The Houston Forensic Science Center has been awarded a grant that will allow it to develop and expand a quality and process improvement program and create a specialized unit to oversee such projects.

The Lean Six Sigma (LSS) development group includes two staff members who will oversee customer and data-driven projects and become a long-term incubator for HFSC’s future leaders.

HFSC has already completed an LSS project in its forensic biology/DNA section. A group of more than 10 HFSC staff became proficient in using data and LSS tools, improving the efficiency and quality of production as well as the section’s management structure. Today, the section completes more requests per analyst, improving efficiency with fewer resources. Once the section is fully staffed, it will eliminate a longstanding backlog and move toward operating in a sustainable 30-day turnaround time.

“The LSS tools and the data analysis is what allows us to objectively view a section’s operation, and this is what has allowed us to improve our DNA production process,” said Dr. Amy Castillo, HFSC’s COO and vice president who will oversee the LSS development group.

“We want to now expand this success to other sections and projects, as well as train more people to use LSS tools,” Dr. Castillo added.

Under the previous project, six HFSC staff achieved LSS green belt certification. Three of them will now work to achieve the advanced level of black belt engineer. The group will also further identify and deliver process improvements in forensic biology and company-wide, as well as expand and enhance data analysis to improve operational effectiveness.

Section leaders and managers are developing suggestions for future improvement projects, and the group will assess the ideas for customer and stakeholder impact. Projects being considered include improving supply chain management, information transfer between the Crime Scene Unit and forensic biology, and the forensic biology report writing process. There could also be room to improve how HFSC handles the national DNA database, or CODIS, and how it handles requests for multidisciplinary testing.

In addition to overseeing such projects, the group will also work to identify and develop future leaders, and provide them opportunities to improve those skills through the management of programs that have broad company impact.
The only thing in a crime lab that is almost as important as our people is a reliable, intuitive, usable information management system.

I have often talked about how in reality we are an information service. Yes, we do science. Yes, we assist the justice system by providing it with objective, science-based results that can be used in court. But at our very core, we gather and release information. And to do this effectively, efficiently, reliably and credibly, our Laboratory Information Management System (LIMS) must be able to do more than simply serve as a storage and retrieval for case reports. It must also be able to gather, store, release and manipulate data in a manner that will allow HFSC to constantly improve the services it provides.

HFSC is currently transitioning to a new LIMS that we believe will better serve both our internal and external needs. In the long-term, this new LIMS will allow us to release better results and mine data to constantly streamline our systems.

In the short-term, however, as the lab moves into the new system in phases and our analysts familiarize themselves and adapt to the new LIMS, we expect there to be a slight decrease in our response time.

We understand the frustration this can cause among our stakeholders, but we ask that you be patient in the coming months as we take the steps necessary to improve.

If you see issues with reports, tell us. The more detailed you can be the better. We are doing a lot of testing and watching how the system performs. Odds are good if you see an issue we are aware of it and are already working to resolve the problem. But we have to know about the problems in order to tackle them, so please come forward with your observations.
The Houston Forensic Science Center has reported to the state’s forensic oversight commission that a multimedia analyst collected the wrong video at a crime scene and was unable at a later date to retrieve the correct evidence.

The incident impacted one case. No charges have been filed in the case.

The Texas Forensic Science Commission has been informed of the incident because evidence was lost.

The analyst responded to a crime scene callout on June 27, 2017. Upon arrival, the officer requested the analyst retrieve video from June 23, though later corrected the date to June 24. The analyst inadvertently retrieved video from June 27.

The distance between the DVR and the monitor at the call-out location made it difficult for the analyst to see whether the correct video was being exported. HFSC has now equipped all multimedia analysts with portable monitors they can use when retrieving video at crime scenes.

The error also was not caught until November during the technical review process. Due to the five-month lapse between the call out and the review, by the time the analyst realized the wrong video had been retrieved and returned to the crime scene, the DVR had already overwritten the requested segment.

HFSC created in September a call-out request type. Analysts are required to complete the report within one business day, and are working toward that goal. Since September, HFSC analysts have completed 80 audio/video call-out requests.

A few dozen blood alcohol samples purchased from a commercial vendor _ that was the start of the Houston Forensic Science Center’s blind quality control program.

Now, two years later, the program is active in six disciplines and is unrivaled in size and scope by any other similar crime lab operation in the nation, if not the world.

Since September 2015, more than 350 “mock” cases have journeyed through HFSC’s labs, testing analysts, the process and the quality system.

The U.S. Department of Defense’s DoD Forensic Drug Testing laboratories has one of the few blind quality programs larger in size than HFSC’s. The DoD, which tests millions of workplace drug tests from service members annually, runs more than 3,000 mock cases through each laboratory at the same time. Other than that, though, most other crime labs only do a handful of blind tests annually, if they do any.

But at HFSC, analysts in the toxicology section _ a high-stakes, aggressively litigated discipline. As such, the data is also more informative. More than 210 mock blood samples, positive and negative, have been tested by HFSC toxicologists, revealing the variation between samples, instruments and analysts is statistically insignificant. The blind samples also provide HFSC with a sense of how analysts perform in such cases that better mimic analysts’ real work: providing a more accurate assessment of their capabilities. The program has been most robust, as well as lengthier, in the toxicology section, where high-stakes, litigated findings. In the latter, a second examiner, when checking the results of a previous examiner, is unaware of the findings from the first comparison. This allows HFSC to see how much of an impact experience and training have on the findings.

In latent prints, there are blinds in processing and comparison. By working with the Harris County Sheriff’s Office, HFSC has recently been able to upload mock cases into the database, the Automated Fingerprint Identification System (AFIS), that examiners use to search for suspect prints. This year, HFSC plans to expand the blind quality control program. It is also creating more challenging cases and introducing them into the system to get a sense of how analysts perform in such scenarios.

The program is of the caliber HFSC demands. The blind samples are different from the first comparison. This allows HFSC to see how much of an impact experience and training have on the findings. The goal for 2018 is to have 5 percent of cases be blind quality controls so there will be greater statistical significance to the error rate calculations.

The blind samples are different in the firearms discipline, which is a pattern recognition field. In this area, there are two types of blind controls: mock comparison cases and blind verifications. In the latter, a second examiner, when checking the results of a previous examiner’s work as is done routinely, is unaware of the findings from the first comparison. This allows HFSC to see how much of an impact experience and training have on the findings.

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The Houston Forensic Science Center has not slowed down implementation of its new Laboratory Information Management System (LIMS) during the holiday season. The controlled substances and latent print disciplines, which accounted for 37 percent of all testing requests for the year, are now using the new LIMS in casework. The digital forensics section has been operating in the new environment since November.

After Christmas and New Year’s, HFSC hit the ground running taking steps to bring the remaining disciplines online in the new LIMS. The full implementation and transition is long and complex, and could lead to operational slowdowns. But the long-term benefits will be great both internally and for stakeholders.

In addition, the sections are moving off the Houston Police Department computer network as agreed in April 2014 when HFSC took over management of Houston’s forensic needs. HFSC will be fully housed in its own computer network in March.

That shift is significant for both HFSC and HPD. The networks will better serve the different needs of each agency when they operate independently of one another.

One of the most important aspects of the new LIMS will be the communication between this system and the HPD Property Room system. HFSC is working with two companies to design a portal that operates well and is more user friendly.

The portal, also used to make requests for testing, is designed to be responsive to some of the complaints stakeholders had about the old system. It will be more intuitive for customers making requests, while also providing lab analysts with more information up front to minimize the need to have lengthy follow-up conversations in order to conduct the testing.

As HFSC transitions to the new LIMS, turnaround times will likely increase, but in the long-term the system is designed to better respond to both internal and external needs.

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