



THE CAPITAL AREA PRIVATE DEFENDER SERVICE

November 1, 2016

I. INTRODUCTION

It recently came to light that the Austin Police Department's DNA Lab practices were so far below accepted scientific standards that the lab was closed after a two-day audit by the Texas Forensic Science Commission. The problems discovered call into question every determination ever made by the lab. The problems highlighted by the Texas Forensic Science Commission audit include the contamination of evidence (including a claim by the lab that the DNA of a victim was found on the swab of an innocent man), the use of protocols not accepted by the scientific community, the use of measures in the lab that encouraged confirmation bias, and other serious errors. The problems discovered are qualitatively more serious than those faced by any other jurisdiction in the country with DNA lab issues.

Travis County Criminal Justice stakeholders are faced with several important tasks:

- Either ordering an independent audit of the lab from 2004-2016 or coming to an agreement with the Travis County District Attorney's Office not to use DNA samples processed by the APD DNA Lab during this time period;
- Creating a plan for the defense review and litigation costs for post-conviction cases;
- Creating a plan and budget for DNA testing of pending cases;
- Exploring whether the re-opening of the APD DNA Lab will provide integrity to the Justice System;
- Exploring the costs associated with opening an independent DNA Lab.

II. THE TWO-DAY TFSC AUDIT FINDINGS

The problems at the lab came to light when the Texas Forensic Science Commission was conducting routine audits to ensure that all labs across the state were following new protocols for the interpretation of evidence that contained more than one person's DNA (mixtures). As part of implementing the new protocols, the Forensic Science Commission reviewed the Standard Operating Procedures (SOPs) of all the DNA labs. During the course of that review, it became clear that the Austin Police Department DNA Crime Lab had its own unique set of problems. It was decided that an audit was necessary, and a brief two-day audit was ordered. During just two

days a number of problems were discovered, the scope of which far exceeded the problems faced by any other labs in the State.

The auditors of the APD Lab found problems that call into question the integrity of procedures that are fundamental to reliable test results. For example, auditors found two instances of contamination, the common and persistent use of expired materials inconsistent with the directions clearly printed on the bottles, internal policies that encouraged instead of discouraged confirmation bias, the use of kits and equipment that had not passed quality validation studies, and the use of protocols not generally accepted by the scientific community.

A. Contamination

In one of the more alarming case studies that surfaced through the TFSC audit, prosecutors suspected contamination in a sexual assault case, and asked auditors to take a look. Prosecutors were suspicious because a tiny amount of one suspect's DNA showed up on the penile swab even though : (1) it was inconsistent with the factual reports given by the victim (she said she was raped by an African American male and the penile swab belonged to a Mexican American), (2) it was inconsistent with other DNA testing done on the victim's vaginal swab (the DNA of an African American man was found in her sample), (3) it was inconsistent with the suspect's factual account (he said he had had consensual sex with another woman that night and DNA testing of hotel room sheets were consistent with that story), and (4) it was inconsistent with further DNA testing of the penile swab by an independent lab (which found none of the victim's DNA on the penile swab). When auditors looked for evidence of possible contamination, they found that the victim's high-level extract was manually placed next to the suspect's low-level extract (the victim's sample had 174 times more DNA than the penile swab), which creates a known risk for contamination.

This was not a single instance. In the two day audit, auditors also found significant contamination of a control sample that affected 10 forensic cases.¹ Though standard practice dictates that re-analysis would have been called for in such an instance, the APD Lab did not rerun the cases.

B. The Potential Loss of Exculpatory Evidence Through the Use of Expired Re-agents and Improper Storage

The two-day audit also discovered that the APD Lab routinely used a reagent liquid for identifying semen stains that had expired. Though the *directions on the bottle* called for a fresh batch to be mixed daily, the APD Lab usually used the same batch until it was used up, sometimes for as long as several weeks. The TFSC is currently conducting a study to try to

¹ The control sample should have been blank, but came up with 8 peaks ranging in size from 170 RFUs to 700 RFUs.

determine at what point the re-agent became useless. Without further testing, there is no way to know how many times the lab may have missed finding the DNA of the actual perpetrator.

Testing and re-testing of evidence might be called for in the future to search for exculpatory evidence. However, in March of 2015 Freezer 5 of the DNA Lab was broken for eight days before anyone realized that the temperature, which should normally be below freezing, had risen to 82.4 Degrees Fahrenheit. Instead of notifying stakeholders and conducting an investigation, the supervisor at the lab instead wrote an internal memo that drew the conclusion that it was unknown whether the hundreds of biological samples kept in the freezer had been affected, or indeed, destroyed.

C. Confirmation Bias and Over-Amplification

The TFSC found that in many cases analysts were asked to analyze evidence from a crime and compare it to the profile of a suspect the police had caught in the case. Proper procedure in such cases is to interpret the evidence sample from the crime, which may be incomplete and of low quality (think sample taken from a dirty Band-Aid left in the trash), and interpret the sample, THEN look at the suspect's sample for comparison (which is usually a clear). This process avoids the well-known phenomenon of confirmation bias. The APD Lab's practice was exactly backwards: they often used the suspect's clear sample to help them "interpret" the evidence sample. An analogy might be matching a license plate number. Consider a suspect's known license plate number: ABC 123. Then consider a license plate taken from several witnesses who reported a jumble of letters and numbers from a vehicle fleeing the scene of the crime. Similarly, a known DNA sample taken from a suspect is usually clear: it is usually a buccal swab taken under optimal sterile circumstances by experienced technicians. An evidentiary DNA sample taken from the scene of a crime usually comes from a grimy, chaotic crime scene, is often a mix of DNA from several unknown individuals, and may consist of incomplete profiles. APD lab technicians might look at the evidentiary sample, or license plate, and see a round fuzzy letter that was not quite complete. They would then look at the suspect's letters and numbers, and call the round fuzzy letter in the evidentiary sample a C, and not an O or a zero or a G, because C is in the suspect's sample and that is what they were looking for.

The confirmation bias was exaggerated by the lab's decision to use a high degree of amplification of the samples. The APD crime lab amplified some DNA beyond the standard 28 cycles to 30 cycles. Such a degree of amplification generally results in more distortion and inaccurate results called 'noise'. Because the APD lab was amplifying the results to such a high cycle, when low-level samples did not seem to exactly match those of the suspects, they did not know whether to attribute the data that did not match to an exclusion or to the high 'noise' that came from the amplified cycle. Because of the complexity of the raw data, lawyers, judges, and juries were unaware of these problems.

D. Validation Studies

Kits and instruments in any DNA lab must be validated through long, complex ‘validation studies’ that typically take eight months to complete. Labs are required to conduct internal validation studies on all of their instruments and testing kits. Sound validation studies are a prerequisite to valid DNA testing, as those studies allow proper calibration and adjustment of the equipment as well as interpretation thresholds that vary from lab to lab. Though a complete review of the APD Lab’s validation studies was well beyond the scope of the FSC’s 2-day audit, small portions of one validation study were reviewed. Serious errors were found that call into question the integrity of that study. Without sound validation studies, testing cannot be deemed reliable or accurate. If a more complete audit confirms that the lab was using faulty validation studies, any DNA tested during that time period could not be deemed reliable.

E. The Use of Protocols Not Recognized by the Scientific Community

The TFSC auditors also found that a fundamental rule of interpretation that directly affected who is identified as a source of DNA was based on a misunderstanding of the current science. All labs are required to establish minimum stochastic thresholds for testing. The APD Lab applied their own type of stochastic threshold, called the “quant-based” threshold, which was an invalid concept with no basis in science. When auditors pointed out the error, the APD doubled down, citing sections of a well-known treatise on the issue by John Butler. When John Butler himself explained to the lab staff that the APD Lab’s interpretation was based on a misunderstanding of the science, the APD Lab continued to argue the issue and to show reluctance to change their policies. The consequences of applying the erroneous rules of interpretation are serious: DNA profile data that should have been deemed scientifically unreliable—data that was trash—may have been used to identify suspects in hundreds—perhaps thousands—of criminal cases.

Finally, analysts failed to follow their own policies and procedures. For example, the APD Lab had an internal rule that governed the minimum size of an interpretable DNA sample, yet analysts disregarded that rule. One analyst was set to testify in a criminal case—waiting in the hallway to be called—when it was discovered by prosecutors that the analyst was relying on a sample size that was way too small according to APD’s own policies. Prosecutors pressed her on the issue prior to putting her on the stand. The analyst took a calculator, multiplied the sample size by a factor of 30, and determined that the sample size was now large enough to be interpreted. Incredulous, prosecutors on the case called an expert, who confirmed their suspicion that there was no science behind her calculations. When pressed to defend her calculations the following day, she backed off, claiming she had misunderstood the question. She never did explain her calculations. That analyst remains on the staff of the APD Lab.

III. Moving Forward To Review Post-Conviction Cases

It is estimated that between 4,000 to 5,000 people were convicted in whole or in part after reliance by prosecutors, defense attorneys, judges and juries on evidence processed by the APD DNA Lab. All convictions must be reviewed to find convictions that violated due process. A rough estimate is that from 1% to 40% of all the convictions resting on lab work done by the APD lab may be overturned. All of these convictions have the potential for post-conviction litigation.

A. The Current Process

When the issue of the DNA mixtures came to light, the State of Texas and Travis County created a 'triage' plan to prevent the need for an assignment of attorneys to each and every person who may have been affected by the mixtures. The Travis County Office of the District Attorney sent a *Brady* letter to all who were potentially affected and the Capital Area Private Defender Service (CAPDS) received a grant from the Texas Indigent Defense Commission to review old cases for materiality (was the DNA evidence legally important to the case?) and then to request reinterpretation of the DNA results consistent with current standards. If the DNA is material to the conviction and the results of the reinterpretation changed, CAPDS would then recommend the assignment of post-conviction counsel for litigation.

There are about 1,000 Travis County mixture cases. Seven hundred were from the APD Lab. Though a factual review of the cases has begun, the current plan is unworkable for the APD DNA cases because the APD DNA lab is currently unable to reinterpret their own cases and other labs are unable to take on the APD Lab cases. Additionally, because of the APD lab issues discussed above, a simple reinterpretation of mixtures or review of the DNA alone is an insufficient and an inappropriate solution. At this point, CAPDS has begun materiality reviews and discovery requests for the APD cases knowing that reinterpretation is not an option.

B. Solutions for Post-Conviction Cases

The problems outlined above require a plan that will ensure that the 4,000-5,000 people whose convictions could be affected by the DNA lab are helped. CAPDS is willing to take part in meaningful discussions to ensure that current planning accounts not only for a defense review of the cases (a need already established by the state-wide mixture review) but includes a method for ensuring that high quality lawyers are available for any necessary litigation that may occur. Even if only 10% of the cases need to be litigated, there is a minimum of 400 post-conviction writs that will need to be filed.

The current system of appointment of private counsel will not work for these cases. There are currently less than 10 appellate lawyers—very few of those have the very specialized post-conviction litigation experience necessary for these cases, and even fewer have expertise in DNA issues.

At this time, CAPDS has agreed to partner with the Travis County District Attorney in sending Brady notification about the APD Lab issues, and is accepting correspondence with those who have questions about a defense review of their cases.

IV. PENDING CASES

DPS officials have just begun retraining the APD DNA staff in serology (training on DNA has not even begun), and estimate that it will be more than a year before employees are trained, procedures are revamped, and foundational validation studies are complete. The current staff are in the process of undergoing retraining so that they can resume business as usual if they regain their accreditation from the Texas Forensic Science Commission.

To date, one case has been dismissed pursuant to speedy trial because of the inability of the APD Lab to conduct any testing. The District Attorney has contracted with one independent lab, SWIFS, to conduct necessary tests for open cases while the APD lab is closed. The District Attorney has also had to consult with respected expert Dr. Bruce Budowle on numerous cases. As the lab is expected to be closed for at least another year, it is expected that Travis County will have to pay for continuing to contract with an independent lab.

V. MOVING FORWARD

A. Independent Lab Considerations

Many of the problems identified in the two-day audit, including confirmation bias problems, seem to stem from the idea that employees of the lab saw themselves not as independent scientists but instead as an arm of law enforcement. There are two important considerations that stakeholders should consider: national forensic best practices for the operation of forensic laboratories and whether the integrity of the APD DNA lab has been so compromised that future use will be deemed unreliable.

In 2005, Congress charged the National Academy of Science to report on strengthening the use of Forensic Sciences. The result was a publication entitled, “Strengthening Forensic Science in The United States: A Path Forward.” The report found that:

“Scientific...assessment conducted in forensic investigations should be independent of law enforcement efforts either to prosecute criminal suspects or even to determine

whether a criminal act has indeed been committed. Administratively, this means that forensic scientists should function independently of law enforcement administrators. The 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.” NAS 2009, 23-24.

To date, Houston, Texas, Washington D.C., New York City and some smaller jurisdictions have chosen to use independent labs instead of those associated with a police department. In New York City, for example, the DNA Lab is housed in the Office of the Chief Medical Examiner. While testing of evidence is at the discretion of the prosecution, defense attorneys are free to meet with and review evidence with the DNA staff of the OCME.

At the current time, no APD DNA staff have been fired and if the lab can receive accreditation from the TFSC it will reopen at some point in the future. Defense Attorneys will be permitted to cross-examine the analysts on years of wrong-doing by the lab, thousands of pages of Brady notice will need to be served for each case, and juries will have to be convinced that while the lab previously encountered serious issues it is now a lab to be relied upon. Re-opening the APD Lab will be very expensive for the city and county, and all stakeholders should consider whether an independent lab is a better option.

Stakeholders should study the cost of contracting cases individually while waiting to determine whether the lab will reopen against the cost of starting an independent lab that does not carry the tarnish of the APD Lab.

B. Independent Audit or Prosecutorial Agreement

Stakeholders need to decide whether any testing from the lab can be redeemed. There may be enough information for the Travis County District Attorney’s Office to make a decision that they will not attempt to proffer any evidence in post-conviction proceedings that was processed by the APD DNA Lab from 2004-2016. That would permit retesting by an independent lab for evidence that was not processed in any way by the lab.

If the Travis County District Attorney’s Office is not willing to enter into such an agreement at this time, an independent audit of the lab needs to be performed. The audit would review all basic documents from the lab, including validation studies, SOP’s, personnel files, and previous complaints.

C. Funding for Materiality Reviews and Litigation

Funding needs to be made available for defense counsel to review and litigate convictions that resulted from testing at the APD lab. A defense materiality review would save money in that all post-conviction cases would not need to be assigned an attorney. After materiality reviews, additional funding would need to be available to fund litigation, experts, and investigation costs.

VI. CONCLUSION

Criminal Justice stakeholders in Travis County have an enormous task ahead of them. Moving forward, stakeholders must:

- Either reach an agreement with the District Attorney's Office about the unreliability of DNA processed by the APD DNA Lab from 2004-2016 or order an independent audit of the lab during this time period;
- Create a plan for the defense review and litigation costs for post-conviction cases;
- Create a plan and budget for DNA testing of pending cases;
- Explore whether the re-opening of the APD DNA Lab will provide integrity to the Justice System;
- Explore the costs associated with opening an independent DNA Lab.