



**WES MAU**  
Criminal District Attorney  
Hays County Government Center  
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**\*\*\* NOTICE REGARDING DNA RESULTS PRIOR TO  
AUGUST 21, 2015\*\*\***

The Hays County District Attorney's Office has recently been notified of two recent issues connected with DNA testing:

- 1) Discrepancies were found in the FBI database used to calculate genetic profile rarity in DNA tests conducted between 1999 and 2015. According to the information provided, "the difference between profile probabilities using the original data and the corrected data is less than a two-fold difference in a full and partial profile."
- 2) The Texas Forensic Science Commission has reported that, in cases where a sample was found to contain DNA from multiple sources, "Changes in mixture interpretation have occurred primarily over the last 5-10 years," which, in combination with the database corrections, have persuaded the Commission to recommend confirming that current analytical protocols were used in preparing DNA results in a pending case.

While we expect little impact on most cases, in Hays County prosecutions between 1999 and August, 2015, the District Attorney's Office will work to facilitate any request for:

- 1) confirmation of the statistical rarity of any DNA profile utilized as evidence using current data and protocols; or
- 2) recalculation of the statistical rarity of any DNA profile using outdated or erroneous data or protocols.

Anyone wishing to request a recalculation should direct their request to Emily Sierra by submitting a written request to the office or emailing [emily\\_sierra@co.hays.tx.us](mailto:emily_sierra@co.hays.tx.us).

Sincerely,

Wes Mau  
Criminal District Attorney  
Hays County, Texas  
August 24, 2015

# TEXAS DEPARTMENT OF PUBLIC SAFETY

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June 30, 2015

The Texas Department of Public Safety Crime Laboratory system was informed by the Federal Bureau of Investigation in May 2015 of errors in the FBI-developed population database. This database has been used by the Texas DPS Crime Laboratory system as well as many other crime laboratories across the country for calculating match statistics in criminal investigations and other types of human identification applications since 1999.

Upon notification, the forensic DNA community immediately began corrective action. During implementation of corrective measures, minor discrepancies were discovered in additional data used exclusively by the Texas Department of Public Safety. All of the errors have been corrected and the changes have empirically demonstrated minimal impact on the calculations used to determine the significance of an association. **Further, the database corrections have no impact on the inclusion or exclusion of victims or defendants in any result.**

If requested in writing, the Texas DPS Crime Laboratory System will recalculate and report statistics previously reported in individual cases.

If you have any questions, please contact your local crime laboratory.

Brady W Mills  
Deputy Assistant Director  
Law Enforcement Support  
Crime Laboratory Service



Marc Krouse, M.D.  
Chief Deputy Medical Examiner

Susan J. Roe, M.D.  
Deputy Medical Examiner

Tasha Greenberg, M.D.  
Deputy Medical Examiner

Richard Fries, D.O.  
Deputy Medical Examiner

Ronald Singer, M.S.  
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**OFFICE OF CHIEF MEDICAL EXAMINER  
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Chief of Human Identification

Tracye Poirier, B.S., M.B.A.  
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Traci Wilson  
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Director

**The Honorable Wes Mau**  
Hays County District Attorney  
712 S. Stagecoach Tr., Suite 2057  
San Marcos, TX 78666

June 23, 2015

Dear Mr. Mau:

The Federal Bureau of Investigation has recently notified participating CODIS laboratories that there have been discrepancies identified in the FBI database used to calculate the rarity of a STR genetic profile. The population data published in 1999 and 2001 has been subsequently amended by the FBI to correct inconsistencies that were identified, and the amended database has been made available to CODIS laboratories.

The Tarrant County Medical Examiner's Office utilized this database in casework from 2001 until February 2015, when the laboratory transitioned to an alternate database provided by the National Institute of Standards and Technology. The changes to the FBI population data have been evaluated. The FBI indicates that any discrepancy between profile probabilities calculated using the original and corrected data is expected to be less than a factor of two in a full profile and that "we are of the view that these discrepancies are unlikely to materially affect any assessment of evidential value." In addition, these discrepancies in no way change the interpretation of inclusion or exclusion of an individual as a donor to a questioned genetic profile; they also do not affect statistics concerning Y-STR analysis.

Recalculation of the rarity of a previously reported genetic profile may be conducted upon request to our laboratory. In addition, we will routinely issue amended reports as we are notified of cases that are set for trial and in which the earlier database was used to report statistics.

Please feel free to contact me should you have any additional questions or comments.

Regards,

Susan R. Howe  
Crime Laboratory Director



TEXAS FORENSIC  
SCIENCE COMMISSION

*Justice Through Science*

1700 North Congress Ave., Suite 445  
Austin, Texas 78701

August 21, 2015

Members of the Texas Criminal Justice Community:

This letter provides notification to the community regarding an issue of potential concern to judges, criminal prosecutors, criminal defense lawyers, victims and defendants in the Texas criminal justice system. The concerns involve the interpretation of DNA results where multiple contributors may be present, commonly referred to as DNA mixture interpretation. The attached document details the origin and scope of the concerns.

While the Commission assesses the issues described in the attached document, we recommend any prosecutor, defendant or defense attorney with a currently pending case involving a DNA mixture in which the results could impact the conviction consider requesting confirmation that Combined Probability of Inclusion/Exclusion (referred to as "CPI" or "CPE") was calculated by the laboratory using current and proper mixture interpretation protocols. If the laboratory is unable to confirm the use of currently accepted protocols for the results provided, counsel should consider requesting a re-calculation of CPI/CPE.

The extent to which any closed criminal cases may require re-analysis will be a subject of Commission review and subsequent notification to the stakeholder community.

If you have any questions regarding these issues, please contact the Commission's general counsel, Lynn Garcia, at 512-936-0649 or [lynn.garcia@fsc.texas.gov](mailto:lynn.garcia@fsc.texas.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Vincent J.M. Di Maio".

Vincent J.M. Di Maio, MD  
Presiding Officer

## **Unintended Catalyst: the Effects of 1999 and 2001 FBI STR Population Data Corrections on an Evaluation of DNA Mixture Interpretation in Texas**

### 1. FBI Data Corrections: What Do They Mean?

In May 2015, the Federal Bureau of Investigation (“FBI”) notified all CODIS laboratories it had identified minor discrepancies in its 1999 and 2001 STR Population Database. Laboratories across the country have used this database since 1999 to calculate DNA match statistics in criminal cases and other types of human identification. The FBI attributed the discrepancies to two main causes: (a) human error, typically due to manual data editing and recording; and (b) technological limitations (*e.g.*, insufficient resolution for distinguishing microvariants using polyacrylamide gel electrophoresis), both of which were known limitations of the technology. The FBI has provided corrected allele frequency data to all CODIS laboratories.

In May and June 2015, Texas laboratories notified stakeholders (including prosecutors, the criminal defense bar and the Texas Forensic Science Commission) that the FBI allele frequency data discrepancies were corrected. The immediate and obvious question for the criminal justice community was whether these discrepancies could have impacted the outcome of any criminal cases. The widely accepted consensus among forensic DNA experts is the database corrections have *no impact* on the threshold question of whether a victim or defendant was *included or excluded* in any result. The next questions were whether and to what extent the probabilities associated with any particular inclusion changed because of the database errors.

The FBI conducted empirical testing to assess the statistical impact of the corrected data. This testing concluded the difference between profile probabilities using the original data and the corrected data is less than a two-fold difference in a full and partial profile. Testing performed by Texas laboratories also supports the conclusion the difference is less than two-fold. For example, in an assessment performed by one Texas laboratory, the maximum factor was determined to be 1.2 fold. In other words, after recalculating cases using the amended data, the case with the *most substantially affected* Combined Probability of Inclusion/Exclusion (“CPI”)<sup>1</sup> statistical calculation (evaluated for a mixed sample) changed from a 1 in 260,900,000 expression of probability to a 1 in 225,300,000 expression of probability.

Amended allele frequency tables are publicly available for anyone to compare the calculations made using the previously published data and the amended allele frequencies, though expert assistance may be required to ensure effective use of the tables.<sup>2</sup>

### 2. The Impact of FBI Database Errors on DNA Mixture Interpretation Using CPI

As part of their ongoing commitment to accuracy, integrity and transparency, many Texas laboratories offered to issue amended reports to any stakeholder requesting a report using the corrected FBI allele frequency data. Some prosecutors have submitted such requests to laboratories, particularly for pending criminal cases. As expected, the FBI corrected data have not had an impact exceeding the

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<sup>1</sup> The Combined Probability of Inclusion/Exclusion is commonly referred to as either “CPI” or “CPE.” They are referred to jointly in this document as “CPI” for ease of reference.

<sup>2</sup> <https://www.fbi.gov/about-us/lab/biometric-analysis/codis/amended-fbi-str-final-6-16-15.pdf>



two-fold difference discussed above. However, because analysts must issue *signed amended reports* with the new corrected data, they may only issue such reports if they believe *the analyses and conclusions in the report comply with laboratory standard operating procedures*. For cases involving DNA mixtures, many laboratories have changed their interpretation protocols and related procedures using CPI. To reiterate, changes in mixture interpretation protocols are unrelated to the FBI allele frequency data corrections discussed above. However, when issuing new reports requested because of the FBI data corrections, the laboratory's use of current mixture protocols may lead to different results if the laboratory had a different protocol in place when the report was originally issued. Changes in mixture interpretation have occurred primarily over the last 5-10 years and were prompted by several factors, including but not limited to mixture interpretation guidance issued in 2010 by the Scientific Working Group on DNA Analysis ("SWGDM").

The forensic DNA community has been aware of substantial variance in mixture interpretation among laboratories since at least 2005 when the National Institute of Standards and Technology ("NIST") first described the issue in an international study called MIX05. Though NIST did not expressly flag which interpretation approaches were considered scientifically acceptable and which were not as a result of the study, it has made significant efforts to improve the integrity and reliability of DNA mixture interpretation through various national training initiatives. These efforts have ultimately worked their way into revised standard operating procedures at laboratories, including laboratories in Texas. Based on the MIX05 study, we know there is variation among laboratories in Texas and nationwide, including differences in standards for calculation of CPI that could be considered scientifically acceptable. However, we also know based on a recent audit of the Department of Forensic Sciences ("DFS") in Washington, DC that some of the "variation" simply does not fall within the range of scientifically acceptable interpretation. This finding does not mean laboratories or individual analysts did anything wrong intentionally or even knew the approaches fell outside the bounds of scientific acceptability, but rather the community has progressed over time in its ability to understand and implement this complex area of DNA interpretation appropriately.

While in many cases the changed protocols may have no effect, it is also possible changes to results may be considered material by the criminal justice system, either in terms of revisions to the population statistics associated with the case or to the determination of inclusion, exclusion or an inconclusive result. The potential range of interpretive issues has yet to be assessed, but the potential impact on criminal cases raises concerns for both scientists and lawyers. We therefore recommend any prosecutor, defendant or defense attorney with a currently pending case involving a DNA mixture in which the results could impact the conviction consider requesting confirmation that CPI was calculated by the laboratory using current and proper mixture interpretation protocols. If the laboratory is unable to confirm the use of currently accepted protocols for the results provided, counsel should consider requesting a re-analysis of CPI.

The Texas Forensic Science Commission is currently in the process of assembling a panel of experts and criminal justice stakeholders to determine what *guidance and support* may be provided to assist Texas laboratories in addressing the challenging area of DNA mixture interpretation. In particular, a distinction must be made between acceptable variance in laboratory interpretation policies and protocols and those approaches that do not meet scientifically acceptable standards. An emphasis on statewide collaboration and stakeholder involvement will be critical if Texas is to continue to lead the nation in tackling challenging forensic problems such as those inherent in DNA mixture interpretation.