

MEMORANDUM

To: Interested Persons

From: Tania Simoncelli
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Re: HR 3214 and the Tolling of Statutes of Limitations

Date: November 6, 2003

Executive Summary

The following memo discusses the problems associated with a provision of HR 3214, the “Advancing Justice Through DNA Technology Act of 2003,” which would extend indefinitely the statute of limitations for some cases involving DNA evidence. The memo asserts that tolling the statute of limitations for cases involving DNA evidence might be warranted if DNA evidence was both: 1) permanent; and 2) incontrovertible. Instead, DNA samples degrade over time, and while DNA testing is highly accurate if it is carried out correctly and carefully, the error rate is not zero, as is often assumed. Mishandling and contamination of samples, misinterpretation of the analysis, and misleading or incorrect reporting of results can and have resulted in the incrimination of innocent people.

The tolling of statutes of limitations, in combination with an expanding federal DNA database, will encourage an increase in “cold hit” cases. Suspects will be identified by “matching” DNA profiles of biological evidence with one of thousands of DNA profiles in an increasingly inclusive database. Such a “match” might occur as many as 20, 30, or 40 years after a crime has been committed. In such cases, even a very small potential for error may create a significant risk of false incrimination, since the other evidence against the suspect is weak or nonexistent. Furthermore, defendants in these cases will be deprived of their right to challenge the validity of DNA testing when biological evidence sampled many years prior has since degraded or has not been retained, and law enforcers and lab technicians initially involved in the collection and handling of the evidence have long since left their positions.

Introduction

HR 3214, the “Advancing Justice Through DNA Technology Act of 2003,” as passed by the U.S. House of Representatives November 5, 2003, would extend indefinitely the statute of limitations for cases involving DNA profiles so that it would not begin to run until a person is implicated by DNA testing.¹ The bill also calls for expansion of the federal DNA database beyond persons convicted of crimes to include persons who have been indicted or who have waived indictment for a crime, and other

¹ See H.R. 3214, the “Advancing Justice Through DNA Technology Act of 2003,” Title I, Sec. 104.

persons whose DNA samples are collected by state authorities, except where voluntarily submitted.² Taken together, these provisions would encourage a growing number of “cold hit” cases where a suspect is generated by running a DNA profile obtained from biological evidence against an increasingly inclusive DNA database. A person could be incriminated any number of years following the actual date of that crime.

Statutes of limitations are primarily designed to assure fairness to defendants. An ability to prepare a defense is clearly undermined in a case where a claim is revived after a period of time such that “evidence is lost, memories have faded, and witnesses have disappeared.”³

A tolling of the statute of limitations might be considered warranted for DNA cases in the event that DNA evidence was both 1) permanent; and 2) incontrovertible. Permanence of DNA samples would allow the defendant to request retesting of the sample at any time after the biological evidence was profiled and a “match” determined, in the case that an error occurred or improved DNA testing methods might produce a more complete analysis. If the DNA test were incontrovertible, then the results of the test or re-test could be accepted as truth, and any other evidence the defendant no longer has access to would be insufficient for overturning a clear “match.”

As the following memo demonstrates, neither of these conditions are met by DNA testing. The notion that DNA evidence is permanent and incontrovertible is wrong in both principle and practice. Earlier this year, the Houston crime lab was shut down after an independent audit revealed widespread problems associated with the handling and analysis of DNA evidence. Thousands of cases are being reviewed, and so far, 375 cases are slated for retesting. Labs in Fort Worth, Oklahoma City, Baltimore, Phoenix, W. Virginia, Montana and Washington are also undergoing investigation and review of hundreds of additional cases. While the problems uncovered in these labs are thought to be the exception rather than the rule, these cases should remind us of the fallibility and limitations inherent in DNA testing and the need for careful scrutiny, particularly in cases that hinge on DNA evidence alone.

Degradation of DNA

While techniques for preserving DNA samples have improved over the years, DNA cannot be maintained indefinitely. The actual rate at which a DNA sample degrades varies depending on: 1) cell type; 2) the amount of DNA present; and 3) the conditions under which it is preserved. But even under optimal conditions, DNA will continuously degrade over time.

Biological samples that are even partly degraded are difficult to type, and attempts to do so are more prone to certain errors, as will be discussed below. Significant degradation will produce “inconclusive” results in DNA testing.

² See H.R. 3214, the “Advancing Justice Through DNA Technology Act of 2003,” Title I, Sec. 103.

³ See 963 F.Supp. 48 for a discussion on the purpose of statutes of limitations.

In Houston, many of the forty-nine cases that have been re-tested so far have produced inconclusive results that can be explained by degradation.⁴ None of these cases involve DNA evidence that is older than 8 years, yet degradation has occurred.

The Fallacy of Infallibility

DNA testing is often construed in both the media and the courtroom as infallible. This is wrong in both principle and practice. Any scientific procedure that involves human execution and judgment has some probability of error. Following are the types of error that occur in DNA analysis and examples of cases where such errors have been uncovered.

Sample handling errors:

Errors in the collection, handling and storage of DNA samples can result in incrimination of an innocent person. This type of error is known to have occurred in several cases. Last year it was discovered that 26-year-old Lazaro Soto Lusson was mistakenly charged with multiple felonies because the Las Vegas police crime lab switched the labels on two DNA samples. While in jail on an immigration hold, Lusson's cellmate, Joseph Coppola, accused him of rape. Police took DNA samples from both men to investigate the allegation. While undergoing the analysis, they ran the samples against the state database and matched Lusson's mislabeled DNA to two unsolved sexual assaults. Lusson faced life in jail and was incarcerated for over a year before this mistake was discovered.⁵ Similar sample switch errors have led to false incrimination in rape cases in Philadelphia and San Diego.

Inadvertent transfer of DNA:

Samples can be contaminated by the inadvertent transfer of trace amounts of DNA. Ironically, this error type is of increasing concern as DNA tests become increasingly sensitive. In a recent murder case, a wealthy defendant commissioned a study which showed that his DNA could have been found on the murder weapon due to inadvertent transfer to a towel used that morning, then to his wife's face in sharing the towel, and finally to the murder weapon. The defendant was ultimately convicted, based on other incriminating evidence, but this example demonstrates how increased sensitivity of DNA profiling is broadening the range of possible interpretations in the results and introducing a new source of potential error.

Analysis errors:

Perhaps the least recognized source of error is in association with the DNA analysis, itself. Many people think that DNA testing is "objective," but in fact, interpretation of the results can be highly subjective. When DNA is typed, a computer-generated graph displays a series of peaks corresponding to alleles, or short, repeating segments of DNA. Everyone has these segments, but they vary in length. The computer

⁴ Personal communication with William Thompson, Department of Criminology, Law & Society, University of California in Irvine.

⁵ See Puit, Glenn, "Man files lawsuit in false imprisonment" and "Wheels of justice turn slowly," Las Vegas Review-Journal, July 6 and July 30, 2002.

labels the alleles based on their length. Ambiguity arises in interpreting these graphs, especially in cases where there is a mixture of two or more sources of DNA. In these cases, it can be difficult to determine which alleles go with which contributor. Presence of one source of DNA can also mask another, particularly where a mixed sample contains unequal amounts of DNA from each source. Degradation can also cause one or more sources to go undetected. Spurious peaks in the graphs, that might be due to air bubbles or other sources of “noise” can further complicate the picture, and can be confused with true peaks.⁶

Misinterpretation of DNA tests led to the false conviction of Timothy Durham in Tulsa, Oklahoma. Durham was convicted of raping an eleven-year-old girl and sentenced to 3,000 years in prison, despite having produced 11 alibi witnesses who placed him in another state at the time of the crime. The prosecution’s case rested almost entirely on a DNA test, which showed that Durham’s genotype matched that of the semen donor. Post-conviction DNA testing showed that Durham should have been excluded as a possible suspect, and re-analysis of the initial test showed that the misinterpretation arose from the difficulty of separating mixed samples. The lab had failed to separate completely the male and female DNA from the semen stain, and the combination of alleles from the two sources produced a genotype that could have included Durham’s. Durham was released from prison in 1997 after serving 4 years in prison.

Reporting errors:

Failure to report results of DNA tests in their entirety and the reporting of misleading or inaccurate statistical information has also resulted in conviction of innocent people. Josiah Sutton spent nearly five years in jail for a rape he could not have committed. Sutton’s conviction rested almost entirely on the basis of a DNA tests performed by the Houston Police Crime Laboratory. Re-analysis of the lab report showed that the lab technician had mistakenly reported that Sutton’s DNA profile was included in the profile of a semen sample taken from the back of the car, where the rape was committed, when it was not. In addition, she presented the DNA data to the jury in a misleading way that overstated its value, and failed to provide statistical estimates that would have demonstrated that Sutton’s DNA profile was but one of many that could have been included in the mixed evidentiary samples in the case, including a vaginal sample.

Potential for bias:

The potential for error in DNA testing is exacerbated by the context in which labs carry out their work. Lab technicians do not typically “blind” themselves to the government’s expected or desired outcome. Studies have revealed lab notes that indicate that analysts are familiar with facts in their cases and are aware of which results will help or hurt the prosecution. For example, one set of notes stated, “Death penalty case. Need to eliminate [other individual] as a possible suspect.”⁷ It is a well-established

⁶ For a detailed discussion on computer-generated graphs in DNA typing, *see*: Thompson, William et al., “Evaluating forensic DNA evidence: Essential elements of a competent defense review,” *Champion*, April 2003. <http://bioforensics.com/articles/champion1/champion1.html>.

⁷ *Ibid.*

psychological phenomenon that people tend to see what they expect to see, particularly in ambiguous situations.

False Positive Probability, “Cold Hit” Cases, and the Statute of Limitations

The examples of error in DNA testing provided above are not intended to imply that DNA testing is inaccurate or that there is a high probability of false positive outcomes associated with DNA testing. DNA testing, when done right, can in fact be highly accurate, and the overall rate of false positive outcomes is likely to be very low. However, the rate is not zero, as is often assumed, and false positives can and do happen, as these cases demonstrate. In addition, the false positive probability is not the same for all cases, and is higher in situations where DNA profiles are created from samples that are mixed or partially degraded.

The potential for error, even if very small, can be very significant in cases where there is little or no other evidence against a suspect. Professor William Thompson of the Department of Criminology, Law & Society at the University of California, Irvine, has shown that even a false positive probability as low as 1 in 10,000 can seriously undermine the value of DNA evidence, and create a significant risk of false incrimination, when the other evidence against the suspect is weak or nonexistent.⁸ This is precisely the situation in “cold hit” cases.

Tolling the statute of limitations indefinitely for cases involving DNA evidence would only exacerbate the current error rate associated with “cold hit” cases. It is highly unlikely that any case brought against a defendant many years past the date of the crime would rest on anything other than a “cold hit” “match” against a DNA database. Alternative explanations for the “match” may be nearly impossible to argue. Errors that may have occurred in sample collection and analysis might be impossible to uncover when the lab analysts and law enforcers involved in that segment of the process are no longer around. A crucial witness who might have been able to confirm an innocent explanation for inadvertent DNA transfer may no longer be found. Re-testing of the biological sample may not be possible if the sample was not preserved⁹ or in cases where it is completely degraded. But even where it has been retained, partial degradation may render results of re-testing ambiguous and particularly susceptible to error.

DNA testing can be quite accurate when it is done well. But it is only one tool of many that should be relied upon in determining whether someone is responsible for a crime. In cases where there is little or no other evidence against a defendant aside from a DNA match, particular scrutiny must be given to the DNA testing. Tolling the statute of limitations indefinitely, even for a narrow range of cases, establishes a dangerous precedent that implies that DNA evidence is both permanent and incontrovertible.

⁸ See Thompson, William C. et al., “How the probability of a false positive affects the value of DNA evidence,” *Journal of Forensic Science*, Vol. 48, No. 1, January 2003.

⁹ HR 3214 calls for preservation of biological samples for cases where conviction has occurred and someone is serving time for the crime, but fails to call for indefinite preservation of biological samples for open cases.

Defendants in these cases would be stripped of their ability raise fair questions about the value and admissibility of DNA evidence, and any wrongful convictions would be almost impossible to uncover.