

Time for DNA Database Disclosure

Sir,

The FBI should be more open to constructive criticism.

It was apparent from the start that the FBI's allele frequency tables would be relied upon for many tens of thousands of statistical calculations in criminal cases across the United States since 1999. Unusual care should have been taken to ensure that the underlying data would be free from human error due to manual data editing and recording and data processing errors (e.g. genotype duplications). Yet the FBI only recently recognized that dozens of such errors existed in these data sets after it embarked upon concordance studies with new test kits (1). The problems caused by these errors would have been reduced if the FBI had considered earlier published indications that there were duplicate entries and indications of other errors in the genotypes that gave rise to their allele frequency tables (2,3).

This is not the only evidence of the FBI being slow to hear suggestions from members of the scientific community about some of its most prominent work. In 2009, a group of 40 scientists and legal scholars published an open letter in the journal *Science* that presented a set of compelling arguments for the FBI to "open the NDIS and other government DNA databases to independent scientific scrutiny." (4) The legislation that established NDIS (the National DNA Index System that contains the DNA profiles of millions of convicted offenders) in 1994 explicitly anticipated that database records would be available for purposes of research and quality control (5) yet the FBI (which controls the database) has published no research derived from NDIS and has declined to disclose these records to academic scholars. There is very good reason to expect that the result of such analyses by academicians would yield fundamentally important insights into such varied aspects of forensic DNA profiling as: locus reliability and test kit design, genotyping error rates, the efficacy of currently used corrections for population substructure, and the extent of geographic and regional differences in allele frequencies. In short, analysis of the NDIS genotypes would have a much greater impact on the criminal justice system than even the recent corrections to the FBI's allele frequency tables. The case was made again at a pre-

sentation attended by many hundreds of individuals at the 2014 meeting of the American Academy of Forensic Sciences. Unfortunately, the FBI has not responded positively to any of these very public requests for openness and respect for scientific processes.

The FBI's assertion that the impact of the errors it has "discovered" on statistical weights that have been generated for tens of thousands of criminal investigations is "nominal" may be self-serving. Only careful, independent analysis of the corrected underlying genotypes (which have also not yet been made available) will allow that to be determined. But, the lessons learned from a careful review of the genotypes the FBI originally generated in 1999 further make the case for critical, independent analysis of the very much larger data set in the National DNA Index System.

References

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3. Paoletti D, Doom T, Raymer M, Krane D. Assessing the implications for close relatives in the event of similar but nonmatching DNA profiles. *Jurimetrics* 2006;46(2):161–75.
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5. 42 U.S.C. Sec 14132(b)(3)(D).

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