

**TEXAS FORENSIC SCIENCE
COMMISSION
STAKEHOLDER ROUNDTABLE
REPORT**

**TEXAS STATE CAPITOL
JUNE 6, 2012**

I. Background

On February 18, 2009, the National Academy of Sciences released a report entitled “Strengthening Forensic Science in the United States: A Path Forward,” (the “NAS Report”).¹ The NAS Report identified key areas for improvement in forensic science and offered a number of specific recommendations.² The intent of the report was to elevate forensic science standards uniformly across the United States.³

In the three years since its release, state and federal courts, legislators, scientists and academics have cited the NAS report frequently as an authoritative source on the strengths and limitations of various disciplines in forensic science.⁴ At least two Congressional committees held hearings to address the issues raised in the report.⁵ Senator Patrick Leahy introduced legislation attempting to address issues of concern.⁶ The Executive Branch appointed its own advisory committee on forensic science.⁷ Numerous national organizations have released responses to the recommendations contained in the report, and it remains a significant subject of discussion at every annual meeting of the American Academy of Forensic Sciences.⁸

The Texas Forensic Science Commission (“TFSC” or “Commission”) also recognized and supported the NAS Report’s efforts to draw attention to needed improvements and resource gaps in forensic science.⁹ The Texas Legislature created the Commission in 2005 to investigate allegations of negligence and

¹ Nat’l Research Council, Nat’l Acad. of Scis., *Strengthening Forensic Science in the United States: A Path Forward* (2009) [hereinafter NAS Report].

² *Id.*

³ E.g., Paul C. Giannelli, *The 2009 NAS Forensic Science Report: A Literature Review*, 48 *Crim. L. Bulletin* 378 (2012); *Ex parte Robbins*, 360 S.W.3d 446 (Tex. Crim. App. 2011); *United States v. Cerna*, No. CR 08-0730, 2010 U.S. Dist. LEXIS 144424 (N.D. Cal. Sept. 1, 2010).

⁴ See *Turning the Investigation on the Science of Forensics: Hearing before Committee on Commerce, Science and Transportation*, 112th Cong. (2011); *Automated Fingerprint Identification System (AFIS) interoperability and the appropriate Federal Executive Branch responses to the AFIS interoperability issues identified in the National Academy of Sciences 2009 report: Strengthening Forensic Science in the United States: A Path Forward: Hearing Before the Subcomm. on Forensic Sci. of the Senate Comm. on Science*, 112th Cong. (2011); and *National Research Council’s Publication “Strengthening Forensic Science in the United States: A Path Forward: Hearing before the Subcomm. on Crime, Terrorism, and Homeland Security of the H. Comm. on the Judiciary*, 111th Cong. (2009).

⁵ *Turning the Investigation on the Science of Forensics: Hearing before Committee on Commerce, Science and Transportation*, 112th Cong. (2011); *National Research Council’s Publication “Strengthening Forensic Science in the United States: A Path Forward: Hearing before the Subcomm. on Crime, Terrorism, and Homeland Security of the H. Comm. on the Judiciary*, 111th Cong. (2009).

⁶ Criminal Justice and Forensic Science Reform Act of 2011, S. 132, 112th Cong. (2011).

⁷ NAT’L SCI. & TECH. COUNCIL, CHARTER OF THE SUBCOMMITTEE ON FORENSIC SCIENCE 1 (2009), available at http://www.forensicscience.gov/assets/pdfs/subcommittee_charter.pdf.

⁸ <http://www.aafs.org/>

⁹ <http://www.fsc.state.tx.us/nas-report/>

misconduct in accredited crime laboratories.¹⁰ As part of its oversight mission, the Commission is committed to taking a proactive approach to engaging stakeholders throughout the forensic science community in Texas. Commissioners have long believed that a statewide conversation regarding the NAS Report would be beneficial. This need has become more acute over time because many forensic science initiatives recommended in the NAS Report have been stalled in Congress due to political discord, lack of funding or other factors. The Commission recognizes that Texas has and will continue to take a leadership role in identifying ways to improve the integrity and reliability of forensic science, regardless of the pace at which similar initiatives may proceed at the federal level.

II. June 6, 2012 Stakeholder Roundtables

On June 6, 2012, the Commission provided a forum at the Texas State Capitol for issues of concern to forensic scientists, judges, legislators, policymakers, law enforcement and attorneys. The purpose was to identify the most pressing issues facing the forensic science community and highlight possibilities for improving the quality of forensic science and accessibility of forensic services to stakeholders in Texas. Collectively, these roundtable discussions helped identify the most critical issues in our state and allowed those who have already implemented successful new practices to share their success. Through this exchange, the group identified specific areas in which stakeholders may work collaboratively to improve the quality of forensic science in Texas.

Among the roundtable attendees were county laboratories, state laboratories, federal laboratories, city police department laboratories and private laboratories. The funding sources for the laboratories were diverse, including state, federal, county, city and fee-for-service methods. The group also included some forensic scientists and engineers operating as consultants outside traditional accredited laboratory settings. Participants from non-scientific disciplines included defense counsel, prosecutors, judges, legislators and their staff, representatives from the Offices of the Governor and Lieutenant Governor, and representatives from the Commission on Indigent Defense and the Innocence Project. The group's diversity allowed for an educational and productive dialogue including a variety of perspectives within the criminal justice system in Texas.

Following were the subject areas discussed during the roundtables: (1) education and training of scientists, lawyers and judges; (2) certification of forensic examiners; (3) quality and timeliness of forensic services; (4) strategies for improving quality and consistency of forensic reporting and testimony; (5) research and reliability of methods; (6) ethical dilemmas in forensic science; (7) addressing pseudo-science in Texas courts; and (8) independence of crime laboratories in Texas.

¹⁰ Tex. Crim. Proc. Code Ann. art. 38.01 (West 2005).

Roundtable moderators¹¹ addressed three main themes for each subject area. The first was “strengths and success stories.” This provided an opportunity for participants to share their experiences addressing various challenges, and to learn about successful initiatives at other Texas laboratories and in the Texas criminal justice system generally. The second area of focus was “key issues and challenges.” This discussion allowed participants to identify the most significant and pressing areas for improvement currently facing scientists and other stakeholders in the criminal justice system. The third focus was “action items,” which identified possible solutions, opportunities for collaboration and resource sharing.

¹¹ The Commission would like to thank everyone who generously donated their time to serve as moderators, including: (1) Judge Patrice McDonald and Dr. Sarah Kerrigan for Education and Training; (2) Dr. Elizabeth Todd and Dr. Art Eisenberg for Certification of Examiners; (3) Dr. Roger Kahn and Mr. Manuel Valadez for Quality and Timeliness of Laboratory Services; (4) Ms. Sarah Chu and Mr. Forrest Davis for Laboratory Reporting and Testimony; (5) Mr. Jeff Blackburn and Judge Sharen Wilson for Pseudo/Junk Science; (6) Mr. Edwin Colfax and Mr. Pat Johnson for Independence of Laboratories and Cognitive Bias; (7) Mr. Ron Singer and Ms. Melissa Gische for Research and Reliability of Methods; and (8) Dr. Nizam Peerwani and Mr. Richard Alpert for Ethical Dilemmas in Forensic Science. The Commission would also like to thank Mr. Steve Collins of the University of Texas system for serving as the group facilitator.

I. EDUCATION AND TRAINING OF SCIENTISTS, LAWYERS AND JUDGES

The NAS Report identified three main purposes for education and training in the forensic science disciplines.¹² The first is to prepare the next generation of forensic practitioners through high-quality undergraduate and graduate programs.¹³ The second is to provide continuing professional development for forensic science practitioners so that they may stay current in forensic techniques and research.¹⁴ The third is to educate the users of forensic science analysis, especially judges, lawyers and law students.¹⁵ This roundtable addressed all three of these areas, with a particular focus on the second two.

A. Strengths and Success Stories

Stakeholders identified the following strengths and success stories in the area of education and training in Texas:

- Resources already exist for training of attorneys and judges (*e.g.*, Texas State Bar, Texas Criminal Justice Integrity Unit, Texas Center for the Judiciary, Texas Criminal Defense Lawyers Association (“TCDLA”), and Texas District and County Attorneys Association (“TDCAA”).
- Training resources also exist for forensic scientists *but* to a far lesser extent. Training funds for forensic scientists are often dependent upon the funding capability of the laboratory.
- Some existing national Scientific Working Groups (SWGs) have established recommendations for training and education (*e.g.*, DNA) but recommendations have not been developed uniformly for all disciplines.
- There are some free training resources available through the National Institute for Justice (“NIJ”) and other agencies. However, those resources are limited in their availability and scope.
- Texas is extremely fortunate to have *four* programs accredited by the Forensic Science Education Programs Accreditation Commission (“FEPAC”) including two programs at the University of North Texas Health Science Center, one at Texas A&M University and one at Sam Houston State University. However, the proliferation of “junk” forensic science programs continues; thus not all forensic science programs offer the same caliber of education and training.

¹² NAS Report at 8-1.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.* at 8-2.

- Texas has many solid organizations representing individual stakeholder groups (e.g., Texas Association of Crime Laboratory Directors (TACLCD), TDCAA, TCDLA, Texas Police Chiefs' Association, etc.). However, no one is currently responsible for facilitating ongoing communication between these organizations.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in the area of education and training in Texas:

- There are major deficits in training and education for forensic scientists as well as a need for more interdisciplinary training involving lawyers, judges, law enforcement and forensic scientists.
- There is no dedicated statewide funding source for training and education of scientists as there is for lawyers and judges, leaving laboratories to find the money in their own budgets. Because laboratories are struggling financially, training and education is typically one of the first things cut from the budget.
- There is a lack of uniformity in training and education requirements among forensic scientists. Requirements for training and education tend to be discipline-specific and vary greatly depending upon the particular discipline.
- There is a need for additional training and education opportunities at the regional level within Texas. In-house training is a good start but it is far more beneficial to expose analysts in a given laboratory to analysts from other laboratories, as well as to other members of the criminal justice system such as lawyers and judges. Because it can be cost-prohibitive to send analysts out of state for training, a more cost-effective alternative would be to develop regional training centers within Texas that bring together subject matter experts within each region.
- Training challenges vary from laboratory to laboratory. Larger laboratories have more in-house training resources because they typically have more internal experts per discipline. Lab budgets range from zero training dollars per Full-Time Equivalent (FTE) to \$2,000-\$3,000 per FTE, though such a high number is extremely rare.
- Attrition of experienced analysts in many laboratories makes it difficult to sustain a robust in-house training program.
- There is no clear indication of what the training needs in the state actually are, including how many forensic scientists there are per discipline, how

many of them receive training currently, and at what level. This makes it difficult to assess potential cost.

- Some lab directors noted a loss of productivity associated with training. Even if the training is free through NIJ, some directors expressed concern that they cannot afford to release people from benchwork even for a week. Loss of analysis time impacts backlogs and the financial bottom line for fee-for-service labs in particular.
- Standards for training need to be determined collaboratively by stakeholders. The quality of training varies considerably, and stakeholders should come together to set standards for training in Texas.
- Currently, there is no comprehensive list of qualified experts in Texas available to provide training.
- Members of the Judiciary noted their needs for training curricula are not necessarily communicated to the people delivering the training. There is a disconnect between what is needed by members of the Judiciary and what is actually delivered.
- Funds for training and education are largely perceived to be non-essential, and it is difficult to measure and quantify the cost to society of inadequate training.

C. Action Items and Opportunities for Collaboration

Stakeholders identified the following potential action items and opportunities for collaboration in the area of education and training in Texas:

- The TFSC and TACLD should prepare and distribute a survey to determine what training and education expenditures exist in Texas. The survey should include numbers of FTEs per forensic discipline and budgets for training per FTE. Results may be compared to the average training dollars for other stakeholder groups.
- The TFSC and TACLD should work with laboratories to conduct a needs assessment to determine what the specific training needs in Texas actually are. How many scientists? Which disciplines? Entry level or continuing education, or both?
- The TFSC should consider conducting a cost/benefit analysis that shows the cost of re-testing evidence versus training and education.
- Texas should invest in a cutting edge training academy where all stakeholders can go to receive great quality training, and where

interdisciplinary training is emphasized. Most of the resources to begin such an academy already exist in Texas among various universities, stakeholders and scientists but need to be coordinated. The TFSC should serve as the coordinator of the training (location, faculty, curricula, etc.) with the assistance of one or two additional FTEs, possibly from one of the FEPAC-accredited programs.

- More academic and private sector partnerships should be explored. For example, many laboratories in Texas purchase their scientific instrumentation from the same vendors. Stakeholders should ask these vendors to help support training programs in the same way that forensic scientists in DNA have leveraged their relationships with vendors in their discipline.
- The TFSC and TACLD should establish interagency technical advisory groups for the various accredited disciplines. Forensic examiners do not benefit from working in a vacuum. The groups would allow for sharing of ideas and resources. The groups should involve practitioners, academicians and researchers.
- The TFSC should consider drafting best practices in training and education relying upon what has already been done in the national SWGs. Currently, most forensic scientists do not have a requirement for a minimum number of training hours. Approaches to implementing this could include: (1) mandating a certain number of hours per discipline through legislative action; (2) mandating a certain number of hours per discipline through DPS rulemaking; or (3) TFSC and TACLD work collaboratively to issue recommendations on best practices in training and education that become part of a collective statewide set of expectations without a mandate.
- TFSC should explore funding opportunities to cover costs. One example is to ask the Governor's Office to consider setting aside a small portion of the Coverdell funds (or other similar funding) to assist with training. The Governor's Office may be receptive to this approach, especially if it helps some of the smaller laboratories in more remote locations with limited access to training funds.
- The general consensus among representatives from the Legislature is that there will be no funding for a new training institute, so the TFSC, TACLD, DPS and others will need to be creative about using existing resources for this purpose.
- Currently, training funds administered by the Court of Criminal Appeals do not include forensic scientists among the constituency served. The TFSC should work with the Court to determine whether this could be changed.

II. CERTIFICATION OF FORENSIC EXAMINERS

Crime laboratory accreditation primarily addresses the management systems, technical methods and quality of the work of a laboratory.¹⁶ Unlike the broad approach taken by accreditation, certification is designed to ensure the competency of individual examiners.¹⁷ Certification is a discipline-specific process, and varies widely from discipline to discipline. Unlike accreditation, certification is currently not required by Texas law. However, the NAS Report, major accreditation bodies, and the American Academy of Forensic Sciences all support the concept of certification. This roundtable discussed the potential benefits, drawbacks and costs of certification for Texas crime laboratories.

A. Strengths and Success Stories

Stakeholders identified the following strengths and success stories in the area of certification of forensic examiners in Texas:

- Texas has already taken a leadership role by conditioning the admission of evidence in criminal actions upon the accreditation of the examining laboratory, and by creating the TFSC. Stakeholders acknowledged that mandatory certification is inevitable nationwide, though the form it will take (national vs. state regulation, etc.) is unclear at this time.
- This reality provides another opportunity for Texas to lead in developing appropriate certification requirements and training opportunities. Participants noted that some of the current certification examinations offered in certain disciplines are lacking in substance and do not provide the level of questioning that would ensure the competency of an examiner.
- Certification provides a strong perception that the certified individual has integrity, is competent and provides a quality work product, but there needs to be more rigor built into the certification process than just the examination, such as continuing education.
- Certain disciplines have done a better job establishing minimum competency (*e.g.*, DNA) than others, which have no minimum standards.
- In Texas, we have large forensic science agencies and laboratories already invested in encouraging certification for examiners. Some agencies provide financial incentives for certification or fee reimbursements for successfully completed examinations. Others incorporate certification as part of their advancement process and career path. The inevitability of

¹⁶ NAS Report at 7-12.

¹⁷ *Id.* at 7-13.

certification is recognized, particularly among larger forensic science service providers.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in the area of certification of examiners in Texas:

- Some stakeholders felt that examiners would bear much of the cost of certification, and though it makes sense to require certification for new examiners, some felt more experienced senior examiners whose testimony has been admitted for years should not be required to bear the same burden.
- Stakeholders noted that there is no standardization across certification programs. Some programs are so weak that it seems anyone could pay a fee and receive a certification. There is no clarity regarding what kind of knowledge is being tested, with some questions being so esoteric or antiquated that they lack value.
- Participants noted that proficiency testing also lacks consistency. For example, proficiency testing in DNA is very specific. One must take the examination two times a year in certain time increments. Other disciplines only require an examination every two years.
- Many laboratories cannot afford to remove examiners from benchwork to allow the time required for examination preparation.
- Certification is not the perfect solution; it does not guarantee one will always avoid mistakes, and it does not guarantee an examiner's ability to communicate the most important information effectively to a trier of fact.
- Participants observed a disconnect between when an individual is released for independent casework and when the same individual can qualify to sit for certification in some disciplines (*e.g.*, DNA). If the purpose of certification is to provide assurances of integrity and competency to the public and trier of fact, why should an examiner be qualified to conduct independent case work yet not be qualified to sit for the certification examination?
- Many stakeholders felt without a mandate or incentive, most examiners will not independently become certified.

C. Action Items and Opportunities for Collaboration

Stakeholders identified the following potential action items and opportunities for collaboration in the area of certification of examiners in Texas:

- TACLD and the TFSC should conduct a survey to assess how many analysts exist in the various disciplines. How many are certified? Who certifies them? Which are the most appropriate certification bodies? What would the cost of certification per examiner be?
- Existing national SWGs can help in determining core competencies for certification. What is the level of education, training and core competency required per discipline? Certification examinations should have all o built in.
- Action items are dependent upon collaboration between TFSC, DPS and TACLD. DPS has recognized, vetted and acknowledged certain accrediting bodies. Perhaps DPS could conduct the same type of vetting for certification bodies.
- Analysts already take written competency exams to qualify as examiners. The core competency exams of laboratories throughout Texas could be collected, and the TFSC could assemble a test bank to ensure that questions represent baseline knowledge considered appropriate by stakeholders in the particular discipline.
- Continuing education is critical to ensure that analysts maintain their core competencies. Certification and further continuing education should be built into career path for examiners.
- Some stakeholders felt that the forensic science community should encourage accrediting bodies to incorporate some level of certification in their requirements. A minimum basic certification could be established and built upon.
- Most stakeholders felt that certification should be mandated by the legislature to achieve the highest rate of compliance. The Legislature and Governor's Office should consider allocating funds in support of certification, or using some of the Coverdell or similar federal funds to assist.

III. QUALITY AND TIMELINESS OF LABORATORY SERVICES

Improving the quality and timeliness of laboratory services is an ongoing challenge for laboratories in Texas, regardless of whether they are funded by the state, federal or local governments, or take a fee-for-service approach to funding. This roundtable discussed strategies for improvement with a specific focus on the ways in which timeliness impacts quality of service.

A. Strengths and Success Stories

Stakeholders identified the following strengths and success stories in the area of quality and timeliness of service in Texas crime laboratories:

- Participants did not express many significant concerns regarding the quality of forensic services, except to the extent quality of service was affected by timeliness (or lack thereof). Participants noted that this does not necessarily mean that there are no quality issues in Texas laboratories but rather that the more looming concern is timeliness.
- During large group discussion, participants noted that many of the more significant quality concerns are in forensic disciplines in smaller laboratories exempt from accreditation, such as latent print analysis.
- Some stakeholders expressed appreciation for gains that have been made by laboratories in reducing turnaround times.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in the area of quality and timeliness of services in Texas crime laboratories:

- Many stakeholders are not satisfied with current turnaround times, though there is no commonly accepted definition of what a reasonable turnaround time is in a given discipline. There did not appear to be any consistent metric for what kind of turnaround time would trigger dissatisfaction.
- Stakeholders wondered whether it is possible or desirable to establish a definition of “turnaround time” and/or to have a single set of statewide turnaround time goals/metrics per discipline.
- Participants noted many factors contributing to poor turnaround times, including: training burdens for small laboratories, legislative mandates, (e.g., SB-1636), no refusal blood alcohol weekends, overly broad discovery requests, the “accreditation burden” and the cumbersome administrative requirements for hiring new examiners in many laboratories. This alone

can result in months passing before new examiners are hired, further increasing turnaround times.

C. Action Items and Opportunities for Collaboration

Stakeholders identified the following potential action items and opportunities for collaboration in the area of quality and timeliness of service in Texas crime laboratories:

- Laboratories need more funding to reduce their turnaround times. One suggestion was to try to allocate fines from non-indigent defendants, though there was significant disagreement around this issue.
- The TFSC could encourage establishment of a statewide database showing the status of criminal cases and the forensic testing requested (*i.e.*, unsubmitted, closed case, lab reports released, etc.). Often, the lack of communication between lawyers and scientists adversely impacts turnaround times because analysts are working closed cases when they could be moving on to other assignments.
- Many forensic scientists expressed a desire to be permitted to testify via videoconference to save transportation and wait time outside courtrooms.
- Because many analysts face backlogs, they spend a significant amount of their time discussing why cases are not completed from a process standpoint. Management should work on case acceptance policies (*e.g.*, for processing large numbers of samples) and other process flow methods to minimize the amount of time analysts spend discussing backlogs and responding to questions regarding backlogs.
- One suggestion was to develop statewide “centers of excellence” for particular forensic disciplines, so that all toxicology work would be done at one location, all DNA work at another, although there was not a consensus on this issue.
- Another suggestion was to develop a thorough business case for the value of crime laboratory work. TFSC/TACLD/DPS could partner with a business school to make a case for enhanced crime laboratory support. The case could include subjects like: the cost of incarceration while cases are pending; definition of key terms (such as turnaround time); examination of backlogs; identification of key efficiency and quality metrics; relative cost of public and private labs; fee-for-service pluses and minuses; process mapping and improvement; advantages/disadvantages of privatization, etc.
- TFSC/TACLD/DPS should consider leading a coordinated statewide process mapping and improvement initiative to identify optimal methods

for crime laboratory workflow on a statewide basis. Process mapping and improvement could include automation efforts to streamline test efficiencies. (The Foresight Project was mentioned as a resource as the organization has completed similar initiatives.)

IV. CONSISTENCY & QUALITY OF LAB REPORTING & TESTIMONY

Most members of the forensic science community agree that the terminology used in reporting and testifying about the results of forensic analysis should be standardized to the extent possible.¹⁸ Forensic scientists use many different terms to describe findings, conclusions, and degrees of association between evidence and people or objects.¹⁹ The use of terminology may have a major impact on how a trier of fact perceives and evaluates evidence.²⁰ This roundtable discussed strategies for improving quality and consistency of reporting and analysis in Texas.

A. Strengths and Success Stories

Stakeholders identified the following strengths and success stories in the area of lab reporting and testimony in Texas:

- There are a number of stakeholders already engaged in mock trial training programs, including some crime laboratories and especially TDCAA. Staff attorneys conduct regular training and could be used as a resource to further enhance the mock trial programs of crime laboratories.
- New ISO-based accreditation standards are more rigorous; they are the main reason labs are moving forward with measured reporting standards and testimony tracking. These requirements will help ensure all laboratories are improving reporting and tracking testimony. Currently, about 1/3 of Texas laboratories are ISO-accredited but more labs are moving in that direction annually.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in the area of lab reporting and testimony in Texas:

- Some accrediting bodies (other than ASCLD-LAB) do not have standardized reporting practices. Participants felt this should be included as part of the accreditation process.

¹⁸ See NAS Report Exec. Summ.

¹⁹ *Id.*

²⁰ *Id.*

- Members of the defense community and judges are currently not involved in testimony monitoring or mock trials in crime laboratories. All participants thought it would be advantageous to involve those two constituencies in the process.
- Scientists expressed concern that they do not have enough contact with both prosecution and defense. Similarly on the defense side, attorneys expressed concern regarding their lack of access to laboratories. There was not a perception that laboratories were unwilling to communicate with defense counsel, but rather that they are required to go through a series of steps to ensure that they are releasing information to someone with the legal right to access the case. If some of that communication could be streamlined, it would help increase transparency.

C. Action Items and Opportunities for Collaboration

Stakeholders identified the following potential action items and opportunities for collaboration in the area of lab reporting and testimony in Texas:

- TFSC should create a Texas Working Group to evaluate and recommend consistent and uniform terminology for use in laboratory reporting. There are already national SWGs in the process of developing report-writing standards. Having our own TWGs would allow us to implement change more efficiently, achieve buy-in from Texas laboratories and participation from other stakeholders in Texas. Stakeholders noted that each discipline is different; perhaps we would need TWGs for each one of them. Judges, law enforcement, attorneys and scientists should all be represented.
- TWGs could also help develop standards, involving everyone in the process of standard-setting instead of mandating standards (either from inside the state or from the federal government). Stakeholders could consider asking the legislature to budget money for standards development in forensic science.
- TWGS could help develop a standard including a model report and model litigation package (with underlying information and cover sheet itemization) at a minimum. This would help scientists and lawyers transition toward a more consistent statewide approach. Roll-out of the models could include training for lawyers about the scope and content of the reports so they have a better understanding of what information they should be looking for and why.
- Many suggested that certain key information about a crime laboratory's work should be posted online. This should include information such as: (1) copy of policies and procedures; (2) SOPs; and (3) calibration records. It would also be helpful to develop online protected access to case

documentation and raw data for individual criminal cases. If a laboratory has a LIMS system, it could provide information to courts or to prosecutors who can in turn authorize transmission to defense counsel.

- Mock trial training should be expanded to include more scientists, judges, and attorneys (both defense and prosecution). This would be mutually beneficial to everyone because counsel and judges could learn about scientific concepts at the same time that scientists are learning about trial examination.

V. PSEUDO/JUNK SCIENCE

Many forensic science disciplines were not developed in laboratories, but rather to meet the practical investigative needs of law enforcement. As the NAS Report notes, though some techniques used in forensic science are built on solid bases of theory and research (*e.g.*, DNA, forensic pathology, toxicology, chemical analysis, digital and multimedia, etc.) others were developed on the basis of observation, experience and reasoning.²¹ This does not mean that such disciplines are invalid, but it does raise questions about the ability of judges to make scientific determinations regarding admissibility, especially in the less scientifically grounded disciplines. Recent cases in Texas involving dog scent lineups and other questionable “scientific” techniques have raised awareness of the potential for pseudo/junk science to materially impact the outcomes of criminal cases. This roundtable discussed strategies for addressing the issue proactively.

A. Strengths and Success Stories

Stakeholders identified the following strengths and success stories in the area of pseudo/junk science:

- Due to the nature of the subject, it was difficult for participants to identify any real strengths in this area. However, participants felt it was important to identify what the term means. Pseudo/junk-science was generally defined as “science” introduced as evidence with a lack of adequate underlying research, poor documentation of testing, no repeatable results, no manner of replicating testing, little or insufficient peer review, and an “individualized” approach to analysis. The category also includes cases in which scientific principles are overstated in testimony beyond the bounds of scientific integrity, resulting in communication of materially misleading information to a trier of fact.
- Participants noted in the wake of the NAS Report, even unaccredited, established disciplines have been questioned as pseudo/junk science despite

²¹ NAS Report 5-1.

their history of admission in many courts. Some examples include questioned documents, bite mark analysis, latent print examination, etc.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in the area of pseudo/junk science:

- Many participants are concerned there is no disciplinary mechanism to identify practitioners of pseudo/junk science and prevent them from testifying in court. Unlike the State Bar or the Medical Board, there is no central repository identifying problematic cases.
- Stakeholders wrestled with the question of who should decide when something is pseudo/junk science. Traditionally, admissibility determinations have been made by the courts and should continue to be made by the courts. However, judges are not always in the best position to make broad-based scientific determinations, and judges tend to err on the side of including evidence. Participants agreed that the Legislature operates too slowly to make any concrete determinations on what should be considered pseudo/junk science.
- There are many limitations in the current adversarial process that make it challenging to identify possible pseudo/junk science. First, defense lawyers are not always competent enough to raise the issues. Second, judges are sometimes reluctant to exclude evidence, and they make poor calls on reliance and reliability. Third, there can be legal precedents in appellate court decisions directly impacting a lower court's ability to act in pseudo/junk science cases.

C. Action Items and Opportunities for Collaboration

Stakeholders identified the following potential action items and opportunities for collaboration in the area of pseudo/junk science:

- The TFSC should consider creating a standing committee including TDCAA, TCDLA and various scientists to review issues related to pseudo/junk science and highlight concerns as they are raised.
- Forensic scientists agreed that for cases in which allegedly outdated or invalid science was admitted and a person was convicted, they would be more than willing to review their own analysis if asked by counsel seeking in good faith to ensure the integrity and reliability of the evidence. This continuous examination and review process is a core component of the scientific method, and it exists in tension with the legal system's need to achieve definitive outcomes in criminal cases. Most stakeholders agreed

that the Legislature should consider the impact of *Ex Parte Robbins* and determine whether something can or should be done to address cases in which a conviction was based on outdated or invalid scientific principles.

- Stakeholders envision a bigger role for the TFSC in alerting the community about information in changing forensic science and related technology. The TFSC should provide these resources to attorneys and to the court system through its website.
- The TFSC should highlight legitimate forensic disciplines and contrast them with examples of junk science (including factual scenarios) so the public understands the factual scenarios in which pseudo/junk science can result in a flawed conviction.
- The Texas Bar, TCDLA and TDCAA should encourage better lawyering and more open communication regarding forensic science, and defense attorneys should be more aggressive about seeking better funding for experts.

VI. INDEPENDENCE OF CRIME LABORATORIES & COGNITIVE BIAS

The NAS Report recommended that public forensic science laboratories be “independent of or autonomous within law enforcement agencies.”²² On the subject of cognitive bias, the report observed that “few forensic science methods have developed adequate measures of the accuracy of inferences made by forensic scientists.”²³ This roundtable discussed strategies for improving independence and transparency in Texas crime laboratories as well as for reducing the potential risks associated with cognitive bias.

A. Strengths and Success Stories

Stakeholders identified the following strengths and success stories in Texas in the area of independence and cognitive bias:

- Many laboratories in Texas already have a strong organizational culture rooted in science. There is also a clear trend toward more transparency in forensic laboratories. However, participants noted that the culture of transparency and scientific integrity is not universal.
- Stakeholders acknowledged one of the reasons behind the “independence” recommendation in the NAS Report is to achieve budgetary independence so that a department does not have to choose, for example, between having officers on the street or running the laboratory. A good example of

²² NAS Report 6-1.

²³ *Id.*

budgetary independence within a law enforcement organization is DPS; the funds allocated to the crime laboratory are not fungible and therefore cannot be diverted to other DPS priorities.

- Some laboratories have evidence intake procedures that provide a buffer between scientists and investigators so there is less contact between the officers and the scientists. This is a good strategy for managing risk associated with cognitive bias in forensics.
- Many laboratories are increasingly moving toward additional verification in laboratory testing. More review is required now than under prior accreditation systems. Most scientists feel this is a positive trend in the quality assurance process.
- One “best practice” used to reduce cognitive bias was to institute a process for evaluating a piece of evidence to determine if sufficient information is available for analysis before beginning any comparison with an exemplar.
- Independent laboratories (separate from police) have been successful in and outside of Texas. Examples include the Southwestern Institute of Forensic Sciences, the Bexar County crime laboratory, and the Arkansas state model.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in Texas in the area of independence and cognitive bias:

- Some laboratories still feel they are a competing budgetary priority within the parent law enforcement agency.
- Some analysts receive pressure from law enforcement investigators to achieve a certain result. This does not happen as frequently now as it once did, but it still happens occasionally.
- There appears to be a lack of transparency between some labs and defense counsel; some agencies make it very complicated and cumbersome to provide access regarding forensic analysis to the defense.
- It is challenging to strike a balance between regulating the flow of information to the analyst for the purpose of preventing cognitive bias and ensuring the analyst has the contextual information he or she needs to understand what the evidence is. Contextual information can be important to the analysis in many circumstances.

- The fact that many laboratories are housed within law enforcement creates a public perception that laboratories and law enforcement are “on one team” in the adversarial system. It is a problem and a challenge to convince the public that the law enforcement affiliation does not influence the conduct and forensic analysis of examiners.
- Participants identified a need to expand discovery in a way that makes sense for all parties; the defense bar needs to be educated about what they really need to be asking for in discovery requests to laboratories.
- Stakeholders noted that even if laboratories were removed from law enforcement, establishing physical/budgetary independence alone does not change the fact that the customer base will always be predominantly law enforcement. So the risk of a biased relationship is still there; structural removal from law enforcement is not a panacea and does not necessarily guarantee independence.

C. Action Items and Opportunities for Collaboration

Stakeholders identified the following action items and opportunities for collaboration in Texas in the area of independence and cognitive bias:

- More and better training would be helpful. Training should increase analyst awareness regarding the risk of bias, using case studies to show how results have gone off-track due to cognitive bias (e.g., FBI Brandon Mayfield latent print analysis and similar cases).
- Stakeholders should develop more and better training to directly address forensic science testimony and to ensure results are accurately communicated in the context of adversarial question and answer process.
- Laboratories should consider exploring protocols to appropriately regulate the flow of information to protect against cognitive bias. This should include limiting extraneous information that could risk impacting the scientific interpretation, especially when subjective elements are involved.
- Laboratories should consider developing protocols for identifying close/hard cases where the risk of cognitive bias is greater, and providing extra safeguards. Some laboratories already have a system in place to ensure certain protocols kick in when needed; their methods could be shared with other laboratories to increase consistency across the system.
- Laboratories should ensure documentation of interaction with investigators that is necessary to provide the information analysts need, while protecting against extraneous information that could impact the integrity of the results.

VII. RESEARCH AND RELIABILITY OF METHODS

The NAS Report recommended that research be conducted to address issues of accuracy, reliability and validity in the different forensic science disciplines. The Report suggested the National Institute of Forensic Science competitively fund peer-reviewed research in certain areas. However, actual funding for research projects has yet to materialize for most disciplines. This roundtable discussed potential strategies for funding research and reliability studies in Texas.

A. Strengths and Success Stories

Stakeholders identified the following strengths and success stories in Texas in the area of research and reliability of methods:

- United States Customs and Border Patrol (“CBP”) partners with two Texas universities—Texas A&M and Lamar. CBP provides a venue in its laboratory for Ph.D. candidates at those institutions to test research; in return the CBP gains co-authorship of any emerging research publication.
- Another example is the University of North Texas Health Science Center, which brings academia into the forensic laboratory. University professors use the laboratory to conduct their research. The dual advantage of this approach is that the professor publishes his or her research while the laboratory gains the benefit of the research project.
- FEPAC accredited programs are required to maintain this type of relationship to ensure scientific relevance. For example, the forensic science program at Sam Houston State University maintains strong academic-industrial partnerships through internships, research and external funding.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in Texas in the area of research and reliability of methods:

- Student academic research is a positive step, but to do the kind of fundamental research needed, academic researchers must be involved. Universities do not tend to fund the kind of practical research needed in various forensic science disciplines because the money is not available to do this type of research absent a crisis. Validating the underlying science in the comparison disciplines requires a university environment and dedicated academics.

- Validation of new techniques at the laboratory level is a different issue, but even there the financial support is lacking. Most laboratories consider themselves fortunate if they have a Quality Assurance/Quality Control manager who is able to conduct validation on new technology or instrumentation.
- The NAS Report recommended significant research but left the funding to the federal government. There certainly has not been a noticeable increase in research funding felt at the state or local level.
- As previously stated, Texas is fortunate to have four FEPAC-accredited forensic science programs. These accredited programs maintain rigorous standards and their graduates are prepared to enter forensic laboratories upon completion of their studies. However, there are some forensic science programs that do not meet FEPAC standards, and typically their graduates are not qualified to begin work in forensic laboratories after graduation without significant additional education and training.
- One challenge is whether there really is an incentive to conduct the research recommended in the NAS Report. The results may have an adverse impact, especially if the scientific underpinnings of forensic disciplines are revealed as flawed. On the other hand, if the research results support the scientific methods already employed, the only positive result would be to validate what is already routinely admitted in court. Nonetheless, the consensus among the group was that the research is justified, important to the integrity of forensic science, and should be conducted.

C. Action Items and Opportunities for Strategic Collaboration

Stakeholders identified the following action items and opportunities for collaboration in Texas in the area of research and reliability of methods:

- Establish a designated research liaison at the TFSC who would: (1) work with crime laboratories to assess their research needs and identify key areas; and (2) consult with existing research programs at various universities in Texas to determine if any of them would be interested in launching collaborative research projects to fulfill those needs.
- Laboratories could begin offering internships to students in exchange for research projects that would be done at the university level. The group felt much of the validation research would be well suited for an interdisciplinary approach, combining hard sciences (such as Chemistry) with other disciplines such as Engineering, Statistics and Social Sciences (specifically with respect to the cognitive research needed in pattern disciplines such as firearms/toolmarks, latent print, blood spatter, etc.)

- Ideally, each large laboratory would have a section dedicated to research and validation. However, participants recognize this highly impractical in the current financial environment.
- In the absence of research groups in individual laboratories (a solution determined to be highly impractical by participants) the TFSC could work to establish a statewide research institute/consortium that could offer assistance with validation studies, research needs and perhaps even support external audits of crime laboratories. This could be either a new entity or a collaborative effort among existing programs.
- The group also suggested statewide discipline-specific working groups including practitioners and university researchers. The purpose would be to establish guidelines, define common terminology and develop relationships between labs and universities that could eventually develop into collaborative research projects.

VIII. ETHICAL DILEMMAS IN FORENSIC SCIENCE

ASCLD-LAB, the largest accreditation body in the United States and the entity responsible for accrediting the vast majority of Texas crime laboratories, relies upon a professional responsibility document entitled *Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists*. The principles cover various topics such as professionalism, competency and proficiency, and clear communication. This roundtable focused on ways in which forensic scientists and other stakeholders in Texas can foster an environment of ethically responsible scientific analysis, reporting and testimony.

A. Strengths and Success Stories

Stakeholders acknowledged that lawyers, forensic scientists, law enforcement and judges must adhere to a common set of ethical standards to ensure the reliability of evidence in Texas criminal courts. Participants also recognized a number of strengths in Texas that contribute to the reliability of evidence. They include:

- The Texas Legislature's decision in 2003 to condition the admission of evidence in criminal actions upon the accreditation of the examining laboratory (House Bill 3703, 78th Legislative Session). Though accreditation is not an absolute safeguard against errors in forensic analysis, it provides a baseline level of confidence and an expectation that all accredited laboratories comply with certain ethical and quality standards, including procedures for addressing non-conformances when they arise.

- The increasingly proactive approach taken by crime laboratories in Texas to: (1) identify any potential problems as they arise; (2) immediately conduct an internal investigation to determine the issue’s scope; (3) self-disclose the problem to the Commission, DPS and the appropriate accrediting body.
- The efforts of TDCAA and TCDLA to enhance forensic science-related training opportunities and to alert prosecutors and defense counsel when a forensic science-related issue is raised.²⁴
- The work of the Texas Forensic Science Commission in conducting comprehensive investigations of accredited crime laboratories when issues are raised either through public complaints or voluntary self-disclosures.
- The work of the Innocence Project and Conviction Integrity Units to ensure wrongful convictions are addressed and to highlight situations in which forensic science evidence was a contributing factor in the conviction.

B. Key Issues and Challenges

Stakeholders identified the following key issues and challenges in the area of ethical dilemmas:

- The adversarial process limits the ability of forensic scientists to share information freely with prosecutors and defense counsel. Scientists are often not contacted by counsel until the last minute before trial. Scientists expressed a strong desire for greater pre-trial preparation.
- Lawyers typically have weak backgrounds in science and may not fully understand the implications and limitations of a particular forensic test. Lawyers who practice in criminal courts need far better scientific training, and examiners need to be more proactive and assertive when explaining the constraints, limitations and assumptions of their testing.
- Scientists expressed frustration about being “directed too much” during testimony, which leads them to feel less confident that the court and/or jury

²⁴ Examples of proactive responses in this area include but are not limited to: (1) El Paso District Attorney alerting defense counsel immediately regarding concerns identified in the controlled substance division of the El Paso Police Department Crime Laboratory; (2) TDCAA alerting its membership regarding a significant controlled substance testing issue at the Houston DPS lab, and advising members on the best approach to notify potentially affected defendants and their counsel; and (3) Travis County District Attorney notifying defense counsel regarding allegations in the controlled substance division of the Austin Police Department’s crime laboratory, and maintaining ongoing contact with the Commission to ensure any potential *Brady* issues are identified and disclosed in a timely manner.

heard the appropriate analytical explanation for a particular test or test result.

- Scientists and defense counsel expressed a desire for better communication. Scientists would like to be able to share more background information with defense counsel so they better understand and can credibly use scientific information. They would also like to assist defense counsel in understanding the scope of information maintained by the laboratory, narrowing the scope of discovery requests and providing information that is really necessary to protect the rights of clients.
- Scientists and attorneys expressed a desire for greater uniformity in reporting across Texas (language needs to better communicate scientific results, limitations, assumptions, etc.). Attorneys on both sides often do not understand enough to be able to spot key issues in forensic reporting.

C. Action Items and Opportunities for Strategic Collaboration

Stakeholders identified the following action items and opportunities for strategic collaboration:

- Greater interdisciplinary education, including discussions between scientists, defense counsel, prosecutors and judges. Education should be conducted in a safe environment where stakeholders can ask whatever questions they may have. Participants felt a coordinated educational approach would identify stakeholder needs and reduce the likelihood of “bad evidence” being introduced.
- More extensive pre-trial preparation: TCDLA and TDCAA could take a role in encouraging this.
- Defense counsel and prosecutors should consider being more open to the input of scientists. Forensic reports should “telegraph weaknesses and strengths in the analysis” so prosecutors and defense counsel may have a more realistic and open discussion of evidence in the case.
- Different counties across Texas should adopt the same forensic terminology so everyone understands the scientific concepts better and the criminal justice system can achieve greater internal consistency.
- Attorneys should work with the forensic science community to ensure they are kept up-to-date on changes in science, which would help stakeholders reach consensus more easily on the question of whether a particular case requires subsequent review. Not all participants agreed on the appropriate way to address convictions subsequently determined to have been based on outdated or invalid scientific principles, but all agreed that better

- The TFSC should maintain a repository including neutral scientific publications about major changes in scientific understanding in the various forensic disciplines for educational purposes.