

# Q&A

WITH PROFESSOR SIR ANDY HAINES

## How does it feel to have won the 2022 Tyler Prize for Environmental Achievement?

It comes as a great surprise - a very welcome one. I feel very humbled by the award, not least because so much of my work has been collaborative. I would like to acknowledge the contributions to the growing pool of knowledge by many outstanding colleagues from whom I have learnt so much. I think the prize reflects the growing awareness that environmental change isn't just about damaging the environment; it really threatens human health. On the positive side, it's gratifying to see that the message from our research – that many of the actions that we can take to reduce the risk of dangerous climate change, can also benefit human health in the near term – is also increasingly accepted.

## Is climate change the biggest threat to human health?

Climate change is widely recognized – including by the WHO – as being the biggest single threat to the health of humanity. The reason for that is because it can affect health on so many different levels, and through so many different pathways. The effects range from the direct effects of extreme heat, wildfires, droughts and floods to the effects on water-borne diseases or diseases transmitted by mosquitoes and other insect vectors; the effects on food supply leading to undernutrition, to indirect socioeconomic effects, on poverty, migration of populations, etc. These very diverse impacts that accelerate over time are a particular cause for concern.

Thirty years ago, I began to think that climate change would have catastrophic effects on health if left unchecked, and that there was an important role for health professionals in documenting the effects and potential climate actions to protect health. We're already experiencing a global average temperature increase of about 1.2°C, compared to pre-industrial times. And the progress at COP26 wasn't as much as



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PHOTO: KEN LEEDER

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many of us hoped for. We could be headed to well over 2°C average temperature increase before the end of the century, depending on the actions that are taken over the coming years. Carbon dioxide, the most important greenhouse gas, stays up in the atmosphere for an awfully long time. So, it's a legacy that we're leaving future generations. These are some of the reasons why climate change is increasingly recognized as the biggest threat to human health as we look ahead to the rest of the century and beyond.

If we go forward on the current trajectory, there are compelling reasons to be very concerned about the future prospects, with increasing numbers of climate change-related deaths over time.

The effects of climate change on health and the numbers of excess deaths will depend on the decisions that we make over coming decades, particularly how much emissions are cut but also how effectively societies can adapt.

**“ONE RECENT STUDY...  
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- SIR ANDY HAINES

**Some people, particularly in high income countries, still think climate change is a distant threat: something that happens in the future or in countries with lower income. But that's not correct, is it?**

Most people accept the compelling evidence that climate change is happening, and it's due to human activities. There's growing evidence that it's also having impacts on health. For example, one recent study using data from 43 countries shows that more than one third of heat-related deaths over recent decades can be attributed to climate change. Although poverty increases vulnerability to climate change, the effects will be felt everywhere.

We've seen extraordinary levels of heat in places like Canada, California, and in Australia where there were

multiple, dramatic fires. So, it's not only populations in low-income countries, people living in high-income countries are also experiencing adverse effects now. The growing evidence of impacts in many parts of the world has been a real wake-up call in the last couple of years.

### **What can we expect for global human health, if we don't take more action on climate change – if we just keep continuing on, business as usual?**

Climate change amplifies the direct effects of heat, increasing the risk of death, particularly in the elderly. Extreme heat also prevents people from working, reducing labor productivity, particularly in subtropical and tropical regions. Extreme heat exposure, sufficient to make physical labor hazardous for a month or more annually, even in the shade, spreads as the temperature increases. Approximately 1 billion people could be exposed to such levels of extreme heat when the global average temperature increase reaches 2.5°C.

We know that climate change also affects the yield of crops – reducing food availability and increasing undernutrition. Increasing carbon dioxide levels in the atmosphere reduces levels of micronutrients like zinc and iron in crops, which are important for human health. This could add to the burden of micronutrient deficiency around the world. Increasing risks of transmission of common mosquito transmitted diseases such as malaria and dengue are also a major concern in some regions. There will also be increasing floods and droughts, which have not only physical effects, but also effects on mental health.

The combination of reduced crop yields, declining labor productivity and increases in climate-related extreme events will drive more people into poverty. The World Bank analysis suggests that climate change could push about 130 million people into poverty by 2030.

Increasing evidence shows us that when people are exposed to extreme events like heat waves, wildfires, floods and droughts, that there can be mental health effects, which can persist for quite long periods after exposure.

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We are even seeing the advent of new concepts like solastalgia, for example, the distress caused by the transformation and degradation of one's home environment. And that's been documented where communities have been displaced, and in Australia, where farmers have lost their livelihoods from drought.

So, a range of physical and mental health impacts can be expected. Human populations can adapt up to a point, but there'll be limits to adaptation. Once those limits are reached, impacts will get progressively worse.

**Speaking of the mental health impacts of climate change – there is much talk about 'climate anxiety'. Can you comment on this phenomenon?**

I don't personally work on climate anxiety, but it is being increasingly documented, particularly amongst young people. And I see it as a kind of rational response to a very uncertain, potentially hazardous future. Climate change affects the prospects for young people around the world, so I think it's a very reasonable anxiety to have. However, when the anxiety becomes dominant and interferes with daily living, professional help may be needed.

There's some evidence that taking climate action can help to reduce levels of anxiety because it makes people feel that they're doing something to reduce the risks of climate change and gives them a feeling of self-efficacy.

**Your research shows that taking climate actions to reduce your carbon footprint (such as riding your bike instead of driving and opting for a more plant-based diet) have positive health benefits. Have you been able to implement these into your lifestyle and have you seen benefits personally?**



*Sir Andy Haines on his bicycle.  
Photo: Ken Leeder*

I rarely use a private car; I get around by bicycle. It's very difficult to keep going to the gym all the time, so commuting to work by bicycle has been the main regular physical exercise I've had over many years. Having not cycled since I was a child, coming back to it in adult life has given me great pleasure and helped me to appreciate my local environment more.

I've had a largely vegetarian diet for a long time. It wasn't a sacrifice for me – I love the variety of choices and I am delighted that it's getting easier and easier. And in terms of energy, we've bought electricity generated from renewables for years. In the past we had solar panels fitted to our house, but we've recently moved to an apartment so it's a more complex process now!

I am known for nagging my family about reducing our environmental footprint – fortunately they are pretty responsive (and quick to point out when I don't follow my own advice!).

However, action can't be left exclusively to individuals, there is a vital role for government policy in making the healthy and sustainable choice the easy choice.



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## **When you see the trends of many of our environmental metrics – how do you keep your spirits high and keep getting up in the morning to pursue this work?**

Well, I'm a firm believer that you have to focus on the positives and the opportunities. Maybe it's also having been a health professional myself, where one has to deal with difficult circumstances and to keep working productively in the face of setbacks.

Some people find the continuing focus on the climate emergency is alarming and disempowering, I have found that emphasizing the health co-benefits of climate action motivates me to keep going.

**“THESE NEAR-TERM CO-BENEFITS OF ACTIONS TO CUT GREENHOUSE GAS EMISSIONS COULD POTENTIALLY PREVENT MANY MILLIONS OF PREMATURE DEATHS ANNUALLY IF THEY WERE IMPLEMENTED ON A GLOBAL SCALE.”**

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Whilst we often talk about the dangerous effects of climate change, we also need to emphasize the opportunities. If we act decisively and quickly, we can both reduce the dangerous effects of climate change and reap the benefits of reduced air pollution from clean renewable energy, the health benefits from consuming predominantly plant-based diets, the benefits of more sustainable transport systems and so on. These near-term co-benefits of actions to cut greenhouse gas emissions could potentially prevent many millions of premature deaths annually if they were implemented on a global scale.

## **As a physician working directly with patients, when did you realize that you needed to switch focus to think more globally?**

At the beginning of my career, I went to work in tuberculosis treatment for a year in Nepal. So from the outset I had a global perspective. I was very interested in understanding how health problems varied in different countries, and how frontline health workers working in the community could help to tackle some of these challenges, particularly in deprived populations. My subsequent experience as a family doctor was in a former mining community in South Wales and in inner London, but I maintained an international perspective through collaboration with colleagues in countries such as Brazil.

It was in the late 1980s that I began to hear about the phenomenon of climate change. And I quickly realized that because climate was such an important determinant of human health, it must have health implications. So, soon after, I wrote some articles outlining how I thought climate change could affect human health. This led to opportunities to work with the WHO, and with the Intergovernmental Panel on Climate Change in collaboration with the late Australian epidemiologist Tony McMichael.

## **Can you tell us what you are working on right now?**

We've seen a lot of statements that countries, cities, companies and institutions are going to move towards net zero emissions by mid-century. But what's crucial is to implement these actions and to learn from doing so. Our goal now is to quantify the effects, both in terms of reduced greenhouse gas emissions, and also benefits to human health.

That's the focus of the project that I'm working on at the moment, which is called the Pathfinder Initiative, funded by the Wellcome Trust. It aims to collect evidence from implemented actions to reduce greenhouse gas emissions and to foster mutual learning about how to cut emissions quickly, capitalizing on the benefits to health to accelerate progress.

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**How does Covid-19 link to your work in climate change and health?**

Well, we live on a pretty small planet, and we're all interconnected. So, the actions that are taken in one country will have implications for other countries. These can be positive, such as through international collaborative research – or negative, such as when the benefits from research are not shared between nations. The Covid-19 pandemic reinforces the need for international cooperation and collaboration, particularly to address the big, shared problems of our time – like climate change. You can't guarantee the security of your own nation, the health of your own people, unless you also work collaboratively to address the global drivers and impacts of climate change and other environmental changes.

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