

Generation Genome

MEMBERS' BRIEFING – OCTOBER 2017

This document summarises the annual report of the Chief Medical Officer for England (Prof Dame Sally Davies) released in July 2017, ***Generation Genome***.

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From genomic dream to reality

A gene is defined as 'a piece of DNA with a code for a specific instruction' such as eye colour, and a genome as the whole set of DNA for a living creature. The sequencing, analysis and interpretation of the data contained within the genome for health applications is referred to as genomic medicine. Delivery of this 'genomic dream' and corresponding NHS transformation, building on the 100,000 Genomes Project, is said by the CMO to require three key actions:

- 1. Embedding national standards**
- 2. Streamlining genomic medicine laboratories**
- 3. Agreeing to use patient data in a secure environment to benefit themselves and others**

Prof Davies says that it is imperative to improve the way that genomic medicine is organised within the NHS into a scalable, equitable first-class genomic service that is future-proof and cost-effective. The reorganisation of genomics services to follow will, she notes, 'inevitably mean fewer laboratories doing different types of work' and a move from lab-based testing to computer-driven interpretation and analysis of genomic data.

Dealing with genomic data concerns

The CMO explains that it will be essential to help patients 'understand that by agreeing to use of data about their illness, they bring direct benefits to themselves' – that it informs their own medical care, but also that the more genomic and linked clinical data from patients are shared, the better the understanding of genomic medicine and opportunities for others to benefit in future. This will be achieved by:

- **Maintaining patient and public trust**
- **Making genomics everyone's business**
- **Ensuring data security and safeguarding**
- **Providing a short, clear and practical consent process**
- **Avoiding 'genetic exceptionalism'***

* *View that genomic data is uniquely sensitive compared with other medical data*

Other important issues

Several other issues are highlighted by the CMP as key steps towards realising the potential of genomic and personalised medicine for NHS patients, notably:

- 1. Investing in international excellence** – the country's leading global position should be consolidated and expanded via investment in research and international collaboration, as well as health system integration
- 2. Parity of access for patients** – to genomic testing, diagnosis and advice regardless of where they live
- 3. Reforming health professional attitudes** – combatting negative perceptions of genomics as a distant opportunity or burden in different medical specialties, not least public health, by integrating in training curricula and workforce planning

Transforming medicine?

The CMO concludes that: '**Working together we can make such a big difference to so many people, that we may hardly recognise medicine in the future. This is an exciting and tremendous opportunity**'.