

DNA Testing and Indigenous Australians

On January 1, 2001 the Crimes (Forensic Procedures) Act came into effect in NSW.

Like many other pieces of legislation introduced all around Australia in recent years, the new laws allow police to take bodily material (such as blood, saliva or hair) from a wide range of Australian citizens for DNA testing - in many cases against the will of the person being sampled. The tests will produce DNA profiles for a national database to be used for mass crossmatching of samples from people with samples from crime scenes in an attempt to link people to crimes of which they are not even suspected.

And like many other pieces of criminal justice legislation introduced all around Australia in recent centuries, the DNA testing laws will disproportionately affect indigenous Australians.

A lot has been written in the media about DNA testing of late. How it will solve crime, free the innocent, identify missing persons and prove paternity with an accuracy only dreamed of a few decades ago. But like all areas of human endeavor, DNA testing is also subject to error and corrupt practices, a problem which is bound to arise with the millions of attempts to match people with crime that the database will make possible.

The brief history of forensic DNA testing has already seen some notable examples of mistake and malpractice with innocent people in New Zealand and the UK facing investigation for serious offences they could not possibly have committed. Notable in all of these cases was the singlemindedness of police in investigating DNA matches even when airtight alibis, lack of criminal history and flat denials by the suspect made overwhelming cases for their innocence. In one case a man with advanced Parkinsons disease who could not drive or even dress himself was arrested and jailed when his DNA was matched to a burglary committed hundreds of kilometres from his home. It certainly raises serious questions as to what happens to people in this situation who are unable to prove their innocence.

Compulsory DNA testing will be carried out mostly upon prisoners and in cases where police 'reasonably suspect' that it might implicate or eliminate someone in a criminal investigation, but once the results are databased they will be matched against any and all unsolved crimes in which there is DNA evidence.

As indigenous Australians are far more likely to be 'suspected' by police, be charged with an offence and be sentenced to imprisonment they are also more likely to be tested and to be falsely implicated in a crime, whether due to laboratory error, fabrication of evidence or the inherent limitations of forensic DNA testing. Those without 'O J Simpson' sized

defence budgets will have a lot of difficulty convincing a court that an error has been made or that the real offender or police have planted evidence.

Indigenous Australians are not only more likely to be suspected and tested in the first place, they are also more exposed to the bad luck of having a DNA profile which matches someone else, perhaps someone who has left DNA at a crime scene.

Most people are aware that, unlike fingerprints, DNA profiles are not unique - identical twins will always have the same DNA. What is less well known is that many people who are not twins also have the same DNA profile. While this is a particular risk between people who are closely related there are also numerous cases on record of unrelated people having the same profile - as the British Parkinsons sufferer discovered to his discomfort.

The groups in Australia who already more likely to be imprisoned - Vietnamese, Lebanese and Aboriginal Australians - are also more likely to be concentrated in high crime areas containing many members of the same extended family. This will not only increase the risk of false DNA matching for people in these groups, it may put some in the invidious position of being able to clear themselves of DNA related charges by implicating a relative - something which has already happened in the UK.

But the odds against indigenous Australians are stacked even further by their own genetic uniqueness, making the mathematical formulas used to generate the astronomical match odds given with DNA evidence in court particularly unreliable when applied to Aboriginal suspects.

Like blue eyes, red hair and other genetically determined traits, the DNA used for criminal identification is not evenly distributed among all ethnic groups. A gene which is common in Sweden may be rare or non-existent among the Spanish Basques for instance. Because so many generations of the ancestors of modern Australian Aborigines were almost completely cut off from the rest of the human race there has been plenty of time for unusual distributions of genes to occur. And because the DNA used in forensic testing is 'junk DNA', thought to have little or no effect on individual development, there is none of the usual evolutionary pressure which eliminates unsuccessful mutations while propagating successful ones.

What little research has been done so far tends to support the idea that Aboriginal Australians do not have the same distribution of these genes as those shown on the European weighted databases used to generate match odds. For example, four of the eight FES alleles present in over 20% of Europeans were not found at all in a sample of 80 South Australian Aborigines, while other alleles were more than twice as common among the Aborigines tested than they were among Europeans. In other words, two randomly

selected indigenous South Australians are many times more likely to have matching DNA FES profiles than two randomly selected South Australians of, say, German descent.

Complicating matters is that the DNA distribution among Aboriginal groups will not only be different to that of non-Aboriginal Australians, it will also be different between Aboriginal groups themselves. DNA profiles from Arnhem-landers are not only likely to show different allele frequencies to European-Australian profiles, they are likely to be different again to those found among Aborigines in Victoria.

The vast distances and sparse distribution of people which were features of pre-invasion Australia would also have served to genetically differentiate tribes from each other, a tendency which would have been strengthened by strict 'skin laws' regulating intermarriage. The tendency of different subgroups of a people to have different distribution of genes among their members is called *population substructure*. Although insufficient research has been done to determine how substructured the indigenous Australian population is, research on Native Americans has shown that there is three times the degree of substructuring among the First People of North America to that of their European descended compatriots. There is reason to believe that this would be even more significant among indigenous Australians.

What it all adds up to is that indigenous Australians are not only far more likely to be DNA tested in the first place, but once tested they are also more likely to be falsely implicated in crime. Add this to existing legal biases - such as discriminatory laws, differential sentencing and racist police - and you've got a recipe for even more wrongful imprisonment of indigenous Australians and more deaths in custody.

Politicians and police have hailed forensic DNA testing as a wonderful new innovation which will revolutionise criminal justice in Australia. But for Aboriginal Australia its just another case of 'the more things change the more they stay the same'.