



## THE FUTURE OF FORENSIC BIOINFORMATION

### Seminar Three, 13<sup>th</sup> May, 2009- Headlines

#### Session One – International Cooperation

---

This session reviewed the emerging frameworks of international forensic bioinformation exchanges together with the organisational and technical arrangements that make them possible. The seminar series themes of assessment, integration and integrity were used to structure the review.

- 1.1. The original expectation that forensic DNA profiling would largely support the investigation of serious crime has been modified in the light of its impact on volume crime. Discussions of the international exchange of DNA need to be informed by this experience along with the possibility that there may be growth in public demand for its use in volume crime investigation if this is where the growth in crime occurs in the coming years.
- 1.2. When tracking criminals across borders, it is becoming possible to see some interesting data about crime trends. Extraditing people for minor crime is almost impossible because of legal constraints, so while there is value in exchanging data on minor crimes, there remains the question of the value of such exchanges to the criminal justice systems of exchanging states. However, it may not necessarily be an either/or question in relation to serious and volume crime.
- 1.3. In the Netherlands, the use of DNA in volume crime has been very successful and there have been successful matches made with DNA in other countries: e.g. a DNA crime stain from a murder case in Holland matched with a shoplifter in the UK on the NDNAD.
- 1.4. Instinctively, DNA exchange should be more valuable for countries that share borders as criminals can cross such borders – at least within the EU and EEA (the latter includes, for example, Switzerland) - easily.
- 1.5. The biggest 'payback' for DNA exchange may be intelligence gathering rather than a stage in the extradition of any particular individual. The police will not pursue burglars across Europe, but it may still prove useful intelligence.
- 1.6. If all volume crime data starts getting swapped across countries then the data will swamp the system. The system would not be able to cope - the use of science is not ready. Indeed, cooperation over serious crime is hampered by the same problem. The six DNA loci in common throughout Europe is not discriminating enough, and so may result in too many adventitious matches. It was noted that the ability of the UK always be able to deal with poor discrimination problems, was at a tipping point with the recent Home Office proposals that proposed the destruction of cellular material taken from individuals within six months.

- 1.7. A move to volume crime data exchange is technically highly feasible for the UK and countries using the same marker system such as the Netherlands, but not especially welcomed by those countries that restrict bioinformation databases to the investigation of serious crimes.
- 1.8. Increased international exchange shows that whole range of criminal activity is linked – there are links between serious and minor crime – the serious crimes can be detected through the sampling of minor criminals.
- 1.9. The INTERPOL gateway has been frustrated by lack of contribution from the UK. This is because of a lack of continuity – SOCA have not got systems in place to facilitate its use. There is no process which allows a UK police officer who has an unsolved crime to follow that up internationally. In 2009 we need to be working smarter.
- 1.10. The wealth of countries has an impact on their contribution to international exchange.
- 1.11. The interest so far has been concentrated on serious crime, however ACRO are interested in exchange of conviction data over the whole range of offences.
- 1.12. There are central organisations across Europe for exchange of information. At borders there is evidence of police collaborating effectively – although this is clearly not facilitating the widespread dissemination of intelligence. Exchange of data is happening at ‘pinch points’.
- 1.13. We are at a critical point of winning or losing the argument about the exchange of bioinformation. If the police are not using the opportunities for exchange then the chances are that it will lose momentum and exchange will not be seen as effective or useful.
- 1.14. There is a need to pay more detailed attention to trans-national crime patterns and offending by foreign nationals and where they commit crime. One difficulty however, is the capture of relevant data about such individuals. There are difficulties in the UK with capturing nationality at the point of arrest. It is not particularly effective, and the police have no power to compel people to reveal their nationality. Police have to believe what they are told by detainees. The PNC also does not cope well with nationality ascriptions.
- 1.15. The Chief Constable of Cambridgeshire has put a lot of effort into creating a business process to capture nationality details as that force is dealing with lots of migrant populations – so they are motivated to capture the data better. There is a lot of offending behaviour attributed to migrant/ temporary population in Cambridgeshire (e.g. farm workers). We are beginning to get some intelligence on this phenomenon but currently it is not sufficient and we are in danger of making assumptions based upon poor quality data.
- 1.16. Is it nationality that matters or place of residence? For example, if a detainee/ suspect is Polish but they have lived in the UK for 10 years – why is their being Polish relevant?
- 1.17. There is a unique opportunity to identify a person when someone is arrested, is the opportunity to consider that individual’s criminal activities unconnected with the behaviour under investigation underplayed? Huge amounts of intelligence (actual identity, other offences for which the person may be under suspicion and where they have been committed) are lost because the opportunity is lost at this point. The issue

of identification should be much higher up the agenda, in particular the absence of powers for the police to establish a detained person's identity. There is a need for processes in place to establish: Who are they? Have they committed other offences?

- 1.18. LIVESCAN gets biometric data quick and shares this nationally. Under the Prüm Treaty fingerprints should be exchanged. There is an immediacy of deployment with fingerprints that can help with identification. However – do we have the data about fingerprint exchange - the use of LIVESCAN and its effectiveness?
- 1.19. Thirty European nationals are extradited each month under the European arrest warrant. On average, ten are proactively tracked, the other 20 are purely found upon arrest for minor offences in UK. LIVESCAN matches the identity to the European arrest warrant. The numbers of these are increasing each month and they can be quickly extradited. This shows how effective the systems can be if they are in place. When UK goes onto the Schengen system this will increase. At the moment, the UK cannot keep up with loading the European fingerprints onto the UK database – there is a need for an improved connection.
- 1.20. In the Netherlands, there is currently a law going through parliament to identify people on each contact through LIVESCAN technology.
- 1.21. If the Interpol Gateway were used then more predatory offenders could be located and prevented from crossing borders. Many are successful for several years at evading detection. For example, the killer of Caroline Dickinson, Francisco Arce Montes, had served time in Germany for rape and always travelled in a car that was not registered in the country he was visiting. He was only found years later by chance after other serious crimes had been committed, when it was discovered that there had been missed opportunities to identify him and connect him with his criminal record. This included an arrest in Spain for attempted rape when there had not been sufficient information relating to that event to detain him, which had allowed him to skip bail. This inability to cooperate across borders can clearly cost lives or expose victims to severe trauma.
- 1.22. Some suggest that in the future, LIVESCAN technology will apply to DNA profiling, This may reduce the number of missed opportunities for the identification of offenders.
- 1.23. There may be wider issues with linkages to non-forensic databases, for example, Spanish ID cards contain fingerprints. There is potentially more information available to the police than just relying on forensic databases. However, most privacy laws will prohibit the use of other biometric data for forensic use.
- 1.24. The number of matches during Operation Thread narrowed when matches were upgraded to SGM+. During this Operation an armed robber - a dangerous criminal using firearms in a particular manner was identified as having committed similar robberies in the Netherlands. This was a fairly *ad hoc* exchange but had resulted in an important identification based on a common MO and confirmed by DNA. If other intelligence was added to forensic data exchanges (e.g. MO) then the process could be made even more useful. On the other hand, the vulnerabilities of ad hoc arrangements such as Operation Thread were noted in the subsequent CPRS report. As a means of international cooperation the apparently major increase in international matches from just two countries cooperating more effectively was outweighed by the risks of not working within formal and controlled procedural structures.

- 1.25. A UK match is 10 loci (SGM+) – CODIS in the US is 13 loci – these 10 -10 or 13 -13 loci are a ‘full’ match. When considering ‘matches’ in an Interpol/ European context, there cannot be a match between some countries using different marker systems in excess of 6 loci.
- 1.26. DNA profiles assign a probability – so the probability could be anything (1 in 100 to 1 in billion) yet the focus is entirely on a ‘full’ match (this is stated as 1 in a billion). However, very often this probability can be varied because of the ‘compromised’ nature (with mixed or degraded DNA) of a high proportion of DNA recovered from the crime scene. This means it is a fallacy to think in terms of full DNA profile matches, this may only be approximately 50% of results. It is therefore not a good idea to think simply in terms of number of loci. Historically systems have grown up independently between the US and UK – CODIS/ NDNAD have 7 overlapping loci. There are different systems in use across Europe, although about 60% of databases use CODIS. There has been limited co-ordination across Europe. Developments have been driven entirely by scientists and not always supported by political actors. This has been a good thing and a bad thing. Scientists can design good systems but then they cannot force other countries to use those same systems. Discriminating power is seriously compromised with only 7 loci (about 1 in 100m). This takes the UK back to the same level of discrimination that we had with SGM, which was insufficient when our database got bigger so went upgraded to SGM+.
- 1.27. ENFSI have identified 5 new markers which could be built into systems so that Europe would have 12 common markers. The new markers have been chosen deliberately for low molecular weight, which increases the chances of getting results from degraded stains. Applied Biosystems and Promega are launching these new systems at the end of 2009. It is suggested that the UK should upgrade from SGM+(designed in 1995) to NextGM.
- 1.28. This innovation has been driven entirely by ENFSI, which is funded entirely by voluntary contributions and limited EC research project contributions. It is very disappointing that there is very little political input. This results in considerable misunderstanding and very little support.
- 1.29. The ‘IPR’ for SGM+ is owned by Applied Biosystems. The IP is actually complex – all patterns are owned by Promega and they have an agreement with Applied Biosystems. The two companies then have the market dominated. ENFSI are seeking to break the market open. Previously one company tried and was immediately prevented from doing so by lawsuits from the two companies. It has to date then proved impossible to open the market to competition.
- 1.30. CODIS loci are based on a historical system and are very inefficient loci. (CODIS is just the software not the chemistry). ENFSI then chose new ones which are not on the CODIS system. Australasia are very interested in NextGM. The CODIS system was locked into too early. Once the system reaches more than 15 loci there are serious technical difficulties – 15 loci is the limit.
- 1.31. The systems used by CODIS are still Applied Biosystems or Promega. Everyone is locked into these two companies. If there is a major change to loci across Europe – the different governments would have to make the change and the NDNAD would have to change to different software. This would then create a three-tier system – SGM, SGM+ and NGM. It would cost approximately £24m to simply upgrade the whole NDNAD from SGM – SGM+ and would take years to complete. The alternative would be to only upgrade to NGM when there had been a SGM+ match, but when the match came from searching a crime scene result against the database, this

would only be possible if the cellular material used for the SGM+ profile had been retained.

- 1.32. Applied Biosystems & Promega at least brought some consistency. There is the possibility that there would be even more disparate systems in existence now if different companies were in the market. If an independent company were able to break into the market, they could then create new biochemistry. The patents are expiring soon so market will open.
- 1.33. This is one of the problems faced by these DNA databases – they cannot keep step with technological changes. However, we cannot have a static system and this is what we currently have. The 1995 technology and biochemistry is out of date. Applied Biosystems are not going to improve SGM+, there is no reason for them to do so, no motivation. The UK is vulnerable because its providers are totally dependent on Applied Biosystems.
- 1.34. One issue is political. The database is for law enforcement agencies to police, yet they do not always know what it is they want or need. There is a need for the police to state what it is they need then scientific and technological innovations may better be targeted. In order to ensure business continuity you need more than one supplier. If we do move to a new system – what standards do we have? How do we manage transition from providers? How much is it going to cost providers? There is needed a timescale for changes. There are also other issues, and other things going on (i.e. Marper). So when is it the right time to decide on what changes need to be made?
- 1.35. When contemplating doing something very complicated, adding in a European dimension adds new level of complexity. There are lots of different systems, laboratories across Europe are not all accredited, 'errors' are being found in other countries
- 1.36. A European forensic scientific centre is needed to deal with accreditation/ validation etc. There has been lots of effort expended on international databases with unknown levels of benefit.
- 1.37. International exchange of data will remain difficult with the different systems in use (UK NDNAD with SGM+, Europe/ US CODIS). The database software providers need to include all different systems. New loci can be added to Interpol.
- 1.38. Under 'Prüm' exchanges, there is a differentiated definition of a 'match'. Prüm allows for different types of 'match' (or more accurately, a potential match) so that mistakes can be spotted. There are then four different qualities of matches:
  1. Full match
  2. Quality 2 – one DNA profile contains 'wildcard'
  3. One base pair mismatch
  4. More than one basepair mismatch.
- 1.39. Also the need to only have 6 matching loci means there is a real chance of having a false positive so the Prüm process is 3 step process.
  1. Exchange and find matches and possible matches (i.e. potential matches)
  2. Validation step with additional DNA testing reanalysing crime stains or personal samples using additional loci
  3. Exchange of information relating to the DNA match (if the potential match has withstood sufficient scientific scrutiny).

- 1.40. Some countries fall outside of the Prüm Treaty and some use both Interpol and Prüm (e.g Austria). There are significant benefits from using the Interpol gateway, but also potential problems. The big unrecognised problem is not the potential adventitious matches (there will be many of those) but the case where there is an individual on the database who has been wrongly typed (so the error is on the 'home' database) and that person is eliminated from inquiries because they do not match. If that happened – then that would demolish public confidence. If someone were to be wrongly eliminated early on from a major investigation, that could be devastating.
- 1.41. Effective international cooperation requires legislation, policy, and will. There is a need for the biochemistries to be the same, and/or for the software to be able to cope with different chemistries. The way in which areas on DNA are converted into numbers can be subtly different – the UK system is different from CODIS, so there is a need for a system that can be agreed upon internationally. There are presently large 'air-gaps' between the systems in use, making them essentially all isolated systems.
- 1.42. Any changes will require skills knowledge base training etc. and also a need for finances to manage the cost of dealing with the new matches that will be achieved. International cross-matches may be helpful but could overwhelm the police. There will be more 'noise' in investigations.
- 1.43. There is also a more general economic issue arising from marker system IPR. For international cooperation to work it must be possible for less wealthy countries to access DNA profiling. Yet as Ron Noble, the Secretary General of Interpol has observed, to date the use of DNA on a significant scale has been restricted to a club of wealthier countries. Similar debates are heard in discussions about generic drugs for developing and middle income countries. There is however a need to find a way through the technical, IPR and other 'issues' to make international cooperation really effective.
- 1.44. Data protection requirements for reliable data exchange for appropriate purposes are relevant considerations to bring to the evaluation of the legitimacy of international bioinformation exchange. The Prüm system is described is a very good system for having built-in protections – a gradation system. More information is only revealed as you get a clearer match. Problems have arisen with Interpol, and there are pressures to share more and more information. There is not necessarily a police need more than a political one – the purpose of all the data exchange needs to be clear.
- 1.45. How many different mechanisms do we need to exchange DNA? Why not stick with Prüm? That should be the mechanism for international exchange, with all exchanges going through Prüm, we stick with one reliable mechanism. There is however a need to be very clear what conclusions are being drawn from the data. If the data is only telling you that these two people may be the same person then this could be okay but it needs to be remembered that that is all that it is telling us. It would be quite another matter to go and arrest someone on that information.
- 1.46. The Prüm software will creak to a halt if all European countries start using it.
- 1.47. New version of CODIS will include Prüm software to facilitate cooperation. This should be ready by the end of 2009.
- 1.48. Interpol is also the legal gateway in the UK for exchange. The UK also contributes significant sums of money to Interpol.

- 1.49. Business processes and infrastructures are vital – a change in direction at this time raises significant funding issues. All sorts of operational issues will need moderation – it is not a simple matter to change marker systems.
- 1.50. Accreditation and regulation of laboratories in Europe is also a pertinent issue. At a forensic regulation conference in Stockholm in June, the Swedish Presidency is expected to propose mandatory accreditation across Europe. At a recent meeting in Lyon, the UK was the only country with representatives from private laboratories. It is not clear if such issues are always understood or accepted as relevant where there are only public laboratories, however, there is lots of interest in European-wide regulation.
- 1.51. With regard to fingerprint matches, when ten-prints are compared, these are based on standardised samples and quality controlled images. Comparisons between ten-prints and crime scene marks are subject to differing international standards (16,12,10 and non-numeric). There is also no definition of the minutiae that is being looked at/ the characteristics of a print. There is a lot of variation between countries and even within countries. To try and bring in an international standard is very difficult. Even to try and put out a collaborative exercise is problematic as all countries are working to different standards. However, we can apply UK standards to internationally exchanged prints (we can simply do the matching process here under our standards). However, there are differing methods of transmission – the recording of prints and their transmission can have an impact on the quality of the print received.
- 1.52. From a technical point of view it is easier to match DNA on the basis of an estimated probability than fingerprints. Moreover, analysing the similarities or differences between fingerprints may be made more difficult because of the variations in the methods for capturing information (Livescan or ink and roller, and the number of pixels in the image of a latent print).
- 1.53. Whatever standards that are used with fingerprints, the declaration of a match is a matter of expert judgement. The issue then becomes the clarity or quality of the images compared, and then the credibility/ reliability and transparency of that judgement. Even DNA ‘matching’ can also be a judgement. The use of automated expert systems decreases a reliance on individual decision-making while reducing costs and speeding up database searches. Manual scrutiny of candidate matches remains important when dealing with latent marks, but is less essential when comparing a Livescan reading from someone brought into custody with an equally good set of prints on NAFIS. Livescan and NAFIS have made a huge difference in the ability to check the identity of persons in custody given that most fingerprint bureaux do not operate 24/7.
- 1.54. Austria and Germany exchange fingerprints and have reported pretty good results. But the widespread distribution of latent prints can quickly produce candidate match ‘overload’. In addition, the automated part of the matching could exclude a potential match by not putting it in candidate list. There could then be a lot of false eliminations.
- 1.55. There is a much higher element of subjectivity in fingerprint analysis and wide disparity of analysis systems for fingerprints. In the US at the local level, latent prints are still analysed manually. Fingerprint examiners internationally are not all accredited, nor are all peer reviewing their results. There is also an inability to control sampling. The sampling process may undermine the use of automated systems as this based on the assumption that data is collected and presented in identical

manner. Is it possible to harmonise sampling standards across wide geographic areas?

- 1.56. A very important part of fingerprint data exchange is simply identifying people – not just matching persons to crime scene stains/ marks. There are different issues when identifying people, different set of considerations.
- 1.57. There is much more scope for the identification of persons using fingerprints and DNA. During the 2005 Tsunami fingerprints had been used more successfully than DNA, with the exception of infants. In dealing with the ferry disaster during Typhoon Frank DNA had been used more extensively. However, there is a difference between identifying people under PACE and for the identification of the dead – with the use of forensic bioinformation for both purposes being permitted in England and Wales, compared with other circumstances. If a person is convicted abroad and they want to challenge the identification on which that was based, they cannot legally access their profile, if it is held on NDNAD, to obtain information that might help to establish their innocence. Similarly NDNAD cannot be used to try to assist where a person has lost his or her memory and cannot be identified from non-forensic information.
- 1.58. In the UK, the system is underpinned by fingerprints taken at all stages, for example, on arrest and release from prison, so there is continuity. Lots of other countries rely on other sources of information such as registries associated with national identity cards to identify people. These may not be so reliable.
- 1.59. There is a need to get to grips with user requirements – the users need to identify exactly what they need to do – then different systems could be produced to do these various tasks. It was important not to expect a system intended for securing identity or access to be automatically capable of matching a person to a crime scene to an acceptable probative standard.
- 1.60. There appeared to be three main options for exchanging data:
  - (a) an international database to which signatory states could upload data, such as the Interpol DNA and fingerprint databases
  - (b) a system such as that established under Prüm where representatives of a trusted fellow member state could search a shadow national data base
  - (c) a standardised search request system such as that mentioned in the NPIA draft strategic plan which would make cooperation more efficient through the use of information formatted in a standard manner when sending requests for assistance made under clearly established rules as to purpose and process.
- 1.61. EUROPOL is not trying to provide another channel, or further option for exchange, but are increasingly testing the use of DNA within their core task of assisting/ supporting European countries to analyse criminal activity, such as a series of connected jewellery robberies or organised crime groups. Analytical workfiles are small databases concentrating on one type of criminal element for analytical purposes – containing only police data that would be found on a normal police database. There was a focussed pilot project to use DNA to support crime analysis undertaken at EUROPOL (so not for crime detection use) for criminal intelligence. These are serious organised crime investigations. They then have a very different business purpose. There are 160 DNA profiles at this time and have just had first match. The use of DNA is comparatively minor compared with what is happening under options (a) – (c) and complementary to all three. What was important,



however, was the way in which within this analytical use of DNA, there were simultaneously other sources of information such as MO, a photo fit and CCTV recording that confirmed the links between two countries identified by DNA.

- 1.62. It was suggested that in terms of Prüm there was little real difference between options (b) and (c). There was also confusion about the Interpol Gateway. It does not just contain crime scenes. Since 2007 countries have been encouraged to upload unidentified crime scene stains and convicted foreign offender profiles relating to sexual or other serious offences. Interpol are targeting 2 specific types of offender, with countries loading 'known' offenders. They have prioritised serious criminals and unsolved crimes.
- 1.63. This gave rise to a question about why such cooperation was limited to foreign offenders; UK nationals convicted of crimes in this country might well have committed such crimes elsewhere. Was the present practice discriminatory? With regard to international exchange, in terms of good data protection there is a need to determine the aim and then decide whether it is proportionate. An alternative approach would be to only upload unidentified crime scene stains to Lyon, but always search other countries unidentified crime scene stains against such the profile of offenders convicted of such crimes. (It was also noted during Session Two that Interpol had had a much greater success with its lost or stolen passport database.)
- 1.64. The problem with this alternative suggestion was that quality of 'person' samples are much higher and the more more accurate profiles taken from convicted offenders were less likely to result in erroneous matches or false eliminations than crime scene stains.
- 1.65. It is very difficult to implement the loading of profiles internationally. The first implementation was to put serious sex offenders who travel on the gateway but there is very limited uptake. Interpol is not living up its potential, there is little (or no) will to put samples onto it. In 2008, just 78 matches were made using the Interpol gateway. Not only was such a low level of cooperation indicative of a potential failure to detect serious crimes, but also put other people at risk because of the delay in taking precautionary measures. Since the UK had begun to exchange data about convicted offenders within the EU, it had emerged that a number of UK sex offenders were indeed travelling abroad to commit crimes and an initiative to exchange data focused on such a group might be worth testing on a pilot basis?
- 1.66. Prüm provides a 'virtual' DNA database – it is the equivalent of sending to an international database all unsolved crime stain profiles – then all new person samples. At present new stains can be loaded in the early hours of the morning and the results of international searches will be available by the start of the working day. However, it would require additional resources to maintain a central European or international database – there is a high maintenance factor, with a need to be removing data etc. Each country in Prüm manages its own data. In addition it was a much sounder approach in terms of data protection principles because personal data was not being sent elsewhere merely in case it was relevant to detecting crimes in another country.
- 1.67. There is a difficulty with some countries as judicial bodies 'own' the bioinformation data. It is difficult/ impossible to share judicial information in some countries because the bioinformation is not police data. Such countries, including the Netherlands, Belgium and Australia where the DNA data is a judicial record or is stored on a judicially managed database cannot cooperate with a police organisation, including Interpol. Within the EU the scope for resolving such problems lies with Europol, but it

is impractical to create a parallel judicial organisation to Interpol.

- 1.68. Under Prüm, step 2 has to go through judicial channels so this is a more difficult/ administrative process than the search for candidate matches and their conversion into confirmed matches. There is perhaps a need to emphasise that the Prüm system is a 'hit/ no hit' system. The exchange of information happens in step 2 and uses the systems already in place/ existing channels. If those systems are flawed then they will remain flawed – the Prüm system just permits more 'hits'. This 'hit' only becomes sensitive when demographic data is added.
- 1.69. Another issue were differences in opinion about the ethics and efficacy of familial searches, it was discouraged or not permitted in the USA, Australia and most of Europe. In Canada there are very strong privacy laws (exchange is a judicial process). When the sample gets to the laboratory they do not get/ retain any information – all identifying information is divided at an early stage and not brought together until there is a match. However, changes were taking place. At least two other EU states permitted such use of DNA and there was currently a draft law to this effect in the Netherlands.
- 1.70. There was also a major problem about resourcing. If the data has not been collected it cannot be shared and knowledgeable offenders would be able to exploit such black holes.

## Session Two – The Significance of Marper

---

Session Two considered the extent to which consensus is possible about the significance of *Marper* for international cooperation and, within the domestic sphere, whether there is any risk to international cooperation resulting in a reversal of any key legal and normative concepts established through this judgement or elsewhere, namely:

- Consent
- Proportionality
- Transparency
- Accountability
- Margin of appreciation
- Data security and sanctions for breaches

The session presented an opportunity to consider whether principles that have been or may be established either by law or convention in this country might be undermined in the course of international cooperation and thus whether changes in domestic law and/ or new supranational protocols were required?

**Discussion was preceded with presentation outlining the benefits and risks relating to the international exchange of forensic bioinformation, as well as a reminder of the importance of the *Marper* decision for all EU member states and the importance of constructing a convincing deliberative platform to resolve the political and financial problems identified in the discussion of operational issues in the first session.**

- 2.1. What is public confidence? Is it public confidence in the bioinformation systems or public confidence in the legal system that we are 'getting the guy'?
- 2.2. There is a public perception that DNA is foolproof when it is not. The issue of positive and negative errors is a huge one for the public, whereas scientists have to embrace

the element of error rates. If one is looking for extreme events – it may be the 1 in 1 million event that leads to miscarriage of justice, but does / should that impact on the rest of the system because we always knew that there was going to be an error rate. There must be a decision on what the acceptable error rate is, rather than simply pretend that there is not one, it must be accounted for. We are not sure what the error rate is – but should at least try and measure it. There needs to be established what is an acceptable error rate, and then tell the policy makers how much it costs.

- 2.3. In modern policing there are vast amounts of information. They have to account for what they have not done as well as what they have done. So any leads that are not followed up need accounting for. This becomes a very important issue once entering into European exchanges (e.g. “why did you not pursue the match with the Italian....?”)
- 2.4. Public confidence is crucial, much of the ACPO forensic lead role is trying to protect the image of forensic science.
- 2.5. Politicians have extremely limited understanding of the science and what it involves. Trying to explain to them partial matches is a waste of time. People have limited concentration, the first thing they see on television when a crime is reported is men in white boiler suits – so they assume that forensic science is playing an important role. There is a need for greater emphasis on other evidence that supports the forensic science, as well as an appreciation of the fact that there are errors and mistakes. Public confidence could have a flip side in that they may want to step back from using the science because they become overly cautious, it could be restricted so much that a criminal is missed and the public will be angry because the law was changed.
- 2.6. Politicians have no real concept of the issues. There also remain concerns about shortcomings in police understanding of forensic science issues and, in turn, investigators are faced with defence lawyers who might use an improbable (in terms of other evidence) candidate match from somewhere else in Europe to suggest that ‘other leads’ had not been fully investigated. Moreover, in the UK a prosecution would not be bought on the basis of only a DNA match.
- 2.7. Technology is trusted but people largely are not. The more systems can be automated the more the public trust it. Even prisoners say that the NDNAD is acceptable if in the right hands. A lot of the public are not that overly concerned about risks factors. The risk factor is the human factor not the technological one but there is a need to be explicit about the risks and then a determination made about what level of risk is acceptable. That is not for the scientists to decide.
- 2.8. Debates in this realm take place in an increasingly crowded space. There is a need to understand whose voices are loudest and have the greatest effect on policymaking.
- 2.9. The Swedish initiative – sharing of police information – follows the principle of availability established under the Hague principle. Prüm is the first step of this availability. Ireland has to have database in place soon because they are supposed to be sharing information by 2011 with the rest of Europe.
- 2.10. Recent years have seen more public debate about forensic bioinformation in the UK.
- 2.11. Debates in Europe are more difficult to track. There have been debates about the establishment of DNA databases in Ireland and elsewhere. The recent ENFSI report

on database and database management provide a useful summaries of issues. There are also *ad hoc* groups whose work is important to future development – e.g. an expert group on data exchange.

- 2.12. In Canada there were four days of discussion in the Senate committee on the DNA legislative review, following lots of debate in the lower chamber. International exchange is an issue that is coming up in Canada.
- 2.13. There is possibly lots more discussion going on that we do not know about. Is it possible that there is lots more discussion because the DNA 'revolution' has been 'led' by the UK?
- 2.14. Prüm is a partial implementation of the Hague principle of availability. However, Prüm goes further in setting up a new system. Prüm is being used to require some countries (Malta, Portugal, Greece, Italy, Ireland etc.) to set up DNA databases. Spain, Romania, Bulgaria and Luxemburg have created databases because of Prüm.
- 2.15. Is there more trust in a properly regulated, overseen system? For example, in the Netherlands, the law now allows DNA profiles to be retained after arrest (irrespective of outcome) but the person concerned could apply to a judge to have the profile removed.
- 2.16. Does Prüm adequately distinguish between DNA profiles obtained from suspects/ witnesses/ victims etc.?
- 2.17. Lots of 'unsolved' crime scene stains that are not in reality anything to do with a crime may be loaded up – profiles may be obtained from consumables etc. (e.g. the Phantom of Helibronn recent case).
- 2.18. Concerns about distinguishing between categories of people could have an easy technological solution. A nation under Prüm could still refuse to provide identifying information following a DNA match. The nation can refuse – i.e. German authorities refused to hand over details when the DNA profile should have been removed from their database.
- 2.19. Childrens' conventions also relevant to the debates/ considerations.
- 2.20. The heterogeneity of the agencies involved is a relevant issue. What counts as a policing agency? In the UK there is a bewildering array.
- 2.21. What resource implications are there for developing Prüm? If there is not an effective way of making resources available on an international scale, the ability to use the system may be compromised.
- 2.22. People make subject access requests when they need the information on themselves, normally for some other purpose (visa/ employment check). People then sometimes become frustrated about the amount of information kept when they make a subject access request and see the information, but they very rarely do.
- 2.23. There is an issue of utility versus cost. What is the price of putting accountability into the system? What is the utility of accountability, and are we prepared to pay for that level of scrutiny?
- 2.24. Under Prüm, the joining country has to go through an audit first to see whether a new country complies with all the requirements of the Prüm treaty. The results go to the EU Council and they decide whether the country can join the Prüm group.

- 2.25. Who makes the judgements? Is it a paper exercise? There is scepticism about the rigours of the process. There is a political drive however, to get more countries on board to get the scheme working. There is a central push from Brussels that countries have systems in place, including a funding programme for implementing Prüm.
- 2.26. European data protection supervisor – he is only in advisory role? The right to ‘good administration’ under the Treaty of Lisbon within its chapter on fundamental rights is concerned with areas of public administration such as healthcare and social services, but may not cover law enforcement.
- 2.27. The UK government accepted all of the Magee recommendations and there are people working on implementing changes. There was a cool response from some because of other initiatives and perceived overlap (i.e. with Bichard Report and the Third Pillar Data Protection Framework). The priority is on ‘vetting and barring’ (the Independent Safeguarding Authority).

### Session Three: Integrity

---

The third session considered the extent to which consensus is possible about the importance for ensuring the effectiveness of law enforcement as well as justice for individuals of the reliability of the forensic bioinformation exchanged and the validity of any inferences drawn from it. This session was preceded by a presentation outlining the following issues:

- standardised terminology and reporting: the seminar had earlier discussed ‘hit/no hit’ search arrangements, but this had given rise to more nuanced questions about the stringency standards applied, the risk that automation might result in a greater number of false eliminations and what actions should follow a ‘hit’.
- accreditation of laboratories and systems together with the certification of individuals: highly pertinent in the UK with the decision to close down the CRFP and in terms of international exchange the general absence of accreditation for fingerprint examiners outside the UK.
- proficiency testing: in the absence of regular testing for errors is there a risk that jurisdictions may fail to appreciate that their arrangements are not error free?
- Knowledge of the quality assurance arrangements, professional ethics and external oversight in relation to information received from abroad, and whether the absence of such information should result in greater caution in its use than locally captured forensic intelligence or evidence?

Participants were also invited to consider whether steps taken either by law or administrative action in this country to improve the integrity and validity in use of bioinformation might be undermined when information is exchanged and whether new supranational protocols or similar instruments to prevent this may be needed?

- 3.1. Within the UK a DNA analysis could be undertaken and the results uploaded to NDAD within seven days or less. Quality of work and timeliness were enforced via financial penalties, but the pressure to reduce prices and the greater visibility of speed of handling could skew provider priorities, thus undermining the integrity of UK produced bioinformation.
- 3.2. Concerns were expressed about the impact for the reliability of information received from data exchange because of the absence of EU quality assurance standards that

should apply from the crime scene to database uploading. This would be addressed by a Swedish Presidency Initiative at a conference in June. It was expected to result in agreement on the need for EU wide mandatory standards for both laboratories and individuals.

- 3.3. In the meantime the Regulator would have some influence on what providers and public bodies uploaded to databases or used in other ways, but this could only have a limited impact. Within the UK there might also be significant gaps. The UK Borders Agency was not a major user and source of forensic information but it was outside the Home Office Regulator's remit.
- 3.4. There might also be a temporal problem. Many major DNA databases were established in the 1990s when there had been far less appreciation of this issue and best practice.
- 3.5. International exchanges of information could be very slow. Enquiries in connection with the exchange of information about foreign national or UK national convictions elsewhere could take up to nine months.
- 3.6. Further analysis could allow the validity of candidate matches under Prüm to be analysed by the recipient, for example Prüm DNA 'hits' were notified on a standard form which indicated which loci could be compared, or for a set of prints from another country to be re-examined to UK standards. There remained a problem that beyond an initial 'hit' the exchange of information might be hampered by a lack of trust between investigators.
- 3.7. There was frequently an absence of a definition about what was meant in discussion about standards. Increasingly this had come to be accepted as independently verifiable against an ISO standard. Consultation had begun on a new ISO standard dealing specifically with the exchange of bioinformation. National variations meant that there would still be gaps and ambiguities in the QA processes reflecting different policies by the equivalent of the NDNAD Custodian. The same type of issue arose in respect of fingerprints, with different national approaches to match assessment ranging from different point systems to non-numeric standards. This made it particularly difficult to apply the ENSFI proficiency testing approach as this was taken from forensic science disciplines where results were replicable. Within the UK proficiency testing was being piloted in fingerprint bureaux, but it was difficult to introduce the international audits that were an integral part of the DNA quality assurance process.
- 3.8. Similarly, in the Netherlands quality assurance was based on the separate accreditation of laboratories and their scientific staff, as a prerequisite for giving evidence in court, in contrast to the HO Regulator's approach that only envisaged the former. On the other hand, the CRFP approach only tested a practitioner's ability to qualify for accreditation. It is felt that it did not then regularly audit the quality of their work.
- 3.9. In the meantime the gap in accreditation and marker systems had been filled by ENSFI. A great deal had been achieved on the basis of goodwill alone, but this body lacked both authority and finance, receiving only EC funding for travel and subsistence, plus pilot projects. A central body was needed within the European Union. Several times during discussion analogies were drawn with recommendations in the recent NRC report on US forensic science and new FBI rules on proficiency testing, and comparisons made between these initiatives and the lack of comparable European bodies.

## **Session Four: Initial reactions to “*Keeping the Right People on the DNA Database*” consultation document.**

While the seminar focused on the theme of internationalisation and exchange, a short amount of time was devoted to initial reactions to the Government’s consultation proposals announced on 7 May.

**Discussion was structured around an outline of the government proposals that respond to the European Court of Human Rights judgement in the case of ‘S’ and Marper V. the UK.**

- 4.1 Destroying samples is problematic if need for re-testing for ‘Prüm’ matches. Also problematic with upgrading any systems in the future.
- 4.2 What is meant by a DNA profile? There are lots of different examples, there will be a need to go through all of the records including all the instances where that profile occurs. Does the impact assessment take account all the elements involved with thorough expungement? The costs in the government consultation were provided by forensic providers – but the accuracy of this depends on what the forensic providers decided what was meant by ‘removal’. Is it simply a case of ‘retiring’ the information from speculative searching, not actually removing it entirely from every potential record held. The crucial question surely is whether it is available in a searchable form?
- 4.3 What about case files? These need to be retained for 30 years, they may hold profiles yet they must be kept because ‘unsolved’ cases.
- 4.4 There may be ambiguity about whether a profile and fingerprints relate to a conviction or not. It may be unclear where they were first uploaded after an arrest that did not lead to a conviction, that the data should in fact be retained because of a subsequent conviction in relation to which proceedings bioinformation had not been collected because the offender was already on the database.
- 4.5 The idea is that the information would not be searchable and so ‘retired’. It may be possible to take profiles from other cases if the person convicted for other offences if they are not sampled in respect of that conviction.
- 4.6 The government proposals are underpinned by actuarial risk assessment, in other countries there is individualised assessment of risk.
- 4.7 A lot in the consultation document is good, but the problem is that this sort of research should have been undertaken years ago. This is research that should have been done originally. There is no reference in consultation document made to children, yet lots of emphasis on the issue of children and ‘S’ of ‘S and Marper’ was of course a minor. There have been accusations of a ‘minimalist’ reaction by the government, a feeling that the research can be dismissed because it missed things. When people think through the consultation document, lots of questions will be raised upon reflection.
- 4.8 The argument about the ‘innocent’ being kept on the NDNAD has been lost. On the other hand, there have been lots of comments made by commentators (David Davis MP etc.) and which no-one has refuted. The risk is that there will be fewer detections, at least there is some evidence now about offending patterns and this risk. The evidence that has now been put up may be too little too late however.
- 4.9 With regard to the retention of samples, long discussions have taken place. The vast majority have never been touched, they are retained because to remove it may leave database open to the accusation that there is no way of remedying a miscarriage of justice. There has been no enthusiasm (other than in political discourse) about

proposals to remove children and samples. Moreover, the UK incurred excessive sample storage costs because it did not do this at ambient temperatures.

- 4.10 The HGC report has been delayed, and there is currently no news of its likely publication date.
- 4.11 There is the difficulty of heterogeneity of offending for categorising offenders and retention regime. It is also really difficult to drill down to outcomes. The police cannot demonstrate the 'value' of the forensic evidence to the inquiry etc., there is little or no desire to reflect on what led to a conviction, this may be only determined in the jury room.
- 4.12 Bioinformation only provides 'links', it may provide a lead that may be the most important part of the investigation.
- 4.13 The differentiation on the basis then of minor versus serious offender is not supported by Pease's evidence of heterogeneity of offending.
- 4.14 The public think that serious offenders should be on the database. There is more ambiguity surrounding minor offenders.
- 4.15 There ought to be a set of circumstances where someone can say that this person is of such concern that despite the lack of conviction we should be permitted to retain and use bioinformation and other information (i.e. the Huntley scenario). Removing the biometric information could result in an inability to retrieve the arrest information from PNC. The real concern is that politics – which is where it will be decided – will have the final say with the shadow Home Secretary already saying that if they win power, the Conservatives will adopt the Scottish model. The police service – the opinion formers – have really got to roll up their sleeves and argue their case. If left to the politicians, other events etc. will get in the way and politics will drive it. More work needs to be done to justify the retention of intelligence data.
- 4.16 It is perhaps the case that what is needed is a more considered opportunity to decide upon sampling/ retention, rather than the arrest decision.
- 4.17 There remains the distinction of intelligence versus criminal records, if removing data from the PNC, you may remove the intelligence value.
- 4.18 Scotland has a smaller number of profiles to be processed so can there they can make a case by case decision on retention preferences. They can have a central clearing house, but to put such a system in place in England and Wales would be very difficult. Scotland's system is still untested. With removal you also face the risk of another *R v Weir*.