

# Consultation response: Advancing our health: prevention in the 2020s



## Submitted to

Department of Health and Social  
Care

October 2019

The PHG Foundation welcomes the Green Paper published in July. In particular, we commend Public Health England for their forward looking approach to predictive public health. Improving prevention is clearly a vital element in achieving the aims of the NHS Long Term Plan: this endeavour is multi-faceted, requiring actions at multiple levels – population, sub-population and individual – and across multiple systems, within and beyond the NHS. Science and technology undoubtedly have important roles to play in understanding, predicting and intervening against the complex causes of disease and ill-health, as well as supporting more accurate and earlier diagnosis and treatment.

## Towards public health genomics

As the founding centre for the discipline of public health genomics in the UK, and as global leaders in this field, we have long espoused the potential value of genomics and other sciences in offering more personalised prevention of disease. This implies a focus on the individual (in terms of both their biological risk and personal preferences) in addition to population-based approaches. It also encompasses forms of stratified prevention, using genomic and/or other biomarkers alongside existing risk prediction criteria to more precisely identify population sub-groups at increased risk, and target preventative interventions accordingly towards the greatest needs.

## Personalised prevention and citizen generated data

The chapter on Personalised Prevention in the CMO's 2016 report, Generation Genome was written by our Chair Dr Ron Zimmern. It sets out important issues for government policy on prevention. That the NHS is prioritising prevention and seeking to place citizens and patients at the centre is already indicated in the current Green Paper, and is admirable. Similarly, the intention to develop exemplar projects in personalised prevention in particular is an excellent one, especially set clearly alongside plans to build public trust around the use of data.



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Thought needs to be given to the infrastructure for data collection and sharing within the NHS – and potentially beyond. Our research shows that citizen generated data (CGD) from a host of sources could also play a valuable role in disease prevention, for example via monitoring of both environmental exposures and biomarkers, including genomic biomarkers. Harnessing CGD for the NHS would obviously necessitate suitably interoperable systems and standards for data collection, sharing and analysis in order to underpin individual risk prediction and personalised prevention support. It could also offer additional benefits by contributing to research into the biological determinants of risk.

We further welcome plans to incorporate genomics and other new technologies into screening to assist with better stratification of healthy populations into different categories of disease risk. More accurate risk prediction will allow targeting of prevention efforts towards those at greatest risk, which should aid prevention whilst also minimising over-diagnosis – an issue that warrants careful consideration – alongside efforts to boost earlier diagnosis of disease and to introduce evidence based health checks. We strongly support a robust evaluative approach to applications of biomedical and digital technologies for prevention.

### **Boosting the evidence base for polygenic scores**

We suggest that polygenic scores may have particular value in their capacity to refine and improve population stratification, although evidence of clinical utility is still needed. Moreover, whilst polygenic scores may offer improved risk prediction for some common diseases (whether at the individual or population level), this may not be the case for all conditions; robust evidence for each indication will be needed.

### **Bringing together public health and clinical care**

Overall, our final policy recommendation is that thought should be given to the most effective means by which the public health and clinical workforce and systems can work together to support better prevention for the UK population. The forthcoming National Genomics Healthcare Strategy is an excellent opportunity to look at how the significant potential for improved public health and clinical care from genomics can be best utilised, including by non-specialist staff. Genomic data can have quite different implications when considered in healthy citizens and groups compared with those with a specific disease, and new knowledge and understanding of genomics and health continues to emerge, making it a challenge. However, implementation of the strategy could represent a valuable trial for integrating complex data sources in the light of a dynamic knowledge base to underpin intelligent public health and care.

## Further reading

[Annual report of the Chief Medical Officer 2016: generation genome. Chapter 8, Personalised Prevention. 2017](#)

[Health innovation manifesto. PHG Foundation. 2015](#)

[What is citizen generated data? PHG Foundation. 2018](#)

[Citizen generated data: the ethics of remote patient monitoring. PHG Foundation. 2019](#)

[My healthy future: overdiagnosis. PHG Foundation. 2019](#)

[Polygenic scores, risk and cardiovascular disease. PHG Foundation 2019](#)

[Our healthy future. PHG Foundation. 2019](#)

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PHG Foundation is a health policy think tank with a special focus on how genomics and other emerging health technologies can provide more effective, personalised healthcare

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