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THREE TRANSFORMATIVE IDEALS TO BUILD A BETTER CRIME LAB

Nicole Bremner Cásarez* & Sandra Guerra Thompson†

“Build a better mousetrap, and the world will beat a path to your door.”¹

INTRODUCTION

Most crime laboratories in the United States exist as divisions of police departments.² These crime laboratories usually operate like organizational black boxes, producing data for the criminal justice system without any meaningful oversight or public scrutiny. The web pages for crime laboratories typically contain sparse information about the operation of the laboratory.³ To obtain detailed information, media representatives normally must file public information requests.⁴ As a result, a community generally knows little about how its local crime laboratory performs. In recent years, reports of massive backlogs of sexual assault kits in police

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1. The famous quotation is apparently wrongly attributed to Ralph Waldo Emerson who did not write it but instead wrote, “If a man has good corn, or wood, or boards, or pigs, to sell . . . you will find a broad hard-beaten road to his house.” John H. Lienhard, *No. 1163: A Better Mousetrap*, ENGINES OF OUR INGENUITY, <http://www.uh.edu/engines/epi1163.htm#hope> [<https://perma.cc/ATF9-MDKW>] (last visited Mar. 6, 2018). Today the mousetrap has come to be “an icon for inventive creativity.” *Id.*

2. See SANDRA GUERRA THOMPSON, *COPS IN LAB COATS: CURBING WRONGFUL CONVICTIONS THROUGH INDEPENDENT FORENSIC LABORATORIES* 181–83 (2015).

3. See *infra* notes 64–77 (providing the results of an empirical study of major crime laboratory websites).

4. See, e.g., *FOIA Policy*, VA. DEP’T OF FORENSIC SCI., <http://www.dfs.virginia.gov/about-dfs/foia-policy/> [<https://perma.cc/BU3H-ZSVD>] (last visited Apr. 9, 2018). Some laboratories provide online information for requesting laboratory records through public information requests. *Id.*

departments have garnered intense public interest.⁵ Yet with few exceptions, the public has no way of knowing whether the crime laboratory in its community has a backlog of sexual assault kits or in any forensic discipline. Likewise, important information such as the financial condition of the laboratory, its standard operating procedures, and its incident and corrective action reports cannot be found on the websites of the vast majority of crime laboratories.⁶ For case-specific information, defense attorneys must generally rely on the criminal discovery process to obtain either the results in a particular forensic examination or the standard operating procedures followed within the laboratory.⁷ Thus, the inner workings of police crime laboratories cannot be readily ascertained by the public or defense counsel. In fairness, no one expects traditional crime laboratories to be transparent, just as most law enforcement agencies do not make similar, organizational details readily accessible to the public.

However, crime laboratories hold a special place in the criminal justice system. Forensic experts work almost exclusively at the request of the police and prosecution to provide information critical to the entire criminal justice system. Timely and accurate forensic evidence enables the police to solve crimes quickly, which can prevent additional crimes and put the community at ease.⁸

5. See, e.g., *Backlogs of Forensic DNA Evidence*, NAT'L INST. OF JUST. (Mar. 23, 2018), <https://www.nij.gov/topics/forensics/lab-operations/evidence-backlogs/pages/welcome.aspx> [<https://perma.cc/XD72-TEQ3>]. The federal government has tracked backlogs and provided grant funding to reduce the backlogs of DNA evidence in sexual assault cases. *Id.*; *DNA Capacity Enhancement and Backlog Reduction Program*, NAT'L INST. OF JUST. (Mar. 23, 2018), <https://www.nij.gov/topics/forensics/lab-operations/evidence-backlogs/Pages/backlog-reduction-program.aspx> [<https://perma.cc/R92D-XPSR>]. In addition, advocacy groups have mobilized to encourage legislators at all levels of government to address the issue in various ways. See, e.g., *Ending the Backlog*, END THE BACKLOG, <http://www.endthebacklog.org/ending-backlog> [<https://perma.cc/78MF-HFXN>] (last visited Jan. 19, 2018).

6. See *infra* notes 64–77 and accompanying text (reporting the results of empirical study of crime laboratory websites). The Virginia Department of Forensic Science (DFS) stands out as a laboratory that has posted technical manuals and standard operating procedures for many years. See *infra* Table 2. Established in 2005, the Virginia DFS operates independently of the state police. See VA. CODE ANN. § 9.1-1100 (2017).

7. See generally Paul C. Gianelli, *Pretrial Discovery of Expert Testimony*, 44 CRIM. L. BULL. 943 (2008) (addressing the limitations on criminal discovery of forensic laboratory reports).

8. See, e.g., *infra* notes 227–32 and accompanying text (providing an example).

Conversely, laboratory mismanagement can reduce public safety. The police need accurate, prompt test results to protect the public from dangerous people. Laboratory backlogs—as well as failures to expedite the forensic tests needed for violent crime investigations—mean that criminals remain at large, free to commit more crimes.⁹ In addition to enabling efficient law enforcement, prompt laboratory results allow the judiciary to move cases through the justice system more quickly. This reduces jail and court costs and facilitates speedier trials, all of which benefit prosecutors, defense counsel, and defendants, not to mention crime survivors.¹⁰

Investigations into DNA exonerations have made two things clear: (1) forensic evidence carries enormous weight with jurors; and (2) erroneous or misleading forensic evidence has caused wrongful convictions.¹¹ In one 2009 study of 137 DNA exonerations, unreliable or false scientific evidence was a factor in 82 of those wrongful convictions.¹² Exonerations often bring multiple travesties to light. First and foremost, an innocent person has suffered the nightmare of conviction and imprisonment, causing intense suffering

9. Numerous news reports across the country show that delays in crime laboratory testing allow criminals to remain at large, free to commit other crimes. For a small sample of these cases, see Nathan Baca, *7 On Your Side: Fixing Maryland's Crime Lab Backlog*, WJLA WASH., D.C., (July 31, 2017), <http://wjla.com/features/7-on-your-side/7-on-your-side-fixing-marylands-crime-lab-backlog> [<https://perma.cc/P43T-97WS>] (discussing an indictment delayed by several months due to a growing backlog in the Maryland State Police digital evidence unit); Patrick Healy, *Crime Lab Backlog Delays DNA Match in Serial Rapes*, NBC 4 NEWS (Sept. 26, 2013, 8:34PM), <https://www.nbclosangeles.com/news/local/Crime-Lab-Backlog-Delayed-DNA-Matches-in-Serial-Rape-Case—225282142.html> [<https://perma.cc/6Z8E-DFBR>] (delay of two years at the California Bureau of Forensic Science in obtaining DNA testing allowed a serial rapist to remain at large); Beau Minnick, *Wake Commissioners Sign Off on Firearms Lab to Ease Crime Lab Backlog*, CBS N.C. (Oct. 16, 2017, 6:20PM), <http://wncn.com/2017/10/16/wake-commissioners-sign-off-on-firearms-lab-to-ease-crime-lab-backlog/> [<https://perma.cc/L7Z6-2PEU>] (noting concern that it took eight months to receive a criminal ballistics report in an officer-involved shooting death due to backlogs in the state firearms unit in North Carolina); Mary Sell, *Funding, Drug Complexity Add to Backlog in Forensic Labs*, DECATUR DAILY (Dec. 31, 2017), http://www.decaturdaily.com/news/other_news/state_capital/funding-drug-complexity-add-to-backlog-in-forensic-labs/article_9932625b-4703-5f3b-8c3a-826ad0899ed2.html [<https://perma.cc/3S3D-QKRM>] (detailing numerous backlogs at the Alabama Department of Forensic Sciences as well as an instance where a judge was forced to release a murder suspect because forensic test results were not ready in a timely fashion).

10. See *infra* note 28 and accompanying text (discussing new “reintegration impact court” in Houston made possible by speedy drug testing).

11. See Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 9 (2009).

12. See *id.* at 1–2.

to the person's family as well.¹³ Crime survivors who have participated in the trial may be re-traumatized upon learning that the convicted person was actually innocent.¹⁴ The jurisdiction normally will pay compensation to the exoneree, often amounting to millions of taxpayer dollars.¹⁵ In some truly tragic cases, the conviction of an innocent person has left a dangerous criminal at large to prey upon additional victims.¹⁶

Thus, crime laboratories play a critical role in making the criminal justice system work for everyone in the community. Viewed in this light, it can be said that crime laboratories serve the criminal justice system as a whole, not just the police and prosecutors who request laboratory services. At the end of the day, the information contained in laboratory reports is just that—information—and everyone in the community has an interest in the timeliness and accuracy of that information.

As agencies producing critical criminal justice information, forensic laboratories should be expected to track and study their data and make it accessible to criminal justice stakeholders as well as, to the extent possible, the media and the general public. Transparency in government agencies facilitates public accountability. If a crime laboratory is persistently backlogged or has other critical issues, the public deserves to know. But, data collection has internal benefits for the crime laboratory itself as well. The ability to track and analyze a laboratory's data enables laboratory managers to diagnose problems and to develop creative solutions to those problems. Having detailed data also makes it possible for laboratory managers to document the need for additional resources in budget negotiations with the public

13. See THOMPSON, *supra* note 2, at 14–15, 22–24 (describing the experiences of exoneree George Rodriguez and that of his family).

14. *Id.* at 18–21 (describing the experiences of several survivors who participated in trials resulting in wrongful convictions); see also SERI IRAZOLA ET AL., STUDY OF VICTIM EXPERIENCES OF WRONGFUL CONVICTION 44–47 (2013) (describing that victims report having feelings of revictimization, shock, guilt, fear, and extreme reactions such as suicidal ideation, nightmares).

15. *Id.* at 25 (discussing compensation statutes and civil rights lawsuit settlements in wrongful convictions cases).

16. For example, the wrongful conviction of Michael Morton in Texas for the killing of his wife, Christine Morton, left the true killer, Mark Alan Norwood, at large. Two years later, Norwood killed another young mother, Debra Masters Baker, in the same neighborhood. *Id.* at 19.

agency that funds the laboratory or in preparing successful grant proposals.¹⁷ (Thus, it should go without saying that a crime laboratory's information technology system should be robust and secure enough to support the organization's need to process and analyze its data.)

Unfortunately, in too many cases, the lack of crime laboratory transparency has obscured the deep problems that have lurked in many laboratories across the country, allowing fundamental deficiencies in laboratory operation to go unchecked.¹⁸ Dozens of laboratory failures have come to light over the years through DNA exonerations and investigative reporting.¹⁹ Scandals have revealed laboratories with huge backlogs as well as analysts who fake lab reports ("dry-labbing"), steal drugs, cheat on proficiency tests, or are grossly incompetent.²⁰

The Houston Police Department (HPD) Crime Laboratory circa 2002 was among the many crime laboratories around the country plagued with serious issues.²¹ To address the crisis of public confidence, city leaders ultimately turned to an innovative approach in the provision of forensic services: removing the crime laboratory from police department control and turning it over to a board of directors composed of community members. Ten years after the scandal's outbreak, the City of Houston in 2012 created a local government corporation (LGC) known as the Houston Forensic Science Center (HFSC) to assume control of the police department's

17. For example, the Houston Forensic Science Center (HFSC) has dedicated itself to participating in forensic science research in order to improve its processes and advance the field. In one recent example, the HFSC latent print examiners participated in a research project with researchers from the University of Virginia. Daniel Murrie & Sharon Kelly, *Case Processing and Human Factors in Crime Laboratories*, CTR. FOR SAFE STAT. & APPLICATIONS FORENSIC SCI. (May 4, 2017), <https://forensicstats.org/portfolio-posts/981/> [<https://perma.cc/7XYM-GVQW>].

A group of leading law professors and experts in forensic science have called for the development of a "research culture" in the practice of forensic science. See Jennifer L. Mnookin et al., *The Need for a Research Culture in the Forensic Sciences*, 58 UCLA L. REV. 725, 731 (2011).

18. See THOMPSON, *supra* note 2, at 35–51 (discussing numerous types of crime laboratory scandals).

19. *Id.*

20. *Id.* at 57.

21. See *infra* notes 82–90 and accompanying text.

crime laboratory.²² This unique model of crime laboratory governance melds the efficiencies of the corporate structure with the public accountability ethos of democratic governance.

In the short time since the laboratory assumed its corporate structure, the HFSC has already produced remarkable outcomes that set the city's laboratory apart from any other forensic laboratory in the country, earning it local, national, and international recognition.²³ In only three full years of operation, the city has turned a struggling laboratory into one that is rapidly becoming a model of excellence.²⁴ Most importantly, the laboratory has (1) reduced the risk of wrongful convictions by pioneering unparalleled quality control measures;²⁵ (2) provided timely results that better assist police investigations;²⁶ and (3) enabled the judicial system to implement a new diversionary court to place drug-addicted people into treatment quickly, thereby reducing the jail population.²⁷ The laboratory's policy of testing all drugs in drug possession cases, even those in which people had already pleaded guilty, led to the discovery of hundreds of wrongful convictions.²⁸ And, the laboratory's efficiency in testing drugs quickly allowed the district attorney's office to require laboratory test results before accepting guilty pleas, avoiding more wrongful convictions.²⁹

22. *See infra* notes 108–121 and accompanying text.

23. *See infra* notes 258–276 and accompanying text.

24. *See infra* notes 258–276 and accompanying text.

25. *See infra* notes 258–276 and accompanying text.

26. *See infra* notes 258–276 and accompanying text.

27. *See* Al Ortiz, *Harris County Wins \$2 Million Grant for Plan to Reform Its Criminal Justice System*, HOUS. PUB. MEDIA (Apr. 14, 2016, 3:43PM), <https://www.houstonpublicmedia.org/articles/news/2016/04/14/145321/harris-county-wins-2-million-grant-for-plan-to-reform-its-criminal-justice-system/> [<https://perma.cc/AME3-PFHV>] (discussing creation of a “Reintegration Impact Court” to move people charged with drug possession into diversion programs and treatment quickly). Co-author Cásarez was told by one of the judges overseeing the creation of the new court that HFSC's turnaround time of delivering drug chemistry test results in a matter of a few days had enabled the county judges to establish the new court). *See infra* notes 192–194 (discussing the seven-day turnaround time for drug chemistry testing).

28. *See* Lise Olsen & Anita Hassan, *298 Wrongful Drug Convictions Identified in Ongoing Audit*, HOUS. CHRON. (July 16, 2016), <https://www.houstonchronicle.com/news/houston-texas/houston/article/298-wrongful-drug-convictions-identified-in-8382474.php> [<https://perma.cc/VEP8-LYGP>].

29. *Id.*

This Article proposes that policy makers should consider establishing their jurisdiction's crime laboratories as government corporations independent of law enforcement as a means of improving their quality and efficiency. Simply building new buildings or seeking accreditation will not solve the endemic problems that crime laboratories have faced.³⁰ Rather, we propose that crime laboratories be restructured with a new organizational framework comparable to the HFSC's status as a LGC, which has proven to be conducive to creating a new institutional culture.

From our experience with the HFSC, we also believe that crime laboratories are well-advised to embrace the three ideals that have helped transform the HFSC: transparency, efficiency, and quality. These ideals do not exist independently of each other, rather each ideal overlaps with and reinforces the others. By providing concrete examples of the three transformative ideals in operation, this Article will illustrate how even a struggling laboratory can become high-functioning in a few short years without large public expenditures. Most importantly, in our view this success can be replicated.

To determine the extent to which crime laboratories make documents pertaining to their internal operations public, we undertook an empirical study of crime laboratory transparency by researching the websites of local, state, and federal laboratories. The study tabulates the number of laboratories that provide online disclosure of critical documents, such as standard operating procedures, backlogs, and corrective action reports (also known as incident reports).³¹ Part I of the Article reports the findings of the study and provides a critical analysis of the results.³²

Part II describes the HFSC's corporate governance structure. This section demonstrates how the hybrid model of a public agency organized as a corporation offers a distinct set of advantages consistent with democratic principles, while also incorporating the

30. See *infra* note 41 and accompanying text (on the construction of new buildings).

31. See *infra* notes 64–77 (providing the results of an empirical study of major crime laboratory websites).

32. See *infra* notes 36–73 and accompanying text.

efficiencies of a private-sector corporation.³³ This part of the paper also addresses the organizational advantages of making a forensic laboratory independent of a law enforcement agency. However, we discuss advantages as viewed from the perspective of a laboratory director, rather than revisiting concerns about motivational and cognitive bias.³⁴

Finally, Part III of the Article addresses the three transformative ideals—transparency, efficiency, and quality—that have guided the HFSC’s operations and have proved critical to its success.³⁵ This section of the Article provides concrete examples to illustrate how the ideals can be put into action by laboratory administrators. This part of the paper demonstrates that, at least with regard to HFSC, the establishment of a crime laboratory as an independent LGC has generated benefits for law enforcement and crime survivors *as well as* defendants, the judiciary, and jail administrators. Indeed, by creating a transparent, high-functioning crime laboratory, the entire community wins.

I Opening the Black Box: An Empirical Study of Laboratory Transparency

Crime laboratories have found themselves subject to public scrutiny ever since wrongful convictions started coming to light with the introduction of DNA testing in the late 1980s.³⁶ Faulty forensic evidence in many of these cases laid bare a variety of failures in basic laboratory organizational competence.³⁷ As reporters began to investigate forensic laboratories, they discovered another endemic problem: massive backlogs of sexual assault kit testing requests.³⁸

33. *See infra* notes 77–114 and accompanying text.

34. *See infra* notes 115–133 and accompanying text.

35. *See infra* notes 134–303 and accompanying text.

36. *See* Garrett & Neufeld, *supra* note 11, at 4–5.

37. *See* THOMPSON, *supra* note 2, at 39 (describing the dozens of crime laboratory scandals reported around the country in areas such as drug thefts, cheating on proficiency tests, fraudulent scientific testimony, perjury related to credentials, and other quality control failures).

38. *Id.* at 46. In the latest census of crime laboratories, the 409 laboratories participating in the survey report a total of 570,100 backlogged requests in 2014, down from 895,500 in 2009. *See* MATTHEW R. DUROSE ET AL., U.S. DEP’T. OF JUSTICE, PUBLICLY FUNDED FORENSIC CRIME LABORATORIES: RESOURCES AND SERVICES, 2014, at 1 (2016). The backlog of forensic biology

In the wake of scandals, crime laboratories have disciplined and fired analysts, and some culpable analysts have even been prosecuted.³⁹ A few failed crime laboratories have closed their doors.⁴⁰ Some communities have sought to improve their crime laboratories by spending tens of millions of dollars to erect new laboratory buildings.⁴¹ A few states have created forensic science

casework rose from 103,500 in 2009 to 107,800 in 2014. *Id.* at 4.

39. See THOMPSON, *supra* note 2, at 35.

40. *Id.* For example, the San Francisco Police Department Crime Laboratory closed its Drug Analysis Laboratory in 2010 after an audit found broad systemic problems of understaffing, mismanagement, and a lack of training. See Brent Begin, *SFPD Drops Drug Testing from Crime Laboratory*, S.F. EXAMINER (May 6, 2010, 12:00AM), <http://www.sfexaminer.com/sfpd-drops-drug-testing-from-crime-lab/> [https://perma.cc/CQ9S-T3RF]. The Detroit police crime laboratory closed in 2008 due to a “shocking level of incompetence” among analysts and other systemic problems. See Corey Williams, *Error-Prone Detroit Crime Lab Shut Down*, OAKLAND PRESS NEWS (Sept. 26, 2008, 12:01AM), <http://www.theoaklandpress.com/article/OP/20080926/NEWS/309269979> [https://perma.cc/6NRV-UN53].

In 2011, the entire Nassau County, New York, laboratory closed due to “failures at all levels of the lab’s management and oversight.” Press Release, Ellen N. Biben, N.Y. State Inspector General, Inspector General Biben Finds Systemic Failures in Nassau Crime Lab Procedures, Management and Oversight (Nov. 10, 2011),

<https://ig.ny.gov/sites/default/files/pdfs/Investigation%20into%20the%20Nassau%20County%20Police%20Department%20Forensic%20Evidence%20Bureau-PR.pdf> [https://perma.cc/75X9-UPAE].

The Oregon State Police Crime Laboratory closed its handwriting analysis unit in 2012 upon finding serious error in the work of the two analysts who had worked together for thirteen years. See Bryan Denson, *Allegations of Sloppy Work, Bias, Dishonesty Dog Oregon State Police Handwriting Unit*, OREGONIAN (Nov. 17, 2012, 10:00PM),

http://www.oregonlive.com/portland/index.ssf/2012/11/allegations_of_sloppy_work_bia.html

[https://perma.cc/MTL9-CP4J]. The Fort Worth Police Crime Laboratory closed its DNA unit in 2003 after an analyst performed poorly on a proficiency test. The laboratory also suffered from backlogs, staff shortages, and an inadequate facility. See Deanna Boyd, *Crime Lab Subject of Criminal Inquiry*, STAR-TELEGRAM (Apr. 13, 2003), <http://truthinjustice.org/ft-worth-lab.htm> [https://perma.cc/K5F9-MWJV].

The HPD Crime Laboratory would similarly shutter its DNA laboratory in 2008 when the head of the unit was caught cheating on proficiency tests. See Roma Khanna, *State Hires DNA Chief Despite Houston Crime Lab Probe*, HOUS. CHRON. (Jan. 30, 2008, 6:30AM), <https://www.chron.com/news/houston-texas/article/State-hires-DNA-chief-despite-Houston-crime-lab-1785193.php> [https://perma.cc/E56P-KWUM].

More recently, the Austin (Texas) Police Department DNA lab was closed after an audit by the Texas Forensic Science Commission (TFSC) found that the laboratory was using outdated and unacceptable DNA testing methods. Leslie Rangel & Andy Jechow, *APD DNA Lab Closed for Foreseeable Future, Forensics Chief Removed*, KXAN (Dec. 16, 2016, 9:36AM), <http://kxan.com/2016/12/16/apd-dna-lab-will-not-reopen-forensics-manger-removed-from-job/> [https://perma.cc/T7PP-K9P8]. After re-opening briefly, the laboratory was indefinitely closed when it was discovered that the newly-hired DNA chief had unsatisfactory academic credentials. *Id.*

41. See Press Release, Harley Ellis Devereaux Corporation, Harley Ellis Devereaux Lead Designer for Nation’s Largest Crime Lab (May 11, 2007). New crime laboratories have been erected in Los Angeles (\$102 million); Harris County, Texas (\$75 million, includes Medical Examiner’s Office); Dallas (\$46 million); Philadelphia (\$11.45 million); Columbus, Ohio (\$11 million); Denver (\$36 million); and Nashville (\$40 million). *Id.*; Press Release, Harris County Inst. of Forensic Sci., Harris County Opens New, State-of-the-Art Building for the Harris County Institute of Forensic Sciences (Mar. 16, 2017); *Crime Laboratory*, NASHVILLE.GOV, <http://www.nashville.gov/Police->

commissions to regulate the forensic laboratories in those states.⁴² States have implemented accreditation requirements.⁴³ Some jurisdictions have opted to situate their laboratories outside of their law enforcement agencies' organizational control.⁴⁴ The federal government has provided funding for DNA backlog reduction, among other federal reform efforts.⁴⁵ Federally-appointed scientific groups have also made progress in identifying the key problems in the basic validity of various forensic disciplines.⁴⁶

Department/Administrative-Services/Forensic-Services-Division/Crime-Laboratory.aspx [https://perma.cc/4H9C-VM2Y] (last visited Mar. 6, 2018); Kevin Krause, *Dallas County's New Forensic Sciences Building Behind Schedule*, DALL. NEWS (Jul. 12, 2010), <https://www.dallasnews.com/news/news/2010/07/12/20100711-Dallas-County-s-new-forensic-sciences-9877> [https://perma.cc/WA2R-LTBW]; *Philadelphia Forensic Science Center: Project Overview*, AM. INST. OF ARCHITECTS, <http://www.ariatopen.org/node/150> [https://perma.cc/LA3G-DZEZ] (last visited Mar. 6, 2018); Mark Shaw, *Denver Police Crime Laboratory Building Tops Out*, ENR MOUNTAIN STATES (Sept. 14, 2011), <http://www.enr.com/articles/22389-new-denver-police-crime-laboratory-building-tops-out> [https://perma.cc/4ANW-AYEH]; *The Columbus Division of Police Forensic Services Bureau*, THE CITY OF COLUMBUS, <https://www.columbus.gov/police-crimelab/> [https://perma.cc/PM89-CZQY] (last visited Mar. 6, 2018). Washington D.C. spent \$215 million on a building that houses the crime laboratory in addition to other government laboratories. See *Consolidated Forensic Laboratory Project*, DC.GOV, <https://dgs.dc.gov/page/dgs-consolidated-forensic-laboratory-project> [https://perma.cc/8XBZ-P2T5] (last visited Mar. 6, 2018).

42. See Sandra Guerra Thompson & Nicole Bremner Cásarez, *Building the Infrastructure for "Justice Through Science": The Texas Model*, 119 W. VA. L. REV. 711, 717–19 (2016) (discussing the history of the TFSC and noting the existence of others in additional states as well).

43. See *id.* at 720 (discussing the accreditation requirements in Texas, as well as those now requiring analyst certification).

44. See THOMPSON, *supra* note 2, at 182 (discussing the separation from law enforcement of laboratories in Houston, Texas, Nassau County, New York, and the state police laboratory in the state of Virginia).

45. See generally Jessica D. Gabel, *Realizing Reliability in Forensic Science from the Ground Up*, 104 J. CRIM. L. & CRIMINOLOGY 289 (2014) (providing a historical account of federal reform efforts in forensic science). Jurisdictions across the country have received millions of dollars to reduce the backlog of sexual assault evidence kits. See, e.g., David Owens, *State Receives \$2.6 Million in Grants to Clear Backlog in Testing of Rape Kits*, HARTFORD COURANT (Dec. 15, 2017, 5:05PM), <http://www.courant.com/breaking-news/hc-sexual-assault-evidence-grant-1216-story.html> [https://perma.cc/58JZ-SMGR] (grants obtained by Connecticut's state laboratory). The number of untested rape kits nationally could number into the hundreds of thousands. See Steve Reilly, *No Action on Rape Kits Despite New Laws, Federal Money*, USA TODAY (July 17, 2015, 9:26AM), <https://www.usatoday.com/story/news/2015/07/17/1b-rape-kit-funding-not-being-spent-fix-problem/29902283/> [https://perma.cc/BX2D-L8FS]; see also *supra* notes 5, 9 and accompanying text.

46. See, e.g., EXEC. OFFICE OF THE PRESIDENT, PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., *FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS 1* (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf [https://perma.cc/XHP6-AQXN] [hereinafter PCAST REPORT] (addressing validity issues in comparative disciplines such as DNA comparisons, bite marks, latent fingerprints, firearm marks, footwear, and hair comparisons).

Nonetheless, media reports show that some forensic laboratories continue to fall short in terms of meeting their basic obligations to provide reliable information to the criminal justice system in a timely manner.⁴⁷ But to what extent have major forensic laboratories improved their operations? Are they accredited?⁴⁸ Do they provide public access to critical information such as standard operating procedures, training manuals, equipment manuals, and financial information? Do they tell the public about the backlogs they carry in various disciplines? Also important is whether laboratories provide public information regarding quality controls and quality-related incidents in the laboratories.⁴⁹

As a means of determining the extent to which the public can readily obtain critical information about the forensic laboratories in their areas, we conducted an empirical study of the websites of the crime laboratories that serve the most populous areas of the country, as well as some federal laboratories. In the following sections, we discuss the methodology and results of this empirical study. We conclude with some recommendations for policy makers for improving laboratory transparency.

A. *The Methodology*

We undertook a study of a fair cross section of what we determined to be the largest crime laboratories in the country. Although the information about the size of the various American laboratories is not publicly available,⁵⁰ we researched the websites of the crime laboratories in the most populous state and local

47. See THOMPSON, *supra* note 2, at 37 (addressing the types of problems observed in police crime laboratories nationally).

48. DUROSE ET AL., *supra* note 38, at 1. The U.S. Department of Justice survey found that eighty-eight percent of the nation's crime laboratories were accredited by a professional forensic science organization. *Id.* This leaves twelve percent of the crime laboratories still unaccredited, a fact that the people in those communities would have an interest in knowing. *Id.*

49. See *id.* at 7.

50. *Id.* at 1. The Department of Justice conducts a census of publicly-funded crime laboratories to determine a number of indicators relating to the types of forensic services performed, the number of requests for testing, backlog levels, the number of accredited laboratories, etc. See *id.* In the 2014 census, 409 laboratories responded to the survey, but the report does not provide a list of the laboratories or information about their size. DUROSE ET AL., *supra* note 38, at 1.

jurisdictions, as well as the most important (and undoubtedly among the largest) federal laboratories. We chose to study these laboratories under the assumption that larger jurisdictions have more resources to optimize their operational capabilities and provide a broader array of forensic services.

Our aim was to determine whether the crime laboratories serving the largest areas of the country provide public access to critical information about their operations. To do so, we identified the forensic laboratories principally serving the twenty-five most populous cities,⁵¹ the state police laboratory systems for the top twelve most populous states,⁵² and two major federal crime laboratories. The search produced a total list of thirty-four laboratories.⁵³ The websites for the thirty-four laboratories were carefully examined to determine the extent to which the laboratories made critical information public by posting it online.

We determined the information for which we would search based on past examinations of crime laboratory scandals. Media reports regarding deficient crime laboratories in the past few decades have pointed to at least three principle areas of concern: (1) lapses in basic operational competence;⁵⁴ (2) backlogs, especially in sexual assault kit evidence;⁵⁵ and (3) major budget crises.⁵⁶ At the end of the day, these three categories of information provide significant clues as to whether a laboratory can fulfill what should be its principle mission: to produce high-quality forensic test results in a timely manner.

For evidence regarding operational competence, we searched for a number of different types of documents. First, we looked for information regarding the laboratory's accreditation certificates. The

51. See U.S. CENSUS BUREAU, ANNUAL ESTIMATES OF THE RESIDENT POPULATION FOR INCORPORATED PLACES OF 50,000 OR MORE, RANKED BY JULY 1, 2016 POPULATION: APRIL 1, 2010 TO JULY 1, 2016—UNITED STATES—PLACES OF 50,000+ POPULATION (2017).

52. See U.S. CENSUS BUREAU, TABLE 1. ANNUAL ESTIMATES OF THE RESIDENT POPULATION FOR THE UNITED STATES, REGIONS, STATES, AND PUERTO RICO: APRIL 1, 2010 TO JULY 1, 2017 (2017).

53. See *infra* Table 1. Of the largest twenty-five cities, five do not operate forensic laboratories at the local level and instead receive forensic services from their state police crime laboratories. U.S. CENSUS BUREAU, *supra* note 51; U.S. CENSUS BUREAU, *supra* note 52.

54. See THOMPSON, *supra* note 2, at 44–45.

55. *Id.* at 46.

56. *Id.* at 37.

accreditation process determines whether a laboratory employs qualified people and has implemented certain quality control measures, including a written manual documenting the standard operating procedures (SOPs) for the forensic discipline being considered for accreditation.⁵⁷ (Accreditation certifications are obtained separately for each forensic discipline within the laboratory rather than for the laboratory as a whole.)⁵⁸ The fact of accreditation provides some assurance that the laboratory's procedures are appropriate, but it is not sufficient to ensure the reliability of the work produced.⁵⁹

Next, we searched the laboratory websites for copies of the SOPs for each of the forensic disciplines practiced in the laboratory. Publishing the laboratory's SOPs online provides two important benefits. First, in preparing for criminal cases to go to trial, prosecutors and defense attorneys will want to review the SOPs followed in the forensic testing of the evidence in the case. Providing online access to SOPs reduces the burden on laboratory personnel to make individual copies available during the discovery process. Defense attorneys need not file subpoenas or go through any formal process to obtain the documents. Second, analysts at other forensic

57. The leading provider of accreditation for forensic services is an organization known as ANSI-ASQ National Accreditation Board (ANAB). *See Forensic Accreditation*, ANAB, <https://www.anab.org/forensic-accreditation> [<https://perma.cc/X5WH-HC8P>] (last visited Mar. 6, 2018). The ANAB accreditation process ensures “conformance, competence, and effectiveness of the overall management system.” *See* ANAB, ACCREDITATION MANUAL FOR FORENSIC SERVICE PROVIDERS 4 (2017), <https://anab.qualtraxcloud.com/ShowDocument.aspx?ID=7183> [<https://perma.cc/K58G-WZQX>]. As a general matter, this requires documenting the laboratory section's “technical procedures, training manuals, quality manual,” and the like. *Id.* at 9. In addition, the accrediting organization will conduct an on-site assessment to ensure that the procedures are being followed. *Id.* at 10.

58. *Forensic Accreditation*, *supra* note 57 (listing numerous forensic disciplines for which accreditation is offered).

59. THOMPSON, *supra* note 2, at 194. Accredited laboratories are not immune from serious problems. *See id.* (stating that many accredited laboratories have suffered scandals of various types). Moreover, the fact of accreditation does not guarantee that the discipline itself meets basic reliability standards. For example, the ANAB website lists “odontology” as a forensic discipline that can be accredited; however, the TFSC recommended that bitmark comparison should not be admitted in criminal cases in Texas until its practitioners can demonstrate its reliability and validity using objectively measurable criteria. *See* TEX. FORENSIC SCI. COMM'N, FORENSIC BITEMARK COMPARISON COMPLAINT FILED BY NATIONAL INNOCENCE PROJECT ON BEHALF OF STEVEN MARK CHANEY—FINAL REPORT 15–16 (2016), <http://www.fsc.texas.gov/sites/default/files/FinalBiteMarkReport.pdf>; *Forensic Accreditation*, *supra* note 57.

laboratories may want to improve their own procedures, and having another laboratory's SOPs available makes it possible to readily compare how other laboratories handle similar issues within a discipline.⁶⁰

For similar reasons, we also searched for equipment manuals, training manuals, and validation information. The latter refers to the process for checking the scientific validity of any new procedure, software, or piece of equipment prior to implementation. These documents would similarly be of interest to prosecutors and defense attorneys preparing for trials, as well as employees of other laboratories. SOPs and other related information might also be relevant to a media reporter or an academic researcher.

The last type of document bearing on operational competence relates to quality assurance—specifically, the ways in which laboratories address irregularities in the laboratory when they occur. All laboratories will have situations when evidence storage, handling, or processing does not go according to SOPs. As long as humans perform tasks within a laboratory, they will make mistakes or even participate in some intentional misconduct. Assuming such incidents are properly handled, they do not necessarily reflect badly on the quality of a laboratory's performance, nor do they necessarily affect the outcome of the forensic testing at issue.⁶¹ Such irregularities should nonetheless be addressed in the laboratory, and the quality managers may need to change SOPs to prevent similar events. Because corrective action reports are important indicia of quality control, we searched the websites for corrective action reports, incident reports, or other similar reports.

60. Co-author Thompson participated in conversations regarding the HFSC's SOPs for latent print examination that were prompted by questions raised by an examiner at another laboratory who had reviewed HFSC's SOPs online. When asked why the examiner at a different laboratory would be reviewing HFSC's SOPs, the examiner in question answered that she and her colleagues had been looking for examples of SOPs online to use as models in revising their own. The HFSC's SOPs were among the very few they had found.

61. See *infra* notes 239–40 and accompanying text (discussing the changes made at HFSC to reduce the number of toxicology evidence testing requests that police officers submitted with discrepancies in the labeling); *infra* notes 305–11 (positive news coverage for detecting and properly handling a situation in which an analyst intentionally destroyed original investigation notes).

When serious problems are uncovered in a laboratory, they will often result in outside audits, either internal or external (which are often conducted by the jurisdiction's offices of inspectors general).⁶² We searched the websites of the laboratories in the study for such audit reports. In other cases, issues that arise in the practice of forensic science may call for changes in policy or protocols, and these changes are of interest to law enforcement, criminal court litigants, and the general public. We thus searched for public notices of a more general nature providing information about new protocols or policy changes directly related to the laboratory's forensic testing.

Many laboratories describe the type of work done within each forensic discipline and provide information for law enforcement about evidence handling and forms for submitting evidence for testing. We were less concerned with this type of information, which does not materially advance the public's understanding of the inner workings of the particular laboratory in question. Frequently, these general explanations of a discipline—for example, a broad definition of firearms examination—might be directed at recruiting prospective employees or informing law enforcement officers how to submit evidence. Although these generic explanations are of interest to the public as well, they do not provide specific details about the laboratory's internal operations.

Finally, as noted above, tight budgets, backlogs, and resource management issues have been of heightened public interest. Thus, we researched the availability of three types of documents relating to resource management. First, we searched for documents disclosing the laboratory's budget or other financial information. Second, we searched for information disclosing the laboratory's backlogs (whether in sexual assault kits or any other discipline). Third, we combed the websites for information demonstrating the laboratory's testing efficiency, including its turnaround time—usually referring to

62. See, e.g., THOMPSON, *supra* note 2, at 41 (Washington State Patrol 2004 internal audit); *id.* at 43 (San Francisco Police Department Crime Laboratory 2010 internal audit); *id.* at 50 (New York State Police 2008 Inspector General's audit).

the length of time from the receipt of evidence to the delivery of a laboratory report.

In the end, we researched a total of forty crime laboratories to determine the online availability of eleven types of documents. Some of these laboratories actually consist of a system of laboratories, and most operate as part of a state police agency. The forty laboratories studied make up a small fraction of the hundreds of crime laboratories that operate nationwide.⁶³ Yet, we believe this survey examines some of the laboratories best situated to provide leadership for the crime laboratory community.

B. *The Results*

It is worth noting at the outset that the survey showed one thing clearly: federal crime laboratories do not currently provide the searched-for documents. The Federal Bureau of Investigation (FBI) Crime Laboratory, for example, provides a link to publications, but most of the publications listed relate to evidence submissions by law enforcement agencies or instructions for auditors.⁶⁴ These documents do not provide information about the internal operations of the

63. The most recent national census of publicly-funded forensic crime laboratories surveyed 409 crime labs. See DUROSE ET AL., *supra* note 38, at 1.

64. See *FBI Laboratory Publication*, FBI, <https://www.fbi.gov/services/laboratory/publications> [<https://perma.cc/VJ7C-S7NF>]. The publications database is searchable, but a search for “Mayfield,” for example, yields nothing. The Brandon Mayfield case was the subject of a high-profile audit by the U.S. Office of Inspector General that was critical of the FBI’s latent print examination procedures. The report is available online at the website of the Department of Justice Office of the Inspector General. See U.S. DEP’T OF JUSTICE, OFFICE OF THE INSPECTOR GEN., OVERSIGHT AND REVIEW DIV., A REVIEW OF THE FBI’S HANDLING OF THE BRANDON MAYFIELD CASE, UNCLASSIFIED EXECUTIVE SUMMARY (2006), <https://oig.justice.gov/special/s0601/exec.pdf> [<https://perma.cc/ZAF9-GTUC>]. In fact, searches for the following words produced no documents: “training,” “validation,” “equipment,” “backlog,” “budget,” “corrective,” “turnaround time,” and “notice.” Indeed, even a search for the word “science” produced no documents. The only exception observed was in searching the word “quality,” which produced a list of eight documents, all of which were among the twenty-two documents listed on the “publications” homepage to begin with. Of those, only one of the eight documents retrieved was a quality assurance manual. This was the manual for “DNA Databasing Laboratories.” See FBI, QUALITY ASSURANCE STANDARDS FOR DNA DATABASING LABORATORIES (2011), <https://www.fbi.gov/file-repository/quality-assurance-standards-for-dna-databasing-laboratories.pdf/view> [<https://perma.cc/BK99-CLY5>]. Based on the title and content of this particular manual, its purpose is to outline the procedures required of state and local laboratories in order to access the FBI’s DNA database. This manual may provide information pertinent to the FBI laboratory’s internal practices since the FBI laboratory would presumably be included as one that uses the DNA database.

laboratory. Likewise, the Drug Enforcement Administration (DEA) Laboratory's website currently only provides a description of the laboratory's mission, a list of the forensic disciplines practiced (e.g., drug chemistry analysis, "crime scene investigation, latent fingerprint identification," etc.), and a generic (two-sentence) description of drug testing.⁶⁵

However, on February 21, 2018, the Department of Justice (DOJ) announced a new commitment to transparency as a "core value."⁶⁶ In his remarks presented at a meeting of the American Academy of Forensic Science, Deputy Attorney General Rod Rosenstein stated:

Transparency enables greater understanding, guides conduct, and promotes accountability. Most importantly, it helps maintain public trust in our legal and scientific institutions. For those reasons, in the coming months, the Department's forensic crime labs will complete the process of posting their current quality management system documents online. The postings will include laboratory policies, procedures and protocols, and existing summaries of internal validation studies.⁶⁷

Thus, it appears that the federal forensic laboratories will be making some internal information available online. The list of documents the laboratories will post does not include, however, information about backlogs and turnaround times, nor does it include incident reports or corrective action reports.

65. *Laboratories*, U.S. DRUG ENF'T ADMIN., <https://www.dea.gov/ops/laboratories.shtml> [<https://perma.cc/J3BZ-N8RQ>] (last visited Mar. 6, 2018). The only other thing provided, a link, takes viewers to a webpage for a different organization, the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) and the recommendations made by that organization. *Id.* (clicking on the link for "Scientific Working Group for the Analysis of Seized Drugs" leads to a transitory webpage that states: "The Drug Enforcement Administration does not endorse the organizations or views represented by this site and takes no responsibility for, and exercises no control over, the accuracy, accessibility, copyright or trademark compliance or legality of the material contained on this site.").

66. *See Justice News: Deputy Attorney General Rosenstein Delivers Remarks at the American Academy of Forensic Sciences*, U.S. DEP'T OF JUST. (Feb. 21, 2018), <https://www.justice.gov/opa/speech/deputy-attorney-general-rostein-delivers-remarks-american-academy-forensic-sciences> [<https://perma.cc/VZ2E-2ZSQ>].

67. *Id.*

At the state and local level, the search yielded better results. The survey of crime laboratory websites demonstrates that most laboratories provide some type of information about accreditation. Fifty-four percent (14/26) of the local laboratories surveyed and ninety-two percent (11/12) of the state laboratories surveyed provide some information about accreditation.⁶⁸ Some postaccreditation certificates⁶⁹ mention the particular type of accreditation obtained.⁷⁰ Others simply mention that the laboratory has been accredited without further elaboration.⁷¹

Aside from accreditation information, other information on these laboratory websites is sparse. Only nineteen percent (5/26) of local laboratories and twenty-five percent (3/12) of state laboratories post SOPs and training manuals. Interestingly, the same five local laboratories and the same three state laboratories that post SOPs also post training manuals.⁷² Because SOPs and training manuals are materials that litigants will routinely require laboratories to produce for trials, laboratory directors may prefer online posting for efficiency reasons. As noted above, online access to SOPs can also have other salutary effects such as providing information for the media and academic researchers, as well as for facilitating comparison by analysts at other laboratories. Fewer laboratories provide online access to equipment manuals and validation reports. Eight percent (2/26) of local laboratories and seventeen percent (2/12) of state laboratories provide online access to equipment manuals and validation reports.⁷³

68. See *infra* Tables 1–2.

69. See, e.g., *Forensic Biology Accreditation Certificates*, N.Y.C. OFF. OF THE CHIEF MED. EXAMINER, <http://www1.nyc.gov/site/ocme/services/accreditation-certificates.page> [<https://perma.cc/9BBQ-YCJ7>] (last visited Mar. 6, 2018) (providing links to accreditation certificates).

70. See, e.g., *Criminalistics Laboratory Achieves International Accreditation*, L.A. POLICE DEP'T, http://lapdonline.org/forensicscienceandtechnicaldivision/content_basic_view/51014 [<https://perma.cc/3KHD-KWKV>] (last visited Mar. 6, 2018) (disclosing the type of accreditation held).

71. See, e.g., *Crime Lab Division*, CHARLOTTE-MECKLENBURG POLICE DEP'T (2017) <http://charlottenc.gov/CMPD/Organization/Pages/SupportSvcs/CrimeLab.aspx> [<https://perma.cc/VX7C-26V4>] (mentioning only that the lab is accredited by the ASCLD/Laboratory Accreditation Board, but not mentioning the type of accreditation).

72. See *infra* Tables 1–2.

73. *Id.*

We also searched for corrective action reports, public notices, and audit reports. Like SOPs and related materials, these documents would be important to prosecutors and defense attorneys in criminal cases. Although SOPs might be regarded as neutral in terms of whether they cast the laboratory in a good or bad light, corrective action reports, public notices, and audits have a greater tendency to raise concerns about the quality of a laboratory's performance. Thus, we view the online posting of these as reflective of an organizational culture that tends toward public transparency. However, we do *not* view the failure to disclose these as necessarily reflecting a culture of secrecy. We assume that all accredited laboratories have quality managers who generate corrective action reports when incidents occur. However, many laboratories may not have the technical resources or the organizational incentives to have even considered posting such documents online. We found that eight percent (2/26) of local laboratories and eight percent (1/12) of state laboratories disclose these types of incident-related reports.

Even fewer laboratories disclose information pertinent to resource management: financial information, backlog data, or turnaround times. Here, only one local laboratory (1/26) and two state laboratories (2/12) disclose these documents. Of the local laboratories surveyed, only the HFSC posts all three of these documents. At the state level, the Texas Department of Public Safety Crime Laboratory posts turnaround times, and the North Carolina DOJ State Crime Laboratory posts financial information and backlog data.

In summary, this empirical study of major crime laboratory websites shows that, other than information about accreditation, the vast majority of crime laboratories disclose no documents relating to the laboratory's quality of performance or resource management. More than half of the local laboratories and almost all of the state laboratories disclose accreditation information, whereas for all other types of documents, the percentages of laboratories posting information drops to the twenty to twenty-five percent range for SOPs and far lower for all other types of documents. Again, we

emphasize that this failure to disclose may not reflect an intentional policy to obscure; rather, we believe it is likely to reflect the traditional organizational practices of many government agencies, such as law enforcement agencies. The lack of transparency was especially acute with the federal laboratories, which disclose none of the information for which we searched.

Table 1. Local Police Crime Laboratories for the Twenty-Five Most Populous Cities⁷⁴

74. The Authors consulted a variety of websites and the associated weblinks on each website to gather the information necessary to compile this chart. Those websites include the following: *Austin Police Department Forensic Science Division*, THE CITY OF AUSTIN, <http://www.austintexas.gov/department/forensic-science-division> [https://perma.cc/KL8N-4TGH] (last visited May 23, 2018); *Crime Lab Division*, CHARLOTTE-MECKLENBURG POLICE DEP'T (2017) <http://charlottenc.gov/CMPD/Organization/Pages/SupportSvcs/CrimeLab.aspx> [https://perma.cc/VX7C-26V4] (last visited May 23, 2018); *Crime Laboratory*, NASHVILLE.GOV, <http://www.nashville.gov/Police-Department/Administrative-Services/Forensic-Services-Division/Crime-Laboratory.aspx> [https://perma.cc/4H9C-VM2Y] (last visited May 23, 2018); *Crime Laboratory*, SANTA CLARA OFF. OF THE DISTRICT ATT'Y, <https://www.sccgov.org/sites/da/prosecution/DistrictAttorneyDepartments/Pages/Crime%20Laboratory.aspx> [https://perma.cc/4XXP-WM79] (last visited May 23, 2018); *Crime Laboratory Division Overview*, WASH. ST. PATROL, <http://www.wsp.wa.gov/forensics/crimlabs.htm> [https://perma.cc/9E99-K66F] (last visited May 23, 2018); *Criminalistics Laboratory*, TARRANT COUNTY, TEX., <http://access.tarrantcounty.com/en/medical-examiner/sections/crime-laboratory.html> [https://perma.cc/7PTK-JGK6] (last visited May 23, 2018); *Department of Forensic Sciences*, DC.GOV, <https://dfs.dc.gov/page/about-consolidated-forensic-laboratory-cfl> [https://perma.cc/2LZF-NTCF] (last visited May 23, 2018); *Detectives*, N.Y.C. POLICE DEP'T, <http://www1.nyc.gov/site/nypd/bureaus/investigative/detectives.page> [https://perma.cc/W6HG-7XP5] (last visited May 23, 2018); *Forensic Science*, THE CITY OF SAN DIEGO, <https://www.sandiego.gov/police/services/units/forensicscience> [https://perma.cc/KT6R-VK5B] (last visited May 23, 2018); *Forensic Science Division and Technical Investigation Division*, L.A. POLICE DEP'T, <http://lapdonline.org/forensicscienceandtechnicaldivision> [https://perma.cc/C29S-B33W] (last visited May 23, 2018); *Forensic Services*, S.F. POLICE DEP'T, <https://sanfranciscopolice.org/forensic-services> [https://perma.cc/796G-W4KS] (last visited May 23, 2018); *Forensic Services Agency*, THE CITY OF INDIANAPOLIS AND MARION COUNTY, <http://www.indy.gov/eGov/County/FSA/Pages/home.aspx> [https://perma.cc/3L6Y-B3J2] (last visited May 23, 2018); *Forensic Services Division*, TENN. BUREAU OF INVESTIGATION, <https://www.tn.gov/tbi/divisions/forensic-services-division.html> [https://perma.cc/6WCU-5G3T] (last visited May 23, 2018); *Home*, BEXAR COUNTY CRIM. INVESTIGATION LABORATORY, <http://home.bexar.org/crimelab/> [https://perma.cc/F73C-ESH7] (last visited May 23, 2018); *Home*, HARRIS COUNTY INST. OF FORENSIC SCI., <https://ifs.harriscountytexas.gov/Pages/default.aspx> [https://perma.cc/WPJ7-5HWS] (last visited May 23, 2018); *Home*, HOUS. FORENSIC SCI. CTR., <http://www.houstonforensicscience.org/> [https://perma.cc/2ZCA-39V3] (last visited May 23, 2018); *Laboratories*, N.Y.C. OFF. OF THE CHIEF MED. EXAMINER, <http://www1.nyc.gov/site/ocme/services/laboratories.page> [https://perma.cc/EN6L-E6N8] (last visited

Police Crime Laboratories for Twenty-Five Most Populous Cities												
City	Laboratory	Accreditation	Standard Operating Procedures	Corrective Action/Incident Reports	Training Manuals	Public Notices	Audits	Equipment Manuals	Validation Information	Financial Information	Backlogs	Turnaround Time
New York, NY	New York City Office of the Chief Medical Examiner	x	x			x						
	NYPD Forensic Investigations Unit											
Los Angeles, CA	LAPD Forensic Science Division	x										
Chicago, IL	Illinois State Police Division of Forensic Services*											
Houston, TX	Harris County Institute for Forensic Science	x										
	Houston Forensic Science Center	x	x	x	x	x	x	x	x	x	x	x
Phoenix, AZ	Phoenix Police Department Laboratory Services Bureau	x										
Philadelphia, PA	Philadelphia Forensic Science Center (no online presence other than social media)											
San Antonio, TX	Bexar County Criminal Investigation Laboratory	x	x	x	x	x	x	x				
San Diego, CA	San Diego County Regional Crime Laboratory	x										
	San Diego Police Department Forensic Science Section											
Dallas, TX	Dallas County Medical Examiners Office / Crime Investigation Lab											
San Jose, CA	The Santa Clara County District Attorney's Crime Laboratory	x										
Austin, TX	Austin Police Department Forensic Science Division	x	x			x						
Jacksonville, FL	Florida Department of Law Enforcement Crime Lab*											
San Francisco, CA	SFPD Crime Lab											
Columbus, OH	The Columbus Division of Police Forensic Services Bureau	x										
Indianapolis, IN	Indianapolis-Marion County Forensic Services Agency	x										
Fort Worth, TX	Fort Worth Crime Lab											
Charlotte, NC	Charlotte-Mecklenburg Police Department Crime Laboratory	x										
Seattle, WA	Washington State Patrol Crime Laboratory Division		x			x						
Denver, CO	The Denver Crime Laboratory	x										
El Paso, TX	Metro Crime Lab											
Washington, D.C.	DC Consolidated Forensic Laboratory											
Boston, MA	Massachusetts State Police Crime Laboratory*											
Detroit, MI	Michigan State Police Forensic Science Laboratories*											
Nashville, TN	Metropolitan Police Department's Crime Laboratory	x										
Memphis, TN	Tenn. Bureau of Investigation, Forensic Services Division*											

*Laboratories listed with an asterisk denote cities served by state forensic laboratories rather than operating local crime laboratories.

May 23, 2018); *Laboratory Services*, THE CITY OF PHX., <https://www.phoenix.gov/police/neighborhood-resources/crime-lab> [https://perma.cc/G25A-XQH6] (last visited May 23, 2018); *Major Crimes & Investigations*, DENVER POLICE DEP'T, <https://www.denvergov.org/content/denvergov/en/police-department/crime-information/major-crimes-investigations.html> [https://perma.cc/LTH9-venu] (last visited May 23, 2018); *Massachusetts State Police Crime Laboratory*, MASS.GOV, <https://www.mass.gov/orgs/massachusetts-state-police-crime-laboratory> [https://perma.cc/F3HC-G56Y] (last visited May 23, 2018); *Medical Examiners Office / Crime Investigation Lab*, DALL. COUNTY, <https://www.dallascounty.org/departments/forensics/> [https://perma.cc/6V2E-KHEP] (last visited May 23, 2018); *Metro Crime Lab*, EL PASO COUNTY SHERIFF'S OFF., <https://www.epcsheriffsoffice.com/sections-law-enforcement-bureau/investigations-division/metro-crime-lab> [https://perma.cc/8Z7G-KD2J] (last visited May 23, 2018); *Regional Crime Laboratory*, SAN DIEGO COUNTY SHERIFF'S DEP'T, <http://www.sdsheiff.net/crimelab.html> [https://perma.cc/Q2TZ-KKK2] (last visited May 23, 2018); *The Columbus Division of Police Forensic Services Bureau*, THE CITY OF COLUMBUS, <https://www.columbus.gov/police-crimelab/> [https://perma.cc/PM89-CZQY] (last visited May 23, 2018).

Table 2. State Police Crime Laboratories for the Twelve Most Populous States⁷⁵

75. The Authors consulted a variety of websites and the associated weblinks on each website to gather the information necessary to compile this chart. Those websites include the following: *Bureau of Forensic Services*, CAL. DEP'T OF JUST., <https://oag.ca.gov/bfs> [<https://perma.cc/B3XD-ZBEA>] (last visited May 23, 2018); *Bureau of Forensic Services*, PA. ST. POLICE, <http://www.psp.pa.gov/contact/Pages/Bureau-of-Forensic-Services.aspx> [<https://perma.cc/UJK8-HL92>] (last visited May 23, 2018); *Crime Lab*, OHIO ST. HIGHWAY PATROL, <http://www.statepatrol.ohio.gov/services-crimelab.aspx> [<https://perma.cc/Y973-GQP3>] (last visited May 23, 2018); *Crime Laboratory Overview*, TEX. DEP'T OF PUB. SAFETY, <https://www.dps.texas.gov/CrimeLaboratory/index.htm> [<https://perma.cc/7T74-Z8LC>] (last visited May 23, 2018); *Crime Laboratory System*, N.Y. ST. POLICE, https://troopers.ny.gov/Crime_Laboratory_System/ [<https://perma.cc/HHX5-DRXF>] (last visited May 23, 2018); *DOFS Division of Forensic Sciences*, GA. BUREAU OF INVESTIGATION, <https://dofs-gbi.georgia.gov/> [<https://perma.cc/H35K-K7WD>] (last visited May 23, 2018); *Forensics*, FLA. DEP'T OF L. ENFORCEMENT, <http://www.fdle.state.fl.us/Forensics/Forensics-Home.aspx> [<https://perma.cc/QTG9-Z5XW>] (last visited May 23, 2018); *Forensic Sciences Command Home*, ILL. ST. POLICE, <http://www.isp.state.il.us/forensics/html/main.htm> [<https://perma.cc/P53A-FQLW>] (last visited May 23, 2018); *Home*, VA. DEP'T OF FORENSIC SCI., <http://www.dfs.virginia.gov/> [<https://perma.cc/8H96-6XLG>] (last visited May 23, 2018); *Laboratories*, MICH. ST. POLICE, https://www.michigan.gov/msp/0,4643,7-123-72297_60141_60281---,00.html [<https://perma.cc/6A4Z-FPW7>] (last visited May 23, 2018); *Office of Forensic Sciences*, N.J. ST. POLICE, [<https://perma.cc/8H96-6XLG>] (last visited May 23, 2018); *State Crime Lab*, N.C. DEP'T OF JUST., <http://www.ncdoj.gov/crime-lab.aspx> [<https://perma.cc/V3MW-5DTM>] (last visited May 23, 2018).

State Police Crime Laboratories for Twelve Most Populous States											
Laboratory	Accreditation	Standard Operating Procedures	Corrective Action/Incident Reports	Training Manuals	Public Notices	Audits	Equipment Manuals	Validation Information	Financial Information	Backlogs	Turnaround Time
Calif. Dept. of Justice, Bureau of Service	x										
Texas Dept. of Public Safety Laboratory	x	x	x	x	x	x	x				x
Florida Department of Law Forensic											
New York State Police Crime System	x										
Penn. St. Police Bureau of Service	x										
Ill. St. Police Division of Forensic Services	x										
Ohio Hwy. Patrol Crime Lab	x										
Ga. Bureau of Investigation Div. of Forensic Science	x	x		x	x		x				
N.C. DOJ State Crime Lab	x					x		x	x		
Michigan State Police	x				x						
N.J. State Police Office of Sciences	x										
Va. Dep't of Forensic Science	x	x		x	x		x				

Table 3. Federal Police Crime Laboratories⁷⁶

Federal Police Crime Laboratories											
Laboratory	Accreditation	Standard Operating Procedures	Corrective Action/Incident Reports	Training Manuals	Public Notices	Audits	Equipment Manuals	Validation Information	Financial Information	Backlogs	Turnaround Time
FBI Crime Laboratory		x									
DEA Laboratory System											

II. Houston’s Independent Crime Lab: A Public Agency Organized As a Corporation

In 2002, the City of Houston, Texas, operated a traditional police crime laboratory when a major scandal broke out.⁷⁷ News reports revealed the shocking mismanagement, incompetence, and bias that infected the HPD Crime Laboratory.⁷⁸ When independent auditors opened Houston’s black box they discovered a multitude of

76. The Authors consulted two websites and the associated weblinks on both websites to gather the information necessary to compile this chart. Those websites include the following: *Laboratories*, U.S. DRUG ENF’T ADMIN., <https://www.dea.gov/ops/laboratories.shtml> [<https://perma.cc/J3BZ-N8RQ>] (last visited May 23, 2018); *Laboratory Services*, FBI, <https://www.fbi.gov/services/laboratory> [<https://perma.cc/3XLW-SG94>] (last visited May 23, 2018).

77. See THOMPSON, *supra* note 2, at 205–26 (providing a thorough discussion of the HPD Crime Laboratory’s troubled past and history of reform that culminated in the removal of the laboratory from police control); see also Thompson & Cásarez, *supra* note 42, at 715–17 (discussing the problems in the HPD Crime Laboratory circa the early 2000s).

78. See THOMPSON, *supra* note 2, at 205–26; see also Thompson & Cásarez, *supra* note 42, at 715–17.

fundamental deficiencies.⁷⁹ For at least the next seven years, a steady stream of negative publicity kept the laboratory mired in notoriety.⁸⁰ The problems in the laboratory were so extensive that one scholar described it as “the paradigmatic example of a failed forensic agency,”⁸¹ and a *New York Times* article questioned whether it was the “worst crime lab in the country.”⁸² HPD officials had taken significant steps to remedy the problems in the crime laboratory but the widespread, bad reputation of the laboratory persisted.⁸³ The HPD crime laboratory scandal served as a rude awakening to the city regarding how forensic incompetence, mismanagement, and fraud cause wrongful convictions and undermine public confidence in the criminal justice system.⁸⁴

Then in 2009, the National Academy of Sciences (NAS) landmark report on forensic science, *Strengthening Forensic Science in the United States: A Path Forward*, called on leaders at all levels of government to overhaul the practice of forensic science.⁸⁵

79. See THOMPSON, *supra* note 2, at 206. A 2002 audit of the DNA section of the HPD Crime Laboratory showed numerous fundamental problems including “poorly trained analysts, insufficient documentation of the testing process, and improper storage of physical evidence resulting in some contamination.” *Id.*

80. *Id.* at 205–11.

81. Paul C. Giannelli, *Wrongful Convictions and Forensic Science: The Need to Regulate Crime Labs*, 86 N.C. L. REV. 163, 187 (2007) (quoting Michael R. Bromwich, the Independent Investigator hired by the City of Houston to conduct an extensive investigation into the quality of the HPD Crime Laboratory).

82. See Adam Liptak, *Worst Crime Lab in the Country—Or is Houston Typical?*, N.Y. TIMES, Mar. 11, 2003.

83. See THOMPSON *supra* note 2, at 211.

84. See *id.* at 205–11 (providing a detailed account of how the HPD crime laboratory scandal unfolded).

85. See generally NAT’L RESEARCH COUNCIL, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD (2009) [hereinafter NAS REPORT]. The report voiced serious concerns regarding the regulation and oversight of forensic laboratories, the basic reliability of most forensic disciplines, and the failure of criminal courts to effectively implement *Daubert* gatekeeping for forensic evidence. *Id.* at 4–13 (providing a summary of issues addressed in the report). In 2013, Congress responded to the NAS report by establishing the National Forensic Science Commission, an advisory group for the U.S. Department of Justice, and the Organization of Scientific Area Committees, charged with developing scientific guidance to strengthen forensic disciplines and headed by the National Institute of Standards and Technology. See JOHN M. BUTLER, NAT’L COMM’N ON FORENSIC SCI. & THE ORG. OF SCI. AREA COMMS., PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON HUMAN IDENTIFICATION (2014), <https://www.nist.gov/sites/default/files/documents/forensics/Butler-ISHI-Proceedings2014.pdf> [<https://perma.cc/822U-53G9>]; *National Commission on Forensic Science*, NAT’L INST. ON SCI. & TECH. (Apr. 27, 2017), <https://www.nist.gov/topics/forensic-science/national-commission-forensic-science> [<https://perma.cc/A5B5-7JCD>]. In 2017, Attorney General Jeff Sessions

Recommendation Four of the NAS report advised that crime laboratory operations should be removed from the administrative control of law enforcement agencies.⁸⁶ From the moment the NAS report was published, it and other similar reports⁸⁷ have encountered fierce resistance from both the law enforcement and the forensic science establishments.⁸⁸ The efforts to reform forensic science disciplines, and especially the recommendation to make crime laboratories independent of their law enforcement agencies, ran counter to the norms and culture pervasive in forensic science.⁸⁹

However, in Houston, HPD officials embraced the NAS report's recommendation on laboratory independence and proposed it as a solution to the enduring problem it faced with its crime laboratory. In 2012, Houston's mayor and city council approved the creation of a LGC that would assume managerial responsibility for the crime laboratory, and in so doing, the city created a unique independent forensic laboratory.⁹⁰ A board of directors drawn from members of the community would lead the nonprofit government corporation.⁹¹ Once the plan was finally approved, the process of removing the laboratory took several years of additional negotiation between the City of Houston, including the HPD, the police union, and the

decided to terminate the National Forensic Science Commission. See Spencer S. Hsu, *Sessions Orders Justice Dept. to End Forensic Science Commission, Suspend Review Policy*, WASH. POST (Apr. 10, 2017), https://www.washingtonpost.com/local/public-safety/sessions-orders-justice-dept-to-end-forensic-science-commission-suspend-review-policy/2017/04/10/2dada0ca-1c96-11e7-9887-1a5314b56a08_story.html?utm_term=.de8b0227bcd1 [https://perma.cc/W9PX-AZQ4].

86. See NAS REPORT, *supra* note 85, at 24. The report explained that “[t]he best science is conducted in a scientific setting as opposed to a law enforcement setting. Because forensic scientists often are driven in their work by a need to answer a particular question related to the issues of a particular case, they sometimes face pressure to sacrifice appropriate methodology for the sake of expediency.” *Id.* at 23–24.

87. PCAST REPORT, *supra* note 46. In 2016, at the request of the Obama Administration, the President's Council of Advisors on Science and Technology issued a report also addressing concerns about the validity of certain “feature-comparison” forensic disciplines. *Id.*

88. See THOMPSON, *supra* note 2, at 183–87 (discussing the objections by professional organizations representing forensic scientists, forensic laboratory accreditors, police, and prosecutors to the recommendation for forensic laboratory independence); Gabel, *supra* note 45, at 322–23 (discussing the resistance of forensic science organizations to recommendations for reform).

89. See THOMPSON, *supra* note 2, at 183–87.

90. *Id.* at 212–14.

91. *Id.* at 214.

nascent board of directors.⁹² Two years later, in April of 2014, the HPD Crime Laboratory officially ceased to exist, and in its place, the HFSC became the city's crime laboratory.⁹³ Thus began the Houston laboratory experiment.

From its inception, the HFSC's entire *raison d'être* has been to provide high-quality, reliable forensic services to the community. Houston city officials created the HFSC for the express purpose of replacing the error-plagued HPD crime laboratory with a forensic center run by scientists where high scientific standards would be paramount.⁹⁴ Former Houston Mayor Annise Parker, who spearheaded the HFSC's formation, set high expectations for the new laboratory, which she hoped would become "a first class crime lab that is the envy of the United States."⁹⁵

With the new laboratory, city leaders hoped to restore public faith in the criminal justice system and to respond to the outcry over the massive backlog in sexual assault kits. Thus, the city also invested \$2.2 million in 2012, matched by an equivalent amount from a federal grant, to outsource over 6,600 sexual assault kits that had accumulated while the laboratory was under police management, sending them to private laboratories for immediate testing.⁹⁶ Thereafter, the city provided the Houston laboratory budgetary support adequate to maintain its normal caseload.⁹⁷

In the end, it might be said the City of Houston built a new laboratory not by investing in brick and mortar for a new physical structure, but by adopting a novel organizational structure that has allowed a healthy corporate culture to flourish. The legal framework provided by state law makes the Houston laboratory a model

92. *Id.* at 212–14; *see also* FIRST INTERLOCAL AGREEMENT BETWEEN THE CITY OF HOUSTON AND HOUSTON FORENSIC SCIENCE LGC, INC. (2014), <http://www.houstonforensicscience.org/resources/596e2162P9McWeement.pdf> [<https://perma.cc/36XV-AEVA>].

93. *See* THOMPSON, *supra* note 2, at 222.

94. *Id.* at 211–14.

95. Laurie Johnson, *Houston Creates Independent Crime Lab*, HOUS. PUB. MEDIA (June 6, 2012, 9:25PM), <https://www.houstonpublicmedia.org/articles/news/2012/06/06/35784/houston-creates-independent-crime-lab/> [<https://perma.cc/B5FQ-7XF2>].

96. *See* THOMPSON, *supra* note 2, at 221.

97. *Id.*

replicable across the state, and similar laws make it replicable around the country as well.⁹⁸ In the sections that follow, we discuss the corporate organizational structure, the laboratory's legal obligations as a *public* agency, and the laboratory's relationships with stakeholders, including law enforcement.

A. Houston Forensic Science Center as a Nonprofit Corporation and Public Agency

Once emancipated, the laboratory assumed the organizational structure of a LGC.⁹⁹ Texas law allows municipalities or counties to form nonprofit LGCs to act on behalf of the government.¹⁰⁰ The LGC as a legal entity most closely resembles that of a municipality or library district by being a government corporation that is predominantly tax-funded.¹⁰¹ LGCs are structured as nonprofit corporations,¹⁰² sharing the organizational model of nonprofit corporations that exist in the private sector.¹⁰³ For example, LGCs—like private sector nonprofit enterprises—are barred from distributing their net earnings or profits; they exist to serve a particular purpose, and they are governed by a board of directors.¹⁰⁴

However, the LGC differs from private sector nonprofits in important ways. Most notably, as public entities, LGCs are established to serve a municipal purpose, thus making them public

98. See Nadav Shoked, *Quasi-Cities*, 93 B.U. L. REV. 1971, 1981–82 (2013); see also *infra* notes 102–05 and accompanying text.

99. See THOMPSON, *supra* note 2, at 214.

100. TEX. TRANSP. CODE ANN. § 431.101 (West 2011). Chapter 431 of the Texas Transportation Code sets specific guidelines for the creation and operation of LGCs within the State. *Id.*

101. See KATHRYN A. FOSTER, *THE POLITICAL ECONOMY OF SPECIAL-PURPOSE GOVERNMENT* 9, fig. 1-2 (1997) (comparing different types of special districts, which includes government corporations).

102. See TEX. TRANSP. CODE ANN. § 431.006 (West 1995) (making LGCs subject to the Texas Non-Profit Corporation Act).

103. See Henry B. Hansmann, *The Role of Nonprofit Enterprises*, 89 YALE L.J. 835, 840 (1980).

104. *Id.* at 839–40. The LGC in Texas is a nonmember, nonstock corporation. TEX. TRANSP. CODE ANN. § 431.024(b) (West 1995). As a nonprofit corporation, “its earnings may not benefit a private interest.” *Id.* The articles of incorporation must include: (1) the names and addresses of the initial members of the board of directors; (2) provisions for the regulation of the internal affairs of the organization; and (3) a resolution specifically authorizing the corporation to act on behalf of the government entity creating it to further a specific public purpose. *Id.* § 431.025 (7), (9), (10)(A) (respectively).

agencies.¹⁰⁵ LGCs operate more like special districts established under state law to further particular municipal purposes or to act in a fashion similar to cities.¹⁰⁶ Under Texas law, this means LGCs must abide by state laws requiring certain operational transparency in serving their public missions.¹⁰⁷ The law authorizing the creation of LGCs requires that they comply with both the open-meetings and open-records laws applicable to other government agencies.¹⁰⁸

The corporate form of an LGC offers numerous advantages both for the local government¹⁰⁹ as well as for the corporate entity. Relevant to forensic laboratories, the creation of an LGC or similar corporate entity relieves local elected officials from managing the day-to-day operations of the organization, allowing those officials to concentrate on other local priorities. A board of directors and the corporate officers bear the responsibility for meeting the LGC objectives. As a political matter, however, elected officials will still be held to account for any problems that occur within an LGC, which is still essentially viewed as a municipal agency. To insulate the LGC from political pressures, Houston's city leaders provided in HFSC's Certificate of Formation that its directors may only be removed for cause.¹¹⁰ The HFSC board consists of community members who represent diverse constituencies (the judiciary, law enforcement, the defense bar, university research scientists, etc.).¹¹¹ This fact can imbue the board's decisions with greater legitimacy and credibility when politically sensitive issues may arise.

105. See Shoked, *supra* note 98, at 1981–82 (discussing the meaning of “municipal purposes” for special districts as referring to “governmental” or “public,” and setting special districts apart from private corporations for this reason). In this regard, LGCs resemble special districts that have been created to serve specific municipal purposes or as a type of quasi-city government. *Id.*

106. *Id.*; see also FOSTER, *supra* note 101, at 8–10 (addressing the mix of public and private qualities in special-purpose government districts).

107. See TEX. TRANSP. CODE ANN. § 431.004 (West 1995) (open meetings); TEX. TRANSP. CODE ANN. § 431.005 (West 1995) (open records).

108. TEX. TRANSP. CODE ANN. §§ 431.004–005 (West 1995); see also *infra* notes 143–45 and accompanying text.

109. See FOSTER, *supra* note 101, at 101–03 (addressing advantages to local government officials from shifting certain services to special-purpose government entities).

110. See CERTIFICATE OF FORMATION, HOUSTON FORENSIC SCIENCE LGC, INC. 2 art. VI.D. (June 26, 2012), [http://houstonforensicscience.org/resources/\\$1\\$Ceq3tCy9\\$yvywgiarbd00S.Sedtx.pdf](http://houstonforensicscience.org/resources/1Ceq3tCy9$yvywgiarbd00S.Sedtx.pdf) [<https://perma.cc/5FF9-MNS2>].

111. THOMPSON, *supra* note 2, at 215.

Putting a board of directors in charge of a forensic laboratory means that the board bears ultimate responsibility for any laboratory failures. Like board members of all corporations, the HFSC directors have fiduciary duties of care and loyalty that encourage board members to internalize organizational norms and to act with diligence.¹¹² Board members implement their oversight responsibility by requiring laboratory managers to provide regular reports of the organization's key data points to track the laboratory's progress in meeting the board's goals.¹¹³ Thus, the most important benefit to a municipality in establishing forensic laboratories as LGCs is the creation of a business climate that incentivizes the production of reasonably-priced, high-quality scientific products.¹¹⁴

The board of directors can also insulate laboratory managers from some of the internal political challenges with other local agencies and external political challenges with the media. Board members can meet with city representatives when problems may arise or to discuss resource issues. Board members also attend meetings with the city finance department and make high-level decisions about the mission and management of the laboratory. Even in speaking with the media, board members can lend support.

B. The Advantages of Independence

The NAS recommendation to remove crime laboratories from the organizational control of their parent law enforcement agencies has gained virtually no traction since the release of the 2009 report.¹¹⁵ Proponents of laboratory independence usually focus on the potential for conscious or unconscious bias that can result from the close connection to law enforcement.¹¹⁶ Not surprisingly, concerns about

112. Board members must abide by organizational policies regarding conflicts of interest, the acceptance of gifts, and the like. The duties of office require directors to act in the organization's best interests. See HOUS. FORENSIC SCI. LGC, INC., BYLAWS 3 §§ 2.12–2.14 (2012).

113. HOUS. FORENSIC SCI. CTR., QUALITY MANUAL 15 (2016) [hereinafter QUALITY MANUAL].

114. To assist the HFSC Board of Directors, the board has created a Technical Advisory Group. See CERTIFICATE OF FORMATION, *supra* note 110, at 4 art. VIII.

115. THOMPSON, *supra* note 2, at 182 (finding only a few troubled laboratories that have been removed from law enforcement agencies).

116. See *id.* at 129–33 (addressing conscious and unconscious biases that can affect the practice of

bias in forensic science attract fierce opposition from the forensic science and law enforcement communities.¹¹⁷ Most representatives of forensic science viewed the recommendation to make laboratories independent as one that challenged their ability to perform unbiased science from within law enforcement agencies. Their reaction was to reject the proposal and defend the ethics of the profession. For example, representatives of the American Society of Crime Laboratory Directors (ASCLD) testified to Congress to this effect: “The practice of forensic science is built on a foundation of ethics and objectivity that must be supported at all levels in the organization.”¹¹⁸ Therefore, they argued, “Congress [] should not remove crime laboratories from parent agencies if the parent agency is required to document how the crime laboratories have scientific autonomy with the freedom to conduct testing and report results without pressure from activity, interest, or influence.”¹¹⁹ Representatives of the International Association of Identification similarly stated, “It is a great stretch to believe that a professional analyst would risk their [sic] integrity and jeopardize the rights and freedoms of the innocent to satisfy some desire to be ‘accepted’ by clients and client agencies.”¹²⁰

We hope here to sidestep the debate over ethics and cognitive bias and focus instead on how best to create the optimal conditions for the practice of forensic science. Our experience with the HFSC has brought to light many important benefits—*benefits enjoyed by the laboratory’s leadership*—that result from the laboratory’s status as an independent entity, rather than operating as a division of a larger organization. For our purposes, and in this limited sense, it is irrelevant that the laboratories would be removed from agencies

forensic science); Paul C. Giannelli, *Independent Crime Laboratories: The Problem of Motivational and Cognitive Bias*, 2 UTAH L. REV. 247, 261–62 (2010) (calling for independent laboratories as one measure to address motivational and cognitive bias).

117. THOMPSON, *supra* note 2, at 183–87.

118. *The Need to Strengthen Forensic Science in the United States: The National Academy of Sciences’ Report on a Path Forward: Hearing Before the Senate Committee on the Judiciary*, 111th Cong. 25 (2009) (letter from Dean Gialamas and Beth Greene).

119. *Id.* at 25–26.

120. *Id.* at 44 (letter of Robert J. Garrett, President, International Association for Identification).

dedicated to law enforcement. The point is that there are numerous advantages that flow from becoming a stand-alone agency.

In this section, we draw primarily from the talk given by the HFSC President and CEO, Dr. Peter Stout, at an international symposium organized by the National Institute of Standards and Technology (NIST) in 2017.¹²¹ Unlike crime laboratories that operate as divisions within larger law enforcement organizations, the HFSC is headed by a scientist who solely focuses on the needs of the laboratory. The board of directors to whom Stout answers is likewise focused solely on the interests of the laboratory. Thus, the laboratory does not compete for resources with other departments within the same organization.

Laboratory independence does not mean that the laboratory cannot also consider the interests and concerns of other agencies, such as the police department, the prosecution, crime survivors, the defense bar, and the courts. In fact, the HFSC regularly meets with the criminal justice stakeholders and strives to provide forensic services in a manner that best serves the interests of the criminal justice system. However, making the laboratory independent of the police department effectively elevated the stature of the laboratory vis-à-vis the other stakeholder agencies, making it an equal partner in the cooperative venture of fostering a fair and effective criminal justice system. As Stout puts it, “independent does not mean disconnected. Independent does not mean that we can’t deal with HPD, deal with the DAs, deal with the City.”¹²² At the same time, for a stand-alone laboratory like HFSC, independence primarily means that the forensic laboratory is in a position of what Stout calls “parity.” He explained:

Really I think what we’re after is that the laboratory is in a position of better parity with other stakeholders. That we’re

121. Peter Stout, President and CEO, Hous. Forensic Sci. Ctr., *The Recovery of Houston at the 2017 International Forensic Science Error Management Symposium* (July 24, 2017), <https://www.nist.gov/news-events/events/2017/07/2017-international-forensic-science-error-management-symposium> [<https://perma.cc/69FD-GGHB>].

122. *Id.*

not somehow subservient to prosecution. That we're not subservient to law enforcement. We still have to work with them. Much of this is a negotiation. But we're more of an equal partner in that negotiation.¹²³

Other critical benefits of being an independent agency relate to managerial agility and control. To operate an efficient operation, a manager should have the authority to act on behalf of the organization without excessive bureaucracy. Stout explains this as follows: "We control our procurement, lock, stock, and barrel. I can move really fast on procurement. This doesn't mean I'm not accountable for stuff, and nowhere in independent does that mean I'm not accountable."¹²⁴ As an independent entity, the head of the agency has the legal authority to bind the corporation in contracts up to a fairly high dollar amount,¹²⁵ beyond which board approval is required.¹²⁶

Another aspect of managerial control is the authority to hire and fire employees. For laboratories within police departments, laboratory directors generally must work through the organization's human resources department and the top law enforcement officer. Moreover, analysts working in crime laboratories are often covered by a state's civil service laws that give a review board the ultimate authority to discipline or terminate an employee.¹²⁷ For example, in the early 2000s when scandal plagued the HPD Crime Laboratory,

123. *Id.*

124. *Id.*

125. The chief officers of the corporation have authority to spend up to \$200,000 without board approval. *See* HOUS. FORENSIC SCI. CORP. INC., RES. NO. 2015-001, RESOLUTION REGARDING AUTHORITY TO WITHDRAW FUNDS OF THE CORPORATION (on file with authors).

126. *See* Stout, *supra* note 121. Relatedly, Dr. Stout points to his ability as the head of the organization to decide what type of quality controls the organization implements. *Id.* Because quality should be a critical goal for any forensic laboratory, it is crucial for a laboratory director to have the authority to control the cost-benefit assessment regarding quality control measures. The HFSC has adopted blind quality controls that are unique in this country and that have garnered keen interest nationally and internationally. *See infra* notes 229–44 and accompanying text.

127. *See* Sally Coleman Seldon et al., *Human Resource Practices in State Government: Findings from a National Survey*, 61 PUB. ADMIN. REV. 598, 606 (2001) (examining concerns about the cumbersome civil service systems that may impede a public manager's ability to manage and make critical personnel decisions). Civil service laws were designed to encourage the professionalization of policing by reducing the incidence of politically-motivated dismissals. *Id.*

the police chief fired one analyst for incompetence after her work was found to have caused a wrongful conviction.¹²⁸ Through the civil service process, she was reinstated to her position less than a month later.¹²⁹ For an independent laboratory like HFSC, as Stout puts it, “[w]e control HR. I control hiring and firing—gigantic advantage.”¹³⁰

Finally, in this Article we devote much attention to the question of operational transparency in a crime laboratory.¹³¹ Reformers often seek institutional transparency as a means of ensuring accountability, and one might expect resistance from those being supervised. However, the matter can be viewed from a different perspective. When an issue arises in a crime laboratory that should be disclosed to the public, a crime laboratory director may *want* to disclose this to stakeholders. But most laboratory directors do not have ultimate authority to decide whether to disclose the information. In contrast, in an independent laboratory, the decision whether to disclose information rests with the laboratory director. As Stout explains to his fellow forensic scientists:

We control message We have to own the responsibility for that. When we get it wrong, we can say, ‘we got it wrong.’ Think about what that means. Think about the number of times you as a scientist have said, ‘but we should tell someone’ and somebody else says, ‘no.’ We [at HFSC] have far less of that filter between us and putting stuff out. It is a big responsibility. We control what transparent means for us . . . how much information we put out.¹³²

Thus, it bears mentioning that the lack of organizational transparency that exists with most crime laboratories may be a function of the

128. See Roma Khanna & Steve McVicker, *Fired DNA Analyst to Return to Work at Crime Lab*, HOUS. CHRON. (Jan. 8, 2004, 6:30 AM), <http://www.chron.com/news/houston-texas/article/Fired-DNA-analyst-to-return-to-work-at-crime-lab-1609733.php> [<https://perma.cc/AA3N-YK39>].

129. *Id.*

130. See Stout, *supra* note 121.

131. See *infra* notes 137–72 and accompanying text.

132. See Stout, *supra* note 121.

practices of the law enforcement agency within which the laboratories operate. Even if laboratory directors wanted to provide public access to more information, departmental policies may not allow it. By contrast, at HFSC, disclosure policies are decided by the laboratory director on a day-to-day basis in consultation with the board chair.

In short, the suggestion that laboratories should be independent from law enforcement need not be viewed as a threat to traditional crime laboratories or as an insult to law enforcement agencies. On the contrary, both institutions can benefit by the separation.¹³³ Nor should it be viewed as an indictment of the integrity or competence of the forensic science profession. Rather, the proposal to remove a crime laboratory from its parent law enforcement agency should be viewed as a means of elevating the status of the laboratory, to put it on par with the other critical players—the police, the prosecution, the defense, and the judiciary. Organizational independence also means that the laboratory becomes more efficient in making procurement decisions, resource allocation decisions, and human resource decisions. As a stand-alone operation, an independent forensic laboratory can also adopt policies that favor maximum transparency without the need to get approval from the leadership of the law enforcement agency.

133. Law enforcement officials take the political heat when their laboratories fail, as happened recently in Austin, Texas, when the police department's DNA laboratory was closed after it was found to be doing shoddy work. *See, e.g.,* Rangel & Jechow, *supra* note 40 (reporting on the Austin Interim Police Chief's apology for the failures of the department's DNA laboratory). Following that discovery, a person who turned out to be unqualified for the position was hired to lead the laboratory and then quickly fired. *Id.* Making laboratories independent of police agencies would relieve them of the responsibility for overseeing a scientific enterprise and make scientists responsible instead. The debacle in Austin prompted a call for the creation of an independent crime laboratory. *See* Katie Hall, *Travis County Judges: Separate Forensic Lab from Austin Police Department*, AUSTIN STATESMAN (Dec. 6, 2016, 8:55PM), <http://www.statesman.com/news/local/travis-county-judges-separate-forensic-lab-from-austin-police-department/c16HwOfL231BqEqbyqt8PI/> [<https://perma.cc/V5X6-Z7J4>]; Jennifer Laurin, *Why It's Time for an Independent Crime Lab in Austin*, AUSTIN AM.-STATESMAN (Oct. 3, 2017, 11:55AM), <http://www.mystatesman.com/news/opinion/commentary-why-time-for-independent-crime-lab-austin/ldHG3MfRAQZADeZZSBWFeJ/> [<https://perma.cc/NA9Q-LEMW>].

III. *Three Transformative Ideals in Practice*

When the HFSC began, the board of directors set out to regain public confidence in the crime laboratory. The years of scandals had led to a complete breakdown of trust, and city leaders tasked the new board with turning the organization around. From the first meeting and at every subsequent meeting, laboratory managers faced board members eager to know about the laboratory's performance.¹³⁴ Is the laboratory making progress in getting all sections accredited? Are there backlogs in the various disciplines? What is the laboratory doing to make the process more efficient while still implementing proper quality assurance measures? To meet the board's expectations, laboratory managers have been incentivized to improve the efficiency of laboratory processes and to make quality a top organizational priority.¹³⁵

Thus, the HFSC's remarkable transformation, detailed above, was achieved in large part because the laboratory leadership implemented three ideals that have transformed the culture of the organization: transparency, efficiency, and quality.¹³⁶ It could be argued, however, that any crime laboratory—including those embedded within law enforcement agencies—could just as easily adopt these principles and thereby replicate the HFSC's success. Although this argument may be true to a limited extent, we believe that the HFSC's unique, independent corporate structure provides a superior framework for empowering laboratory management to embrace and operationalize these ideals, as well as to maintain adherence to these ideals over time.

Idealistic platitudes, while easy to recite, are much harder to execute. The following sections illustrate, using real life examples, how the HFSC has put these three core ideals into practice in ways

134. These interactions can be observed at any Board meeting, almost all of which are videotaped and available online. See *Our Meeting Archive*, HOUS. FORENSIC SCI. CTR., <http://www.houstonforensicscience.org/meeting-archives.php> [https://perma.cc/ZS9H-XDB9] (last visited Mar. 21, 2018).

135. See QUALITY MANUAL, *supra* note 113, at 15.

136. See *supra* notes 21–30 and accompanying text.

that have benefited the criminal justice system and the community at large.

A. Transparency

As long-time HFSC board members who had front row seats to the laboratory's creation and operation, we believe that nothing has been more important to the laboratory's success than its embrace of what many traditional crime laboratory directors would consider to be radical transparency. In part, as a result of the intense publicity surrounding the HPD Crime Laboratory scandals,¹³⁷ board members as well as HFSC management realized early on that only by opening up the HFSC to public scrutiny could the laboratory regain community trust.¹³⁸ As a LGC, HFSC board meetings must be open to the public under the Texas Open Meetings Act.¹³⁹ However, the HFSC board went far beyond the law's requirements in making the organization transparent.¹⁴⁰ For one thing, from its first few meetings in 2012, the board also videotaped its sessions and made the recordings accessible on the HFSC website archive.¹⁴¹

The first board chair also invited criminal justice stakeholders to attend board meetings and share their concerns, issues, and goals for the new independent entity.¹⁴² By having stakeholders attend board

137. *See supra* notes 77–86 and accompanying text.

138. *See, e.g.*, Darrell Stein & Ramit Plushnick-Masti, *Enhancing Transparency in Forensic Science*, in CONFERENCE PROCEEDINGS: 2015 IMPRESSION, PATTERN, & TRACE EVIDENCE SYMPOSIUM 52 (Roper-Miller, Daye & Eldridge eds. 2015) (describing how transparency at the HFSC requires “sharing with the public not only our successes, but also our mistakes, the steps we take to correct them, and the lessons we learn in the process”).

139. The Texas Government Code requires that the HFSC, as a municipal governmental body, must make its meetings open to the public and must give written notice of the date, hour, place, and subject of each meeting. TEX. GOV'T. CODE ANN. §§ 551.002, 551.041 (West 2013). The Texas Open Meetings Act is made applicable to LGCs by TEX. TRANSP. CODE ANN. § 431.004 (West 2013).

140. Texas law requires either the preparation of minutes of each meeting or the recording of the meeting. TEX. GOV. CODE ANN. § 551.021 (West 2013). The HFSC does both. State law designates both types of memorialization as public record, requiring only that they “shall be available for public inspection and copying on request.” *Id.* § 551.022.

141. *See supra* note 134. The practice of videotaping began with the Board's second meeting, held on July 9, 2012. *Id.*

142. *See, e.g.*, HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 2 (Aug. 1, 2012), <http://www.houstonforensicscience.org/meeting/57714df3bXhao120801.pdf> [<https://perma.cc/3A2R-L2T7>]; HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 2–3 (Aug. 22, 2012),

meetings, board members could better assess the needs and priorities of community stakeholders, and stakeholders became aware of the new laboratory organization.

It was thanks to input from one of those stakeholders that the HFSC became aware of the need to prioritize another of its transparency goals: the ability to provide full, online access to case documentation to all participants in the criminal justice system, including the criminal defense bar. In June 2015, the Chief Public Defender for Harris County reached out to two board members¹⁴³ regarding a potential issue with the laboratory's controlled substances section.¹⁴⁴ The Harris County District Attorney's Office, which had limited access to the HFSC's original Laboratory Information Management System (LIMS), routinely downloaded copies of the laboratory's one-page summary report in drug cases and provided it to defense counsel.¹⁴⁵ Those summary reports, known as one-liners, indicated only the presence or absence of a controlled substance without detailing the various tests performed by laboratory analysts to reach that determination.¹⁴⁶ The fear in the public defender's office (PDO) was that by failing to provide a complete picture of the forensic analyses performed, one-liners could potentially conceal from defense counsel exculpatory information, such as the need for or extent of any retesting.¹⁴⁷

<http://www.houstonforensicscience.org/meeting/57714e7eGkpYO120822.pdf> [https://perma.cc/G638-RAFF]. For example, the HFSC's August 2012 meetings included appearances from and discussions with a senior policy analyst from the Innocence Project, a Houston City Councilmember, a representative from the local district attorney's office, the chief public defender for Harris County, a member of the TFSC, and Michael Bromwich, the independent auditor hired by the City of Houston to conduct an extensive investigation into the problems surrounding the HPD Crime Laboratory. HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 2 (Aug. 1, 2012); HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 2-3 (Aug. 22, 2012).

143. See E-mail from Alex Bunin, Chief Harris County Public Defender, to Anthony Graves and Nicole B. Cásarez, HFSC Board Chair (June 25, 2015, 10:24 AM CST) (on file with authors). Underscoring the value of a diverse board, the two Board members contacted were exonerée Anthony Graves and one of the attorneys who had served as a member of Mr. Graves's defense team, Nicole B. Cásarez. *Id.*

144. *Id.*

145. Letter from Tom P. Allen, Acting HFSC General Counsel, to Dick Bax, General Counsel, Harris County District Attorney's Office (July 16, 2015) (on file with authors).

146. *Id.*

147. E-mail from Alex Bunin, Chief Harris County Public Defender, to Nicole Cásarez, HFSC Board Chair (June 25, 2015, 2:32 PM CST) (on file with authors).

At that time, the HFSC made its complete analysis report (which detailed the number and types of tests performed) available to prosecutors upon request, while defense counsel were required to obtain a discovery order to receive the same documentation.¹⁴⁸ After meeting with PDO representatives, HFSC management agreed that the laboratory needed to provide both the prosecution and defense counsel in drug cases with comprehensive case documentation. HFSC's chief operating officer proposed what appeared to be an ideal solution: the creation of a password-protected portal linked to the HFSC website where lawyers connected with a case could directly access complete laboratory reports that included all underlying documentation.¹⁴⁹ Unfortunately, in 2015, HFSC's version of LIMS would not support the creation of an online portal. As a stopgap measure, the HFSC added a statement to all its case reports (including the one-liner summary reports) noting that lawyers connected with a drug case could obtain complete documentation from the HFSC with a simple email request.¹⁵⁰

Over the next year, the HFSC worked to create a website to provide much more robust online information about laboratory operations,¹⁵¹ including an online link that allowed for immediate access to HFSC standard operating procedures, incident reports, and corrective action reports.¹⁵² In the past, these documents had been available only via public information act requests or a court discovery order, a time-consuming and expensive process that required HFSC staff to burn copies of documents to computer disks that were then mailed to the requesting party.¹⁵³ By May 2017, the HFSC's eDiscovery website had been upgraded to a searchable

148. See Letter from Tom P. Allen, *supra* note 145.

149. See E-mail from Peter Stout, HFSC Chief Operations Officer, to Alex Bunin, Harris County PDO (July 20, 2015) (on file with authors).

150. See Letter from Tom P. Allen, *supra* note 145.

151. See *supra* notes 78–82 and accompanying text, regarding online disclosure of HFSC backlogs and turnaround times.

152. See Press Release, Hous. Forensic Sci. Ctr., HFSC Builds Website to Help Attorneys Easily Access Documents for Trial (July 6, 2016), <http://www.houstonforensicscience.org/news/577d139bZYOgOcovery.pdf> [https://perma.cc/NVB8-BMZK].

153. See *id.*

format, allowing attorneys, reporters, and members of the public to find relevant documents using key word searches and filters.¹⁵⁴

Although the HFSC is currently transitioning to a new LIMS that could support the password-protected portal envisioned back in 2015, it no longer appears to be necessary. The interim measures taken by the HFSC, including (1) creating a searchable eDiscovery website and (2) allowing defense attorneys to obtain case-specific documents via email request without the need for a court order, satisfactorily resolved the issues that had previously existed.¹⁵⁵ Additionally, the number of public information act requests received by the laboratory since the creation of the eDiscovery website has diminished significantly.¹⁵⁶ While the HFSC has pursued radical transparency as a way to strengthen public trust in its operations, its commitment to transparency has resulted in an added benefit: the creation of a more efficient criminal justice system that saves time and money for all participants.

The HFSC's commitment to transparency has also improved the use of forensic evidence in court by both the prosecution and defense. This can be illustrated with an example that stems from the same June 2015 meeting between HFSC representatives and the PDO described above. Because HFSC's complete controlled substance reports often show that multiple tests have been conducted on the same evidence, public defenders feared that HFSC analysts were engaged in a pattern of testing, retesting, and possibly even manipulating evidence until positive results could be obtained.¹⁵⁷ Their concern made perfect intuitive sense: why else would the

154. See Press Release, Hous. Forensic Sci. Ctr., HFSC Launches Improved Website Containing Trial Documents (May 10, 2017), <http://www.houstonforensicscience.org/news/5914a564Pu5D1covery.pdf> [<https://perma.cc/4Z3Y-TRDB>]. Because of privacy and confidentiality concerns, case-specific information cannot be made available on the public website. *Id.*

155. Lab management realized that, for an online portal to work, defense lawyers would have to apply for a password for each specific case via email. Therefore, it made more sense to allow defense lawyers to simply request case-specific documents via email. The temporary solution proved to be more efficient than the ideal one. See E-mail from Peter Stout, HFSC Chief Executive Officer, to co-author (Mar. 8, 2018) (on file with authors).

156. See E-mail from Ramit Pushnick-Masti, HFSC Communications Director, to co-author (Mar. 12, 2018) (on file with authors).

157. See E-mail from Alex Bunin, *supra* note 147.

laboratory test a substance a second time after the first test failed to identify an illicit drug?

Once aware of these fears, lab management organized an information session among PDO and HFSC representatives to clarify lab protocols for identifying controlled substances.¹⁵⁸ At the meeting, the head of HFSC's controlled substances section explained that analysts must often perform more than one type of test to determine a sample's chemical composition. As a result, multiple tests may be conducted as part of the process of elimination, to either exclude or confirm the presence of distinct chemical compounds.¹⁵⁹ Through this open dialogue, PDO attorneys gained a better understanding of laboratory processes, which, in turn, allows them to better represent their clients. We believe it also helped build a relationship of trust between the PDO and the HFSC, so any future issues can be addressed openly and for the benefit of all stakeholders. Since then, HFSC representatives have provided similar information sessions to lawyers with the district attorney's office and other criminal defense organizations.¹⁶⁰

A real commitment to transparency also requires a crime laboratory to take proactive steps to inform the community regarding issues that could affect public health and safety. An example showing how transparency can educate citizens and potentially save lives occurred in 2017, when HFSC drug analysts confirmed that drugs seized in Houston contained the powerful synthetic tranquilizer carfentanil—a drug so potent that a dose the size of a grain of salt can be fatal.¹⁶¹ The drug has been found cut with heroin and added to

158. See E-mail from Peter Stout, HFSC Chief Operating Officer, to James T. Miller, Head of HFSC Controlled Substances Div., et al. (Aug. 26, 2015, 12:11 PM) (on file with authors). At the same meeting, HFSC representatives also answered questions regarding DNA mixture recalculations—another complex area where criminal defense attorneys can benefit from greater understanding of laboratory processes. *Id.*

159. See E-mail from James T. Miller, HFSC Manager of Seized Drugs, to co-author (Mar. 13, 2018) (on file with authors).

160. See Hous. Forensic Sci. Ctr., “Analyzing and Interpreting Evidence and E-Discovery” Seminar (brochure on file with authors). For example, on November 9, 2017, the HFSC held a half-day seminar on forensic evidence for lawyers that was approved by the State Bar of Texas for continuing legal education credit. *Id.*

161. See Press Release, Hous. Forensic Sci. Ctr., Elephant Tranquilizer Carfentanil Found in Houston (June 27, 2017), <http://www.houstonforensicscience.org/news/5952ba46CRnwknntanil.pdf>

pills that look like prescription drugs, putting illegal drug users at serious risk of harm.¹⁶² To alert Houstonians to the threat, the HFSC held a press conference and invited participation by other city officials, including Houston's mayor and police chief.¹⁶³ The press conference garnered significant media coverage of the issue both in Houston¹⁶⁴ and throughout the state.¹⁶⁵

Perhaps even more importantly, true transparency facilitates and ensures laboratory accountability, which ultimately works to prevent future scandals such as those that occurred at the HFSC's predecessor. Laboratories that are more interested in maintaining their reputations than fixing their mistakes create what has been described as a "culture of tolerance" that can lead to recurring misconduct and forensic fraud.¹⁶⁶ By embracing radical transparency, the HFSC management has committed itself to informing its constituents regarding laboratory developments, both good and bad.¹⁶⁷ This is critical because, as the HFSC Communications

[<https://perma.cc/LNT2-7E36>].

162. *Id.*

163. See Press Release, Hous. Forensic Sci. Ctr., Media Availability: Highly Potent, Deadly Opioid Found in Houston (June 27, 2017), <http://www.houstonforensicscience.org/news/59524dbcdT4Ogbility.pdf> [<https://perma.cc/7MKP-P8EX>].

164. See, e.g., Courtney Fischer, *Houston Police Cracking Down on Highly Addictive and Deadly Drug*, ABC 13 (June 27, 2017), <http://abc13.com/news/hpd-cracking-down-on-highly-addictive-and-deadly-drug/2154311/> [<https://perma.cc/283Q-X5HC>]; Cindy George, *Houston Officials Warn Public About Highly Dangerous Opioid*, HOUS. CHRON. (June 28, 2017, 12:05PM), <http://www.chron.com/news/houston-texas/houston/article/Houston-officials-warn-public-about-new-highly-11250342.php> [<https://perma.cc/R3QN-87WQ>].

165. See, e.g., Alexandra Hart, *A Lethal Opioid Is Discovered on Houston's Streets*, TEX. STANDARD (June 28, 2017, 7:37AM), http://www.texasstandard.org/stories/a-new-and-lethal-opioid-has-been-discovered-in-houston/?_ga=2.213882388.185858236.1515089519-1524581711.1515089519 [<https://perma.cc/2BBX-J74F>]. HFSC representatives also trained police officers and other first responders regarding how to protect themselves from fentanyl drugs. See *id.*

166. See Gabel, *supra* note 45, at 304, 307 (stating that full-blown crime lab scandals often result from "repetitive misconduct, a failure to respond, and a culture of tolerance of such activity," made worse by a "lack of transparency").

167. A quick glance at news stories about the HFSC linked on the "In the News" portion of the HFSC website shows both positive and negative coverage of the laboratory. See *HFSC in the News*, HOUS. FORENSIC SCI. CTR., <http://www.houstonforensicscience.org/news.php?page=1&cat=ASC> [<https://perma.cc/SF9X-ACG6>] (last visited Mar. 27, 2018). For example, in January 2018, featured stories about the laboratory included an Innocence Project blog post about how the HFSC safeguarded evidence during Hurricane Harvey as well as a local newspaper article about how the HFSC found DNA evidence improperly stored in a former employee's office. *Houston Forensic Science Center: Saving Evidence and Saving Lives*, INNOCENCE PROJECT BLOG (Sept. 25, 2017),

Director told the audience at the 2017 NIST Forensic Science Error Management Symposium, “We have to own our mistakes so we can fix them.”¹⁶⁸

This approach will occasionally require laboratory management to endure momentary criticism for admitting the existence of a problem and finding a remedy. For example, a 2017 audit of cases worked by a police officer who worked as a HFSC crime scene investigator revealed that the officer had made errors in sixty-five cases—including twenty-six homicides and five officer-involved shootings—over a two-year period.¹⁶⁹ The mistakes included failure to collect evidence, failure to take crime scene photos, and failure to properly document investigations.¹⁷⁰ Although the audit was conducted for the express purpose of identifying and remedying a source of laboratory error,¹⁷¹ the president of the local criminal defense lawyers’ association used the incident to suggest that the HFSC was no different from the scandal-ridden HPD Crime Laboratory that the HFSC replaced.¹⁷² However, one major difference in approach between the old and the new organizations was that the HFSC itself told the media about the audit results, rather than hiding the bad news

<https://www.innocenceproject.org/houston-forensic-science-center-saving-evidence-and-saving-lives/> [https://perma.cc/PYLA-6ZAS]; Margaret Kadifa, *Misplaced DNA Evidence in Sexual Assault Case Found in Houston Lab Office*, HOUS. CHRON. (Aug. 16, 2017, 10:03AM), <http://www.houstonchronicle.com/news/houston-texas/article/DNA-evidence-in-sexual-assault-case-found-in-11822960.php> [https://perma.cc/4Q5F-SWAZ].

168. Ramit Plushnick-Masti, *National Institute of Standards and Technology Forensic Science Error Management. Symposium: Overcoming the Next Crisis: Media Relations and Crisis Communications in the Forensic Science Services Sector*, NAT’L INST. OF STANDARDS & TECH. (July 25, 2017), <https://www.nist.gov/news-events/events/2017/07/2017-international-forensic-science-error-management-symposium> [https://perma.cc/UX3H-299A].

169. Press Release, Hous. Forensic Sci. Ctr., HFSC to Work with TFSC to Create Best Practices for Crime Scene Investigations (May 26, 2017), <http://www.houstonforensicscience.org/news/592efaaeqTZKQ%20Panel.pdf> [https://perma.cc/BKG7-APL2].

170. See Brian Rogers et al., *Crime-Scene Errors Put 65 Cases Under Review, Audit Finds*, HOUS. CHRON. (Apr. 12, 2017, 8:07PM), <http://www.chron.com/news/houston-texas/article/New-evidence-problems-raise-questions-in-65-11068118.php> [https://perma.cc/GAF5-3M59].

171. Following the audit results, HFSC management sent the responsible officer back to HPD patrol. *Id.* Since that time, the CSU has been completely civilianized. See HOUS. FORENSIC SCI. CTR., PRESIDENT’S REPORT 24 (Nov. 8, 2017), <http://www.houstonforensicscience.org/meeting/5a01ce5bEzL7XPpacket.pdf> [https://perma.cc/QYB8-MWUX].

172. See Rogers et al., *supra* note 170.

and hoping it would never be discovered.¹⁷³ As a result, publicity associated with the incident began and ended in one news cycle; without a cover-up, the laboratory could hardly be faulted for taking steps to improve its operations.¹⁷⁴ An added benefit of accountability is that the HFSC's self-disclosure of the incident to the Texas Forensic Science Commission (TFSC) resulted in the TFSC proposing to work with the HFSC to develop best practices for crime scene investigations across Texas.¹⁷⁵

B. Efficiency

While under police management, the HPD crime laboratory could hardly be described as an efficient operation. Like many other crime labs in the country, it had accumulated a massive backlog of sexual assault kits,¹⁷⁶ results in drug tests took months or even years,¹⁷⁷ and serious quality concerns with respect to the laboratory's fingerprint division caused city officials to turn its operations over to a private—and expensive—consulting firm.¹⁷⁸ From the HFSC's inception, both board members and laboratory managers were determined to create a forensic science center that provided quality science in an efficient, timely manner. Whereas good science is indispensable to the operation of a forensic laboratory, timely results are just as important to the overall functioning of the criminal justice system. In

173. For a discussion of how, beginning in 2002, the news media exposed deplorable conditions at the HPD Crime Laboratory, see generally Thompson, *supra* note 2, at 1–33.

174. See Plushnick-Masti, *supra* note 168 (stating that the HFSC went to the media with the audit results and that the story ended that day).

175. See Press Release, Hous. Forensic Sci. Ctr., *supra* note 169. Unfortunately, this project did not come to fruition for lack of TFSC resources, but the proposal nonetheless demonstrates the TFSC's confidence in the Houston laboratory's commitment to improving crime scene investigation standards.

176. See Thompson, *supra* note 2, at 221.

177. See Meagan Flynn, *Would a City-County Merger Jeopardize Progress at Houston's New and Improved Crime Lab?*, HOUS. PRESS (Apr. 7, 2016, 9:00AM), <http://www.houstonpress.com/news/would-a-city-county-merger-jeopardize-progress-at-houstons-new-and-improved-crime-lab-8300007> [<https://perma.cc/XK5G-UQ3F>].

178. See Moises Mendoza & James Pinkerton, *Parts of HPD's Fingerprint Lab in Disarray*, HOUS. CHRON. (June 22, 2010, 5:30AM), <http://www.chron.com/news/houston-texas/article/Parts-of-HPD-fingerprint-lab-in-disarray-1710557.php> [<https://perma.cc/7G85-V4J7>]. The private contract with the consulting firm cost the City of Houston \$2.8 million each year. See Press Release, Hous. Forensic Sci. Ctr., HFSC Works with HPD to Tackle Property Crimes in Houston (Apr. 13, 2016), <http://www.houstonforensicscience.org/news/576be92e.pdf> [<https://perma.cc/VKH3-EE2E>].

recognition of this fact, the current HFSC executive director frequently states that the HFSC's goal is to provide "the right answer at the right time."¹⁷⁹

In less than four years, the HFSC has implemented policies and procedures that have allowed it to slash its inherited backlog of more than 12,000 pending requests across sections to just over 3,400 requests in only two laboratory divisions.¹⁸⁰ Since the HFSC took over laboratory operations, overall turnaround time from request to report has been reduced by approximately eighty-two percent,¹⁸¹ and by October 2017, the HFSC had reduced turnaround time in drug cases to approximately eighteen days, despite losing eight days of production to Hurricane Harvey earlier that fall.¹⁸² By reducing turnaround times so dramatically in drug cases, the HFSC facilitated the creation of a special Harris County impact court where nonviolent offenders charged with possession of small amounts of a controlled substance could be placed quickly into rehabilitation or other diversion programs, rather than be sent to jail.¹⁸³

Hurricane Harvey not only affected HFSC production, it also severely damaged the Harris County criminal courthouse. The resulting shortage of courtroom space threatened to create additional jail overcrowding as inmates waited for trial settings.¹⁸⁴ At the request of the Harris County District Attorney's Office, HFSC controlled substances section personnel looked for ways to further

179. See, e.g., *Meet Dr. Peter Stout of Houston Forensic Science Center*, VOYAGEHOUSTON (Oct. 25, 2017), <http://voyagehouston.com/interview/meet-houston-forensic-science-center-1301-fannin-st-suite-170-houston-texas-77002/> [<https://perma.cc/RS4B-UVFQ>] (quoting HFSC executive director stating that the HFSC's goal is to provide "the right answer at the right time").

180. See HOUS. FORENSIC SCI. CTR., PRESIDENT'S REPORT 4 (Dec. 8, 2017), <http://www.houstonforensicscience.org/meeting/5a2aeb75x5Yp6Packet.pdf> [<https://perma.cc/2H87-4EHL>].

181. *Id.*

182. See HOUS. FORENSIC SCI. CTR., OPERATIONS REPORT 20 (Oct. 13, 2017), <http://www.houstonforensicscience.org/meeting/59e112fc2NqLKFfinal.pdf> [<https://perma.cc/4QZ4-B336>].

183. See Ortiz, *supra* note 27.

184. See Brian Rogers, *Prosecutors, Attorneys Cut 'Harvey Deals' in Jail Basement as Flood-Damaged Courthouse is Repaired*, HOUS. CHRON. (Nov. 13, 2017, 8:46PM), <http://www.houstonchronicle.com/news/houston-texas/houston/article/Temporary-courtrooms-generate-Harvey-Deals-in-12348272.php> [<https://perma.cc/FB3Y-GU72>].

reduce turnaround times in drug cases.¹⁸⁵ They realized that process times could be shortened by having drug evidence delivered to the laboratory from the police department's property room twice per week instead of only once.¹⁸⁶ After this simple process improvement was instituted in mid-October 2017, the average turnaround time for drug analyses fell by approximately seven days by December 2017.¹⁸⁷ Faster drug test results allow both prosecutors and defense lawyers to make quicker and better decisions regarding plea bargains, and they reduce jail time for criminal defendants who cannot afford bail—all of which ease jail overcrowding.

Process improvements have also been implemented in the HFSC's forensic biology section, one of the two remaining laboratory divisions that, as of December 2017, still had backlogs. It is important to note here that the HFSC defines backlog as any item received by the laboratory for which testing is not completed within thirty days, a demanding standard not embraced by most forensic laboratories.¹⁸⁸ After the HFSC in 2015 eliminated its inherited rape kit backlog, the laboratory in 2016 began to develop a new backlog,¹⁸⁹ in part as a result of increased requests from law enforcement for sexual assault-related testing.¹⁹⁰ To increase capacity and ensure quality results within the forensic biology section, HFSC management in June 2016 used grant funding to hire a private

185. See HFSC, MEETING OF BOARD OF DIRECTORS MEETING 2 (Dec. 8, 2017), <http://www.houstonforensicscience.org/meeting/5a2aeb75x5Yp6Packet.pdf> [<https://perma.cc/2H87-4EHL>].

186. *Id.*

187. *Id.*

188. See Mihir Zaveri, *Harris County Crime Lab Faces Heavy Backlog of DNA Cases*, HOUS. CHRON. (May 17, 2016, 10:51AM), <http://www.houstonchronicle.com/news/houston-texas/houston/article/Harris-County-crime-lab-faces-heavy-backlog-of-7465797.php> [<https://perma.cc/LCH7-DT3C>] (noting that the HFSC defines backlog as testing not completed within thirty days of a request for testing, while the Harris County Institute of Forensic Sciences defines its backlog as testing not completed within sixty days of a request for testing). According to the National Institute of Justice, some crime laboratories measure DNA backlogs as cases in which DNA testing is not completed in ninety days. See *Backlogs of Forensic DNA Evidence*, *supra* note 5.

189. See Zaveri, *supra* note 188.

190. See Press Release, Hous. Forensic Sci. Ctr., HFSC Moves Forward to Reach Rape Kit Testing Goals (May 25, 2016), <http://www.houstonforensicscience.org/news/10mXVgCTJX0L6W8Arva3S26EXKHYY.pdf> [<https://perma.cc/R88D-LDU8>].

company to perform a Lean Six Sigma¹⁹¹ (LSS) analysis of the division.¹⁹² The project, which was completed in October 2017, not only created improved workflow in the forensic biology group, but it also equipped staff members to replicate the project in other laboratory sections.¹⁹³

Improvements made as a result of the LSS project include cross-training all forensic biology staff members so that each is able to complete all the tasks performed in the section.¹⁹⁴ Previously, staff members were trained to perform only one particular task: DNA screeners only screened evidence for biological material; lab technicians only performed lab work; and DNA analysts only analyzed genetic profiles and wrote reports. The new approach provides HFSC management with flexibility to shift staff members as needed to address and avoid workflow bottlenecks.

Additionally, section analysts now perform real-time quality checks following the completion of each task, rather than relying on an overall re-assessment when the entire testing process is complete.¹⁹⁵ This means that any mistakes should now be caught and corrected immediately, rather than continuing further upstream to be discovered at a final review.¹⁹⁶ Together, these efficiencies are expected to build significant capacity in the lab's forensic biology section so that it can eliminate its backlog and reduce its turnaround time for DNA testing to within thirty days from request to report.¹⁹⁷ By employing efficiencies that also enhance the quality of the

191. See James Taylor et al., *Proposed Progression of Lean Six Sigma*, 41 J. TECH. STUD. 2 (2015), <https://scholar.lib.vt.edu/ejournals/JOTS/v41/v41n1/taylor.html> [<https://perma.cc/UDJ6-SEAF>]. LSS is a blend of two management strategies that aim to identify process improvements and waste-elimination strategies to promote greater organizational efficiency as well as improved quality, with fewer errors or wasteful practices. See *id.*

192. See HFSC, MEETING OF BOARD OF DIRECTORS MINUTES 3 (June 10, 2016), <http://www.houstonforensicscience.org/meeting/5810d819Rgw4Lmbined.pdf> [<https://perma.cc/ZT57-PQVE>].

193. See Hous. Forensic Sci. Ctr., *HFSC Completes Lean Six Sigma in DNA*, WHAT'S NEWS@HFSC (Oct. 2017) (on file with authors).

194. *Id.*

195. *Id.*

196. *Id.*

197. *Id.* (stating that following implementation of the LSS recommendations and assuming full staffing, the forensic biology section will be able to complete more than 300 DNA tests per month).

laboratory's work, the HFSC has not only stretched its budget dollars but also has ensured that dangerous criminals are properly identified and prosecuted before they can commit additional offenses.¹⁹⁸

Other than forensic biology, the only HFSC discipline that still had a backlog of requests as of December 2017 was latent fingerprints.¹⁹⁹ As mentioned above, when the HFSC took over operations of the HPD crime lab in 2014, the city had outsourced its fingerprint work to a private company.²⁰⁰ HFSC management eliminated that expensive consulting contract and rebuilt a fingerprint section from scratch—a section that achieved International Organization for Standardization (ISO) accreditation within eighteen months.²⁰¹ Although the section had eliminated its backlog of testing requests related to crimes against persons in 2015,²⁰² the section still had a backlog of 2,687 requests older than thirty days related to property crimes as of December 2017.²⁰³ In part, this backlog resulted from the HPD's 2016 discovery of about 2,400 old fingerprint cards languishing in the HPD property room that were finally submitted to the HFSC for analysis over a ten-day period in 2016.²⁰⁴

To address this backlog, HFSC management worked with the HPD's Burglary and Theft Division to devise a method to help reduce unnecessary fingerprint comparisons while also providing investigators with preliminary information they can use early in the investigative process.²⁰⁵ In the past, HFSC latent print examiners

198. See Katherine Driessen, *While Some Rape Kits Sat Untested, Suspects Committed More Assaults*, HOUS. CHRON. (Feb. 23, 2015, 10:05PM), <http://www.chron.com/news/houston-texas/houston/article/While-some-rape-kits-sat-untested-suspects-6097408.php> [<https://perma.cc/L2TJ-5ANH>] (noting that after the HFSC completed testing on its inherited backlog of 6,600 rape kits, the district attorney's office filed charges against six suspects who had committed additional rapes in the intervening months and years).

199. See PRESIDENT'S REPORT, *supra* note 180, at 2.

200. See *supra* note 178 and accompanying text.

201. See Press Release, Hous. Forensic Sci. Ctr., HFSC Latent Print Section Achieves High-Level Accreditation (Nov. 16, 2015), <http://www.houstonforensicscience.org/news/12NOX2PONIIvH0IQY8FSDq7s8pL7E.pdf> [<https://perma.cc/S6DH-X529>].

202. Driessen, *supra* note 198.

203. See PRESIDENT'S REPORT, *supra* note 180, at 2.

204. See Hous. Forensic Sci. Ctr., *Latents: Battling a Backlog*, WHAT'SNEWS@HFSC, at 10–11 (Oct. 2017) (on file with authors). This represented a year's worth of work for the section. *Id.*

205. See Press Release, Hous. Forensic Sci. Ctr., HFSC Works with HPD to Tackle Property Crimes

performed a complete analysis of all usable fingerprints collected in a case using a four-step process.²⁰⁶ First, an examiner entered all suitable prints in the state and FBI Automated Fingerprint Identification System (AFIS) to obtain potential fingerprint matches.²⁰⁷ Next, the examiner conducted an on-screen comparison of the various prints against all potential matches returned by AFIS.²⁰⁸ If a possible match was identified, the examiner then conducted a full analysis and comparison between the evidence prints and the AFIS results.²⁰⁹ Finally, a second examiner fully reviewed the first analyst's work.²¹⁰

Depending on the number of prints collected in a case as well as the number of possible matches returned by AFIS, this four-step process could take from several weeks to several months to complete.²¹¹ This cumbersome procedure meant that burglary detectives often waited weeks or months before learning anything of value from fingerprint evidence to solve their cases. Even worse, when full fingerprint analyses were finally completed, most proved to have no investigative value.²¹² This was because many of the collected prints ultimately were found to belong to the burglary victim or the victim's family or friends.²¹³ In other words, investigators sometimes waited months while laboratory examiners toiled to achieve results that were both unnecessary and unhelpful.

in Houston (Apr. 13, 2016), <http://www.houstonforensicscience.org/news/576be92e.pdf> [<https://perma.cc/XZQ5-CE77>].

206. See HOUS. FORENSIC SCI. CTR., INVESTIGATIVE LEAD REPORTS: PRELIMINARY AFIS ASSOCIATIONS 1 (on file with authors).

207. *Id.*

208. *Id.*

209. *Id.*

210. *Id.*

211. *Id.*

212. HOUS. FORENSIC SCI. CTR., *supra* note 206, at 1. From July 1 to December 31, 2016, HFSC latent print examiners issued 385 investigative lead reports, but of those, only 53 generated requests for full analysis—indicating only about 14% of investigative lead reports contained information relevant to the investigation. *Id.* Put another way, had all the fingerprints analyzed during that time period been subjected to full analysis, about 86% of those full comparisons would have served no investigative purpose. *Id.*

213. See Seth Augenstein, *Houston Forensics Streamlines Fingerprints Analysis by Cutting Unnecessary Comparisons*, FORENSIC MAG. (June 16, 2017), <https://www.forensicmag.com/news/2017/06/houston-forensics-streamlines-fingerprints-analysis-cutting-unnecessary-comparisons> [<https://perma.cc/BR3H-9LL5>].

To eliminate these needless efforts, HFSC fingerprint examiners now perform only the first two steps outlined above before seeking input from law enforcement regarding whether a full comparison of all prints makes investigative sense.²¹⁴ Under the new protocol, HFSC examiners submit suitable evidentiary prints into AFIS, where those prints are searched for potential matches.²¹⁵ When an examiner identifies a potential on-screen match, a second examiner verifies that on-screen comparison.²¹⁶ At that point, the laboratory sends an investigative lead report to HPD investigators that includes names of the individuals associated with the on-screen print comparisons, which allows investigators to determine whether the print could be relevant to their case.²¹⁷ Only if law enforcement determines that the print could belong to a possible suspect or a person of interest to the investigation—as opposed to an innocent party such as the homeowner—will they submit a request for examiners to undertake a full comparison.²¹⁸

One concern regarding the investigative lead protocol has been the potential for falsely identifying a suspect based on an incomplete fingerprint examination.²¹⁹ To safeguard against this possibility, HFSC's investigative lead report features highlighted language in two places emphasizing the preliminary nature of the association and that the report does not contain an official identification.²²⁰

The new protocol has had a dramatic effect in improving the fingerprint section's productivity. In the thirteen months since the investigative lead process has been implemented, HFSC examiners have been asked by law enforcement to perform full print

214. See HOUS. FORENSIC SCI. CTR., *supra* note 206, at 1.

215. *Id.*

216. *Id.*

217. *Id.*

218. *Id.*

219. See Augenstein, *supra* note 213.

220. See *id.*; see also HOUS. FORENSIC SCI. CTR., *supra* note 206, at 3, 4 (showing a sample investigative lead report that contains the following highlighted, bolded language: "An official identification HAS NOT been effected at this time and this report is being provided as an investigative lead only," and "[u]nder no circumstances does the association contained in this report indicate an official identification has been effected as defined by the Scientific Working Group on Friction Ridge Analysis, Study, and Technology's Standards for Examining Friction Ridge Impressions and Resulting Conclusions").

comparisons in only about fifteen percent of cases.²²¹ In other words, the protocol both reduced requests for testing and allowed HFSC's fingerprint examiners to focus on work with real investigative value. Following reports of the HFSC's success, other agencies, including the Royal Canadian Mounted Police and the Dallas and Raleigh police departments, have indicated interest in adopting the investigative lead protocol at their crime laboratories.²²²

The new protocol has also resulted in faster arrests because investigators get the names of potential suspects in a timely fashion, as illustrated by the following example. On June 12, 2017, HPD officers were called to the scene of an aggravated robbery with a deadly weapon, where they lifted latent fingerprints.²²³ The case was assigned to an HFSC latent print examiner on June 20, 2017.²²⁴ Within two days, the HFSC had run the suitable fingerprints through the regional AFIS database, completed an investigative lead report, and provided the findings to the HPD.²²⁵ At least one set of latent fingerprints pointed to a suspect, and law enforcement subsequently requested a full comparison on June 26, 2017.²²⁶ Three weeks later, on July 20, 2017, the HFSC had reported, verified, and closed the case.²²⁷ According to the HPD, based on the HFSC's full confirmation, a suspect was arrested and charged with the crime.²²⁸

Before adoption of the investigative lead protocol, such a quick and useful response by the laboratory would have been impossible. The investigator would have had to wait for an examiner to do full comparisons, which could take months in cases where numerous fingerprints had been collected. This new way of doing things demonstrates not only how the HFSC works with law enforcement and other stakeholders to improve laboratory procedures but also

221. *See Latents: Battling a Backlog*, *supra* note 204, at 11.

222. *See* Augenstein, *supra* note 213.

223. *See* E-mail from Ramit Plushnick-Masti, Communications Dir., HFSC, to co-author (Jan. 30, 2018) (on file with authors).

224. *Id.*

225. *Id.*

226. *Id.*

227. *Id.*

228. *Id.*

how it has implemented efficiencies that have eliminated backlogs, reduced turnaround times, ensured quality, and safeguarded the community.

C. Quality

Despite the primary importance of quality to successful crime laboratory operations, we have left our discussion of quality as a transformative ideal until last because we believe it is intimately connected to both transparency and efficiency. Transparency of the kind practiced by the HFSC—where laboratory management provides monthly reports to the board (made available to the public and press online) listing turnaround times, critical issues, and any backlogs for each section—both informs the public regarding laboratory operations and ensures laboratory staff are held accountable.²²⁹ In turn, this public documentation—along with open, videotaped board meetings—encourage board members to exercise meaningful oversight regarding HFSC operations. Board members, as well as HFSC management, must answer to elected officials, the press, and the public with respect to their stewardship of public resources.²³⁰ Most importantly, accountability is incompatible with the “culture of tolerance” that has caused troubled laboratories to hide, rather than to resolve, mistakes.²³¹ According to Mark Stolorow, Deputy Director of the NIST, forensic scientists “cannot get to the root cause of an error without transparency and full disclosure.”²³²

229. HOUS. FORENSIC SCI. CTR., HFSC AT A GLANCE: INTERACTIVE GRAPHIC, <http://www.houstonforensicscience.org/index.php> [<https://perma.cc/HG7G-LL6J>] (last visited Mar. 21, 2018). The HFSC website features a link to each month’s operations report as well as an interactive graphic that displays the latest statistics for each laboratory section. *Id.*

230. *See, e.g.*, E-mail from Peter Stout, HFSC executive director, to Andy Icken, City of Houston, Office of the Mayor, Chief Development Officer, et al. (Feb. 7, 2018, 4:58 PM) (on file with authors). Both HFSC management and HFSC Board members are questioned by the press regarding HFSC issues. *Id.* For example, the HFSC executive director sends regular informational emails summarizing any important HFSC developments to the mayor’s office. *Id.*; *see also* Flynn, *supra* note 177 (quoting HFSC Chief Operating Officer, Board Chair, and Board Vice Chair).

231. *See supra* notes 170–72 and accompanying text.

232. *Speaking of Error in Forensic Science*, NAT’L INST. ON SCI. & TECH. (Sept. 5, 2017), <https://www.nist.gov/news-events/news/2017/09/speaking-error-forensic-science> [<https://perma.cc/M5MY-63J8>].

Improved laboratory efficiency can also enhance the overall quality of a laboratory's production. To achieve high-quality results, a forensic laboratory must be concerned with the integrity of its processes and systems in addition to the competency of its analysts. Even accurate laboratory testing can nevertheless result in a laboratory failure if an evidence sample is misplaced, misidentified, or incorrectly packaged. For example, during its first year of operations the HFSC rejected as many as one-half of the blood samples submitted to the laboratory's toxicology section each month because identifying information on blood vial labels did not match the information listed on the associated paperwork.²³³ At the time, the evidence collection kits used by police required officers in the field to handwrite names, dates, and incident numbers multiple times on evidence labels, boxes, and evidence submission forms. Discrepancies between labels, boxes, and forms often resulted, and laboratory staff had no way to distinguish which information was correct.

Both the HFSC board and management recognized that something had to be done; misidentified evidence samples at the front end could compromise the laboratory's ability to deliver a correct, quality result at the back end.²³⁴ At the same time, by rejecting a large percentage of evidence samples, the HFSC frustrated law enforcement officers and irritated local judges, whose dockets had slowed as a result.²³⁵ To solve the problem, HFSC management worked with the HPD and district attorney's office to design its own, more efficient evidence kit. The new kit contains bar-coded labels and requires officers to

233. See Hous. Forensic Sci. Ctr., *Board Meeting Video*, HOUS. TELEVISION (Mar. 11, 2016), <http://houstontx.swagit.com/play/03142016-756> [<https://perma.cc/86BL-FS3G>] [hereinafter *March Board Meeting Video*] (reporting, during Operations Report, that in July 2015, the HFSC toxicology section rejected about half of all evidence submitted because of submission irregularities).

234. See Lisa Falkenberg, *Like a Drunken Driver, Evidence Wove Its Way Through HPD Lab*, HOUS. CHRON. (Jan. 28, 2015, 7:42 PM), <https://www.houstonchronicle.com/news/columnists/falkenberg/article/A-bloody-tale-of-two-oopses-6046893.php> [<https://perma.cc/S524-ARFX>]. Shortly before the HFSC took over HPD crime laboratory operations, the district attorney had to drop charges against a suspect because an officer mislabeled a blood sample, resulting in the lab's inability to find it. *Id.*

235. See *March Board Meeting Video*, *supra* note 233 (containing reference by HFSC general counsel that judges were upset that the laboratory was sending evidence back to HPD).

handwrite case information in only one place.²³⁶ Since the kit's redesign, discrepancies in toxicology evidence submissions have been reduced significantly; in the month of December 2017, the HFSC only rejected one toxicology kit because of inaccurate information.²³⁷ By streamlining and simplifying the evidence collection process, the HFSC also decreased the likelihood that a mislabeled sample would result in a miscarriage of justice.

Thus, transparency and efficiency can spur quality improvements, and a crime laboratory's central mission should be to produce a quality product that reflects scientific integrity. In the early days when the board was rebuilding the organization, the board took the obvious steps of hiring well-qualified scientists to lead the organization,²³⁸ but it also took less obvious steps to guarantee that HFSC operations would adhere to best scientific practices. At its third board meeting, a policy analyst from the Innocence Project addressed the board members regarding strategies to improve scientific culture at crime laboratories.²³⁹ As permitted by the LGC's Certification of Formation, the HFSC board elected to appoint a distinguished group of forensic scientists to its Technical Advisory Group, which advises the board regarding scientific matters.²⁴⁰ In

236. See Hous. Forensic Sci. Ctr., *Board Meeting Video*, HOUS. TELEVISION (Apr. 8, 2016), <http://houstontx.swagit.com/play/04132016-1077> [https://perma.cc/C99L-REG2].

237. See HOUS. FORENSIC SCI. CTR., OPERATIONS REPORT 11 (Jan. 12, 2018), <http://www.houstonforensicscience.org/meeting/5a6099d3bLo21Packet.pdf> [https://perma.cc/Y3NY-RJAF].

238. See THOMPSON, *supra* note 2, at 216–18 (providing a detailed discussion of the process used to hire the HFSC's first executive director, Dr. Daniel Garner); see Press Release, Hous. Forensic Sci. Ctr., HFSC's Board of Directors Appoints CEO, President (Jan. 2017), <http://www.houstonforensicscience.org/news/587918a5dmq8X%20Stout.pdf> [https://perma.cc/5GSH-23WX]. The current executive director, Dr. Peter Stout, was originally hired as the HFSC's first chief operating officer and assumed the role of executive director in January 2017. *Id.*; see also HOUS. FORENSIC SCI. CTR., MEETING OF BOARD OF DIRECTORS MINUTES 2 (July 14, 2017), <http://www.houstonforensicscience.org/meeting/5995a9d5ShlQYinutes.pdf> [https://perma.cc/M456-C8B7]. The HFSC's current chief operating officer, Dr. Amy Castillo, assumed that position in July 2017. *Id.*

239. See HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 2 (Aug. 1, 2012), <http://www.houstonforensicscience.org/meeting/57714df3bXhao120801.pdf> [https://perma.cc/Y27P-8MWL].

240. See HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 1–2 (Nov. 30, 2012), <http://www.houstonforensicscience.org/meeting/57715288jdxqn121130.pdf> [https://perma.cc/DF8L-W89T].

March 2013, the HFSC board hired former Justice Department Inspector General Michael Bromwich, who had completed a comprehensive audit of the HPD Crime Laboratory in 2007,²⁴¹ to re-audit the laboratory and advise the board regarding any necessary quality improvements.²⁴² And after board members expressed serious misgivings regarding the HPD's desire to transfer its polygraph unit to the new forensic science center, citing the unreliable and unscientific nature of lie detector tests,²⁴³ HPD officials withdrew the request.²⁴⁴

Since those early days, the HFSC has continuously strived to put science first. Within two years of gaining its independence, six of the HFSC's seven forensic disciplines had been awarded ISO accreditation.²⁴⁵ HFSC management encourages all its analysts to seek relevant external certifications; as of February 28, 2018, 74 of the laboratory's 164 staff members responsible for performing or managing scientific functions were certified.²⁴⁶ The laboratory quality assurance division, which grew from one staff member under the HPD to eight under the HFSC,²⁴⁷ conducts ongoing proficiency testing and live testimony monitoring of analysts (as well as reviews of trial transcripts if live monitoring is not possible). A quality

241. See Thompson, *supra* note 2, at 208–09 (providing more information about the Bromwich report).

242. See HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 2–3 (Mar. 13, 2013), <http://www.houstonforensicscience.org/meeting/577153afHrjra130313.pdf> [<https://perma.cc/6N5W-UE6U>].

243. See HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES (Jan. 10, 2014), <http://www.houstonforensicscience.org/meeting/57715c09AXU8D140110.pdf> [<https://perma.cc/8VWH-Z4US>].

244. See Thompson, *supra* note 2, at 219.

245. See *Accreditation*, HOUS. FORENSIC SCI. CENTER, <http://www.houstonforensicscience.org/accreditation.php> [<https://perma.cc/J3MT-YGH5>] (last visited Apr. 15, 2018). The sections include DNA/biology, seized drugs, toxicology, firearms, digital and multimedia evidence, and latent prints. *Id.* The HFSC's trace evidence (fire debris) section was also awarded international accreditation; however, the HFSC has since eliminated that laboratory section. *Id.*; see also *Discovery Portal*, HOUS. FORENSIC SCI. CENTER, <https://records.hfscdiscovery.org/> [<https://perma.cc/EAZ3-WZM2>] (last visited Apr. 15, 2017). Written standard operating procedures for each forensic discipline are updated as necessary to reflect best practices and posted on the HFSC website. *Id.*

246. See Email from Ramit Plushnick-Masti, Communications Dir., HFSC, to co-author (Feb. 28, 2018) (on file with authors).

247. See E-mail from Lori Wilson, HFSC Quality Manager, to co-author (Mar. 7, 2018) (on file with authors).

division specialist reports the results of these activities to the HFSC Board at each monthly meeting.²⁴⁸ Scientific research and publication is also encouraged, and a number of HFSC employees have been named to prestigious forensic science organizations and have conducted, presented, and published scientific research in the field.²⁴⁹ HFSC management brings recognized experts to conduct workshops for its employees²⁵⁰ and sponsors an annual forensic science symposium during National Forensic Science Week that is open to the public.²⁵¹

Most notably, the HFSC has drawn significant attention for its development and implementation of blind quality-control testing.²⁵²

248. See, e.g., HOUS. FORENSIC SCI. LGC, INC., MEETING OF BOARD OF DIRECTORS MINUTES 2 (Jan. 12, 2018), [http://www.houstonforensicscience.org/meeting/5a818d279RDpK%20\(002\).pdf](http://www.houstonforensicscience.org/meeting/5a818d279RDpK%20(002).pdf). Interestingly, the Department of Justice, in February 2018, announced a testimony monitoring program for its forensic laboratories that is similar to the program in use at HFSC. See Brandon Garrett, *Testimonial Monitoring*, FORENSIC FORUM (Feb. 25, 2018), <https://forensicsforum.net/2018/02/25/testimonial-monitoring/> [<https://perma.cc/7QLD-46BV>].

249. See Press Release, Hous. Forensic Sci. Ctr., HFSC Toxicology Manager Receives Prestigious Toxicology Award (Mar. 30, 2017), <http://www.houstonforensicscience.org/news/58dd1c38JbeqC%20Award.pdf>. [<https://perma.cc/7Y CZ-KWHF>]. For example, in 2017, HFSC Toxicology Manager Dr. Dayong Lee was awarded the Irving Sunshine Award from the American Academy of Forensic Sciences for outstanding contributions to clinical toxicology. *Id.* For an example of published and presented research, see Alicia R. Rairden et al., *Resolving Latent Conflict: What Happens When Latent Print Examiners Enter the Cage?* PROC., 23 AM. ACAD. OF FORENSIC SCI. 486 (2017), <https://www.aafs.org/wp-content/uploads/2017Proceedings.pdf> [<https://perma.cc/NR63-75CC>].

250. See *HFSC Brings Leading Expert on Cognitive Bias, Dr. Itel Dror, to CSI Academy*, WHAT'S NEWS@HFSC (Nov. 2017), <http://houstonforensicscience.org/event/5acd1ae24wqblr%202017.pdf> [<https://perma.cc/7N9E-PHL3>].

251. See, e.g., Symposium, *HFSC 2016 Symposium: Exonerations and Backlogs*, HOUS. FORENSIC SCI. CTR. (2015), <http://houstonforensicscience.org/eventbrite/2016-HFSC-Symposium.pdf> [<https://perma.cc/76UR-WWHB>].

252. See, e.g., PCAST REPORT, *supra* note 46, at 59 n.140 (noting that, as of 2016, the HFSC had implemented blind quality control testing in its toxicology and firearms divisions); NAT'L INST. OF STANDARDS AND TECH., NAT'L COMM'N ON FORENSIC SCI., VIEWS OF THE COMMISSION FACILITATING RESEARCH ON LABORATORY PERFORMANCE 3 n.5 (2016); Ivan Solotaroff, *Is the Opioid Epidemic Fueling Wrongful Convictions?*, ROLLING STONE (Jan. 10, 2018), <https://www.rollingstone.com/culture/features/is-the-opioid-epidemic-fueling-wrongful-convictions-w515178> [<https://perma.cc/A5SB-YK3T>] (referring to HFSC's blind testing program as a possible solution to the problem of wrongful convictions caused by crime laboratory malfeasance). Delegations of criminal justice officials from Japan and Kazakhstan have also visited HFSC to study its blind testing program. See Press Release, Hous. Forensic Sci. Ctr., HFSC Hosts Delegation From Kazakhstan Led by Deputy Justice Minister (Dec. 8, 2017), <http://houstonforensicscience.org/news/5a2aee20ALLlvhstan%20.pdf> [<https://perma.cc/V8R8-V3H5>]; Email from Ramit Plushnick-Masti (Mar. 6, 2018) (Japanese contingent toured HFSC on Sept. 18, 2017). See also HOUSTON FORENSIC SCI. CTR. INC., MEETING OF BOARD OF DIRECTORS MINUTES 2

Under this program, the HFSC's quality division staff members create or obtain mock cases that are then inserted into analysts' routine casework without their knowledge.²⁵³ In this way, the quality division staff members can test the proficiency of analysts in performing real casework, or at least work that the analyst thinks is real casework. Creating mock cases that fool analysts is more challenging than it may seem at first glance. Quality division staff members may make trips to Walmart to purchase firearms or ammunition for use in their mock evidence submissions, for example, and there can be challenges to inserting mock evidence into the flow of real evidence.²⁵⁴

Despite the common belief among some forensic scientists that the costs and challenges associated with blind testing make it impracticable for crime laboratories,²⁵⁵ the HFSC added blind test cases to the workflow of its toxicology section in September 2015.²⁵⁶ By January 2018, the HFSC had introduced more than 350 blind quality control samples into six of the laboratory's seven disciplines: toxicology, firearms, seized drugs, DNA/biology, latent prints, and digital forensics.²⁵⁷ While a full description of HFSC's blind testing program deserves an article of its own,²⁵⁸ it should be noted that the program's success has been made possible in part by the laboratory's

(Oct. 13, 2017), <http://www.houstonforensicscience.org/meeting/5a2e8ae3Ez2KLminutes.pdf> [https://perma.cc/Y9PP-J6C3] (referring to HFSC visit by Japanese attorneys).

253. See Hous. Forensic Sci. Ctr., *Blind Tests: HFSC Leads the Way*, WHAT'S NEWS@HFSC, Jan. 2018, at 5 [on file with authors].

254. We base this observation primarily on our personal discussions with the HFSC President and CEO, Dr. Peter Stout. Dr. Stout has also long made it a practice to award a Starbucks gift card to any analyst who can spot a mock test. The analyst will be required to explain how he or she was able to tell that it was not real casework. More than a few gift cards have been awarded, enabling the quality division to improve its process.

255. See, e.g., PCAST REPORT, *supra* note 46, at 58 (pointing out "disagreement" in forensic community regarding feasibility of blind testing in all crime laboratory environments); Jonathan J. Koehler, *Forensics or Fauxrensics? Ascertaining Accuracy in the Forensic Sciences*, 49 ARIZ. ST. L.J. 1369, 1408 (2017) (noting that blind testing has been opposed in forensic science as overly difficult to implement).

256. See Press Release, Hous. Forensic Sci. Ctr., HFSC Adds Blind Test Samples into Workflow, Leading the Way Nationally (Sept. 14, 2015), <http://www.houstonforensicscience.org/news/576be9e2.pdf> [https://perma.cc/KST6-3WAK].

257. See Hous. Forensic Sci. Ctr., *supra* note 253.

258. The authors are currently at work on such an article.

use of a case management system that shields analysts from case-irrelevant information,²⁵⁹ which reduces the risk of cognitive bias.²⁶⁰

Blind quality control testing provides a much more reliable indication of the quality of a laboratory's test results than commonplace proficiency testing²⁶¹ that analysts in accredited forensic disciplines periodically are required to complete.²⁶² In part, this is because proficiency testing only establishes that analysts possess the minimum level of skill necessary to follow laboratory procedures and accomplish their assigned tasks on the day of the test.²⁶³ Additionally, because analysts are notified that they are completing a proficiency test rather than routine casework, it stands to reason that they will respond with their best efforts.²⁶⁴ Finally, proficiency tests have been criticized for typically being much less challenging than the work analysts do on a daily basis.²⁶⁵ Blind quality control testing, in which analysts are unaware that their performance is being evaluated, provides a truer measure of their abilities. It also acts as a notification system regarding quality issues that may exist throughout a laboratory process, identifying problems with instruments, bottlenecks, and analysts. This also means that blind testing is a viable means of catching forensic fraud, such as the dry-labbing performed by a Massachusetts state crime laboratory

259. See NAT'L COMM'N ON FORENSIC SCI., *supra* note 252, at 3 & n.5.

260. See, e.g., D. Michael Risinger et al., *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CAL. L. REV. 1, 45 (2002) ("An examiner who has no domain-irrelevant information cannot be influenced by it.")

261. *Id.* ("The simplest, most powerful, and most useful procedure to protect against the distorting effects of unstated assumptions, collateral information, and improper expectations and motivations is blind testing."); see also PCAST REPORT, *supra* note 46, at 58–59.

262. See, e.g., AM. ASS'N. FOR LAB. ACCREDITATION, R103–GENERAL REQUIREMENTS: PROFICIENCY TESTING FOR ISO/IEC 17025 LABORATORIES 2 (2013) (stating that "[r]esults from [proficiency testing] are an indication of a laboratory's competence and are an integral part of the assessment and accreditation process").

263. See Edward E. Hueske, *Some Thoughts on Quality Concerns in Crime Laboratories*, FORENSIC MAG. (June 6, 2009, 4:00 AM), <https://www.forensicmag.com/article/2009/06/some-thoughts-quality-concerns-crime-laboratories> [<https://perma.cc/RK2X-V63S>].

264. Research suggests that examiners who know they are being tested may perform better than those who are unaware that they are being tested. See PCAST REPORT, *supra* note 46, at 58–59.

265. See Hous. Forensic Sci. Ctr., *supra* note 253.

chemist that resulted in the 2017 dismissal of charges in 21,500 drug cases.²⁶⁶

Just as importantly, because HFSC quality specialists know the source and composition of blind test evidence samples, they can determine with certainty whether an analyst's finding with respect to that sample is in error.²⁶⁷ Thus, as the HFSC's blind testing program continues to grow and accumulate data, the HFSC will be able to calculate an error rate for individual analysts, instruments, and laboratory divisions, providing much-needed empirical data regarding the scientific validity of particular forensic disciplines as a whole.²⁶⁸ It is hard to overstate the importance of this accomplishment, given the current paucity of data regarding the rates at which forensic science practitioners, methods, and procedures produce inaccurate results.²⁶⁹ To increase the statistical significance of the HFSC's error rate calculations, laboratory management hopes in 2018 to increase the number of blind samples in the laboratory's workflow to equal five percent of its casework.²⁷⁰

While the HFSC's blind testing program has received widespread acclaim, at times the pursuit of science has required HFSC's Board and management to exercise political courage. The most significant example occurred in 2016, when the HFSC found itself in a dispute with the HPD and the Houston Police Officers Union (HPOU) regarding the future of the laboratory's Crime Scene Unit (CSU), which collects and photographs evidence from homicide scenes and

266. See Katie Mettler, *How a Lab Chemist Went from 'Superwoman' to Disgraced Saboteur of More Than 20,000 Drug Cases*, WASH. POST (Apr. 21, 2017), https://www.washingtonpost.com/news/morning-mix/wp/2017/04/21/how-a-lab-chemist-went-from-superwoman-to-disgraced-saboteur-of-more-than-20000-drug-cases/?utm_term=.a98d5e219922 [<https://perma.cc/M32T-YUGN>].

267. See, e.g., Hueske, *supra* note 263 (noting that error rates for comparison forensic disciplines such as latent prints and firearms cannot be determined unless the true source of the evidence can be independently determined).

268. See, e.g., NAT'L COMM'N ON FORENSIC SCI., *supra* note 252, at 3 (repeating the NAS 2009 call for more research regarding the "accuracy, reliability, and validity" of forensic science disciplines, and noting that blind testing "will provide valuable information on the reliability and accuracy of laboratory methods").

269. See Koehler, *supra* note 255, at 1372 (stating that "[i]n most forensic science disciplines, there simply are no data pertaining to the rates at which forensic science procedures and forensic scientists err").

270. See Hous. Forensic Sci. Ctr., *supra* note 253.

officer-involved shootings.²⁷¹ At that time, the CSU division was staffed almost exclusively with classified police officers.²⁷² The conflict was not new; it had been clear from the HFSC's inception that many in the CSU had no desire to work for a crime laboratory that was removed from the police department and overseen by civilians.²⁷³ Time did not ameliorate that dissatisfaction for some officers, two of which the HFSC had to return to the HPD after they posted ugly comments on Facebook regarding HFSC management.²⁷⁴

Friction mounted when the HFSC commissioned an independent audit of the CSU following HFSC's receipt of complaints from the district attorney's office about the quality of an officer's work.²⁷⁵ The audit results were alarming: the auditors concluded that many classified CSU officers lacked basic forensic skills, did not follow proper procedures, and did not exercise adequate independence from the HPD when collecting evidence at officer-involved shootings.²⁷⁶ Following the audit, HFSC redoubled its efforts to improve CSU protocols and require additional officer training.²⁷⁷

HFSC management also discovered that HPD homicide officers were using their cellphones to summon particular CSU officers to a crime scene.²⁷⁸ This meant that the HFSC had no way to track which CSU officers responded, or how long they took to respond, to HPD call-outs; neither HPD nor the classified CSU officers kept records of these calls.²⁷⁹ This practice raised a concern regarding real or

271. The CSU also responds to crime scenes involving dead babies, as well as some high-profile or unusual physical assaults. See Email from Ramit Plushnick-Masti, Communications Director, HFSC, to co-author (March 21, 2018) (on file with authors).

272. See Lise Olsen & James Pinkerton, *Internal Audit Finds Houston Crime Scene Technicians Lack Independence and Proper Training*, HOUS. CHRON. (July 29, 2016, 10:20AM), <https://www.houstonchronicle.com/news/houston-texas/houston/article/Internal-audit-finds-Houston-crime-scene-8556872.php> [<https://perma.cc/B775-LQYP>] (noting that in July 2016, twenty of the CSU's twenty-six employees were classified police officers).

273. See THOMPSON, *supra* note 2, at 219.

274. See Meagan Flynn, *HPD Wants Its Crime Scene Unit Back. Crime Lab's Civilian Leadership Says No.*, HOUS. PRESS (Aug. 22, 2016, 6:00AM), <http://www.houstonpress.com/news/hpd-wants-its-crime-scene-unit-back-crime-labs-civilian-leadership-says-no-8682790> [<https://perma.cc/9J8W-GAVE>].

275. See Olsen & Pinkerton, *supra* note 272.

276. *Id.*

277. *Id.*

278. See Flynn, *supra* note 274.

279. *Id.*

perceived bias, because it allowed homicide detectives to choose whichever CSU officer they preferred to respond to officer-involved shootings.²⁸⁰ It also prevented the HFSC from collecting data on its response time and overall performance.²⁸¹ As an initial fix, the HFSC hired a call center to answer, track, and route HPD calls, but it quickly proved to be both unworkable and extremely unpopular among the classified CSU officers and others at the HPD.²⁸² It was replaced with a 24/7 system under which the HFSC's civilian CSU supervisor served as the central dispatcher, taking HPD requests for CSUs, assigning units to those calls, and logging each request—a system that worked well and reduced CSU response times but proved to be too much for one person.²⁸³

Tensions came to a head when the acting Houston Police Chief and the HPOU President surprised the HFSC Board chair and HFSC senior executives in a private meeting by demanding that the HFSC return the CSU to the HPD.²⁸⁴ HPD officials cited problems with the call center as justification for the request,²⁸⁵ although the HPOU president also told the media that classified CSU officers had complained about having to take orders from both HPD homicide officers and HFSC's civilian management.²⁸⁶ “We were big proponents of the Houston Forensic Science Center being created at

280. *Id.*

281. *Id.*

282. *Id.*

283. See Seth Augenstein, *Houston CSU: City's Forensic Science Center and Police at Odds Over Scene Response*, FORENSIC MAG. (Sept. 23, 2016, 11:40 AM), <https://www.forensicmag.com/news/2016/09/houston-csu-citys-forensic-science-center-and-police-odds-over-scene-response> [<https://perma.cc/F4MF-C7KH>].

284. See Lise Olsen, *HPD Chief Seeks Control over Crime Scene Unit That Investigates Officer-involved Shootings*, HOUS. CHRON. (Aug. 27, 2016, 8:02 PM), <https://www.houstonchronicle.com/news/houston-texas/houston/article/HPD-Chief-seeks-control-over-crime-scene-unit-9188720.php> [<https://perma.cc/9K3V-WYJE>].

285. *Id.*

286. See Flynn, *supra* note 274. Following implementation of the supervisor-on-call policy, the CSU's civilian supervisor was then accused by a classified CSU of being intoxicated and engaging in sexual harassment of another officer at the scene of an officer-involved shooting. See Seth Augenstein, *Houston CSU Director Cleared of Sexual Harassment and Intoxication at Scene—but Policies Changing*, FORENSIC MAG. (Dec. 9, 2016, 12:52 PM) <https://www.forensicmag.com/news/2016/12/houston-csu-director-cleared-sexual-harassment-and-intoxication-scene-policies-changing> [<https://perma.cc/WSW2-4RXM>]. Ultimately, the City of Houston's Office of Inspector General cleared the CSU supervisor of those accusations. *Id.*

first, and taking over the CSU,” he told *Forensic Magazine*.²⁸⁷ “But it ain’t working, and they’re not going to be able to fix it.”²⁸⁸

HFSC Board members and laboratory management strongly believed that returning the CSU to the HPD would be a serious step backward with respect to the quality of the laboratory’s forensic testing as well as with regards to public confidence in the unit’s operations. Accurate laboratory results require that evidence is collected properly in the first place.²⁸⁹ As the HFSC chief operations officer told the *Houston Press*, “science starts in the field.”²⁹⁰ In recent years, DNA testing has become increasingly sensitive, which means that evidence collectors need more scientific training, not less, to avoid contamination issues.²⁹¹ And the independent audit discussed above had already shown that the HPD’s CSU protocols and training regimes were seriously flawed.²⁹²

The final decision regarding the CSU’s future would rest not only with the HFSC Board but also with city leaders.²⁹³ This meant that the HFSC needed political allies as well as the power of public opinion to ensure the CSU’s continued independence from the HPD. To this end, the Board chair and HFSC management spent considerable time in discussions with city officials and various opinion leaders regarding the issue’s importance and its potential ramifications for criminal justice.²⁹⁴ After numerous such discussions, the results were overwhelmingly positive. For example, following a two-hour, no-holds-barred meeting between the HFSC and the *Houston Chronicle*’s editorial board, the newspaper ran a lengthy editorial strongly favoring the HFSC’s retention of the CSU.²⁹⁵ Additionally, at an HFSC Board meeting with mayoral

287. Augenstein, *supra* note 283.

288. *Id.*

289. *See* Flynn, *supra* note 274.

290. *Id.*

291. *Id.*

292. *See supra* notes 278–80 and accompanying text.

293. *See* Augenstein, *supra* note 283.

294. Co-author Nicole Cásarez initiated or was present at these meetings as HFSC Board chair.

295. Editorial, *CSI Houston: A New Drama*, HOUS. CHRON. (Oct. 20, 2016, 6:47 PM), <https://www.houstonchronicle.com/opinion/editorials/article/CSI-Houston-a-new-drama-10003591.php> [<https://perma.cc/U84D-FAUZ>].

representatives in attendance, a past president of the Harris County Criminal Lawyers Association objected forcefully on behalf of the criminal defense bar to any return of the CSU to HPD control. “In terms of moving this back to HPD, we’ve been down that road—it failed,” he said.²⁹⁶ “It failed utterly and miserably. . . . We don’t need to go back down that road.”²⁹⁷

Ultimately, the conflict was resolved a few months later when the mayor appointed a new police chief who supported the HFSC’s plan to create a civilianized CSU.²⁹⁸ To be sure that all new hires would be properly trained, the HFSC created its own 400-hour CSU training academy.²⁹⁹ Fifteen civilian trainees received in-depth instruction regarding scientific evidence collection protocols and how to testify in court.³⁰⁰ They attended lectures on topics such as cognitive bias and wrongful convictions and worked mock crime scenes under HFSC supervision.³⁰¹ At their 2017 graduation ceremony, they were reminded that they would be working not for law enforcement or the criminal defense bar, but for “science that is used to achieve justice.”³⁰² By the end of 2017, the HFSC had returned all remaining classified CSU officers back to the HPD for reassignment,³⁰³ and the unit is expected to achieve international accreditation during 2018.

296. See Augenstein, *supra* note 283.

297. *Id.*; see also HOUS. FORENSIC SCIENCE CENTER, MEETING OF BOARD OF DIRECTORS MINUTES 1–2 (Sept. 9, 2016) <http://www.houstonforensicscience.org/meeting/5808f59eioMNjSigned.pdf> [<https://perma.cc/L9XP-XYDF>].

298. See Seth Augenstein, *Houston CSU: Police Union Wanted Off Civilian-led Force*, FORENSIC MAG. (May 31, 2017, 12:34 PM), <https://www.forensicmag.com/news/2017/05/houston-csu-police-union-wanted-civilian-led-force> [<https://perma.cc/ML2F-CVE5>].

299. See Press Release, Hous. Forensic Sci. Ctr., HFSC Launches CSI Academy to Train New Hires (June 26, 2017), <http://www.houstonforensicscience.org/news/5950ff9bjTYyAcademy.pdf> [<https://perma.cc/7FMU-CMCM>].

300. *Id.*

301. *Id.*

302. Nicole B. Cásarez, Remarks to 2017 Training Academy Graduating Class (Sept. 8, 2017) (on file with authors).

303. See Augenstein, *supra* note 213.

CONCLUSION

On January 31, 2018, the *Houston Chronicle* published an article with the following headline: “Forensic analyst fired for shredding records in homicide case.”³⁰⁴ The HFSC analyst in question was discovered to have rewritten her case notes and shredded the original copy, which violates laboratory policy. Laboratory managers learned about the breach quickly (from the analyst’s colleagues), enabling them to take immediate corrective measures.³⁰⁵ The forensic analysis in question would be repeated to ensure that it was correct, and all of the analyst’s past cases would be reviewed.³⁰⁶ She was promptly fired, and the laboratory’s communications director immediately notified stakeholders and the media.³⁰⁷ An announcement of the firing can be found on the laboratory’s website.³⁰⁸ Rather than hurting the reputation of the laboratory, the news story highlighted the laboratory’s “strong quality systems.”³⁰⁹ Remarkably, even a former president of the criminal defense bar association viewed the laboratory’s handling of the incident favorably. She remarked, “But since [the HFSC has] taken over, they’ve been very transparent and have put protocols in place to ensure transparency and disclosure. . . . Those protocols came into play today, and they worked.”³¹⁰

This episode, and the community reaction to it, underscores the success the HFSC has had in rebuilding community trust. In a relatively short time, from the formation of the LGC in 2012 and the

304. See Robert Downen, *Forensic Analyst Fired for Shredding Records in Homicide Case*, HOUS. CHRON. (Jan. 31, 2018), <https://www.houstonchronicle.com/news/houston-texas/houston/article/Forensic-analyst-fired-for-shredding-records-in-12541866.php> [<https://perma.cc/3T7Z-LA3D>].

305. This information was reported by HFSC President and CEO Peter Stout at the Board meeting on February 9, 2018. See Hous. Forensic Sci. Ctr., *Meeting of Board of Directors Video*, HOUS. TELEVISION at 16:08–21:30 (Feb. 9, 2018), <http://houstontx.swagit.com/play/02132018-1885/2/> [<https://perma.cc/RB7A-5QTH>].

306. See Press Release, Hous. Forensic Sci. Ctr., HFSC Terminates Multimedia Analyst Following Destruction of Case Notes (Jan. 31, 2018), <http://houstonforensicscience.org/news/5a71d1d794vaKion%20v1.pdf> [<https://perma.cc/X5RP-4Q8B>].

307. See Downen, *supra* note 304.

308. *Id.*

309. *Id.*

310. *Id.*

laboratory's independence from the police department in 2014, this Article shows that HFSC has made strides in earning the confidence of the defense bar, which was no easy feat. In this Article, we have endeavored to show how the HFSC's unique organizational structure, as a stand-alone municipal corporation, has allowed the organization to pursue three transformative ideals: transparency, efficiency, and quality. The recent news report shows the interrelated nature of the three ideals in operation. Were it not for the HFSC's transparency, efficiency, and quality, an episode like this would likely have created a scandal and sown distrust. In a laboratory like the former HPD Crime Laboratory, such a misdeed might have been covered up or never detected. The empirical study reported in this Article demonstrates a serious lack of transparency among the vast majority of crime laboratories in large urban areas, in states with large populations, and at the federal level.³¹¹ Thus, it is not possible to gauge the extent to which most of these laboratories may have implemented effective quality controls, efficient processes, or any other measures of performance aside from accreditation. It is, of course, possible (and our hope) that most crime laboratories produce high-quality work in a timely fashion. Our point here is simply that the lack of transparency gives the public no way to tell.

The corporate structure has also empowered the HFSC staff to pioneer quality assurance processes through its blind testing program that have the potential to revolutionize forensic science. The pursuit of forensic science research also allowed the HFSC staff to develop efficient procedures to reduce the incidence of backlogs in all laboratory sections. The speed at which stakeholders receive laboratory test results gives the police the information they need to catch suspects quickly. It also facilitates prompt removal of people from jail and placement into needed rehabilitative programs. The efficient provision of laboratory results to prosecutors and defense counsel also enables quick resolution of cases.

In sum, we revisit the NAS recommendation to remove crime laboratories from within their law enforcement agencies. However,

311. *See supra* notes 37–79 and accompanying text.

rather than focus on any perceived deficiencies in crime laboratories or on the potential for motivational and cognitive bias, we have shown how laboratory independence carries an enormous upside for forensic scientists. What the HFSC's example shows is that the model of a stand-alone crime laboratory, especially if constituted as a municipal corporation, creates fertile ground for the advancement of forensic science practice. Once free to operate independently and transparently, the HFSC was able to put in place measures that aim to get "the right answer at the right time,"³¹² rebuilding the community's faith in the laboratory and bringing an array of unexpected benefits for criminal justice stakeholders and the entire community

312. It has become an HFSC mantra that the organization's goal is to get "the right answer at the right time." See *Meet Dr. Peter Stout*, *supra* note 179.