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## Sean Hodgson – great news, but not for everyone...

After serving 27 years of a sentence for a conviction of rape and murder Sean Hodgson was released in March 2008 following the discovery that DNA from a semen sample taken from the victim at the time did not actually match him. This case achieved wide publicity in the UK and will undoubtedly enhance the reputation of DNA as evidence.

DNA exonerations are not so unusual. In the USA, where about 200 people have so far been exonerated of serious crimes on the basis of new DNA testing, the Innocence project says,

*“There is growing national consensus that prisoners should have access to DNA tests that can prove innocence or guilt. In the last week, Mississippi and South Dakota passed DNA access laws, and there are now just four states – Alabama, Alaska, Massachusetts and Oklahoma – without such a law.”*

Others will perhaps also wish to know why the samples were apparently not discovered immediately after the first enquiry from Mr Hodgson’s legal team with a consequent 10-year delay in bringing this case to its current conclusion. The scientific features of the case are important in considering the implications for others. First, the DNA was obtained from a body fluid, semen, that was clearly associated with the crime. Second, the DNA did not match Hodgson.

Assuming that sperm are identified, if a DNA profile is obtained years later from a microscope slide prepared at the time of the original investigation and assuming that only the DNA from the victim and one other person are on the slide, it can be easy to identify the ‘foreign’ DNA; that is the DNA that could not have come from the victim.

This is a fairly unusual circumstance though. Most crimes will involve other items such as guns, knives, cigarette butts, and even furniture. These have one big problem when being considered as possible sources for exoneration; the DNA may have nothing to do with the crime. Clearly, if the DNA has been obtained from an identifiable body fluid such as blood, semen, or saliva, it is



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perhaps easier to make the connection between the crime and the DNA. But current DNA methods can detect DNA from areas where there is no visible body fluid. Making the connection becomes significantly problematic. Indeed, forensic scientists are actively discouraged from making any claims as to how or when such DNA came to be on an item.

If, as in the case of Mr Hodgson, the crime stain was collected before the advent of DNA testing then things become even more complicated. If the evidence was not protected from contamination by other people then there is a risk that the DNA will again be unconnected to the crime. This is particularly the case when methods which are claimed to be 'ultra-sensitive' are employed. One of these is called Low Copy Number (LCN). In the case of *R v Hoey* (The Omagh Bombing case) the judge states in his Not Guilty verdict,

*“ What I do find extraordinary is that, knowing that these items had not been collected or preserved using methods designed to ensure the high degree of integrity needed not merely for DNA examination but for the more exacting requirements of LCN DNA, examinations were performed at Birmingham with a view to using them for evidential rather than solely intelligence gathering purposes. The findings of those examinations were put forward and stoutly defended by Mr Whitaker of the Birmingham FSS laboratory as evidence that the Court might safely rely upon as tending to establish the guilt of the accused. This despite the fact that one police and SOCO witness after another and also Dr Griffin had candidly made clear that possible examination for DNA was not in their minds at all as they were collecting, storing, transmitting and dealing with these items in 1998. Why therefore would they then have had present to their minds and been complying with the exacting integrity requirements which reliable DNA examination and most especially that in its LCN form demands? ...*

*Accordingly I find that that DNA evidence, the third and final strand remaining in the prosecution case, cannot satisfy me either beyond a reasonable doubt or to any other acceptable standard.”*

This should not be taken as criticism of the initial collection – how could those involved be aware of what was to come? – but of the subsequent failure to



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appreciate the problems arising from that initial process. This is not the only case involving LCN where it is the method of collection and handling of the evidence has been the major issue. In at least one case DNA that could have come from investigators was discovered.

This is the double-edged sword of increasing the sensitivity of DNA profiling techniques – as the sensitivity of the test increases the risk that the DNA is not associated with the crime also increases. The connection between an identifiable body fluid is lost and the relevance of the DNA frequently becomes arguable.

The other feature of Mr Hodgson's case is that the DNA profile could not be his. This is what is called an 'exclusion'. This is the only DNA result that can be considered practically certain. The normal DNA profiling process in the UK identifies up to 20 areas of a person's DNA. These areas are identified by a series of numbers. The National DNA Database is simply a collection of these numbers for over 4 million individuals. If a crime stain produces a profile the numbers can be checked against the database in a kind of DNA Bingo. There may be millions of people who match at a single area, but the chance of matching decreases as the number of areas at which you match increases. But, and here is the important point, a failure to match at just one, any, number means that the DNA did not come from you. On the other hand, if you match at all of the areas then it is a *probability* that the DNA came from you. In evidence, scientists speak of the probability that the DNA could have come from someone else. So while we can say that the DNA did NOT come from a specific person, we cannot say that it DID. This is enshrined in case law following the Appeal Court case of *R v Doherty & Adams*;

*“The scientist should not be asked his opinion on the likelihood that it was the Defendant who left the crime stain, nor when giving evidence should he use terminology which may lead the Jury to believe that he is expressing such an opinion.”*

And so if we look at 'cold' cases we should consider in advance what the meaning of any profile will be. In many instances the key evidence in a case will not be the DNA evidence – and that must be so in pre-DNA cases. The



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danger of identifying DNA on items recovered from those crimes is that we will detect the DNA of an innocent party but not the actual perpetrator be they the convicted person or someone else.

This is not to deter anyone from seeking re-testing of material that may tend to exonerate them. It is a caution that before embarking on such a path that those involved consider in advance the possible results and what their implications will be. In that way, false hopes will be avoided and there should be less argument in hindsight rather than a full consideration of the pros and cons of such a course.

Perhaps the wider issue is why do these wrongful convictions occur? Research in cases where DNA has exonerated someone convicted of the crime has shown that wrong eye witness identification is the leading cause, followed by flawed forensic science. How will jurors be made aware of those health warnings on these evidence types to avoid the problem that made Sean Hodgson news? The same science that was used to free an innocent man may be the very same that is being used to convict other innocent men. Does the publicity for exonerations and convictions on DNA increase the risk of juries convicting on DNA evidence because they see DNA only as a 'force for good'?

The use of DNA has undoubtedly been a welcome and effective addition to criminal investigations. Its success is widely and probably rightly publicised. But are new miscarriages happening now because of a false faith in the infallibility of DNA?

Professor Allan Jamieson  
Director  
The Forensic Institute  
Glasgow  
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