



POSITION ON PROPOSED LEGISLATION

BILL: HB 1096 - Evidence - Chain of Custody - DNA Profile
POSITION: OPPOSED
DATE: March 3, 2020

The Forensics Division at the Office of the Public Defender is involved in cases concerning all forms of forensic evidence. DNA analysis is uniquely complex and is a constantly evolving field with advancements happening more quickly than ever. As a result, DNA reports are often ambiguous and confusing. Individual testimony is needed to explain and clarify the methodology and conclusions which underlie the report.

HB 1096 allows for DNA reports to be admitted into evidence without any testimony. Given the complexity of DNA evidence, and the significant risk that this streamlining will cause juror confusion and ultimately wrongful convictions, OPD urges the committee to maintain the current evidentiary standard requiring foundation testimony.

The Science of DNA is Very Complex

The heart of a DNA report is not a “match,” or a “profile,” but rather a statistical probability. To get the required statistics for a DNA report, different labs under different circumstances use different calculations. Common calculations include: random match probability (“RMP”); combined probability of exclusion/inclusion (“CPE/I”); various permutations of the likelihood ratio –some of which involve the use of Bayesian statistical models (“LR”). The significance of a particular type of statistic is not always apparent and needs an explanation. More troubling is the fact that some statistics, for example CPI, are no longer considered valid for use on certain DNA results. Nevertheless, some DNA laboratories continue to employ them on data for which they are not intended.

Probabilistic genotyping adds another layer of complexity that requires an explanatory foundation. The developers of these computer programs claim that they can interpret complex DNA mixtures by using sophisticated and proprietary algorithms. Although several Maryland laboratories have implemented probabilistic genotyping, the

field is still young and many questions remain about its reliability. Because HB 1096 would eliminate foundational testimony – essentially the questions and answers that a jury would observe on direct and cross-examination – such questions about the reliability of this approach would be unanswered.

DNA Reports Are Very Complex

As noted above, the crux of a DNA report is a statistic, and Maryland law *requires* statistics for DNA evidence to be admissible. No longer do these reports consist of relatively simple statistical statements like:

“The chance of a random, unrelated person in the Caucasian American Population having the DNA profile is 1 in a Billion”

Now, a typical conclusion states:

“The swabs from the revolver yielded a DNA profile consistent with at least 3 individuals. Probabilistic genotyping was used assuming the presence of two and three contributors. Mr. Jones can neither be included nor excluded as a contributor to the inferred genotypes. A match between Mr. Jones and the inferred genotype is 2,300 times more likely than a coincidental match in the Caucasian American population.”

To understand this conclusion, jurors would need to know: what probabilistic genotyping means; what an inferred genotype is; what a likelihood ratio is; how this likelihood ratio is different from the more common type; and what it means for someone to “neither be included nor excluded,” despite a high sounding statistic.

Unlike a drug analysis report, which only needs to answer the question “Is the sample a controlled substance,” a DNA report is often introduced to also address the more nuanced questions of when and how did the DNA get there. A report cannot answer those questions, and without proper explanation and context, improper and incorrect inferences will inevitably be made. Our goal should be to do everything possible to avoid one more wrongful conviction because of faulty forensics or juror misunderstanding of the evidence.

Avoiding Confusion Requires Expert Interpretation

Allowing DNA reports to be admitted into evidence without this required testimony will cause confusion about what the DNA evidence actually means. Jurors

need to understand the evidence before them, particularly as they make life-altering decisions for both the accused and victims. DNA reports are complex documents with language that is not intuitive to the average juror and is likely to be misinterpreted. The language of HB 1096 itself shows how confusing this field is: the bill states that a “DNA Profile” shall be admissible. However, DNA reports do not contain DNA profiles. DNA profiles are composed of a series of ‘alleles,’ which look like a series of numbers – similar to a social security number – and are meaningless unless someone provides interpretation.

Foundation testimony regarding DNA evidence is particularly needed to provide context for the limited analysis that is included in a DNA report. For example, a probabilistic genotyping report will not alert jurors that the computer may have identified DNA profiles, other than the defendant’s, that have a much higher probability of being the true contributor. Consider it like an MRI. If you had a mass in your brain, and needed to decide whether to have surgery, if the hospital merely provided you with the MRI – the mere image itself – you would probably still not know what to do. Rather, you would need the neuro-radiologist to explain to you what she saw and how to interpret what it means. Just as you and I would need an expert to help make the right decision, so too do jurors.

Moreover, advances in DNA sampling are extraordinarily vulnerable to contamination and destruction. While DNA sampling used to require a visible stain (blood or semen) to have enough material to generate a DNA profile, current technology is extraordinarily sensitive. DNA profiles can be generated from minute, invisible, microscopic amounts of genetic material, which makes the danger of contamination real and ever present. Just standing here and talking leaves enough DNA for analysis, such that by the end of this hearing, this microphone may have sufficient samples from everyone who has testified (and possibly individuals from prior hearings). Because of these advances, DNA samples have been contaminated by other samples, the suspect’s own reference sample, and lab staff members’ DNA. Admission of the report without any testimony will allow such infirmities to be minimized or ignored, significantly increasing the likelihood of a wrongful conviction.

Foundational Testimony is Constitutionally Required & Good Public Policy

Beyond its effect of sowing confusion about the meaning of this critical evidence, the bill raises significant constitutional issues. In particular, it shifts the burden of proof, requiring a defendant to demand that the State prove its case. In accordance with the

Confrontation Clause, a defendant has the right to confront the witnesses against him, including individuals who touch or perform testing on evidence used to implicate him. The DNA analyst is often the prosecution's most important witness, an essential source of incriminating evidence against the defendant that is subject to interpretation and flaws. Their testimony explaining and justifying the DNA report is as important to preserving basic constitutional requirements as that of an arresting officer.

Given the advancements in DNA technology and the sensitivity of DNA evidence, this right of confrontation is especially important. A significant part of a DNA Analyst's duty is explaining their work. It is what they signed up for when they chose to work in the forensics field, and is a common part of their job description across the country. Allowing for complex DNA reports to be admitted without testimony is counter to the truth-seeking function of a trial. It increases the chances of innocent people being wrongfully convicted and actual perpetrators remaining free.

For all of the above reasons, OPD urges an unfavorable report on HB 1096.