

Unsolved

The New Face of Forensic DNA

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□ The open spaces in the Harris County Institute of Forensic Sciences allow for flexibility and transparency. Courtesy Johnston, LLC. Copyright Slyworks Photography

The open spaces in the Harris County Institute of Forensic Sciences allow for flexibility and transparency. Courtesy Johnston, LLC. Copyright Slyworks Photography

I spoke with Dr. Kahn, the Forensic Genetics Laboratory Director of the Harris County (Texas) Institute of Forensic Sciences, to ask him about the newly opened Forensic Genetics Laboratory. I spoke with him regarding how the new lab—and its design—is helping the organization meet the increasing demand for DNA analyses. Below are some of the topics we discussed.

Factors for the New Facility

I asked Dr. Kahn about the factors that led to the need for a new space for the genetics laboratory. He responded, in part, by saying:

“We evaluated the current and future needs of the forensic services performed and the workplace necessary to accomplish the tasks. The HCIFS DNA caseload had more than doubled and was continuing to increase for both personal (e.g. homicide, rape,

DEEPER INSIGHTS



Implementation of NGS in Operational

aggravated assault) and property crimes (e.g. burglary). Property crimes are the primary source of “hits” to local, state, and national DNA databases. The HCIFS Lab has linked nearly two thousand previously convicted individuals to DNA recovered from burglaries—more than any other lab in Texas, and among the leaders in the U.S.

To manage this growth, the lab needed more space, more equipment, and more staff to keep up with the demand. The space that we identified was an untouched portion of the John P. McGovern Campus of the Texas Medical Center, also known as the “Nabisco Facility.” The DNA lab already utilized equipment automation to improve productivity and avoid quality concerns, but planned to add much more. We anticipated staff growth of 30% to 50% and needed seating and lab areas for them. We also plan to add additional services including a Molecular Genetic Testing Unit to assist the medical examiner in determining cause of death.”

Transparency and Light

One of the design elements of the new genetics lab is the use of glass to allow for light and transparency into the labs, including reuse of the existing clearstory windows to allow natural light into the space.

I asked Dr. Kahn what he and others in the lab think about all that glass and he said, “Managers and supervisors love the windows.” He went on to say that because of the large laboratory space, the staff doesn’t mind the windows; they don’t feel like they are in a fish bowl.

Open but Still Secure

One of the reasons the facility was designed with numerous windows was to remove the perception that forensic science only happens behind closed doors. Closed doors do have the advantage of controlling access to labs and evidence, but they are not the only tool for doing so. Dr. Kahn talked about this when he discussed preventing the possibility of evidence mishandling. He said, “You need multiple components to monitor activities: cameras to capture images for real-time viewing and recording, electronic access cards to monitor

access to the lab, and windows to ensure visibility within the large, open laboratory space.”

Evidence Examination

I asked Dr. Kahn how the new space helps with the examination and processing of evidence. He explained, “The new space allows for a new, flexible furniture system and unassigned space for additional staff. These are some of the best features of the lab.” He explained that each serologist can group together one to three tables, or more, and the analyst has the option to arrange them as needed to conform to their work needs. Dr. Kahn remarked that this was an improvement on their previous examination space, “No more ‘U’-shaped, fixed benches at (only) 24 inches deep.”

Preventing Contamination

How does the Forensic Genetics Laboratory prevent contamination? Dr. Kahn said, “The new lab provides much more space for putting on scrubs, lab coats, face masks, gloves, booties, (and) hair nets. After a day’s work, the DNA stays in the lab or in the waste bins in the Bio Vestibule. The real source of contamination is on work surfaces and it must be scrubbed off. It isn’t sufficient to just spray bleach and rinse it off, you need elbow grease.”

Office Spaces

The office spaces in the new facility are an improvement over the previous facility. They allow for more privacy including individual offices for managers. Dr. Kahn stated, “The HCIFS team managers have private offices to conduct meetings, to plan work, and to discuss issues. When problems arise, a private setting for discussions can be very helpful.” Dr. Kahn went on to say that private offices and meeting rooms allow for private conversations with clients, such as attorneys and government officials. In addition to enclosed offices, the new facility also allows for cubicles and shared meeting spaces. Dr. Kahn also explained that, “The better workplace environment will reduce fatigue and provide analysts with their own space to focus on their work and to encourage productivity and innovation.”

Connectivity

Dr. Kahn spoke about the value of the lab’s new location, “Proximity to good neighbors like the Baylor Cancer Genetics Laboratory and the Baylor Human Genome Sequencing Center

adds continuity to similar work. We have enough in common to inspire each other. We can benefit from the lessons learned from their methods and procedures. They can benefit from the extraordinary quality assurance practices of a forensic lab. HCIFS is currently conducting grant-funded research with the Baylor University School of Medicine on the molecular genetics of cardiac channelopathy and sudden death.”

Closing Thoughts

“I believe that there is no such thing as ‘forensic science,’ only science. Good science is ever changing and tends to move more quickly than forensic labs can adapt. Staying at the top of your game means working with a variety of good scientists who are doing more than what we do in the forensics lab. Our facility fosters that collaboration.”

Congratulations to Dr. Kahn and his staff on their new facility.

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