersive experiences like internships, students can experience the realities of working in a laboratory. From the fall of 2018-2019, we attracted 46 interns by way of myriad feeder programs across the country including the U.S. Army, the D.C. Department of Disability Services, the National Institutes of Health, McKinley Technology High School, and multiple colleges and universities. Our internship program was ranked #1 Coolest Forensic Science Internship by Forensics Colleges. We also support internship initiatives prioritized by



the Mayor's office, including the District Leadership program that promotes employment opportunities that build pathways to the middle class. Our internships provide students with practical experience and the type of exposure needed to strongly consider careers in forensic science. From mentorship and shadowing opportunities to conducting research and data collection; our internship projects run the gamut and are based on students' grade level, background, experience, and interests.

DFS and Trinity University established an Educational Partnership to incorporate DFS led Forensic Pattern Recognition (latent fingerprints and firearms examination) courses into Trinity's Forensic Science Program. The course started last month and offers students a "hands on" apprenticeship opportunity at DFS.

Under the leadership of Director Karen Wiggins, who retired in December, and newly appointed Director Wayne Arendse, DFS continued to provide critical forensic services within the Forensic Science Laboratory Division (FSL). This past year, all four operational units within the FSL demonstrated efficiency and effectiveness. In FY19, all four operational units within FSL had two Key Performance Indicators (KPIs):

- The percentage of priority cases as designated by the contributor and marked in LIMS completed within 60 days from the date the analyst was assigned the case. Target = 90%
- Percentage of requested homicide cases completed within 60 days from the date the analyst was assigned the case. Target = 90%

I am proud to report we exceeded our target for each of these KPIs each quarter in all operational units.

Firearms are used in some of the most heinous of crimes including rape, robberies, homicides, and assaults. It is the job of the FEU to examine and compare firearms, as well as the tool marks left behind on evidence when a harder object encounters a softer one. Throughout FY19, FEU exceeded both of the FSL KPIs, consistently performing at 100 percent for priority cases and 96 percent or better for homicide cases. In FY19, the FEU completed 980 reports with an average turnaround time of 37 days. The backlog in FY18 was over 1,000 cases and the current backlog is 253 cases. FEU conducted 2,229 test fires of weapons received by DFS.

In FY19, FBU received 294 sexual assault kits. The average turnaround time for testing sexual assault kits was 73 days. All of the testing on sexual assault kits was completed within the 90 days as outlined in the Sexual Assault Victim's Rights Amendment Act (SAVRAA) legislation with the exception of four sexual assault kits which exceeded the legislative 90 days due to judicial delays associated with Permission to Consume (PTC). FBU continues to operate without any backlog of sexual assault kits. DNA testing was conducted on a total of 1,699 cases. Of these cases, 761 were processed by external laboratories and 938 were processed at DFS with an average turnaround time of 57 days (73 days for cases with sexual assault kits and 41 days for non-sexual assault kit cases). Throughout FY19, FBU exceeded both of the FSL KPIs, performing at 98 percent or better with respect to processing priority cases within 60 days, and 96 percent or greater when handling homicide cases within 60 days.



In September 2019, FBU attended the 28th Congress of the International Society for Forensic Genetics in Prague, Czech Republic to provide support for their accepted scientific poster on Establishing STR and Identity SNP analysis thresholds for reliable interpretation and practical implementation of MPS gDNA casework. The scientific data presented in the poster was published in the Forensic Science International: Genetics Supplement Series.

Our Latent Fingerprint Unit (LFU) scientists examine latent fingerprints or marks left at the scene of a crime that may or may not be immediately visible to the naked eye. To expose the prints, scientists often use fingerprint powder, fuming, and other techniques to reveal valuable information. Once fingerprints are uncovered, the information is entered into the Automated Fingerprint Identification System (AFIS), a biometric database that uses digital imaging technology to obtain, store, and analyze fingerprint data. The results are either an identification (or match) or an exclusion. In FY19, LFU worked 2,724 cases with an average TAT of 13 days. Also, in evidence processing, which is now the responsibility of LFU, 2016 cases were worked with an average TAT of 9 days. Throughout FY19, LFU far exceeded both of the FSL KPI targets, processing more than 97 percent of their priority cases and homicides within 60 days. LFU currently has no backlog of cases.

Our Digital Evidence Unit (DEU) Scientists are responsible for extracting and analyzing seized digital evidence from nearly any form and from any device (e.g., smartphones, personal computers, vehicles, credit card skimmers, and video). These scientists and the systems they use must continuously evolve in step with our world's constant technological developments, so that they can ensure DC residents and visitors may safely engage in their multiplicity of electronic transactions, every day within the District. DEU actively monitors the digital landscape for cases involving malware, unauthorized network intrusions, and data breaches. In FY19, DEU nearly doubled its caseload from 636 in FY18 to 1,147 in FY19. The unit acquired the capability to unlock iPhones and Androids, literally unlocking a world of data that was previously unattainable. DEU also added new digital capabilities for Crash Data Recovery Technology to extract data such as the speed during impact, deployment of seatbelts, and navigation, in addition to the existing capabilities of infotainment and telematics information. In FY19, DEU worked 1,147 cases with an average TAT of 2.28 days for all cases not involving brute force password cracking. The average TAT for cases involving brute force password cracking was 33 days. This method is highly dependent on the complexity of the password and security protocols on the device which are constantly evolving with each new filesystem release. This method has allowed DFS to stay ahead of the curve in accessing digital devices. Throughout FY19, DEU far exceeded both of the FSL KPI targets, processing 100 percent of their priority cases and homicides within 60 days.

This year DFS purchased the Dell Isilon system adding 148TB of storage. This investment allows DEU to provide high-quality, reliable and accurate forensic science using cutting edge technology in order to support investigation for the purpose of enhancing public safety. Digital storage will continue to be a need that must be met. As more systems come online, many units strive to be paperless, and requirements such as HIPPA and BioWatch do not permit cloud storage.



In FY19, FSL fully utilized three critical national intelligence databases: National Integrated Ballistic Information Network (NIBIN), Automated Fingerprint Identification System (AFIS), and Combined DNA Index System (CODIS). In FY19, FEU enrolled 4,257 casings into NIBIN, which led to 775 investigative hits. LFU entered 7,238 latent fingerprints into the AFIS database, which led to 1,553 investigative hits. FBU entered 654 DNA profiles into CODIS, which led to 229 CODIS hits. In all, more than 2,500 hits from these databases provided new leads to investigators to identify perpetrators, link crime scenes together, and identify sources of gun crimes for immediate disruption, investigation, and prosecution.

FIU is charged with ensuring that evidence submitted to the FSL is prioritized, subjected to all appropriate testing, and reported in a timely and efficient manner. FIU acts as a statistical review board of sorts, following FSL's reports through their return to DFS stakeholder agencies, and tracking the effects and the impacts of FSL's testing. FIU performs statistical analyses of these effects and impacts to ensure FSL's resources are being appropriately deployed in support of District residents. FIU completed a total of 4,197 requests from key stakeholder agencies, a slight increase over last fiscal year. This unit provides an invaluable service to the following investigative and criminal justice agencies: the Metropolitan Police Department (MPD), the United States Attorney's Office (USAO), the Office of the Attorney General for the District of Columbia (OAG), the Office of the Inspector General for the District of Columbia (OIG), and a host of others including the United States Park Police, the Naval Criminal Investigative Service, the Federal Protective Service and the Metro Transit Police Department.

In FY19, FIU collaborated with MPD's Investigative Services Branch to determine the investigative impact of various pieces of forensic evidence. Impact, in these cases, is defined by evidence that leads to an arrest, confirmation of an arrestee or provides an investigative lead.

- Automated Fingerprint Identification System (AFIS): LFU ran 1,087 latent fingerprints through the biometric database. 67 percent had an investigative impact.
- Combined DNA Index System (CODIS): The DNA profile search yielded 563 hits or matches. Almost 95 percent had an investigative impact.
- National Integrated Ballistic Information Network (NIBIN): Of the 775 NIBIN hits, more than 97 percent (755 hits) are linking agencies (MPD, USPP and ATF) cases to each other, and the remaining three percent are linking those agencies cases to cross-border jurisdictions.

Additionally, FIU increased its reach and coordinating with new agencies in our cluster. They had a partnership with HSEMA/Fusion Center or NTIC in creating intelligence or awareness bulletins for ghost guns, handguns modified to be fully automatic, and an experience that shows that fully assembled ghost guns are very likely observable by metal detectors.

The Crime Scene Sciences Division (CSS) plays a vital role in the District's response to crime and crime scenes. CSS documents, collects, preserves and stores evidence found at crime scenes within the District. CSS team consists of 78 specially trained individuals, nine of which were hired in FY19. Under the leadership of the division's Director, retired Metropolitan Police Department Commander Christopher LoJacono, in FY19 Crime Scene Sciences Unit (CSSU) personnel handled 9,069 crime scene service requests to include processing 6,541 crime scenes –



nearly 700 more than last year with the same manpower. In FY19, DFS introduced additional Key Performance Indicators to measure efficiency in Crime Scene Sciences evidence handling and transferring to the MPD's Evidence Control Branch. The Central Evidence Unit (CEU), which is responsible for the secure intake, storage, and maintenance of evidence and property submitted to DFS, received 77,253 pieces of evidence in FY19, a 3.9 percent increase over FY18 totals. CEU personnel have also dramatically reduced the amount of evidence stored at DFS. Working closely with their partners at MPD's Evidence Control Branch (ECB), CEU eliminated the backlog of 10,000 items held in DFS secure evidence storage locations.

Under the direction of Dr. Anthony Tran, the Public Health Laboratory (PHL) conducts testing of public health significance, and extends locally important testing provided at the federal level by the Centers for Disease Control and Prevention (CDC). PHL provides clinical diagnostic testing, disease surveillance, emergency response support, applied research, laboratory training, and other essential services through its six units: Accessioning Unit (ASU), Microbiology Unit (MBU), Clinical Chemistry Unit (CTU), Immunology Virology Unit (IVU), Molecular Diagnostic Unit (MDU), and the Forensic Chemistry Unit (FCU).

In FY19, PHL performed 8,518 test procedures – more than 200% more than last year – including influenza subtyping, rabies testing, arbovirus screening, and testing for foodborne outbreaks. PHL is at the forefront of the District's drug crisis. Last year, PHL's FCU assumed full responsibility for processing all federal drug cases in the District from the US Drug Enforcement Agency. FCU is now fully equipped to independently process and test drug evidence in the same facility, greatly increasing DFS's ability to get timely and accurate information out to the public. FCU has continued to closely work with Stakeholder agencies to conduct critical investigations concerning composition and presence of illicit drugs in the District.

FCU also plays a major role in the Mayor's Live Long DC strategic plan to reduce opioid use, misuse, and related deaths as the District's analytical chemistry lab conducting surveillance of all suspected opioids submitted to DFS in order to determine the composition of illicit drugs and to gain an upper hand in detecting emerging drugs. FCU began monitoring synthetic opioids in 2017 at the peak of opioid-related deaths in our community. Our scientists discovered the prevalence of heroin and fentanyl and through this robust surveillance program can isolate the geographic distribution of these drugs. We've found that from May through September of 2019, there was a spike in fentanyl-adulterated heroin, along with a rise in synthetic opioids. This information is shared with DC Health and several other agencies routinely as a part of the Live Long DC Strategy.

The foresight of our forensic chemists also placed DFS ahead of the curve on vaping – the most popular health issue today. PHL began testing vaping products in 2017, two years before lung-injury became associated with e-cigarettes and other vaping materials. Prior to September 2019, our scientists had never seen Vitamin E Acetate in a vape cartridge, and after the first case related to illness – there it was. That month, PHL issued a public statement on vaping products. Two months later, the CDC identified Vitamin E Acetate as a “chemical of concern” related to e-



cigarettes and vaping. Of the six cases submitted to PHL by DC Health, five have contained at least one cartridge with Vitamin E Acetate.

The Lab's formerly-named Biomonitoring and Analytical Chemistry Unit (BACU) expanded its role to include drugs-of-abuse testing in clinical specimens (e.g., Methadone), and has been renamed the Clinical Toxicology Unit (CTU) to more accurately capture the increased mission. Working within the Laboratory Response Network for Chemical Threats, CTU has maintained its capability to provide a clinical testing capability to assess exposure to a wide range of chemical threats, from chemical terrorism (e.g., ricin, nerve agents, and cyanide) to industrial chemical accidents (xylene, toxic metal panels, and blood lead values).

Measles has now reached the highest case number in the U.S. since 1992 with 1,282 reported cases nationwide in 2019. In response to the growing number of cases, PHL brought online DNA based and serological based testing for Measles in 2019 to identify cases in the District. Testing at DFS allows for reporting on each suspected case within 48 hours to DC Health and drastically shortens the turnaround time for results from the previous testing send outs to the Centers for Disease Control and Prevention (CDC), which is typically one week. To date, DFS has received several requests for testing, all results were negative. PHL also validated and brought online Mumps DNA based testing in 2019. The District experienced a Mumps outbreak in 2017.

DFS continues to embrace our role as an independent laboratory while we strengthen our engagement with the community. Community outreach is critical to DFS's mission. This year DFS introduced our vision to be viewed as The People's Lab. Outreach is the vehicle by which we engage with and educate District residents about our work, continue to build trust in DFS's services within our neighborhoods and support a robust S.T.E.M. career pipeline for District residents and those that choose to work in our city. Our focus remains on opening our doors for building tours, conducting educational outreach to students in kindergarten through the 12th grade (K-12), providing mentorship and education to those attending local universities and colleges and creating partnerships that foster support for state-of-the-art science and safer streets. Highlights from DFS Outreach events are as follows:

People and Culture: The scientists, laboratorians, senior leaders, administrative staff and interns that do the important work of this agency are our People. It is our job as an agency to ensure they receive training, education, and the support needed to continue to deliver on our commitment of state-of-the-art science and safer streets. Equally as important is the Culture that we create for our people. We want to build comradery and a support system that creates an enabling environment, and recognize individuals and teams for their work. To that end, FY19 brought with it several People and Culture initiatives including:

- **DFS Awards Ceremony:** This ceremony was designed to acknowledge outstanding contributions from the DFS team. The event was organized by the DFS Awards Committee consisting of volunteer DFS employees. Employees were nominated by their peers and recognized across several categories including: Employee of the Year; Supervisor of the Year; Years of Service Award; Gauntlet Award for Teams; and the Phoenix Award, a one-time recognition of DFS employees, external agencies, and individuals outside DFS for their leadership and creative solutions.



- Purple Thursday: Our employee-wide initiative to wear purple in observance of Domestic Violence Month.
- Celebrate our Veterans: On Veteran’s Day, DFS saluted veterans for their service to our country and for their contributions to forensic science.
- DFS Crab Feast: DFS employees were invited to a four-hour staff appreciation event attended by more than 150 staff members.
 - Health and Wellness Initiatives: In FY19, DFS held a blood drive that led to the collection of 22 units of blood, saving 66 lives. The event also encouraged 13 employees to become first-time donors. Also, in support of health and wellness, our staff participated in the DFS/OCME Emancipation Walk and Peace Rally DC.

DFS Educates & Mentors: DFS engages in a range of programs designed to build awareness of the ongoing and vitally important work of our agency and to promote careers in forensic science and other S.T.E.M. fields. In FY19, we organized, participated in and/or lead the following initiatives:

- K-12 Educational Outreach: DFS scientists and staff participated in several outreach programs designed to help elementary, middle and high school students understand some of the work we perform at the agency. We attended Patterson and Simon Elementary Schools and gave presentations and fingerprinting demonstrations to students. We also conducted outreach and presentations at Excel Academy, Coolidge High School Public Health Academy and Anacostia High School Public Safety Academy.
- Outreach to Local Universities and Colleges: DFS staff gave student and faculty presentations to several universities including Georgetown University, The George Washington University, American University and George Mason University.

Special Projects & Initiatives: Each year DFS supports several special projects and initiatives that are cross cutting in nature and that involve stakeholders from across the District. In FY19, we organized:

- National Forensic Science Week: This local event was held September 16-20, 2019 and included a myriad of activities to include an evening community outreach event that brought together 100 individuals across the city to learn about the power of forensic science and how it is used to keep our streets safe.

In FY19, DFS launched a robust Diversity and Inclusion program. The D&I Project is a multi-phase program established to build upon the successes of the agency’s diverse workforce and build an inclusionary cultural climate to ensure that all levels of DFS employees have access to the tools and support they need to succeed. Our next steps will be to identify and implement tools to enhance, improve, and develop skills such as team building, vicarious trauma counseling, and a stronger communications pipeline.

I could not be more proud of the work DFS has done in FY19, or more confident that in FY20 we will deliver even greater returns for the people of DC. I would like to acknowledge Mayor Bowser and her staff for their continuous and generous support of DFS as we strive to realize her vision of a safer, stronger DC. I would also like to recognize Deputy Mayor Donahue, his staff, and our public safety partner department leaders who continue to support DFS. I am thankful for



the tireless efforts of the women and men who work within the offices and laboratories of DFS, whose stronger science has led to safer streets for all of our friends and neighbors. In closing, I would like to thank you for your leadership and support. We appreciate the opportunity to share our accomplishments and plans for even higher achievement in the coming year, and look forward to continuing to work with the Committee. This concludes my testimony.

