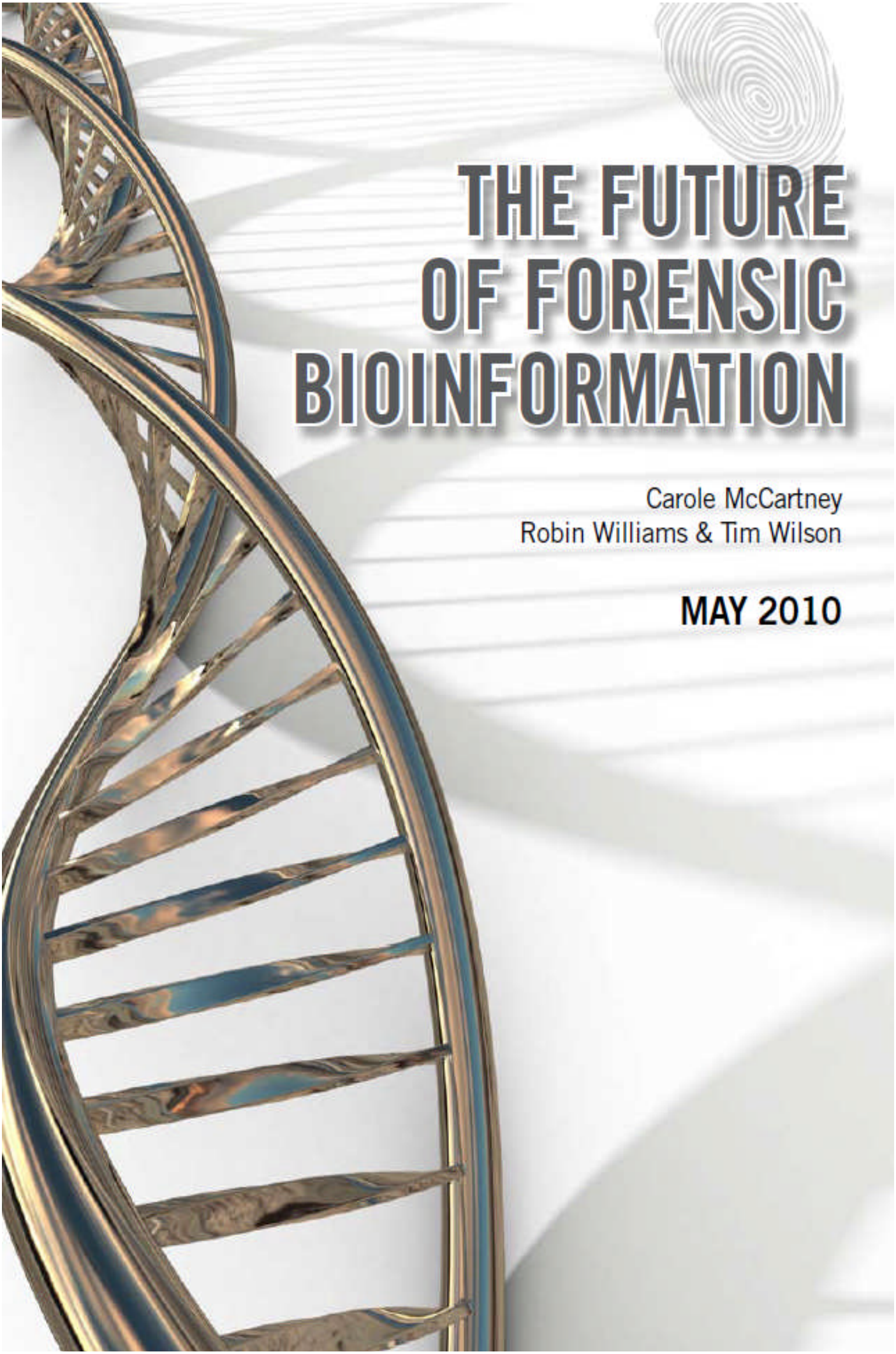

THE FUTURE OF FORENSIC BIOINFORMATION

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Executive Summary

Introduction

1. The collection and use of bioinformation is an important feature of contemporary efforts to ensure public safety and maintain (inter)national security. The National DNA Database (NDNAD) is widely acknowledged to be a world-leading innovation in the forensic application of genetic technology and information management. The IDENT1 platform, hosting the national fingerprint and palm print databases, also continues to grow in size and technical capability. The collection, retention and use of biological materials, usually without the consent of those from whom they were taken or retrieved, raise a range of policy questions. These include the scope of powers necessary for the effective and ethical collection and use of such materials, and how a balance may be achieved between the exercise of these powers by the police and the rights of individuals. The relevance of much domestic discussion has been overtaken by the judgement of the European Court of Human Rights in *'S' & Marper vs UK*, of December 2008, which made a decisive contribution to normative debates about the use and governance of forensic bioinformation and placed the Government under a legal obligation to reform the laws governing the retention of forensic bioinformation.

2. This project, funded by the Nuffield Foundation, entailed convening four meetings of law enforcement professionals, practitioners, government representatives, academics and other key stakeholders from the UK and internationally. In the course of this report we draw on the many dialogues that were occasioned by these and other meetings. With the concern to secure public confidence and trust as our ultimate aim, we reviewed efforts to assess the effectiveness of the current forensic bioinformation regime, as well as the significance of international and inter-UK exchange in order to consider a variety of technological claims and foreseeable developments. We also seek to illuminate governance issues that need to be addressed. Finally, the General Election means that legislation forced through the last Parliament just before Dissolution is likely to be replaced soon. The report concludes, therefore, with a proposal suggesting how - in order that key issues are properly considered - to proceed in devising new legislation for governing the collection, retention and use of forensic bioinformation.

Evidence and Assessment

3. Insufficient research and the unsatisfactory way in which, sometimes, case studies and data have been presented means it is difficult to see how consideration can be given to possible reforms unless this deficiency is addressed. There is little statistical evidence or rigorous comparative analysis of the facts in individual cases and a paucity of independent and authoritative research on how, and the extent to which, the information derived from them directly impacts on criminal investigations or usefully supplements other forms of information held by the police and other relevant agencies.

4. There is scant evidence about the costs of retrieving bioinformation in terms of individual cases and a lack of robust evidence and critical assessment of the benefits and costs of rapidly increasing expenditure in this area. Such expenditure, like all other activities within the criminal justice system should, wherever possible, be assessed for its effectiveness in line with other budget items and subject to cost-benefit analysis. Failing this the police should at least demonstrate that the collection and use of forensic bioinformation is being organised optimally, that they do not divert resources from budgetary items that are proven to be more beneficial, and that police internal forensic organisation and procurement of external forensic services are cost-effective. It is necessary then accurately to assess the opportunity costs of expenditure on forensic bioinformation, its impact upon the state's ability to offer justice to all citizens, and its implications for the wider resourcing of the criminal justice system.

5. Arguments over fundamental arrangements concerning the collection, retention and use of forensic bioinformation as well as disagreements about how key problems are to be resolved, continue to be poorly supported by a credible evidence base on which to ground important decisions. Instead, after an unconvincing consultation exercise, the current UK government appears to have abandoned the idea of publishing a forensic science White Paper. It has recently conceded that there is a need for new primary legislation dealing with forensic bioinformation collection, retention and database governance, which resulted in the Crime and Security Act 2010. This legislation, however, was based on arguments that were rejected by the two parties that between them hold the greatest number of seats in the new Parliament. While revised legislation is urgently needed, the absence of evidence and information highlighted in this and other recent reports that have sought to explain the complexity of some of the scientific and ethical issues, points to the need for a new non-partisan and properly informed approach to reforming the law and administration relating to forensic bioinformation. One way of addressing this would be a short Bill to deal with the most serious deficiencies in the current legislation, with more comprehensive legislation to follow either a White Paper or preferably, a Royal Commission.

Internationalisation and Exchange

6. With increasing need, and new mechanisms to exchange law enforcement data, internationally and particularly within the EU, decisions about UK legislation need to be taken after consideration of their potential implications internationally. International exchange of forensic bioinformation is in its infancy, the amount of cooperation appears to be occasional even when investigating serious crimes. Within the EU this might change as a result of the Prüm Treaty, which automates the exchange of some forensic bioinformation, though the introduction of technologically advanced searching systems and databases alone will not necessarily result in major increases in activity. The Council of the EU has already sought to restrict the extent of future searching under Prüm, despite a consistent (anecdotal) view held by experienced investigators about the value of routinely exchanging bioinformation. In the absence of statistical analysis and independent case evaluation, however, it is difficult to reach an informed view about the optimal scale and arrangements for such cooperation. It is clear though that unresolved scientific, and policy issues, are brought into stark relief by the Prüm Treaty.

7. Even within the EU there are many jurisdictional differences relating to forensic bioinformation. However, the interoperability of NDNAD and the Scottish database provides clear evidence that cross-jurisdictional cooperation can be successfully managed on a large scale despite differences. While this report identifies gaps and a lack of consistency in the data, the detail of the interoperability analysis indicates that the NDNAD has set an example of greater openness nationally and internationally for criminal justice databases, including for the exchange of information about fingerprints. There is, thus, a clear foundation on which legislative and policy improvements can be built, including the publication of information about the scale and impact of cross-jurisdictional cooperation.

8. Any consideration of multinational exchange is unlikely to give rise to novel technical issues, yet it will help to improve strategic decision making. This is of little value, however, in the absence of institutions with the resources and authority to foster greater coordination. A key issue is higher risk of erroneous or missed identifications arising from problems in respect of both fingerprints and DNA. Experts working in both disciplines face similar questions about contamination or poor recovery, transmission or storage techniques. For UK DNA international casework the chief obstacles now and increasingly in the future are the different multiplex systems used across the globe, the known technological obsolescence of SGM+ and the considerable scientific difficulties in moving to a sufficient number of overlapping loci with the other widely used systems developed in the USA and China. These problems will undoubtedly increase, as the Government has admitted, because of its decision to no longer retain DNA samples.

Governance and Accountability

9. Public trust is an essential precondition for the effective use of forensic bioinformation. The government needs trust to enable ‘consensus’ legislation. The police need trust in order to utilise the technologies and only trust can allay suspicions of ‘Big Brother’ futures. Consideration then needs to be given to the requirements for ‘good’ (effective and ethical) governance of this socio-technical domain. This includes the ‘steering’ of forensic bioinformation policies as well as current management. Issues such as the facilitation of transparency and accountability mechanisms, including the new demands of emerging counter-terrorism policies, all need further examination. Securing and maintaining trust in any institutional arrangements requires clear lines of accountability and the possibility of appropriate levels of independent oversight. Self-regulation is problematic and prone to failure, pointing to the need for stronger safeguards to be in place. Sufficient information must be available to enable relevant publics to give support and consent. This information needs to emanate from reliable sources, and be ‘checkable’, and therefore available to external researchers. A consideration of such principles exposes in stark relief the inadequacies of the Crime and Security Act 2010.

10. Trust in the operation of forensic databases is especially sensitive to the provision of security and adequate data protection. There cannot be room for failure as this will be followed by a catastrophic loss of confidence in those who manage such data as well as in the management procedures themselves. Clarity of purpose and aims secured through proven quality standards and the oversight of such standards will also contribute to the healthy regard necessary for these technological innovations to be used for the achievement of the public good.

11. A proper response to *Marper* must include an effort to define key terms (‘transparency’, ‘accountability’, ‘safeguards’, ‘proportionality’ etc) in a way that establishes clear general principles for the governance of forensic bioinformation. Innovations in current practice can then be interrogated and positioned properly by reference to those principles. There is also a need to think more generally about ‘data about individuals’ rather than simply ‘bioinformation’. This means consideration of what kinds of forms such data can take, where such data should be stored, how they should be accessed, by whom and for what purposes.

12. Trust in the use of forensic bioinformation has been hindered by the lack of, or flawed research, which is then misrepresented or used to mislead. This has sometimes exaggerated the impact of the NDNAD and does little to explain the value of forensic bioinformation (including the ongoing value of fingerprints). The use of emotive anecdotal cases and statements invoking ‘public protection’ with almost meaningless numerical data, serves only to confuse, and removes from consideration the impact on individuals and on human rights, which is the ‘balance’ that *Marper* demanded. There has as yet been scant attempt to develop a comprehensive human rights based approach to forensic bioinformation in the UK, with strong governance at its core. If public confidence is to be maintained in the future of forensic bioinformation, the issues outlined in this and other recent reports, including the production of robust research data, the creation of effective governance regimes, undertaken within a framework that takes seriously the international context, could be considered essential starting points for the preparation of a White Paper or the work of a Royal Commission.

A Proposal

13. England & Wales is clearly at a crossroads, with a significant opportunity to revisit decisions recently made by about the collection, retention and use of forensic bioinformation. During the last Parliament the debate (including the misinterpretation of potential lessons from Scotland) remained dominated by bold claims made about the usefulness of forensic bioinformation rather than by careful analysis of robust data. The starting point to further legislation should be a clearer and more convincing demonstration of the objectives and technical arrangements that might ensure the success of new legislation. Underlying this is a need to dispel the various myths woven in this context about measures to protect rights being inimical to a criminal justice system capable of detecting and dealing with offending behaviour.

14. New legislation, if developed with integrity and open-mindedness, could achieve a greater degree of public confidence (from both the rights and utility perspectives), than is possible under the present legislation and managerial systems. It should contain clear principles with precise arrangements to be put in place and tested incrementally. We suggest that there are four principles that should underpin the preparation of new legislation:

- Proper consideration should be given, *inter alia*, to an approach based a case by case scrutiny of retention decisions;

- The legislation and its implementation should be sufficiently robust and comprehensive to minimise the risk of later changes;

- There should be discretion for investigators to retain and share forensic bioinformation when there is a professional need, and such discretion should be proportionate and be subject, in line with the MOPI code, to regular and effective review and audit and open to challenge before an independent tribunal;

- The new arrangements should be informed and regulated by a new independent statutory governance body (described below as the audit and ethics body). This would oversee all forms of forensic bioinformation, based on effective audit arrangements, adequate data collection and publication, the commissioning of research and ultimately should be accountable directly to Parliament.

15. In putting forward this proposal, we have sought to reflect what we consider to be the most relevant insights on the future of forensic bioinformation gleaned from our research and dialogue with experts:

- The potential shortcomings of the Crime and Security Act 20010 are illustrated by the apparent lack of consideration given to the fact that convictions may be overturned on appeal. For this reason alone, it appears improbable that the recently enacted arrangements will not be repealed or amended in the new Parliament irrespective of any further judgement in Strasbourg.

- Little attention has been given to the possibility that if the new Act is judicially reversed, further costly changes may be needed. This may help to put the refusal - based on assertions about affordability – to consider a case by case approach, in a more accurate economic perspective.

- There are likely to be major advantages in being able to detect crime if retention decisions were to be included within a case based and MOPI regulated process. This would integrate the management of retained bioinformation with other police information about individuals who had not

been convicted of an offence. Such a system would introduce professional discretion, emphasising the trust that society has in the personal integrity of police professionals rather than the inferior management of important but highly variable and sensitive information by machine.

- The great advantage of the Scottish case by case approach is that it could never be described as ‘blanket and indiscriminate’. Retention in all cases reflects a considered individual judgement with independent oversight.

- If the police are already MOPI compliant, other than for the cost of introducing such changes, there should not be a major increase in cost. In the longer term a system that integrated all forensic bioinformation and PNC management with MOPI would presumably be more cost effective, as well as more efficient, than the present dispersed arrangements for the governance of DNA profiles, fingerprints and other MOPI information.

- Even under the Act of 2010 can the system really operate chiefly by the application of an algorithm? Conviction would require a management decision to convert a temporary period of retention to a permanent one. If the system has to respond to such instructions, other decisions could be notified, as part of the routine paperwork at two other key decision points: if it is decided not to charge the arrestee or to discontinue proceedings. As the analysis of NDNAD interoperability between England and Scotland contained in our report demonstrates, the database system can already operate on a significant scale by deletions being determined by the outcome of proceedings.

- The burden of paperwork could be reduced by default deletion and destruction procedures. This would also provide a safeguard against the failure to comply with earlier deletion legislation. A further safeguard against a reoccurrence of this problem would be provided in this respect by holding any information relating to unconvicted or acquitted individuals on a separate MOPI database.

- Changes introduced in recent years means that a nucleus for improved governance is already in place. For example, the existing NDNAD Ethics Group might form the basis for a statutory audit and ethics board and members of the NDNAD Strategy Board could become part of the new executive body operating under MOPI but strengthened by improved legislation and independent members. The audit and ethics body should be responsible for initiating research, as well as approving external research requests and its statutory audit functions should extend to record keeping, database operations and the storage of samples by all accredited forensic suppliers. This body should produce an annual report for Parliament with sufficient data to describe the routine operations of the new system, the basis volumes of business and results achieved, and the volume of, and results obtained from international cooperation.

A diagram summarising these ideas, by reference only to DNA samples taken on arrest, is set out overleaf.

A proposal for a new governance system for forensic bioinformation based on the key decisions about the use, storage and destruction of information and genetic material relating to DNA samples collected after arrest.