

Houston Forensic Science Center

To: Peter Stout, President/CEO

From: Jackie Moral, Interim Quality Director
Cheron Maxwell, Forensic Biology Technical Leader

cc: Amy Castillo, COO
Carina Haynes, Director of the Crime Scene Unit

Date: January 30, 2023

Re: Management Review 2022

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Purpose and Scope of the Management Review

The purpose of this management review is to ensure the continuing suitability, adequacy and effectiveness of the Houston Forensic Science Center's (HFSC) quality management system and fulfilment of objectives. In addition, this review also helps identify potential opportunities for improvement of our current system. For the purposes of this review, *effective* refers to the degree to which HFSC's objectives are achieved and the extent to which problems are solved. *Quality management system* refers to the policies, procedures, and processes in place that allow us to meet our objectives. The review was conducted by Quality Division staff members S. Galioto, A. Harris, C. Hundl, A. Lankford, C. Martinez, J. Moral, M. Neuman, M. Zamora-Pineda, and E. Ziemak. In addition, the Forensic Biology Technical Leader, Cheron Maxwell, conducted a review of the quality system as applicable to DNA.

This quality system review was conducted December 2022 through January 2023, in accordance with Management review clause 8.9 from the Houston Forensic Science Center (HFSC) Quality Manual, ISO/IEC 17025:2017 standard, and ANAB supplemental document. The Quality Division reviewed HFSC's quality system and technical activities conducted between January 2022 through December 2022. The findings of this review related to the fulfilment of the requirements listed in clause 8.9 are presented in this report.

Overview

The mission statement of HFSC is to receive, analyze, and preserve physical and digital evidence while adhering to the highest standards of quality, objectivity, and ethics.

HFSC's objectives, in addition to supporting the mission statement, are to strive to provide quality analytical examinations and quality forensic investigations, to meet or exceed all standards necessary to maintain accreditation, to monitor and ensure the timely generation of test or investigation reports, and to enhance the laboratory's scientific capabilities.

Accreditation Status

HFSC is comprised of the following accredited technical disciplines:

- Crime Scene Unit
- Forensic Multimedia (Digital Forensics and Audio/Video)
- Firearms
- Forensic Biology
- Latent Prints
- Seized Drugs
- Toxicology

As of this review, all disciplines are accredited by ANAB to the ISO/IEC 17025 standard. The Firearms, Forensic Biology, Seized Drugs and Toxicology sections are also accredited by the Texas Forensic Science Commission (TFSC) in accordance with Texas state law. Forensic science practitioners within these disciplines are also subject to the TFSC licensure requirements.

Fulfilment of Objectives

Overall, the quality system was found to be suitable, adequate, and effective in the fulfilment of HFSC's objectives. Additionally, during the management review, the Quality Division identified and documented

opportunities for improvement within the quality management system (see [Recommendations for Improvement](#) section).

External & Internal Issues relevant to HFSC

[External Issues](#)

Stakeholders Meeting

On August 31, 2022, a stakeholders meeting was held with representation from the Mayor's Office, the Harris County judiciary governmental branch, Harris County District Attorney's Office (HCDAO), Harris County Public Defender's Office, Harris County Defense Association and the Houston Police Department to discuss the need for collaborative strategies for case prioritization due to limited City of Houston resources. As a result of this meeting HFSC made some changes to the external website to reflect turnaround times more accurately and began efforts to add mechanisms to the portal to better capture information related to priority requesting (see below for details) more accurately. Case acceptance policies were created in the Firearms and Forensic Multimedia sections. The Forensic Biology and Latent Print sections have existing case acceptance policies as part of a previous Lean Six Sigma improvement project in each section. HFSC's President/CEO has also begun to meet with judges to help educate them about HFSC's policies and the potential risks associated with rush requests. In addition, HFSC is collaborating with the Harris County District Attorney's Office's Misdemeanor Division to identify backlogged cases that no longer require testing.

The Seized Drugs and Toxicology sections met with the HCDAO Misdemeanor Division on September 14, 2022. The intent of this meeting was to create a working group to establish priority cases for Toxicology and a backlog reduction process for Seized Drugs. For Toxicology priority requests, the Misdemeanor Division agreed that they would prioritize and send a list of cases to the Toxicology section. Recurrent meetings were set up to maintain communication for priority requests. To reduce the Seized Drugs backlog, a new procedure was implemented on January 9, 2023 for closing analysis requests for cases where charges have been dismissed. For these cases, a report is issued notifying the stakeholders that the request has been closed and to submit a new request if analysis is needed at a later date.

Improvements to Priority Case Acceptance via the Portal

The Research and Development (R&D) Division has been working with Catapult on an improvement process for accepting priority cases through HFSC's "Where's My Result" portal. Much of the work was completed in 2022 and implementation of the new process is expected early 2023. The new process requires stakeholders submitting priority requests to answer a series of screening questions. When a request is submitted as a priority, the questions will be reviewed by HFSC prior to acceptance to ensure the requests meet the case priority criteria.

Harris County District Attorney's Office Portal Access

Requests for analysis from HFSC stakeholders have been received via the "Where's My Result" portal since 2019, when HFSC transitioned to JusticeTrax LIMS. However, HCDAO could not utilize the portal because they did not have the necessary technological infrastructure in place. HCDAO has since been able to build out their infrastructure, and HFSC's R&D and IT Divisions worked with the HCDAO to establish access to the portal. HCDAO officially went live in the portal in September 2022.

Property and Evidence Accreditation

In July 2021, the International Association of Property and Evidence (IAPE) announced to HFSC that they were parting ways with the creator and manager of the accreditation standards, SCS Northwest Consulting, in order to pursue creating their own standards. CS/CM has remained accredited by IAPE during this time and the expiration of accreditation has been extended through 2023. IAPE announced on December 19, 2022, that they have completed their new accreditation standards. The anticipated release of the accreditation application is early 2023.

ANAB is also in the process of creating an accreditation scheme for property and evidence control units. A draft version of the Requirements for the Management and Operation of Property and Evidence Control Units (AR 3181) was subjected to a public comment period from September through October 2022. Peter Stout and Erika Ziemak were members of ANAB's working group that was tasked with providing feedback from the perspective of a laboratory that is actively pursuing management of a property and evidence control unit. ANAB is anticipating being able to accept applications for accreditation in mid-2023.

HFSC Potential Property Room Consolidation Project

The property room consolidation project is ongoing as HFSC continues to seek potential facilities. There are two options currently being considered; both offer roughly 30,000 square feet of storage space and will be adequate for the purposes of storing high risk items (guns, currency, and drugs). HFSC continues to work with the respective landlords and City Legal to get to actionable agreements. If HFSC does assume management responsibility of the property room (either in whole or in part), HFSC will pursue an accreditation scheme once one becomes available.

Texas Legislation Updates

In preparation for the 2023 Texas Legislative session, HFSC created a temporary Legislative and Staff Assistant position, the primary focus of which will be to provide legal and administrative assistance to the CEO during this session.

City of Houston's One Safe Houston Crime Reduction Initiative

The Houston Police Department (HPD) held two gun-buyback days in 2022 as part of the City of Houston's One Safe Houston Crime Reduction initiative. The original plan was for all NIBIN eligible firearms to be submitted to HFSC for NIBIN processing. However, the plan would have had a significant impact on HFSC's NIBIN processing turnaround time. HFSC worked with HPD and the ATF to have NIBIN eligible firearms test fired by the ATF and entered into NIBIN by HPD. This allowed HFSC's Firearms section to focus on known crime guns and continue to meet the turnaround time for NIBIN entry required by the ATF Minimum Required Operating Standards.

Revision to HFSC's Certificate of Formation

HFSC's certificate of formation, specifically article XIII, defines the corporation as not being a political subdivision, political authority, or public instrumentality of Texas within the meaning of the constitution of laws. This language caused HFSC to be considered as ineligible for the Paul Coverdell Forensic Science Improvement Grants program, a program that awards roughly \$30 million in grants annually to states and units of local government to help improve forensic science. In the November 2022 Board of Directors meeting, the board voted unanimously to amend the HFSC certificate of formation's article XIII. This amendment will be sent to City Council for consideration and approval before being filed with the Secretary of State.

[Internal Issues](#)

July 2021 Office of Inspector General Investigation CSU Complaint Report

To address the concerns identified in the OIG report, HFSC's Board of Directors created a working group comprised of Director Vicki Huff, Director Vanessa Goodwin, and Vice Chair Mary Lentschke, as well as HFSC's COO, Amy Castillo. The working group supports changes made to the management structure of the Crime Scene Unit, including the appointment of a technical lead and training supervisor. The working group is currently focused on ways to prevent a recurrence of culture that resulted in the initial complaint.

HFSC Restructuring of Duties

The Director of Business Development departed from HFSC in April 2022. The Director of Business Development position was dissolved, and responsibilities were dispersed amongst several staff members. The Health and Safety program was reassigned to the Director of Human Resources. The Security program and responsibility for the property room consolidation project was reassigned to the Chief Financial Officer. Lastly, building facilities and maintenance were reassigned to the Facilities and Logistics Coordinator.

Quality Division Collaborations

Quality/Research Associate Maddisen Neuman continues to collaborate with the Center for Statistics and Applications in Forensic Evidence (CSAFE) as part of a National Institute of Standards and Technology (NIST) grant-funded position. During this review period, a presentation titled "Does Image Editing Improve the Quality of Latent Prints: An Analysis of Image Enhancement Techniques in One Crime Laboratory" was given at the American Academy of Forensic Sciences annual meeting in February. An article by the same name was published in the Science & Justice journal in November. Last review period, HFSC and CSAFE collaborated with latent print units at the Texas Department of Public Safety and the Austin Police Department to compose and administer a survey regarding latent print workflow and perceptions of blind testing. The survey was also emailed to members of the International Association for Identification (IAI). The results of this survey were compiled in an article titled "Perceptions of Blind Proficiency Testing Among Latent Print Examiners" and submitted to the Science & Justice journal for review in August. Another article titled "What Types of Information Can and Do Latent Print Examiners Review? A Survey of Practicing Examiners" was submitted to Forensic Science International Journal in November. This article describes responses from a survey attached to CTS latent print proficiency tests. Lastly, CSAFE is collaborating with HFSC, King County Regional AFIS, and Virginia Department of Forensic Science to compose a manuscript detailing the advantages and disadvantages of different investigative lead workflows. Results from the ongoing collaborations are expected to be submitted for publication during the next review period.

The 2021 Management review reported that the Firearms section and CSAFE had been awarded a grant in 2021 to purchase a 3D imaging system. The release of grant funding was delayed so that the grant could be reviewed by the Institutional Review Board (IRB). The IRB review was completed in November 2022. Funds are expected to be released in early 2023. Research conducted utilizing the imaging system will help address some of the concerns facing the technology and methods currently employed in firearms examinations.

The Forensic Biology section discontinued their Rapid DNA technology collaboration with the University of North Texas in 2022. The collaboration with Dr. Tim Kalafut at Sam Houston University that focused on evaluating STRmix data collected from various laboratories to determine general parameters that

could be used by all laboratories is currently in the final stages of the project. Dr Tim Kalafut presented the findings of the project at the 2022 International Symposium of Human Identification (ISHI) conference.

The Quality Division is currently collaborating with Dr. Tyler Davidson from Sam Houston State University Department of Forensic Science. This project is focused on developing a method for drug residue detection using direct analysis in real time mass spectrometry (DART-MS). For this project, the Quality Division is providing the weighing vessels used in the weighing and preparation of seized drug blind quality control samples. The DART-MS method will be used to directly analyze the drug residues present in these weighing vessels. A comparison of the DART-MS results with the blind quality control identification will also be performed to assess the effectiveness of the method. This research project is a proof-of-concept that could have a direct impact on the analytical schemes implemented within seized drug casework.

HFSC is in possession of historical evidence items in the Forensic Biology section that date back to the 1980s. These items pre-date any electronic tracking system at HFSC and most require research to determine the associated Houston Police Department case number. Inventorying these items will allow for a full accounting of these evidence items, allow HFSC to return them to the HPD Property Room and position HFSC to review all previous evidence inventory requests and confirm whether any newly inventoried evidence would be considered responsive to any previous requests. For this reason, the Quality Division has hosted interns to help compile a list of previous evidence inventory requests with the assistance of the Public Information Officer and Client Services/Case Management. Once compiled, the interns will inventory the Forensic Biology historical items, associate the historical cases to the appropriate HPD case number and research case information as needed.

Suitability of Policies and Procedures

HFSC policies, sectional procedures and other technical documents are controlled documents. Technical documents are required to be reviewed at a minimum annually and are maintained in Qualtrax. These documents can be viewed by the public through an eDiscovery link on HFSC's website (<http://www.hfscdiscovery.org/>). Corporate policies and procedures are accessed through the HFSC intranet or directly through Qualtrax.

This past year, all technical procedures were reviewed as part of the internal audits. Overall, the procedures were determined to be suitable to the mission of HFSC and revisions were made as needed. In this review period there were two Forensic Multimedia SOPs that surpassed a year without review. Please refer to Quality report 2022-IA-01 for additional information.

HFSC introduced two new policies as well. The first policy was introduced as a result of an LSS Kaizen with the Information Technology Department. The IT General Policy was created to provide HFSC staff members important information related to the ticketing system that IT uses including the prioritization of tickets, how to communicate about tickets, and how the IT Department handles major issues outside of normal business hours. The second document was created as part of HFSC's actions taken in response to TFSO Disclosure 22.18 (commonly referred to as "the Colone report") and is titled Notification to Exiting Staff Regarding Future Testimony. The document summarizes staff's legal obligations to the criminal justice system even after they have departed from employment at HFSC, advises them on how to access case records and advises them to contact HFSC if they have concerns about their viability as an expert witness at any point in the future. The document was published on October 25, 2022, and all staff

employed at that time were required to document their review of the notification. The document was also incorporated into the Human Resources Division's process for exiting staff and is provided to all new employees for a documented review.

OSAC Implementation

In continuance with the voluntary adoption of the Organization of Scientific Area Committees (OSAC) registry standards, the following eight additional standards have been successfully adopted and incorporated into HFSC's quality system:

Forensic Biology

- ANSI/ASB Standard 018, Standard for Validation of Probabilistic Genotyping Systems
- ANSI/ASB Standard 023, Standard for Training in Forensic DNA Isolation and Purification Methods
- ANSI/ASB Standard 110, Standards for Training in Forensic Serological Methods
- ANSI/ASB Standard 115, Standard for Training in Forensic Short Tandem Repeat Typing Methods using Amplification, DNA Separation, and Allele Detection
- ANSI/ASB Standard 116, Standard for Training in Forensic DNA Quantification Methods

Firearms

- ANSI/ASB Best Practice Recommendation 068, Safe Handling of Firearms and Ammunition
- ANSI/ASB Standard 093, Standard Test Method for the Forensic Examination and Testing of Firearms

Toxicology

- ANSI/ASB Standard 053, Standard for Report Content in Forensic Toxicology

HFSC's OSAC Implementation program was revised in October 2022 to no longer require compliance to any standard published on the OSAC Registry to be achieved within one year of the date of publication on the registry. The implementation program now requires sections to perform a brief review of each standard within one month of publication and determine an appropriate timeline for the completion of a gap analysis. The target deadline for completion of the gap analysis is seven months from the date of publication; specific deadlines will be determined by considering factors such as the number of standards published within each discipline and the complexity of the standard. This revision will help ensure implementation is both effective and sustainable.

A cooperative agreement between NIST and AAFS was established in an effort to promote the implementation of OSAC Registry standards. The intent of this agreement is to develop tools and resources that streamline the implementation process for these standards. Erika Ziemak was appointed to a task group that designed audit checklists to be used by laboratories to document gap assessments, coordinate implementation and document compliance. The checklists were also designed to be used during external assessments to allow for independent conformity assessment by an accrediting body.

Risks

Impartiality

Two risks to impartiality were identified, both involved conflicts of interest related to secondary employment. These risks were personnel-related and addressed by the Human Resources Division.

Supply Chain

HFSC's Logistics and Equipment (L&E) Division continues to meet challenges related to global supply chain problems. Alternate vendors were evaluated and approved to ensure adequate supplies are available for sections. No work stoppages have occurred due to continuing supply chain issues related to the Covid-19 pandemic.

HFSC has helped other laboratories experiencing supply chain issues by lending needed supplies. Blood alcohol kits were sent to a Kentucky state lab and blood tubes to the Texas Department of Public Safety.

HFSC encountered an issue with the company that supplies blood tubes used by the Toxicology section. The tubes are manufactured by BD, who issued an advisory notice in September 2022 stating that their tube stoppers outgas a chemical, isobutylene, that may affect the quantification of methanol. As part of this advisory, BD stated that they cannot alter their production process and instead advocated for laboratories to adjust their methods to avoid potential interference. The Toxicology section did an extensive query of their reported cases and noted that there have been no methanol positive cases since 2013. The only methanol positive cases were proficiency tests and blind quality control samples that showed that the methods used in the section can detect methanol and differentiate it from isobutylene. At this time, the Toxicology section is running several experiments to further demonstrate that they are able to differentiate isobutylene from methanol but, more importantly, to conclusively demonstrate that this component does not interfere with ethanol. L&E is working with Toxicology to identify alternate suppliers. If an alternate supplier is identified HFSC's Toxicology section will evaluate tubes to determine if they meet their intended use. Currently, BD blood tubes are backordered.

HFSC has also experienced issues with a delivery company. HFSC shipped rulers from the Firearms section and Crime Scene Unit to an external vendor for calibration, but when the vendor received the container, it was empty. The vendor returned the empty container to HFSC without notification that something was amiss. HFSC purchased new rulers and found an alternate calibration vendor. HFSC has a contract with the delivery company. Although L&E did not file a complaint with the vendor in 2022, it is their intent to do so in 2023.

Additional issues have occurred with the same delivery service provider for goods received by HFSC from an external vendor. Several shipments have been received damaged for which HFSC refused delivery. The vendor communicated to L&E that a complaint was launched with the delivery service provider.

Reporting of Results

Post-mortem Case Review Audits

HFSC audits the effectiveness of the review process by conducting post-mortem reviews for all technical sections and CS/CM. One post-mortem review audit was completed in 2022 (2022-1 PM Audit), and a second will be completed in January 2023 (2022-2 PM Audit). The scope of 2022-1 PM Audit was February to April 2022, and the scope for 2022-2 PM Audit was September to October 2022. HFSC's defect rate for 2022-1 PM Audit was 11%. Results of post-mortem audits can be accessed by management on HFSC's Review Dashboard. The dashboard displays company-wide data as well as section specific post-mortem review data.

Disclaimer Footnote

Per ISO/IEC 17025 clause 7.8.2.2, laboratory reports must clearly identify information provided by the stakeholder, have a disclaimer when information supplied can affect the validity of results, and state that the results apply to the evidence items as received when the laboratory has not been responsible

for its collection. On March 15, 2022, the Quality Division, in conjunction with all technical sections, added an applicable disclaimer footnote and ensured there was a system to differentiate information (e.g., evidence descriptions provided by the stakeholder) in all laboratory reports to better align with this accreditation requirement.

Preventive Actions

A preventive action is a tool that HFSC uses to mitigate identified risks and to document improvements in laboratory processes. To reduce undesired impacts and potential failures it is important to be preventive rather than reactive by actively looking at processes and identifying areas that may need improvements. To encourage a preventive culture, one of the performance goals for technical sections required each section to report at least one preventive action during the latest review period (October 1, 2021 to September 30, 2022). For this performance review period (October 1, 2022 to September 30, 2023) six sections have a goal that specifically requires at least one preventive action.

Preventive actions are tracked by the Quality Division using Qualtrax. During this review timeframe, 18 preventive actions were documented. Refer to the table below for a breakdown of preventive actions by section for 2022.

Section	Number of Preventive Actions
Client Services & Case Management	7
Firearms	2
Forensic Biology	3
Forensic Multimedia	3
Latent Prints	1
Seized Drugs	1
Toxicology	1

Preventive action reports are available for review through HFSC’s public eDiscovery website.

Results of Risk Assessments on Laboratory Activities

Biology BQC risk assessment

In collaboration with an LSS Project Engineer, the Quality Division conducted a risk assessment on the Forensic Biology section’s blind quality control program in February 2022. The Quality Division identified several instances where there were inconsistencies in the completed blind cases submitted to the Forensic Biology section that needed investigation by the section to determine if the issues were systemic and/or if casework was affected. There were occasions where the time it took to investigate these inconsistencies was prolonged because of competing priorities and limited resources within the section. The Quality Division identified this to be a risk not only to the blind quality control program but to the technical aspects of the section. The section is currently working on addressing any outstanding inconsistencies and establishing a consistent process for evaluating inconsistencies.

Firearms Section NIBIN Only Review Risk Assessment

The Firearms Manager conducted a risk assessment of proposed improvements to the NIBIN Notification review process. Two changes to the process were proposed: moving from two reviews to one and expanding the pool of reviewers to include NIBIN technicians. The changes were proposed to help improve efficiency within the Firearms section. Improvements to the NIBIN review process were considered because of the large number of NIBIN requests (over 5,000 annually), the largely non-technical nature of NIBIN Notifications, and the low number of defects found during the review process.

The assessment looked at technical and administrative review data on the Review Dashboard from 2021 to determine if there was a risk to moving to only one review. Based on the data, moving to one review would result in a 0.66% increase in the release of NIBIN notifications containing defects, with less than 0.1% containing a technical defect. Details of the data review can be found in the memo issued by the Firearms Manager on April 4, 2022, titled: "Risk assessment in reducing NIBIN Only review from two reviews to one review".

The memo also documented recent authorization of NIBIN technicians to perform reviews. Previously, only firearms examiners were authorized to review NIBIN Notifications. A review of data in the Review Dashboard did not indicate a risk to having NIBIN technicians perform reviews. The memo also included plans to evaluate 2022 post-mortem review data to determine if there are any increased risks associated with the changes made to the NIBIN review process.

IT Kaizen

HFSC performed a LSS Kaizen with the Information Technology Division between May and June 2022 with regular follow up meetings to monitor deliverables. The Kaizen was initiated due to various inefficiencies in communication between the IT Division and staff members at HFSC in addition to a risk in the lack of redundancy between IT Division members that perform various job tasks. To address identified risks and improve communication, the IT Division created the Information Technology General Policy as a base of information to notify HFSC staff members how IT prioritizes tickets and how to communicate with IT regarding tickets. In addition to the IT policy, the IT Division created and uploaded into Qualtrax a Reference Chart for hiring managers to use when requesting IT equipment for new employees, updated the process map for the Porter Lee, EMS, and RMS account creation process, and put together five Microsoft Stream "how to" videos on the most important topics that affect HFSC staff members regularly. The deliverables of the Kaizen were announced in a weekly message from Peter Stout on September 14, 2022 and became effective in early October 2022. A Qualtrax quiz over the contents of the videos and the IT policy was assigned to all staff. As a result of the IT Kaizen, HFSC identified areas of improvement that did not fit in the Kaizen method of process improvement and as such a full LSS project was initiated for the IT Division in December of 2022 to continue into 2023.

ANAB Assessment Risk Assessment

HFSC underwent a full reaccreditation assessment in August 2022 and while the assessment was ultimately successful, the Quality Division performed a risk assessment on the external assessment process to help ensure an effective and efficient assessment process in the future. Several risks were identified; the more significant risks included a need for a larger assessment team, the need for a longer assessment and the need to educate the assessment team on HFSC's organizational structure prior to the assessment. This education should minimally include explanations about and links to the meetings of the HFSC Board of Directors and the Texas Forensic Science Commission.

Performance Monitoring Risk Assessment

The Quality Division performed a risk assessment on HFSC's performance monitoring program as a means of establishing the tentative program for the 2023 calendar year. The risk assessment consisted of a review of each discipline's scope of accreditation to ensure that a representative sample of the components/parameters and equipment/technologies had an associated performance monitoring activity. For any components/parameters or equipment/technologies that did not have an associated performance monitoring activity, a risk assessment was performed, and a monitoring plan was established if warranted. Some key takeaways from the risk assessment were a weight measurement

internal proficiency test plan in the Seized Drugs section and the incorporation of observation-based monitoring in both the Forensic Multimedia section and the Crime Scene Unit.

2021 Power Outage Risk Assessment

After the December 2021 power outage, a risk assessment was performed by the executive leadership team to mitigate risks identified during the outage. The risk assessment was finalized in January 2023. While several risks were identified, some of the key takeaways included the addition of standalone air conditioning units in rooms 1818, 1819 and the 13th floor server room to help dissipate the heat that generates in those rooms when the HVAC system is down as well as monitoring the ambient temperature of those rooms using the DicksonOne temperature monitoring system so that notifications are received when the temperature fluctuates due to HVAC issues. Also, because the generator did not function as expected during the power outage, HFSC plans to perform an annual generator building load test that includes transferring electrical power from the building's power source to the backup generator for a short period of time.

Manager and Supervisor Reports

HFSC compiles manager and supervisor information that is shared monthly with the HFSC Board of Directors. This information includes, but is not limited to:

- Case metrics, including requests received, requests completed, turnaround times, and backlogs per discipline
- Testimony metrics, including the number of courtroom testimonies that have been monitored and the number of completed transcript reviews
- Audits and assessments
- Incidents/corrective actions/preventive actions
- Blind quality control and proficiency testing programs
- Budget

The operations metrics and quality information are further discussed at bi-monthly company-wide meetings that are open to all HFSC staff and recorded for future viewing. Details pertaining to reports shared with or presented to the Board of Directors can be viewed by clicking [Meeting Archives – Houston Forensics Science Center \(hfscctx.gov\)](#) or viewed real time via live stream. Metrics are also posted on HFSC's public website and updated monthly.

Internal Audits

The Quality Division was responsible for leading internal audits of all technical sections. The dates of each audit are shown in the calendar below.

The internal audits for each section were planned by the corresponding Quality Specialist section lead. This planning included a review of previous audit findings, the creation of audit task lists denoting the different audit areas such as records and instrumentation, meetings with audit team members, and the delegation of audit tasks. The internal audit teams included participants from technical and non-technical sections and were led by the corresponding Quality Specialist section lead. In instances when technical staff members were from the same section that was being audited, these participants acted as technical experts for the other team members or conducted only case file reviews (i.e., were not considered internal auditors) and were precluded from auditing their own work product. All internal auditors were either trained assessors, certified quality auditors, or received internal audit training provided by the Quality Division prior to participating in the audit process.

Internal audits verified compliance to ISO/IEC 17025:2017 standard, ANAB supplemental requirements, 2020 FBI Quality Assurance Standards (QAS) for DNA Testing Labs, HFSC Quality Manual, and current section policies and procedures. A total of 14 nonconformances were noted during these audits.



2022 HFSC Quality Division Calendar

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In addition, the Quality Division was also responsible for leading and completing the safety and security audit that occurred from October 24 through November 2, 2022. This audit verified compliance with the HFSC Security Manual, HFSC Health and Safety Manual, HFSC Procedure Guide 500 Jefferson 18th Floor

Laboratory Systems, HFSC Procedure Guide 500 Jefferson 18th Floor Generator Process and the Business Continuity Plan. There was a total of three nonconformances noted in the safety and security audit.

2022 Audit Nonconformances Pending Closure

There are six total nonconformances from both the safety and security and internal audits that are pending closure as of January 1, 2023.

- The Crime Scene Unit currently has one nonconformance pending closure:
 - One incident (2022-IA-11)
- The Forensic Multimedia section currently has two nonconformances pending closure:
 - Two incidents (2022-IA-05 and 2022-IA-06)
- There are currently three nonconformances pending closure related to safety and security:
 - Two safety incidents (2022-IA-12 and 2022-IA-13)
 - One security incident (2022-IA-14)

External Assessments

ANAB conducted a full reassessment on August 8 through 11, 2022. The reassessment verified compliance to ISO/IEC 17025:2017 standard, ANAB supplemental requirements, 2020 FBI Quality Assurance Standards (QAS) for DNA Testing Labs, HFSC Quality Manual, and current section policies and procedures. A total of five nonconformances were noted during this assessment. On October 26, 2022, ANAB approved continuation of HFSC’s accreditation based on the results of the reassessment and HFSC’s timely resolution of the five nonconformities. The only change to HFSC’s scope of accreditation was the removal of “airguns” from the “function evaluation” component/parameter of the Firearms section scope.

Nonconformances: Incidents and Corrective Actions

Incidents and corrective actions are tracked by the Quality Division using Qualtrax. During the time frame covered within this review a total of 88 nonconformances were documented by the Division.

Section	Incidents	Corrective Actions	Total Number of Nonconformances
Forensic Biology/DNA	26	7	33
Client Services & Case Management	1	3	4
Crime Scene	12	4	16
Firearms	5	1	6
Latent Prints	4	1	5
Forensic Multimedia	4	0	4
Quality	5	1	6
Seized Drugs	3	1	4
Toxicology	7	3	10

Completed incident and corrective action reports are added to LIMS as case reports and emailed to the stakeholders when the reports are associated with specific cases. Completed incident, corrective action, follow-up, and preventive action reports are also available for review through HFSC’s public eDiscovery website.

Turnaround Time

The HFSC nonconformance turnaround time (TAT) goal between notification to the Quality Division and close out is 30-working days for incidents and 50-working days for corrective actions. The overall TAT for closed out incidents and corrective actions for this management review period and the last three years are depicted in the following table.

Year	Number of closed incidents	Incidents average TAT	Number of closed corrective actions	Corrective actions average TAT
2019	76	45	38	94
2020	98	107	26	157
2021	59	116	25	111
2022	40	82	14	63

Note: The TAT and number of nonconformances, unless otherwise specified, were calculated from closed out nonconformances using network days at the time this review was conducted. The data from previous years (such as average TAT) may vary from previously issued management review reports because the metrics are continuously updated as nonconformances are closed.

The Quality Division tried to reduce the TAT for 2022 by changing the internal audit structure. The internal audit teams, rather than consisting of only the Quality Division, were changed to include technical and non-technical volunteers. In addition, not all members of the Quality Division participated in each audit round but rather rotated their participation. The intent of this re-structuring was to give more flexibility and time for the Quality Division to focus on other pending quality related activities such as finalizing nonconformances. Although there was a reduction in TAT for this management review period, the Quality Division was still not able to achieve the TAT goal.

In addition to incidents and corrective actions, notifications submitted to the Quality Division that have been determined to have no technical impact are categorized and closed as a “no action needed” workflow. The Quality Division is still required to research and investigate if these types of notifications have a technical effect before categorizing them as “no action needed”. For 2022, there was a total of 113 “no action needed” workflows.

The Quality Division acknowledges that while it is their full intention to meet the TAT goals, process changes and other actions taken as part of resolving nonconformances and to prevent recurrences are often delayed due to the competing priorities and limited resources of the technical sections.

At the time of this review, a total of 34 open nonconformances for 2022 were in the process of being closed out and their turnaround times were not included in table above; refer to the table below for a breakdown of these nonconformances by section for the 2022 review period. One nonconformance from 2020 and four nonconformances from 2021 are still pending closure at the time of this review.

Section	Number of Open Nonconformances
Forensic Biology	12
Crime Scene	8
Seized Drugs	4
Toxicology	3
Forensic Multimedia	2
Quality	3
Latent Prints	1
Client Services & Case Management	1

Note: For the purposes of the management review, nonconformances that do not involve the technical sections, such as safety, security, and information technology, were grouped and categorized as “Quality”.

The following table shows the total number of nonconformances and the overall TAT for closed out nonconformances by section over the last four years.

Section	2019		2020		2021		2022	
	Number of nonconformances	TAT	Number of nonconformances	TAT	Number of nonconformances	TAT	Number of nonconformances	TAT
Forensic Biology	34	90	46	209	20	167	21	87
Crime Scene	23	63	17	102	21	101	8	96
Firearms	16	37	11	57	9	150	6	72
CSCM	5	27	9	39	10	35	3	43
Latent Prints	18	60	15	61	6	103	4	70
Forensic Multimedia	3	32	5	56	7	183	2	70
Quality	2	99	9	78	3	81	3	38
Seized Drugs	7	20	4	29	6	35	0	0
Toxicology	6	33	8	32	2	43	7	65

Note: The TAT for 2020, 2021, and 2022 may change in future reports as open nonconformances are closed out.

Source of Nonconformance Review

Corrective actions and incidents tracked by the Quality Division are categorized by type of nonconformance.

The top five sources for “types of nonconformance” are depicted in Figure 1. The most common nonconformance category type for this management review period was “Failure to Follow SOP” followed by “Failure to Follow Quality Manual”. Please refer to [Recommendations for Improvement](#) section to address these types of nonconformances.

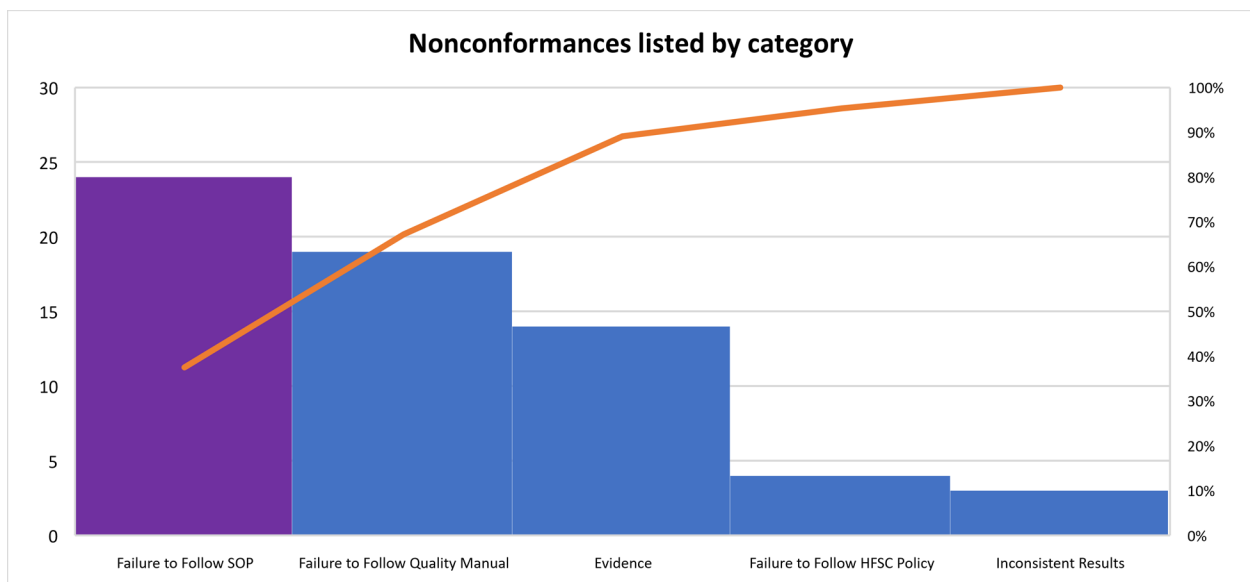


Figure 1. Top five sources for nonconformances in 2022 management review period.

Assurance of the Validity of Results

Proficiency Testing

Analysts completed proficiency tests in accordance with accreditation standards, QAS requirements, and HFSC policies. Tests were obtained from ISO/IEC 17043 accredited vendors Collaborative Testing Services, Inc. (CTS), College of American Pathologists (CAP), the International Society of Forensic Computer Examiners (ISFCE) and Ron Smith and Associates (RS&A). The following non-accredited vendor was also used: Resolution Video (ResVid). ANAB previously approved the use of the Resolution Video proficiency tests for Forensic Multimedia. The Toxicology section in preparation for their application to The American Board of Forensic Toxicology, Inc. (ABFT) accreditation program, transitioned in 2022 from CTS to CAP as their proficiency test provider.

All forensic practitioners completed the required number of proficiency tests during 2022. At the time of this review, all the results received were deemed satisfactory. Some tests are still pending review by the PT provider and HFSC has not yet received these results. The table below shows the total number of external and internal proficiency tests distributed for each discipline between January 1 and December 31, 2022.

Section	External Proficiency Tests	Internal Proficiency Tests
Crime Scene	9	15
Firearms	8	6
Forensic Biology	47	0
Forensic Multimedia	6	0
Latent Prints	5	11
Seized Drugs	11	0
Toxicology	36	0

HFSC's proficiency testing program was involved in four nonconformances, two corrective actions and two incidents. The two corrective actions were associated to the Toxicology section. Both corrective actions involved the reporting of quantitative results that were not consistent with the PT provider's consensus report. For more information, refer to Quality Reports 2022-017 and 2022-042. The two incidents were associated to the Forensic Biology section. In the first incident a Forensic Biology participant inadvertently omitted a required negative control from a quantification plate. The related Quality report, 2022-012, remains open at the time of this review. The second involved a Forensic Biology participant that performed a re-quantification without making the requested dilution in a proficiency test sample; this sample was also amplified on two different dates resulting in one unnecessary amplification. Refer to Quality report 2022-023 for additional information.

Blind Quality Control Testing

The blind quality control (QC) program was initiated in 2015 as a means to supplement proficiency tests, monitor the entire quality system, and provide opportunities for process improvements. Six of HFSC's seven technical disciplines participate in the blind QC program with CSU being the exception.

The Quality Division targets a submission rate of approximately 5% of casework output from the previous year; however, several additional factors (e.g., resources, staffing, and ensuring the cases remain blind) are also considered when determining the monthly submission goals. Blind QC submission goals for 2022 compared to the number of cases submitted to and completed by each section is shown below in Figure 2.

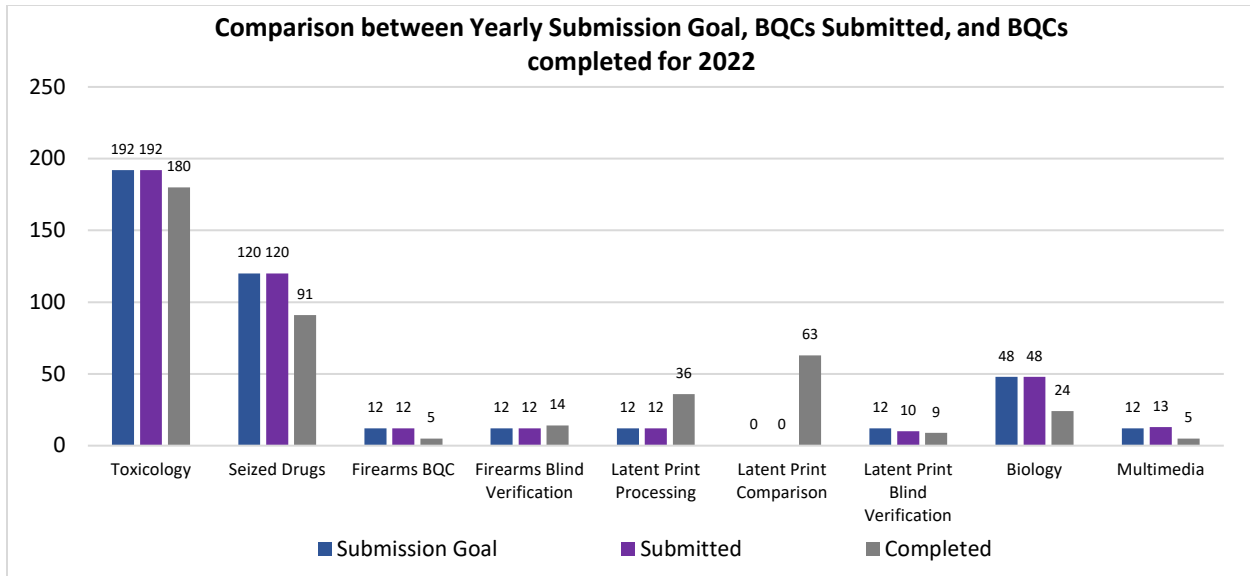


Figure 2. Comparison between Yearly Submission Goal, BQCs Submitted and BQCs Completed for 2022.

To date, no unsatisfactory results have been reported in a blind QC case. This information shows that our policies and procedures are reliable for the work being done and that analysts are competent and proficient in their work. The Quality Division prepares a report on a quarterly basis to notify the participating sections of the importance of blind QCs, the number of blind QCs each staff member has completed, results, instruments used and other information that may be used to track trends within the section. The quarterly reports are available in Qualtrax and eDiscovery.

During this review period, one Seized Drugs blind QC was reported as “no controlled substance identified”, but the sample was a pharmaceutical capsule that contained benzonatate. Benzonatate is a prescription drug that is not listed as a controlled substance under state or federal law; however, illegal possession of the prescription drug can be prosecuted under misdemeanor charges. While the analyst correctly reported “no controlled substance”, the sample addressed known limitations within the section’s analytical process and ability to identify dangerous drugs. A memo detailing the results of a quality investigation is available in Qualtrax and eDiscovery.

Some obstacles associated with the blind QC program were addressed during the review period. These include:

- Forensic Multimedia
 - In February, the submission of audio/video specific blind QCs was halted. This change was due, in part, to the departure of multiple Forensic Multimedia analysts who were authorized to perform audio/video analysis, limitations in the blind quality control request type options, resources, and the feasibility of creating blind cases that mimic casework. Focus shifted solely to digital blind cases for the Forensic Multimedia section. One audio/video blind QC was submitted in January prior to this change. This one case in addition to the 12 digital specific blind QCs account for the 13 cases submitted to Forensic Multimedia.
- Latent Prints
 - Due to workflow changes made as a result of the Lean Six Sigma project that concluded in November 2021, the latent print comparison and blind verification blind QC programs were paused in order to redesign the programs to be more compatible with the

workflow changes. Unfortunately, the new workflow made it difficult to keep latent print comparison blind QCs blinded throughout the entire analysis of the case. After much deliberation, the decision was made to focus on a black box study with the intent of determining error rates in the section. This black box study is being designed in collaboration with a CSAFE researcher.

- Similarly, the process for blind verifications in latent prints was hindered by the new workflow. The Quality Division worked with section management to devise a new plan to re-incorporate blind verifications. A new process was implemented in May to identify cases, assign, and work blind verifications. As a result, the goal of one blind verification a month was not met; however, the section was able to assign 10 blind verifications in the remainder of 2022.

The following issues either have not been addressed since the 2021 management review or arose during the review period:

- Forensic Multimedia
 - Due to the section's backlog and the low priority of the blind QC cases, the turnaround time for multimedia blinds is currently 17 months. Previously, the supervisor would perform a data dump on the mobile device prior to submitting the item as a blind QC. However, within the potential 17+ months that it takes for a blind QC to be completed, there are typically several version updates of the forensic software that the section uses to perform the data extractions. The differences in the software versions make it difficult to compare the preliminary data dump to the analyst results because they produce different information (i.e., the newer versions can extract more data, typically). Because of this, the data dump will be performed after the analyst completes the case in order to have a more accurate comparison of the information extracted.
- Forensic Biology
 - Beginning in early 2023, the contract employee that reviews the completed biology blinds will no longer be providing services to HFSC. And with the departure of the Quality Director, Erika Ziemak, there is currently no one in place to review the results to determine satisfaction. The Quality Division is working in identifying a new individual to perform this duty.
 - Three blind QC DNA profiles were inadvertently uploaded to NDIS. The intent was for the samples to be entered into HFSC's local database and not into HFSC's elimination database. By omitting the samples from the elimination database, the samples would not be discovered as blind QC samples by the assigned DNA analyst searching the database as required by the interpretation and reporting SOP. The profiles were designed to be identified as blind QC samples by the CODIS Unit prior to the upload of the profiles to CODIS. However, the CODIS Unit was never made aware of the new samples by the Quality Division, so the samples were not entered into HFSC's local database as intended. Actions were put into place to prevent recurrence and to ensure the profiles are provided to the HFSC CODIS unit prior to use in blind QC cases. More detail can be found in corrective action report 2022-036, which has been uploaded to Qualtrax and eDiscovery.

Notable achievements related to the blind QC program during this management review include:

- "Does Image Editing Improve the Quality of Latent Prints: An Analysis of Image Enhancement Techniques in One Crime Laboratory" was presented by Maddisen Neuman at AAFS in February.

- “Blind Testing in Firearms: Preliminary Results from a Blind Quality Control Program” was presented by Maddisen Neuman at AAFS in February.
- A manuscript titled “Blind Testing in Firearms: Preliminary Results from a Blind Quality Control Program”, by Maddisen Neuman, Callan Hundl, Aimee Grimaldi, Donna Eudaley, Darrell Stein, and Peter Stout was published in the Journal of Forensic Sciences in March.
- “Preliminary Results from a Blind Testing Program in Firearms Examination” was presented by Maddisen Neuman at AFTE in May.
- “NIST-AAFS Cooperative Agreement” was presented by Erika Ziemak at the AFQAM brunch in May.
- A CSAFE Webinar “Blind Testing in Firearms Examination: Preliminary Results, Benefits, Limitations, and Future Directions” was presented by Maddisen Neuman in June.
- A live demonstration of the NIST-AAFS checklists to assist in implementation of and auditing to standards published on the OSAC Registry was presented by Erika Ziemak at AFQAM in October.
- A manuscript titled “Does Image Editing Improve the Quality of Latent Prints? An Analysis of Image-editing Techniques in One Crime Laboratory”, by Maddisen Neuman and CSAFE collaborators Brett Gardner, Sharon Kelley, Anni Hong, and Robin Mejia, was published in Science & Justice in November.

Courtroom Testimony Review

Technical staff testimony is monitored at least once a year per accreditation requirements. If a forensic practitioner does not testify within a given year, a non-testifying memo is issued by the Quality Division to document this. Sixty-nine forensic practitioners testified between January 1 and December 31, 2022; sixty-seven were monitored in-person or by transcript, and two were not monitored. The transcript of one unmonitored testimony was proactively requested but not received within the calendar year. The other unmonitored testimony was not discovered until January 2023 as the Quality Division was reviewing all 2022 testimony data with section management. Figure 3 shows the number of forensic practitioners that have testified in the last four calendar years listed by section.

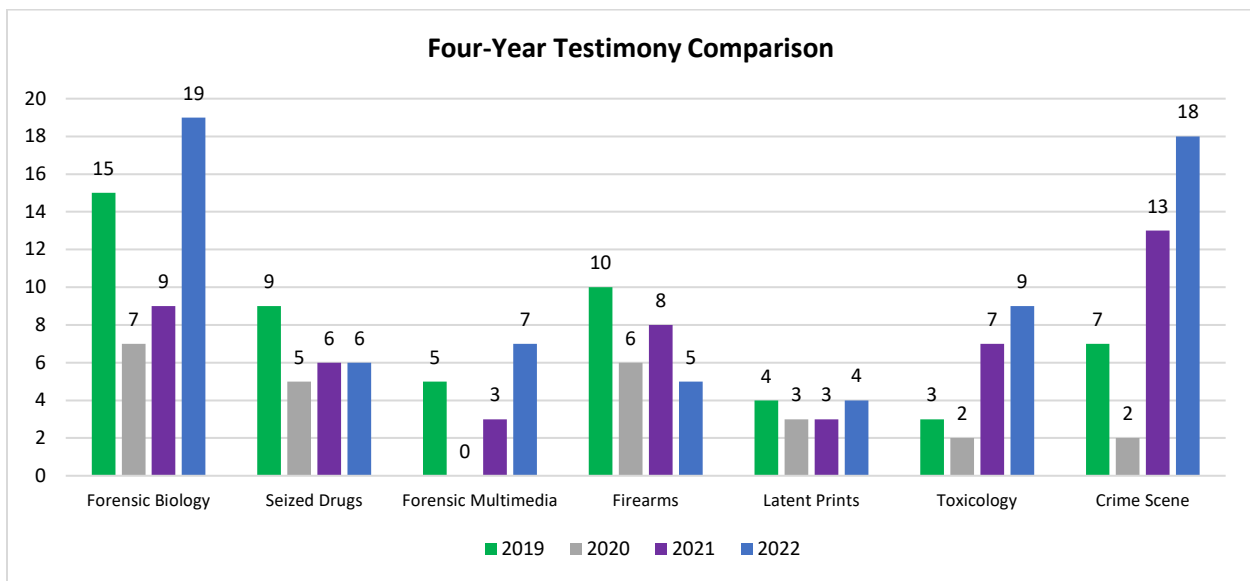


Figure 3. Four-Year Testimony Comparison.

As part of HFSC’s actions taken in response to TFSC Disclosure 22.18 (commonly referred to as “the Colone report”) the Testimony Tracking and Monitoring Notification workflow was revised to include a

question of whether the analyst reviewed the associated case record prior to going to court to testify and whether the analyst took the case record to court for the purposes of testimony. In addition, since August staff has been notifying the Quality Division regarding upcoming testimonies so that a member of the Quality Division can observe testimony for all sections.

Transcript Review Project

HFSC started the transcript review project in 2018 with the objective to identify areas of improvement and provide staff with tools and training to achieve improvement. The transcripts are requested from the Harris County District Attorney’s Office (HCDAO), the Harris County Public Defender’s Office (HCPDO) and/or court reporters. The review process is completed by a committee composed of a technical staff member, Quality Division member and lay person. To reduce bias, the transcripts are redacted before being provided to the committee for review.

During this management review period 14 transcripts were reviewed. Figure 4 shows the number of transcripts reviewed per section during the last four years.

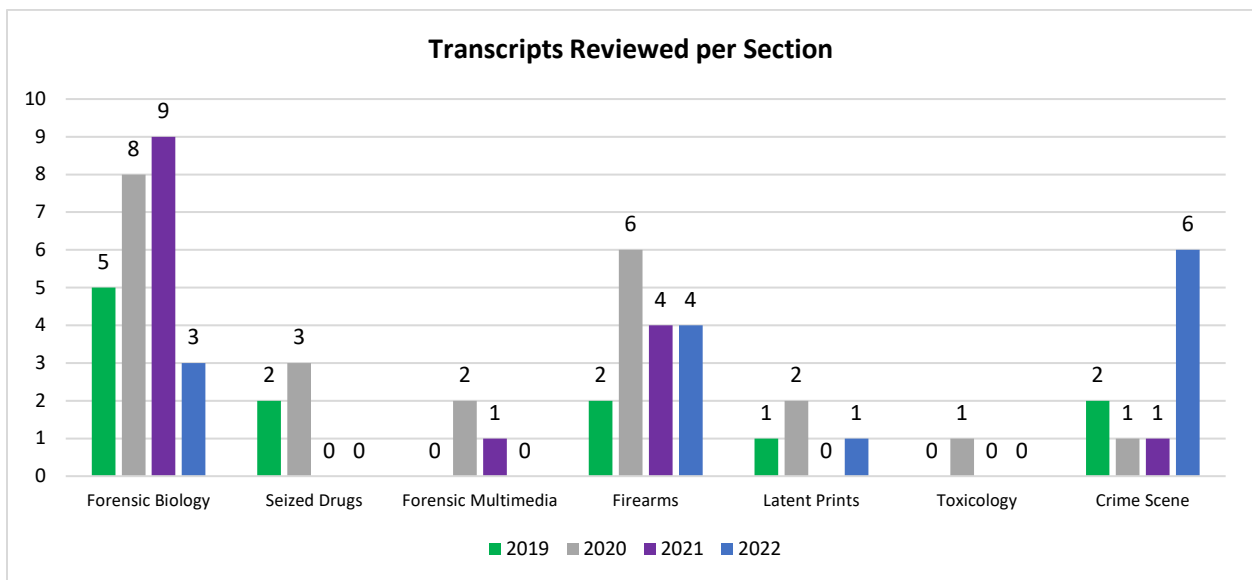


Figure 4. Transcripts Reviewed per Section Comparison.

The transcript review project still faces some challenges. When cases are appealed, the transcripts can be received from the HCDAO or HCPDO at no cost. The number of cases being appealed fluctuates, and HFSC saw a little increase in the number of transcripts received from these sources during this review period. However, HFSC was not able to request the usual number of transcripts since the courts are still catching up on backlogged cases after the pandemic. Four of the fourteen transcripts reviewed during 2022 were from transcripts that had been received as part of a previous year’s request but had not yet been reviewed. Figure 5 shows the number of transcripts requested vs. transcripts received for the HCDAO and/or HCPDO during the last five years.

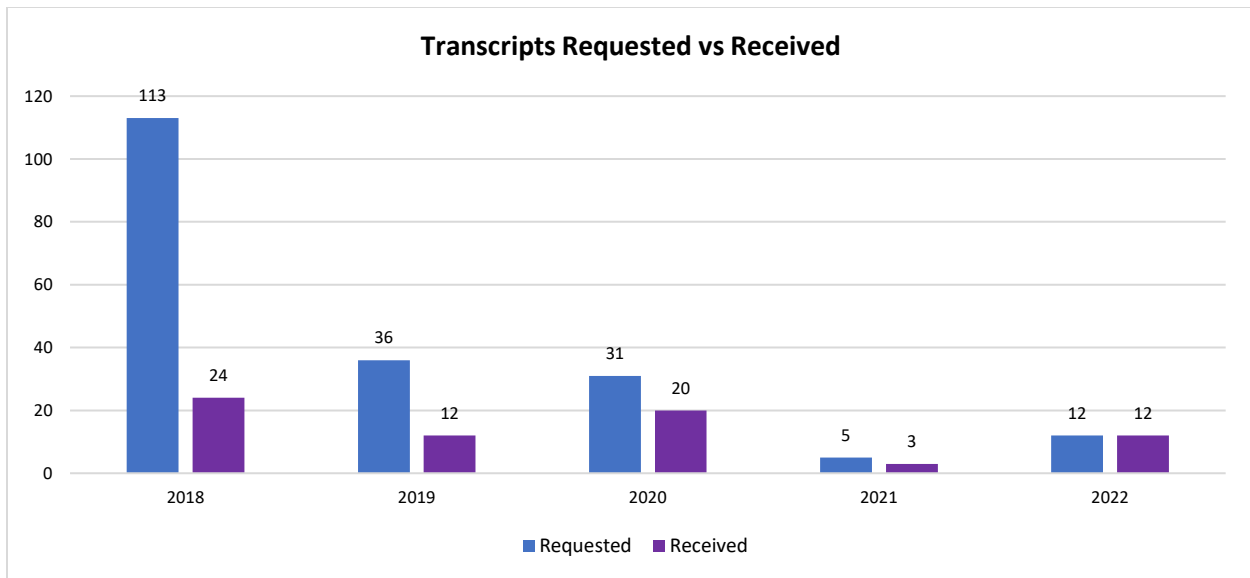


Figure 5. Transcripts Requested versus Received.

During this management review period, the Quality Division was assigned a budget with which to request transcripts directly from court reporters, thus circumnavigating the need for a case to be in the appeals process for the transcript to be available and to allow the Quality Division to intentionally request transcripts for disciplines that have historically not been well represented in the transcript review project. The transcript review project lead sent out a communication to all Harris County court reporters making them aware of the transcript review project and HFSC’s intention to request transcripts for cost. After that initial communication, a total of twelve transcripts were requested within the calendar year, but as of the date of this management review, only two have been received.

During the transcript review of a Forensic Biology analyst, the committee identified concerns regarding the analyst’s explanation of statistics and responses to some of the questions asked by the prosecutor regarding the same. As part of HFSC’s corrective actions taken the analyst has undergone retraining to include statistics and testimony. The related corrective action report 2021-072 remains open at the time of this review.

Consultation and Conflict Resolution

During this review period, the Latent Prints section had 216 consultations and one conflict regarding print quality and/or suitability for AFIS searches. The section had 31 consultations and two conflicts regarding comparison conclusions. These consultations were documented in accordance with the Latent Print Section Conflict Resolution and Consultation Procedures which was revised in March 2021.

The Firearms Section Consultation and Conflict Resolution Policy has been in effect since May 2018. During this review period, there were 22 consultations within 17 firearms examination requests and no requests that resulted in issues requiring conflict resolution. Section management finds the policy an effective means of resolving and documenting differences of opinions among analysts.

Adequacy of Resources

Casework Requests

Detailed information related to requests for analysis, turnaround times and average in-process analytical times are reported monthly to the Board of Directors. The monthly operations reports are posted on the HFSC website at [Houston Forensics Science Center \(hfscctx.gov\)](https://www.hfscctx.gov). Overall, the number of requests completed increased and the turnaround time for the majority of the sections decreased compared to last year's management review data as depicted in the following table.

Discipline	2022		2021	
	Requests Completed	TAT	Requests Completed	TAT
Toxicology	6121	109	8807	734
Firearms	6463	14	6476	540
Crime Scene Unit	3477	123	2148	179
Seized Drugs	3645	62	4820	402
Forensic Biology	3495	107	1457	121
CODIS	3632	8	5216	435
Latent Prints	2692	407	2053	171
Forensic Multimedia	460	130	851	71

(Note: The number of requests completed, and turnaround time data used were extracted from the PowerBI HFSC DirectQuery Historical dashboard.)

Adequacy of Resources by Section

Crime Scene Unit

Houston saw about a 10% decrease in homicides in 2022 from 2021; however, the number of calls that the Crime Scene Unit responded to per day remained about the same in 2022 due to an increase in Child Death and Death Investigation scenes. The man hours required for scene responses, while lower than 2021, were still an increase over 2020 and 2019. Basic information is provided in the table below, but further information regarding the type and number of scenes can be provided if requested.

Type of Crime	2019	2020	2021	2022
Homicides	254	406	470	425
Officer Involved Shootings	33	38	47	45
Vehicle Processing	484	657	759	704

Staffing and turnover continue to cause CSU to struggle to meet the needs of stakeholders. CSU was able to meet demands because many CSIs volunteered to work overtime. HFSC has recognized the staffing challenges facing CSU. In 2022, CSU hired a VEB Supervisor and stationed two other CSI positions permanently at the VEB. This structure addressed a documented risk in the acceptance and release of vehicles as well as initiated a program to train inexperienced CSI trainees on VEB tasks and have the trainees stationed at the VEB for a period of time before moving them to on scene activities. CSU also added a Training Supervisor and a Technical Lead in 2022. CSU lost six experienced CSIs in 2022 but added eight new CSIs into the training program. Four CSIs came to HFSC with experience and completed modified training programs. Four CSI trainees were hired with little to no experience and require full training. The inexperienced group is expected to enter supervised casework as early as February 2023. Another staffing concern for CSU is only having five CSI Supervisors to manage six CSU

shifts. Currently one shift does not have a designated supervisor and the other CSI Supervisors have to rotate on-call to cover the shift.

CSU has expanded its vehicle fleet with the purchase of three new vehicles. The three vehicles purchased allowed CSU to give the VEB squad a vehicle and the supervisors two vehicles. The vehicle previously used by supervisors was reassigned to the CSI fleet as it is more size appropriate for CSI work.

New equipment purchased by CSU this year included a balance for the VEB and a new FARO unit. A balance was purchased for the VEB to replace one that was borrowed from the Latent Print Unit when it was determined that CSU would need to collect narcotics from vehicles at the VEB and store them for transport by HPD rather than transport the potential controlled substances themselves without escort. CSU, to comply with HPD submission requirements, must weigh the contents of the substances being submitted inside of a designated HPD envelope. The borrowed balance did not meet CSU's need as it related to the upper weight threshold of the substances collected regularly so a new balance was purchased and validated for use. CSU also purchased a new FARO unit this year to replace one that was damaged on scene. The new unit is in the process of validation and will be put into use in 2023.

CSU continued exploring options for improving scene documentation using photogrammetry during 2022. Photogrammetry uses images to create three dimensional digital scenes. The images can be acquired using an unmanned aircraft vehicle (UAV or drone) or using cameras designed to capture 3D images. CSU purchased a new UAV in 2021 and had one CSI who was licensed as a UAV operator by the FAA. That CSI left employment with HFSC in November 2022. Two new CSIs have since become licensed as UAV operators by the FAA. One is a CSU Supervisor and is currently learning the Dronedeploy computer software used with the UAV. CSU plans to validate both the equipment and software utilized for photogrammetry via UAV with the hope of bringing this technology online in 2023. In 2022, CSU also worked with Matterport to begin validation of the Matterport Pro2 3D camera. This project stalled during the year as Matterport transitioned to hosting a government cloud for data storage. The company intends to send a Matterport Pro3 3D camera for the CSU discipline to validate for use on scenes in 2023.

[Forensic Multimedia](#)

Two analysts resigned from HFSC, one in March 2022 and the other in August 2022. Three new analysts were hired within the review period and a CS/CM staff member transferred to the Forensic Multimedia section. The loss of these two analysts in addition to the four analysts that resigned in 2021 caused the section to be short staffed. The section struggled to meet the demands of casework requests and balance the capacity to also train new personnel. However, by the end of 2022 all the new analysts were authorized in one area of analysis.

The Forensic Multimedia support specialist left HFSC in February 2022. The section management covered the tasks of this position until it was filled in August 2022.

[Firearms](#)

The number of requests for NIBIN processing and Firearms examinations 2022 did not change significantly from 2021. However, the firearms section continued to see its backlog increase. This is partly due to the section losing two experienced firearms examiners and not being able to recruit experienced examiners to fill the positions. Two trainees were hired and are expected to complete their training in late 2023 or early 2024. The Firearms section manager anticipates that if the number of requests remains constant or decreases, the section should be able to work on reducing their backlog

once the new hires complete their training programs. The increased backlog has forced the section to prioritize cases that are set for court or involve high priority investigations.

One of the challenges that the firearms section has faced in recent years has been the need to respond to officer involved shootings (OISs) during off-hours, including nights and weekends. The Firearms section worked with HPD in 2022 to submit officers' firearms from OISs during regular business hours for firearms testing whenever possible. This has alleviated the need for firearms examiners to come in at night or on weekends to process officers' firearms, which reduces the risk of possible errors due to working during off hours.

The Firearms section continues to see a turnover in NIBIN technicians. HFSC started 2022 with one vacancy, another NIBIN technician accepted one of the firearms examiner trainee positions, and another left after being hired for a position in a different industry. All three positions were filled in 2022, and two of the new hires completed training in 2022. HFSC has hired an experienced NIBIN technician to fill the third position who started on January 3, 2023.

To help the Firearms section stay abreast of technological advances in 3D imaging, HFSC had designated funds for fiscal year 2022 to purchase a 3D-imaging system. However, with the loss of two firearms examiner positions and the increased backlog, the section did not have the personnel resources needed to validate a new technology. The section focused its available resources on casework and the funds designated for the 3D imaging system were reallocated.

The supply chain issues for ammunition 2021 appear to have been resolved. Prices have stabilized, and the Firearms section has been able to find and purchase ammunition as needed.

Forensic Biology

Currently the Forensic Biology section does not have any plans for purchasing new equipment in 2023.

During this management review period, the Forensic Biology section has been challenged with the loss of four experienced forensic analysts in addition to the Assistant DNA Technical Leader and Training Coordinator positions that were vacated in November 2022. One forensic analyst was promoted to Production Lead in August 2022 to account for the added responsibilities and assist supervisors with their current workload. Additionally, a forensic analyst was hired in March 2022 and is expected to complete screening and technician training in 2023, and the vacant CODIS Liaison position was filled in August 2022. A Triage Specialist was hired in January 2022, but the position was vacated in May 2022, with no plans to recruit. New positions for experienced forensic analysts are slated to be added in 2023, as well as a Training Coordinator. Please refer to Forensic Biology/DNA Quality System review for more information regarding all potential vacancies.

Latent Prints

During this review period, the Latent Print section purchased a humidity chamber for the latent print processing laboratory; it was verified as fit for use and put into service. This new equipment saves time and produces more consistent heat and humidity to ensure the entire item has been adequately covered with the correct temperature and moisture.

The section created a training coordinator position, which was filled internally by a latent print examiner. The administrative support specialist was promoted to latent print examiner trainee, and a new support specialist was hired. This trainee along with two other new hires will be attending the Ron

Smith and Associates latent print examiner training in early 2023. This is the same training program that HFSC has contracted with previously to expedite the training of latent print examiners. Two examiners that were hired with previous processing experience were crossed trained and authorized to perform both processing and comparisons. In addition, the section contracted with Ron Smith and Associates to provide latent print processing training to several individuals in the latent print section, some of which are examiners that were crossed trained. Once these trainees are authorized to perform processing casework, there will be three times more staff available to perform processing casework. And since most of these crossed trained processors are also authorized in comparison casework, they provide more experience, flexibility, and capacity to reduce the backlogs of both requests.

Currently the section has two open latent print examiner positions.

Seized Drugs

During this management review period, the Seized Drugs section started the implementation project for OSAC Registry standard "ASTM E3255-21 Standard Practice for Quality Assurance of Forensic Science Service Providers Performing Forensic Chemical Analysis" into their analytical processes and in their sectional SOP. The section also started the validation for an UV/Vis Spectrophotometer instrument for qualitative analysis and is still researching equipment and analytical methods to make their processes more efficient when dealing with complex cases. Each of these has been made a priority for 2023 and included in the section goals for this performance review period.

During 2022 the section experienced significant personnel changes including the hiring of three new staff members, the loss of a supervisor, and the loss of an additional staff member. Two senior staff members were promoted internally to section supervisory positions. The section closed out the year with two vacancies and plans to post for these positions in 2023.

The continued issue of additional testing required for suspected marijuana samples along with the personnel changes and the need to train new staff members has resulted in a backlog of all requests for testing that is expected to continue into 2023.

To mitigate the increased backlog, the section implemented a dismissed drug case cancellation process. This process resulted from meeting with the HCDAO's Misdemeanor Division.

Toxicology

With the addition of the following OSAC Registry standards: ANSI/ASB Standard 120, Standard for the Analytical Scope and Sensitivity of Forensic Toxicological Testing of Blood in Impaired Driving Investigations and ANSI/ASB Standard 121, Standard for the Analytical Scope and Sensitivity of Forensic Toxicological Testing of Urine in Drug-Facilitated Crime Investigations the Toxicology section acquired an additional Triple Quadrupole Liquid Chromatography/Mass Spectrometer (LC-QQQ). The addition of this instrument is intended to transition the section's drug screening from untargeted to targeted analysis and to meet the specific criteria for this analytical process required in these two standards.

During 2022 the section experienced significant personnel changes. The LC-QQQ operation supervisor left in January 2022 and although a new supervisor was hired, this supervisor is still undergoing in-house training. The section closed out the year with two vacancies, a GCMS operation supervisor, and an analyst position. They plan to fill these positions in 2023.

CS/CM

Since the 2021 management review, CS/CM has not gained an additional administrative support specialist(s) position, an additional vehicle for evidence runs, nor new computers. These needs still remain in order to improve the efficiency and productivity of the division, which in turn effects the entire laboratory. The support specialists handle requests for the entire company which include but are not limited to discovery orders, subpoenas, requests for records and 39.14 requests. Figure 6 shows the total number of requests HFSC has received over the last eight years. The number of requests received in 2022 has more than doubled from 2018. CS/CM has only had three support specialists since 2018, and there has not been an increase in staffing to account for the increase in requests.

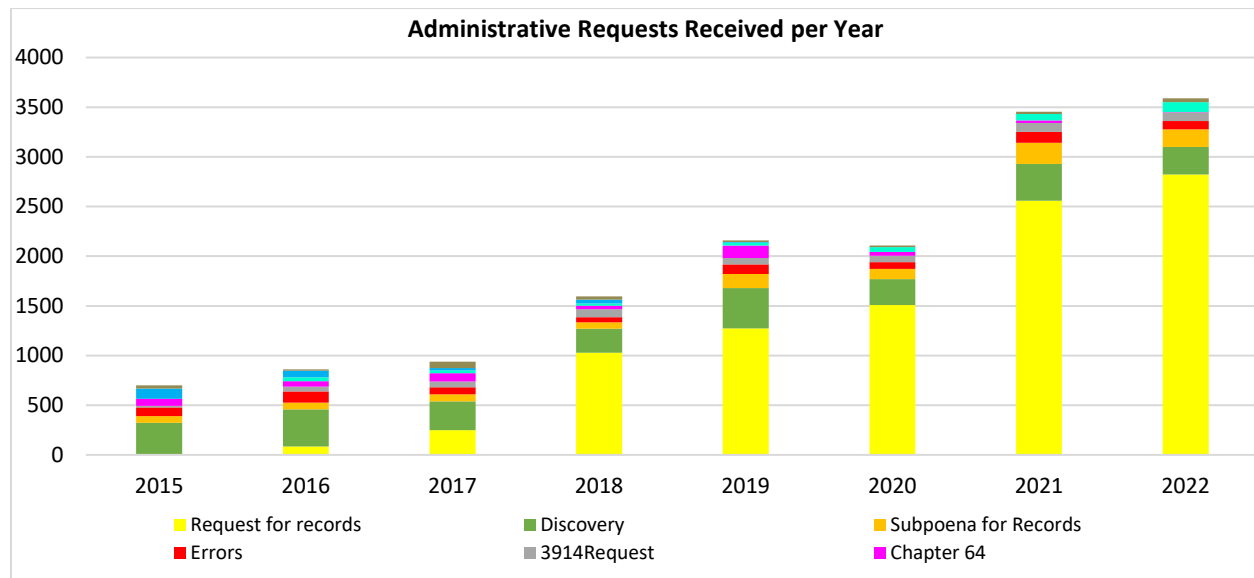


Figure 6. Requests Received per Year.

Personnel

Like the rest of the nation's workforce, HFSC continues to experience a high turnover rate. HFSC had a voluntary turnover rate of 13.9% during the performance review period of October 1, 2021, to September 30, 2022, compared to 8.23% in 2021. A turnover rate of less than 12% was one of HFSC's 2022 company goals leading to a rating of 2 for that metric. In addition to voluntary turnover, HFSC also experienced a significant number of involuntary departures as well as a greater challenge hiring experienced forensic analysts. Several sections had to hire trainees because HFSC was not able to recruit experienced applicants.

The Human Resources Director, Chief Operating Officer, Quality Director and technical section managers met to discuss the performance review program and revised the performance review form that will be used in October 2023. The new review program will omit the individual ratings for accountability, teamwork and communications and instead required three individual goals: one tied to production, one tied to development, and one tied to behavior.

HFSC's Public Information Officer, who also served as the secretary for the Board of Directors, resigned in December 2022. As of the date of this management review, this position had not been filled.

Goods and Services

L&E continues to effectively acquire the goods and services necessary for continued operations. HFSC's L&E Division is responsible for the receipt and distribution of supplies, as well as coordinating with calibration service providers to ensure equipment continues to perform as expected and meet calibration requirements. The division assists in approving, evaluating, and ensuring effective communication with vendors that supply goods and services critical to HFSC's operation.

The new position of Facility & Logistics Coordinator was created in 2022 and filled by the existing logistics coordinator. The coordinator was expected to spend 50% of their time functioning as the facility coordinator and 50% as the logistics coordinator. However, facility management required a greater time commitment than anticipated. To help meet HFSC's logistics needs, a Receiving Specialist was hired in late 2022.

Personnel Feedback

The executive leadership team opted not to administer a staff survey in 2022. The team agreed that due to the changes in the executive leadership team, HFSC would forgo the survey until 2023.

HFSC's President/CEO distributes weekly video messages to all staff. Originally the video messages served as a means of communication with staff both on-site and working remotely during the COVID-19 pandemic; however, the video messages are still an effective way of keeping staff updated on upcoming disclosures, board meeting topics of discussion, relevant information within the forensic community and other happenings that directly affect HFSC.

Stakeholder Surveys and Complaints

Since February 2020, a link to a feedback survey has been included on all outgoing emails. A total of 11 surveys were received within the management review period (see Figure 7). The survey provides a comment field that is reviewed to determine if improvements are appropriate. Negative feedback is reviewed to determine if the survey response should be evaluated as a formal complaint.

Ten responses were either "satisfied" or "very satisfied". One survey respondent that submitted a "very satisfied" survey about the Forensic Biology section was contacted via the email provided in the survey to obtain further details, but there was no response to HFSC's inquiry. One survey was received with a "very dissatisfied" response from a stakeholder. The stakeholder was contacted by the Quality Division to obtain further information, an investigation was conducted, a formal response was documented in a Survey Response Form and the outcome of the investigation was communicated to the stakeholder.

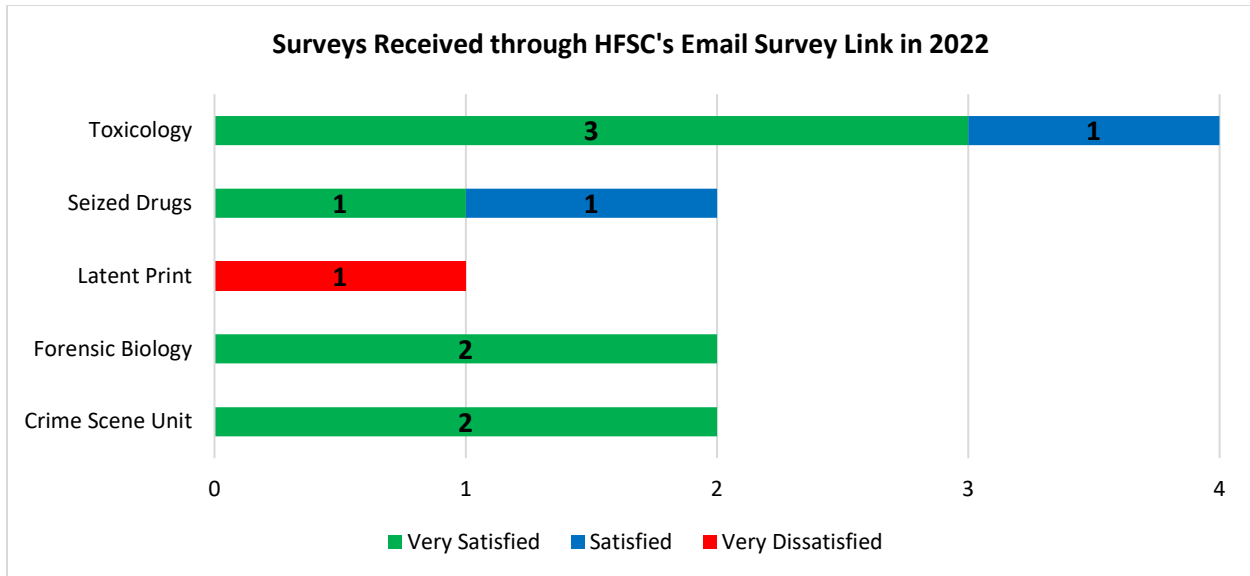


Figure 7. Surveys Received through HFSC's Email Survey Link in 2022.

HFSC also provides access to a complaint survey through its outward facing website. No complaints were received in this manner. However, two complaints were received during this review period. In February, HFSC received an informal complaint from an external third-party regarding testimony provided by an HFSC employee who was serving in the capacity of an independent consultant. Although there were no technical concerns noted during the review of the testimony transcript, the potential concerns raised, coupled with the lack of oversight over external testimony and the necessity of testimony to occur during HFSC's normal business hours, the decision was made to discontinue the general practice of approving staff requests for ongoing, long-term secondary employment as independent consultants in the field for which they have been hired at HFSC. In March, the Quality Division investigated concerns raised by a CSI regarding the process by which some narcotics collected at the VEB were submitted to the Narcotics Operations Control Center (NOCC) because the process involved the completion of HPD submissions form on behalf of the CSI. Additional wording was added to three of the involved forms and the matter was ultimately resolved.

Additional Stakeholder Feedback

HFSC continues to solicit stakeholder feedback through several additional means. These include, but are not limited to:

- Weekly stakeholder emails that summarize case metrics and provide relevant laboratory updates
- Meetings between HFSC executive staff and high-ranking officials of the Houston Police Department
- Staff communications with stakeholders
- Laboratory tours with community organizations
- Community outreach opportunities

TFSC Complaints and Self-Disclosures

One complaint was filed with TFSC during this year's management review period. The complaint involved the Forensic Biology section (TFSC complaint number 22.34). This complaint was deferred to Bob Wicoff from the Harris County Public Defender's Office because it relates to the statewide DNA

mixture project for which Mr. Wicoff provides oversight and facilitation. This complaint was reviewed and closed out by this sub-committee. The pending Firearms complaint from the previous year's management review (TFSC complaint number 21.27) remains open as of January 2023 pending the National Institute of Standards and Technology's (NIST) foundation review of the Firearms discipline to be finalized.

Additional information can be found at <https://www.txcourts.gov/fsc/case-status/complaints/>.

A total of six self-disclosures were filed with TFSC. Five disclosures involved the Forensic Biology section (TFSC disclosure numbers 17.50, 21.66, 22.01, 22.18 and 22.32), and one disclosure involved the Firearms section (TFSC disclosure number 21.56).

- The Forensic Biology disclosure 17.50 involved incorrect CODIS entries for partial and mixture profiles. Please refer to corrective action 2018-IA-09 for more information. On January 21, 2022, TFSC voted to take no further action due to the thorough root cause analysis, appropriate corrective actions and a thorough case review performed by HFSC.
- The Firearms disclosure 21.56 involved a sample switch of NIBIN test fires. Please refer to corrective action 2021-032 for more information. On January 21, 2022, TFSC voted to take no further action due to the root cause analysis and corrective actions taken by HFSC.
- The Forensic Biology disclosure 21.66 involved the inadvertent consumption of evidence. Please refer to corrective action 2021-066 for more information. On January 21, 2022, TFSC voted to take no further action due to root cause analysis and corrective actions taken by HFSC.
- The Forensic Biology disclosure 22.01 involved concerns about an analyst's explanation of statistics in response to questions by the prosecutor. The transcript was reviewed as part of HFSC's transcript review project. Please refer to corrective action 2021-072 (pending as of the date of this management review) for more information. On April 22, 2022, TFSC voted to take no further action due to the root cause analysis, transcript review and corrective actions taken by HFSC.
- The Forensic Biology disclosure 22.18 involved concerns about an analyst's testimony which the trial court characterized as evasive, false, and misleading. The testimony occurred during a capital murder trial regarding work the analyst performed for a former employer. On April 22, 2022, TFSC voted to establish an investigative panel. At the October 7, 2022, meeting, TFSC found the analyst to have committed professional negligence and professional misconduct. His license was revoked for 60 days.
- The Forensic Biology /Quality disclosure 22.32 involved the accidental upload of three blind quality control profiles into the CODIS database. Please refer to corrective action 2022-036 for more information. On July 22, 2022, TFSC voted to take no further action due to the root cause analysis and corrective actions taken by HFSC.

Effectiveness of Implemented Improvements

Lean Six Sigma Projects

Forensic Multimedia Kaizen

As the IT Division rolled out conditional access for the entire company, a challenge was faced in the Forensic Multimedia section. The section had historically utilized non-HFSC networked computers to access their HFSC email accounts while processing casework, however once conditional access was enforced for the section, they experienced a work stoppage. A Forensic Multimedia LSS Kaizen event was held with representatives from Forensic Multimedia, IT and Quality. This project was created to identify a way to facilitate the Forensic Multimedia section's ability to transfer information to and from

the HFSC network without compromising network security. As the result of this Kaizen the IT Division created a separate Microsoft tenant (O365 accounts with a new domain name) for Forensic Multimedia to be able to perform their casework and communicate with third party vendors.

Latent Print Project

Since the implementation of the process changes from the Latent Print LSS project, which was certified in December 2021, the section has experienced significant improvements. There has been a 64% reduction in the backlog of comparison requests, a 43% reduction in the primary examiner’s turnaround time and a 96% reduction in the time it takes for the review process to occur.

Follow Ups to Nonconformances

The Quality Division follows up on closed incidents and corrective actions to evaluate whether the actions taken were effective in addressing and improving the affected processes. The evaluation of the effectiveness of the actions taken is documented and tracked in Qualtrax.

A total of 12 workflows were initiated during this review timeframe.

Section	Follow-up to IR/CAR
Client Services & Case Management	2020-093
Crime Scene	2020-069, 2021-017 and 2021-060
Firearms	2021-059, 2020-100 and 2021-069
Forensic Biology	2021-066
Quality	2021-015
Seized Drugs	2021-067 and 2019-056
Toxicology	2022-008

Forensic Biology/DNA Quality System review

The DNA Technical Leader reviewed the Management Review conducted by the Quality Division, reviewed the suitability and effectiveness of HFSC’s quality system as applicable to the Forensic Biology section, and identified potential opportunities for improvement of the current DNA quality system.

Post-Mortem Reviews

In 2022, the Forensic Biology section participated in two post-mortem audits. Each DNA interpretation analyst received at least one case to complete an additional technical, administrative and quality review. There were no concerning technical trends identified from the review of the post-mortem defects. It was noted that 10 new defects were concentrated to one case and not a widespread issue that could have an impact on casework. The defects in this case are still being investigated.

It is recommended that Forensic Biology management or designee review the post-mortem results after completion to make note of instances that need to be discussed with the analysts and provide staff with recommendations to improve casework in real-time.

Internal Audit Findings

There were three nonconformances found during the 2022 internal audit. The Forensic Biology section facilitated process changes where applicable to address the identified issues. Notable process changes implemented in response to nonconformances were the Operations Coordinator replaced all labels on the instruments with a new labeling system to ensure the labeling of all equipment with period of

validity and created a reagent log form to document the addition of automation enhancer to one of the quantification kit reagents.

There were four nonconformances found during the 2022 external audit and reaccreditation all with respect to the documentation of software testing. These nonconformances were challenged based on clarification provided by the FBI regarding the interpretation of Standard 8.8.3 and a meeting with three members of the FBI CODIS Unit. Response to these challenges is currently pending.

As an improvement to the process used to comply with Standard 8.8, the Forensic Biology section implemented a new workflow to track all required testing of software modifications and technical leader approval of the modification plan and testing document.

Cross-Training Progress

Cross-training within the Forensic Biology section has been a priority to assist with backlog reduction. In 2022, four analysts were successfully cross-trained in a portion of DNA laboratory process and two analysts were successfully cross-trained in DNA interpretation using the STRmix software. Additionally, three new screening analysts were authorized to perform casework. The increase in analysts authorized to perform portions of the DNA laboratory process will ensure the Forensic Biology section's ability to maintain the number of samples being processed throughout the laboratory which ultimately affects the number of cases completed.

The Forensic Biology section completed a total of 1,088 cases in 2022 which is significantly less than 1,457 number of cases completed in 2021. In 2022 and 2021, the percentage of cases with zero defects was maintained at approximately 50% and the percentage of technical and administrative defects remained at approximately 20% and 80%, respectively. Additionally, only 11% of total defects were deemed as "High Impact" to the cases. This demonstrates that although there was significantly less cross-training in DNA interpretation in 2022 in combination with the loss of five DNA interpretation analysts, the Forensic Biology section was able to maintain the percentage of defects.

Nonconformances

In 2021, the Forensic Biology section was responsible for 23 quality incidents/corrective actions (inadvertently stated as 48 quality incidents/corrective actions in the 2021 Management Review) and in 2022 the Forensic Biology section was responsible for 33 quality incidents/corrective actions. Overall, the number of incidents involving contamination decreased to two in 2022 as compared to six last year.

Based on analyst feedback, the implementation of technical nonconformance discussions during staff meetings in 2021 have proven to be helpful in decreasing the number of repeat nonconformances and prevention of new nonconformances. These discussions will continue in 2023.

Potential Opportunities for Improvement

Staffing

In 2022, the Forensic Biology section lost a total of five analysts authorized for DNA interpretation and report writing, one of whom was also the Training Coordinator, an integral position for the success of the section. As a result of the Colone post-conviction writ, the section has been required to reprocess samples handled by the involved analyst at the request of the District Attorney's office. These two circumstances have had a significant impact on the number of new cases being reported and demonstrates an immediate need for a Training Coordinator and several new DNA interpretation analysts. It is necessary to post the DNA interpretation analyst positions externally, since majority of

staff is previously cross-trained in several aspects of the DNA process or unable to fulfill the DNA interpretation position requirements.

There is a need for a staff member solely dedicated to validations, software performance checks and development of new methods for the laboratory. Currently, these responsibilities fall to the Operations Coordinator in addition to his current duties which has not proven to be sustainable. In the upcoming years, the section would benefit from several validations including GeneMapper ID-X upgrade, Prefiler or other liquid handling tasks on the Hamilton Microlab Star, and several STRmix validations.

There is also a need to create one or more positions to support the Forensic Biology Laboratory Manager and Technical Leader. Currently, the Laboratory Manager and Technical Leader positions have over thirty responsibilities each, are direct supervisors to multiple staff members, and complete casework when necessary. Additionally, the Assistant Technical Leader resigned in November 2022 which caused Forensic Biology management to delegate additional tasks amongst themselves. These new support positions and associated responsibilities are currently being developed.

[Annual Interpretation Exercise](#)

Due to competing priorities, the Annual Interpretation exercise was not completed in 2022. Bi-annual post-mortems and proficiency tests were completed in 2022 and provided oversight on aspects of the interpretation process for each analyst. The Forensic Biology Technical Leader is committed to creating this exercise in 2023.

2021 Management Review Recommendations for Improvement

The following are updates on the recommendations for improvement made during last year's management review.

2021.1 To provide impartiality education to all staff members with the objective of developing a more robust impartiality awareness culture.

An impartiality training and brainstorming session was held with all section managers. Their feedback was captured and will be incorporated into future training and/or awareness.

2021.2 To require section management and applicable members of executive management to review the Management Review report and document their review through a Qualtrax test.

Executive and section management reviewed the 2021 Management Review report and documented their review in Qualtrax. This improvement will be incorporated into future Management Review reports.

2021.3 To establish a mock court program that ensures consistent testimony training across all technical sections based on observations of mock courts and transcript reviews from each section. The Quality Division intends to design a mock court program that properly prepares each trainee for their first time testifying in court by exposing the trainee to a conventional courtroom experience. Additionally, the Quality Division plans to reoffer the well-received testimony training provided to all staff in 2019. The training included the history of HFSC, accreditation, discovery orders, subpoenas, courtroom etiquette, qualifying as an expert witness, voir dire, and effectively answering qualifying questions.

The Quality Division has not yet instituted a uniform company-wide mock court program but did establish a foundational understanding of the existing mock court programs within each

technical section based on mock courts, courtroom testimony, and transcript reviews evaluated during this management review period. The Quality Division still intends to provide recommendations to the section managers regarding their existing mock court programs to support consistent testimony training across all technical sections. In addition, the Assistant General Counsel organized a tour of the Criminal Justice Center in October 2022 to expose staff to the courthouse experience and plans to organize similar tours in 2023.

The Quality Division hosted testimony training for technical staff in October 2022. The training focused on how the Harris County court system operates, rules of evidence (e.g., Brady and Michael Morton), discovery orders and subpoenas, courtroom etiquette, and shared staff experiences. It also included two short videos created in-house. One included tips on preparing for court and navigating the Harris County Courthouse, and the other showed staff how to search court-related information on the Harris County District Clerk's website. The training was captured on video for those who were unable to attend and is available for new technical staff. HFSC obtained TFSC continuing forensic education credits for this training.

2021.4 To provide the company with an end of project report for each completed LSS project. The report, which would be accessible by all staff, will ensure all information and changes from the projects are documented and consolidated. In instances where a quality report may need to reference the project, this report will provide the means to do that. In addition, an end of project report will ensure all details are recorded for future reference.

This recommendation was not fulfilled; the LSS development group did not have the resources available to focus on this improvement goal. While this recommendation is still endorsed, it will not be formally included in next year's management review.

2021.5 To consistently review post-mortem audit data with members of executive management to identify global trends and evaluate the effectiveness of the review process company wide.

Two post-mortem audits were planned for 2022. The first was completed in July 2022, and second is scheduled to be completed by the end of January 2023. The Chief Operations Officer provided an overview of the post-mortem data to the executive team in December 2022. While the data did spark discussion amongst the executive team, moreover it highlighted the need to have more consistent oversight and review of the post-mortem data. In order to facilitate this, a Quality Specialist has agreed to take ownership of the post-mortem review program. This ownership will entail specific follow up with the managers to review the post-mortem result and determine if defect rates and the types of defects found are acceptable for the section, or if improvement plans are warranted. Follow up with section management will start to occur after the sections complete the second-round of 2022 post-mortem audits.

2022 Management Review Recommendations for Improvement

Overall, the quality system was found to be suitable and effective in meeting the needs and mission of HFSC. However, there are opportunities to continuously improve our current quality system. The following are recommendations for continuous improvement:

2022.1 The quality division will conduct research on nonconformances categorized as "Failure to follow QM" and determine if there are trends tied to specific quality manual clauses. If trends are identified, these will be shared with sections.

- 2022.2** Review the DNA contamination tracking system to determine if the current process meets HFSC needs or if improvements to the process can be implemented.
- 2022.3** Develop a process to integrate and audit TFSC requirements and/or recommendations that may result as part of investigative reports.
- 2022.4** Develop a process to verify and audit OSAC standards previously implemented into sectional documents and technical processes are still in compliance when these are revised.
- 2022.5** The continuing education (CE) committee recommended the Quality Division own the CE project. The Continuing Education and Professional Development Procedure and the company goal needs to be revised to only apply to forensic practitioners as required per the OSAC standard.
- 2022.6** The feedback from the manager's impartiality training and brainstorming session will be used to develop impartiality training or awareness for all staff members which may include the periodic review of corporate policies.
- 2022.7** In order to more effectively address the needs of the sections, the Quality Division should seek input from the managers prior to the end of the year. These needs will be assessed and incorporated into the management review as recommendations as appropriate.
- 2022.8** The Quality Division will revise clauses 7.10 (nonconforming work) and 8.7 (corrective actions) of the Quality Manual. Nonconforming work is currently evaluated to determine if it should be closed as no action needed or classified as either an incident or corrective action. Corrective actions were further tracked as Class I – III. The upcoming revision will instead evaluate the risk associated with nonconforming work to determine if it should be closed as no action needed (minimal to no risk), an incident (low risk) or a corrective action (moderate or high-risk).