Memorandum of evidence from the British Medical Association to the House of Commons Science and Technology Select Committee’s inquiry on genomics and genome editing

About the BMA

The British Medical Association (BMA) is an apolitical professional association and independent trade union, representing doctors and medical students from all branches of medicine across the UK and supporting them to deliver the highest standards of patient care.

Advances in genome editing has been cited as one of the key scientific developments of recent years and is currently a major topic of discussion in science and bioethics. The degree of attention reflects the excitement about its potential as a research tool, and the possibility that in the future it could be used to cure or prevent serious inherited disease. In light of these developments, the BMA’s own MEC (medical ethics committee) has begun to consider the therapeutic and research applications of genome editing, and the ethical issues it may engage. We welcome the Science and Technology Select Committee’s inquiry as an opportunity to share these reflections with the Committee.

Executive summary

- The BMA recognises that technological advances in recent years have meant that not only is there growing information available about the human genome, through the advancements in sequencing, but now there are several technologies which could be used to modify the genome with increasing degrees of precision (i.e. ‘genome editing’)
- The BMA’s MEC has begun to discuss some of the broader ethical issues that the use of these genome editing technologies raises. Our submission sets out these initial views in the following contexts:
  - embryo research
  - somatic cell gene therapy
  - potential reproductive applications

Genome editing

1. Genome editing technology, in particular the more efficient and cost-effective CRISPR-Cas9 method, has the potential to have a transformative impact on our understanding of human genetics and could open up new treatment options.

2. The BMA believes it is essential that public and policy debate keeps pace with the developments in both research and treatment contexts, to ensure that regulatory systems continue to be fit for purpose and that public confidence is maintained. As such, we welcome the committee’s decision to undertake this inquiry.¹

3. The BMA also notes the importance of the UK’s science and medical research connections with Europe and believes the government must ensure, through the negotiating process, once we leave the EU that the UK is able to participate in collaborative research activities across the EU, and guarantee the mobility of research staff.²

Embryo research

4. The UK has clear legislation governing embryo research and the HFEA (Human Fertilisation and Embryology Authority) is a respected regulatory body. The BMA supports the use of human embryos for research, subject to HFEA licensing, and believes studies involving genome editing should be subject to the same regulatory process as applied to other embryo research.

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¹ We also note that the Nuffield Council on Bioethics has published an in-depth review on genome editing, and is currently looking in more detail at potential applications in human reproduction.
² The Academy of Medical Sciences: Academies publish joint statement on research & innovation after the EU referendum, 19 July 2016
Somatic gene therapy

5. The BMA believes, in principle, somatic cell (i.e. non-reproductive) gene therapy does not engage any novel ethical issues compared with other innovative medical techniques more generally.

6. Each potential application will need to be judged on its own merits, taking into account technological, safety and efficacy considerations. Research must show that the procedure is efficacious and safe enough for it to be considered as a treatment, and patients (or their proxies) must give valid consent having been informed of the risks and uncertainties involved.

Reproductive applications and germline therapy

7. Germline therapies which involve changing the DNA of a germ cell or embryo, where these alterations will then be passed to future generations, may, in theory, offer the hope of preventing serious inherited genetic disease; but the practice would raise a number of wide-ranging, profound and complex issues. Changing the DNA of an embryo in this way for treatment purposes, or to establish a pregnancy, remains strictly prohibited in the UK; there is international consensus that such therapy should not be considered until safety and efficacy concerns have been addressed and a broad societal consensus has been reached. Nevertheless, we believe it remains important to explore and debate the different issues genome editing may raise.

8. The UK was the first country in the world to pass regulations allowing mitochondrial donation (not itself a form of genome editing), subject to a licence from the HFEA. We have a strong regulatory system that has public support, which is conducive to pioneering research. International agreements and collaboration will be important as the technology develops to ensure that knowledge and best practice is shared around the world, and the UK scientific community can have a key role in these discussions. Should a time arise in the future such that it would be appropriate to consider a specific reproductive application of genome editing, we believe the process of parliamentary and public engagement which preceded the mitochondrial donation regulations would be a good model for policy-makers in the UK to follow.

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