

A genomic perspective on climate change

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Failure to tackle climate change is currently the greatest risk to human health and survival.¹ While globally governments and institutions have key roles in driving societal and economic change to slow global warming, every individual must also contribute responsibly towards this crucial common goal. Many sections of science are actively contributing towards providing high quality information and recommendations within their research programmes. But what can we, as professionals working in genetics and genomics, do to support these ambitions in sustainability? To address this question, we organised a workshop at the recent European Society of Human Genetics Annual Conference, held in Glasgow in [June 2023](#)—where notably the temperature was a record 24C due to an anomalous heatwave.

In this workshop we considered different perspectives. For instance, while much research is focused on the resilience (or absence thereof) of planetary systems to climate change, much less is understood on the implications for human life. The changing environment represents a risk factor for adequate nutrition, and for exposure to new or more virulent and infectious microorganisms. Ever-increasing risk to human health due to heatwave exposure can result in heat-related mortality.² There still needs to be more understood about the human health impact of heatwaves and increasing temperatures, as well as the long-term health consequences. Genetic research might shed light on human responses to heat: genetic predisposition to heat illness and adaptive heat mechanisms could potentially lead to prevention strategies and treatments. PHG Foundation has been looking more at the issue and will be releasing a report on 'Heat, Health and Human genetics' shortly.

But conducting research also has its costs. Our laboratories are energy and resource intensive. In the UK, NHS England is committed to delivering a 'net zero NHS' by 2040.³ To reach this goal, we need evidence for

establishing new robust and more sustainable alternatives in our practices, and to commit as scientists and doctors to considering (and applying) sustainability practices in our everyday work. Conferences must present more sustainable hybrid options to facilitate reduced emissions associated with travel to distant locations. We must build up evidence on the carbon footprint of each laboratory activity, and the effectiveness of alternatives. We can and should start to restructure laboratory processes to minimize our carbon footprint. We believe the first necessary step for laboratories is to calculate their carbon impact, and then define actions on specific pathways. Consideration of 'green certifications' of laboratories as well as tailored training would be a doable and engaging way to support this effort.

Many important research questions are yet to be addressed, but we really hope our workshop has contributed towards engaging our genetics community in working together towards a greener, albeit inevitably hotter, future.

Contributors

All authors contributed equally to ideation and writing of the paper. All authors read and approved the final version.

Declaration of interests

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