Climate change and health
SfGH Policy
Autumn Weekend 2020

Introduction

Climate change is defined as the long-term alteration of temperature and typical weather patterns. Since the mid 20th century, these changes, and those predicted to occur in the future, are overwhelmingly caused by the increased levels of atmospheric carbon dioxide due to burning of fossil fuels and other human activity. Climate change represents one of the greatest threats to human and planetary health this century.

The consequences of climate change, both the direct and indirect, pose a significant threat to physical health, mental health and quality of life for millions of communities around the world. Global and national progress towards mitigating the effects of climate change and reducing fossil fuel emissions is so far inadequate, and will not prevent catastrophic warming. Governments of the world need to accelerate their progress to reach their Paris Agreement requirements as set by the UN in order to prevent further climate and health crises. In addition, rapid action is needed to prepare societies, health systems and health workers to be resilient to the effects of climate change, in particular the effects to health.

SfGH position

SfGH holds health to be a human right, defined as "the human right of everyone to the enjoyment of the highest attainable standard of physical and mental health" [1]. **Climate change, caused by human activity, represents a grave threat to this right,** which is already unattainable for many communities across the globe. **The health impacts of climate change, along with other planetary effects, are an issue of injustice** - those least responsible for climate change and historically oppressed will suffer most from the consequences.

The impacts of climate change on health are serious and wide-ranging, and **SfGH recognises the need to educate and inform both professionals and the public about these impacts.**

In order to tackle the climate and health crisis:
- **SfGH supports the demands of a Green New Deal,** both in the UK and beyond, as a framework for a just transition which recognises the speed and scale of the changes required, and will also hold significant benefits for the health of communities.
- **SfGH supports climate action that also promotes the right to health**, both by removing threats to health, and by promoting healthy solutions to the climate crisis. In particular, SfGH supports actions that will benefit those already suffering from health inequalities and exclusion.

- **SfGH supports action to prepare societies and the health sector for the health-related impacts of climate change.**

SfGH recognises climate change, and the forces that drive it, as a symptom of a wider issue with the structure of our economies and societies, which do not prioritise health and sustainability. SfGH therefore advocates for wide-reaching, systemic changes to improve health, reduce inequalities and tackle climate change.

Calls to action

UK government

- Implement deep and rapid cuts to carbon emissions
  - Achieve all 31 milestones set out by the Climate Change Commission in their Progress Report in order to reach the 2050 zero net target
  - Extend the target beyond net zero, recognising the UK's historic and continued high emissions, by adopting an ambitious and scientifically accurate timeline for complete decarbonisation
  - Adopt the demands of a Green New Deal as the primary means of achieving deep and rapid cuts to carbon emissions, preferentially as part of the COVID-19 recovery
  - Prevent any further locking in of carbon emissions by divesting (see divestment policy) and investing only in sustainable sectors or in the greening of currently carbon-intensive sectors
  - Ensure that international investments, agreements and trade deals support sustainability, and green economies
  - Promote and implement international agreements that support countries in transitioning to a low-carbon economy[1]
  - Strengthen environmental protection laws and regulations in the UK
  - Prevent further biodiversity across the UK and embark on the protection and restoration of biodiversity across the UK
  - Ensure that international investments, agreements and trade deals protect and restore biodiversity
- Through climate action, promote health
  - Alongside actions to reduce carbon emissions, ensure that these initiatives promote and enable the right to health in the UK and beyond
  - Fund and implement research into the effects of climate change on health and the interventions needed to mitigate these effects

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[1] These agreements should set out ambitious and enforceable global mitigation targets, on adaptation of finance to protect countries' rights to sustainable development, and on the policies and mechanisms that enable these measures.

- - Ensure that communities currently suffering from health, social and economic inequalities benefit from investment in climate action
  - Prepare to mitigate the effects of climate change on health
    - Adopt comprehensive policies to adapt existing health and social infrastructure to higher temperatures, flood risks and other extreme weather conditions and focus these investments in the most vulnerable areas
    - Invest in the health system and health workforce to treat increasing amounts of the population whose health will be affected by climate change
    - Adopt mechanisms to facilitate collaboration between Ministries of Health and other government departments, empowering health professionals and ensuring that health and climate considerations are thoroughly integrated in government-wide strategies

UK universities

- By the end of 2022, put climate change and health on the curriculum of all medical schools and other relevant disciplines
- Fund and implement research into the effects of climate change on health and the interventions needed to mitigate these effects
- Commit to regularly evaluating and reducing carbon emissions that are a result of university property, infrastructure and activities
- Adopt a sustainability strategy and carbon management plan in order to reduce carbon emissions and achieve carbon neutrality within the next two years

SfGH national committee

- Raise awareness about the health impacts of climate change within our organisation and beyond
- Lobby the government to meet their net zero target and recognize climate change as a critical risk to health
- Advocate strongly for a healthy, fair and green recovery from COVID-19 and beyond, in particular one that is in line with the demands of a Green New Deal
- In the lead up to COP26 in Glasgow 2021, advocate strongly for UK leadership on emissions reductions, climate justice and a health-focussed lens to climate action
- Collaborate with organisations focussed on climate change, health and other issues in order to advocate in a coordinated way for dramatic climate change action related to health

SfGH branches and members

- Engage with their universities and institutions regarding the calls to to action above
- Work with their members, other branches and the national committee to implement campaigns, awareness raising and advocacy related to climate change mitigation and adaptation
- Consider the environmental impacts of all activities and campaigns undertaken

The health community

- Recognize and raise awareness of the benefits to health from climate change mitigation, the dangers of climate change to health, and advocate for climate action in all areas
- Educate patients on the importance of environmentally friendly health behaviours e.g. walking, cycling, eating foods from sustainable sources

Position paper

The health impacts of climate change

Climate change has widespread impacts on health both directly and indirectly, as do the factors driving climate change including burning fossil fuels, industrial agriculture and biodiversity loss.

Direct impacts are a consequence of changes in climate patterns and temperatures, leading to increased incidence of heatstroke, dehydration, dermatological diseases, respiratory and cardiovascular illnesses [2], or extreme weather events such as flooding leading to injuries and infections [3]. Indirect impacts relate to the effects that a changing climate has on our institutions, societies and infrastructure. This includes extreme weather events resulting in compromised access to and functioning of health services [4]; destruction of habitable environments through natural disasters forcing migration and triggering psychological distress and social conflict [5]; food and water insecurity caused by climate and temperature change, leading to dehydration, water-borne diseases and malnutrition [6]; and greater awareness of these real threats to human health leading to anxiety around climate change [5]. The severity and incidence of these impacts varies depending on socioeconomic status and geographical location. For example, while Europe is at the greatest risk of negative health outcomes caused by heat exposure, due to an ageing population, South America and South-East Asia face the greatest threat from floods caused by increases in heavy rainfall [7].

One of the leading drivers of climate change is loss of biodiversity and habitat destruction. The ongoing COVID-19 pandemic is a constant reminder to the effects of a loss of biodiversity on health. The United Nations Environment Program reported that 75% of infectious diseases are zoonotic, or generated by viruses being transmitted from animals to humans [8]. If biodiversity is lost and ecosystems are destroyed, the natural barriers between animals and humans are removed, creating conditions for wider spread of viruses, thus increasing the risk of future epidemics and pandemics [8].

With eight of the ten hottest years on record occurring in the last decade [9] , and global carbon emissions and temperatures on the rise [10], nations across the world are already suffering the health impacts of climate change. These changes include extreme weather events, and malnutrition and diarrheal diseases due to food and water insecurity [11]. For example, across the world, there was a 77% increase in populations being exposed to wildfires from 2015-18 compared to 2001-14 and these wildfires and other extreme weather events are directly attributable to climate change [7]. In Brazil, rising temperatures have augmented the incidence of severe drought, with parts of Brazil experiencing drought for the entire 12 months of 2018 [7].

Meteorological data shows that the UK has also seen a rise in temperatures of 0.25C per decade since the 1960s [12] and sea levels rising at a rate of 1.4 mm +/- 0.2 mm per year since 1901 [13]. A lack of climate action would make heat waves such as the 2003 European heat wave which was responsible for 2,234 excess deaths in the UK, more frequent [13]. According to the 5th Assessment by the UN Intergovernmental Panel on Climate Change (IPCC), Europe is likely to see heavy rainfall events by the end of the 21st century with the UK being one of the worst affected locations [14]. This, combined with rising sea levels around the UK, will lead to increased risks of flooding [12].

Climate change and health: an issue of justice

The impacts of climate change on health will not be uniform across populations, with some populations being more vulnerable than others. Vulnerable groups include those with old age; female gender; lower baseline health status; residence in urban areas and low socioeconomic status [4, 15]. The populations most vulnerable to experiencing these adverse health effects from extreme heat include individuals who live in higher flats and those in densely populated inner city areas which experience the greatest temperatures [3]. High rise buildings located in inner city areas in the UK tend to have higher levels of social deprivation, which demonstrates the increased vulnerability of low-income individuals [3].

Crucially, however, those most impacted by the effects of climate change are also those that have contributed the least to its development [10, 16]. UK energy consumption data shows a positive association between income, energy use and carbon emissions [16, 17], demonstrating that wealthier households contribute more to greenhouse gas emissions. Moreover, the socially inequitable health impacts of climate change are often missing from evidence provided to policy makers, resulting in communities and infrastructure located in areas most vulnerable to climate change receiving inadequate government investment [18]. For example, when investing into managing flood risks, the UK government invested less into areas with more disadvantaged neighbourhoods, compared to areas with fewer disadvantaged neighbourhoods [19].

This disproportionate impact is similarly reflected on an international scale. Developed nations are responsible for around 70% of the total greenhouse gas emissions produced since 1950 [15], however developing nations which house around 87.5% of the world's population will face the greatest climate change-derived threats to health.The reasons for this include climate change compromising their agriculture-driven economies and causing food insecurity and importantly, the lack of adequate resources to prevent and respond to these risks [20].

Moreover, several of the most vulnerable nations are former British colonies from whom resources and wealth were extracted to fund industrialisation in the UK, which

have contributed to the emissions that now pose a significant health risk to these former colonies [21]. This places the UK in a position of greater responsibility to mitigate the global health impacts of climate change and further solidifies the need for a reduction in national carbon output. The UK must also strive to form international agreements to facilitate a global shift to renewable energy.

The need for further climate action

In terms of progress globally, the 2019 Lancet Countdown Report found that there has been a 1°C rise in temperature above pre-industrial levels [7]. Worldwide progress to mitigate the effects of climate change have not been adequate and the report found that the globe is largely following a "business as usual" pathway [7].

In 2019, the Committee on Climate Change (CCC) recommended that the UK should aim to be net zero on all named greenhouse gases by 2050. By doing this, the UK would also keep in line with their commitments to the 2016 Paris Agreement to keep global warming under two degrees. Overall, the UK government has only achieved two milestones out of the 31 set out in the Progress Report by the CCC [22]. To achieve Net Zero, the UK needs to achieve an average emissions reduction of around 15.5 $MtCO_2e$ per year over the next 30 years [22]. It is clear from the CCC's annual progress report that the UK is behind their targets to meet the requirements of the Paris Agreement and that much is needed to be done soon in order to reach the net zero goal. According to the New Economics Foundation, a green fiscal stimulus of at least £20bn a year, investing in low-carbon energy, transport and technology could create hundreds of thousands of jobs, while helping us achieve net zero carbon emissions [23].

In addition, the UK needs to go beyond net zero, which notably does not include imported emissions. As a means of achieving rapid decarbonisation at such a scale, many groups within politics and the climate change community have put forward the Green New Deal framework. The Green New Deal is a programme of policies which aims to guide the UK's approach to tackling climate change, whilst also re-structuring the economy and ensuring an equitable society. The five principles outlined by the Green New Deal include: decarbonizing the economy, protecting and restoring vital habitats and promoting global justice [24]. Both the UK's Green Party and Labour Party have adopted a Green New Deal framework within their manifestos, with calls to replace all fossil fuels with renewable energy and implement a sustainable transport revolution [25, 26].

Improving health through climate action

There is an increasing amount of evidence which indicates that climate change mitigation has co-benefits for health, and climate action presents us with a chance to

reduce health inequalities and create more equitable and sustainable societies. As well as reducing the future risks to health by mitigating the impacts of climate change, climate action can also benefit health in its own right.

Health benefits are likely to arise from reducing the burning of fossil fuels via increasing walking and cycling, as well as via the use of low emission vehicles. A study which looked at the effects of increasing active travel in urban England and Wales found that within 20 years, increased physical activity would allow the NHS to save £17 billion due to reduced cases of type 2 diabetes, dementia, ischaemic heart disease, cerebrovascular disease and cancer [27].

Another way in which climate change mitigation can improve health is via climate friendly housing. One intervention is via adequate home insulation and ventilation. These interventions not only improve indoor air quality but also protect against heat waves and extreme cold as well as by preventing infections via vectors [28]. Installing energy efficient gas cooking stoves in developing countries can avert more than one million deaths from chronic obstructive pulmonary disease (COPD) by reducing exposure to indoor stove emissions and pollution [28]. Improvements to household energy efficiency also benefits those in the UK via reducing CO2 emissions by 36% and reducing exposure to fine particles, radon and carbon monoxide [29].

Interventions in the agricultural and food industry can also render health co-benefits. The livestock sector within this is responsible for four-fifths of total agricultural emissions and livestock produce such as red meats are known to contain significant amounts of saturated fats which increases the risk of cardiovascular disease [30]. Reduced consumption of livestock products would lower the disease burden of ischaemic heart disease by 15% in the UK [30].

Adaptation to the health impacts of climate change

Climate change has potential to disrupt health systems. Heat waves can compromise the functionality of medical equipment, the storage of medications and the comfort of patients and staff [31]. Furthermore, a significant number of healthcare facilities are located in areas susceptible to flooding risks which will damage infrastructure and compromise access to healthcare [35]. In the long term, a lack of adaptation and climate action in the UK will increase the burden on the NHS due to increased incidences of climate change related illnesses [12]. For example, the urban heat island effect describes the phenomenon where urban areas experience higher temperatures than the surrounding rural areas due to factors including variations in land use, surface properties of buildings, geometry of urban areas, and anthropogenic heat caused by large clusters of people in urban areas [3]. At present, the UK government has no planning strategies in place to tackle the urban heat

effect through adaptation of buildings and urban design, which could result in a 250% increase in heat-related mortality by the 2050s [35].

Public opinion

The Climate Assembly, made up of 100 members of the public, was convened in Spring 2020 by the UK parliament to explore public attitudes on how the UK should meet the net zero target. Some key recommendations for future action to be taken included a ban on sale of new petrol, diesel and hybrid cars by 2030, improving public transport and paying farmers to use their land to store carbon e.g. by restoring peatland or by planting trees (36). The Reset inquiry by the All Party Parliamentary Group on the Green New Deal aimed to explore the opinions of the UK's general public following the initial COVID-19 crisis. In total, 73% of respondents believed that improving their local environment could also improve their health (37).

For the UK government to implement the Green New Deal, there would need to be vast public support and pressure. Increasing awareness of the impacts of climate change on health and presenting health solutions from mitigating the effects of climate change can be used as a technique to engage more of the public into demanding the UK government to meet their CCC progress goals and to make more sustainable choices on an individual level. The Lancet's Countdown Report highlights the need for interdisciplinary collaboration at the local, regional and national levels in order to successfully and effectively tackle the threats of climate change (7).

Conclusion

It is clear that climate change is a grave threat to global and public health. Populations within developing countries and vulnerable groups are at the greatest risk, however climate change also has serious implications for health in developed countries as well. The UK has a responsibility to reach their net zero goal and beyond, in particular due to their historically high contributions to carbon emissions. Climate change mitigation and adaptation on a dramatic scale must be implemented by the UK government in order to prevent immediate risks to health, as well as to generate benefits to health in the long term. If the UK government does not act soon, climate change will not only cause detrimental effects to the health of our wildlife and biodiversity, but will also damage the health of our local and global populations for many years to come.

Annexe 1: Examples of the relationship between climate change and health

The impact of climate change on health - case studies	
Impact of climate change	**Relationship to health**
Higher temperatures	Higher temperatures are associated with a broad spectrum of negative health outcomes, with a clear established link between increased temperatures and mortality [4]. Some direct consequences are increased incidence of heatstroke and dehydration and exacerbations of respiratory, cardiovascular, renal and dermatological conditions [4, 5, 223, 12]. An important indirect consequence is the risk of water shortage and drought. Decreased water availability for human consumption, agricultural and animal rearing needs can lead to dehydration, malnutrition and starvation [24]. In extreme cases, it may also lead to conflict over a limited water supply and migration out of drought-stricken areas, both of which are significantly associated with psychological distress [5].
Flooding	Displacement after flooding is strongly associated with depression, anxiety, post-traumatic stress disorder and general psychological distress [25], and floods themselves often result in physical injuries, drowning, asphyxiation, vehicular accidents and electrocution [11, 12]. Indirectly, damage to buildings from floods can promote mould and bacterial growth, thereby exacerbating respiratory and microbial illnesses [12]. Flooding also causes coastal erosion and run-off which affects agricultural production and results in food insecurity in flood-prone areas [25].
Mental health impacts	Air pollution is associated with poor mental health and the onset/worsening of existing depressive symptoms [6]. Higher temperatures have also been linked with conflict, aggression, behavioural and mood disorders, greater rates of suicide as well as hospitalization due to mental illness [2, 5]. Indirectly, mental health is negatively impacted by climate change related income, food and water insecurity; conflict and displacement following natural disasters; and loss of infrastructure and human life due to extreme weather events. All of these have

	been shown to result in depression, anxiety, post-traumatic stress disorder (PTSD), substance abuse, loss of identity and strain on relationships [5]. The effects are particularly marked in the elderly and children who have poor thermoregulation, as well as those with pre-existing mental health illnesses [2]. Finally, greater public awareness of the impacts of climate change and their perception as an existential threat has led to growing cases of 'climate anxiety' [5], or anxiety associated with perceptions of climate change regardless of whether the individual had been affected by it or not.

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