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LANCET commission ON health & climate 15

Briefing for health policymakers and health professionals

UCL BRIEFING – JUNE 2015

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KEY MESSAGES

- Current emissions trajectories pose an unacceptable and potentially catastrophic risk to human health, threatening to undermine the last half-century of advances in public health;
- However, responding to climate change could be the greatest global health opportunity of this century, saving lives and money. Many of the available strategies have been shown to improve patient health and reduce pressure on over-burdened national health budgets.
- Realising the many health benefits of a low carbon global economy is no longer primarily a technological or economic question, but a political one.
- The health community has a vital role to play in unlocking these health benefits. They are well placed to encourage behavioral change, and engage in policy and advocacy at the local and national level. They have a crucial role to play in ensuring that health equity considerations are integral to national and international climate policy.

Summary

The 2015 Lancet Commission on Health and Climate Change concludes that responding to climate change could be the greatest global health opportunity of the twenty-first century. Many solutions to climate change offer significant health 'co-benefits', reducing healthcare costs for often over-burdened health systems and improving economic productivity. Alongside reducing emissions, climate change adaptation is essential to protect health. Decades-long lag in the climate system means that we are already 'locked-in' to many years of warming, and the associated impacts, even if emissions drop sharply. Climate change affects the world's poorest countries earliest and most severely, despite them being least responsible. Wealthier countries therefore have a responsibility to support poor countries' responses.

Climate change and public health

Climate change threatens health in many ways. Its health impacts are already being felt, even with the limited rise in global mean temperatures (of 0.85°C) seen so far. Current emissions are on track for a much greater rise of approximately 4°C over the next century. The impact of this change poses an unacceptably high risk to global health, by undermining access to fundamental determinants of health, such as food, water and shelter.

Direct health effects of climate change include the short-term consequences of increased heat stress and extreme weather events. Indirect effects threaten population health in complex and potentially far-reaching ways, including through changes in disease vectors and ground-level ozone pollution, food insecurity and under-nutrition, loss of livelihoods, mass migration and violent conflict. Indeed, the current estimations of health impacts fail to properly quantify these indirect effects of climate change, many of which are cause for concern. It is also important to consider the possibility of potentially catastrophic, but unpredictable outcomes.

The role and limits of climate change adaptation in protecting health

Adaptation to climate change is essentially a matter of basic public health protection. The health effects of current and future climate change could be minimised via a range of adaptation responses. For example, effective surveillance and response systems

are essential in managing the health effects of both tropical storms and heatwaves. These conditions require improved human health monitoring systems and contingency planning, necessitating a collaborative approach across multiple government agencies. Climate change also strengthens the case for reinforcing response systems for infectious disease surveillance, including disaster risk reduction policies, contingency plans and identification tools for potentially vulnerable populations.

TEETH IN THE TAILS

Tail risks are those whose probability of occurring is low but should be considered because their impacts would be great. Interactions between tail risks greatly affect the risk of several happening at once with dire consequences. For example, in the UK in 2007, flooding threatened electricity substations in Gloucestershire. The authorities requested the delivery of equipment to keep one substation from flooding as loss of the substation would have left the whole county, and part of Wales and Herefordshire without power, and many people without drinking water. Equipment had to be delivered by road. Parts of the road system in the region flooded, almost preventing the delivery of equipment. Under normal conditions, disturbances to the three subsystems—roads, electricity, and the public water supply—are uncorrelated and simultaneous failure of all three very unlikely. With extreme flooding they became correlated under the influence of a fourth variable, resulting in a higher than expected probability of all three failing together – thus creating a perfect storm, which threatened to undermine critical infrastructure. Low-probability, high-impact risks, and interactions between systems, must not be overlooked as they pose some of the greatest risks to human health.

In assessing the health risks and adaptation responses available, a number of recommendations for health professionals and national health policymakers emerge:

1. **Health professionals have a vital role to play in adapting to the health impacts of climate change.** Strategies will be highly localised, but include ensuring the provision of clean water and sanitation, vaccinations, vector control, food hygiene and inspection, nutritional supplementation and disease surveillance. Local health risks must be assessed in order to ensure disaster preparedness and primary care capabilities are in place.
2. **Health equity considerations must be at the fore of any adaptation response to climate change.** The impacts of climate change disproportionately affect the most vulnerable in society, with women, children, the elderly and the poor often experiencing the worst effects. This threatens to further exacerbate poverty and undermine recent gains in health equity worldwide. Adaptation planning decisions should thus incorporate health equity considerations, and health systems should be designed to act as anchors of community resilience.
3. **There are important limits to short-term adaptation, demanding a more comprehensive, long-term strategy for managing climate change.** Whilst targeted adaptation is important to protect health from climate change in the short term, there are important limits beyond which social and ecological systems cannot adapt and human health is likely to suffer significant harm. **Therefore, near- and longer-term adaptation and mitigation measures are both essential to reduce the risks of climate change. Also important is the realisation that adaptation is place and context specific, with no single approach to reducing risks appropriate across all settings.**
4. **Managing the global health threat posed by climate change requires an urgent scaling up of sustainable development strategies to address key determinants of health**, such as water and air quality, food security, strong, accessible health systems and reductions in existing socio-economic inequities.
5. **Policy responses which combine both adaptation and mitigation components should be prioritised.** Ecosystem-based adaptation in rural contexts, such as restoring mangrove swamps to protect coastal settlements from erosion and boosting food security, often has multiple benefits and is considered more cost-efficient than many hard-engineered solutions. Protecting and creating urban green space is another form of ecosystem-based climate adaptation with considerable short- and long-term co-benefits for health.

THE HEALTH CO-BENEFITS OF INCREASING URBAN GREEN INFRASTRUCTURE IN THE UK

Ecosystem-based adaptations in urban settings can benefit the health of urban populations through local climate regulation, e.g. reducing the urban heat island effect, improving air quality, and improving storm-water drainage, whilst also reducing greenhouse emissions and helping to mitigate climate change. In London, vegetation in street canyons can reduce street-level pollutant concentrations by up to 40% for NO2 and 60% for particulate matter, with a corresponding reduction in premature deaths and hospital admissions. Evidence shows that removing just 10% of green space from Manchester's urban areas would lead to a 4°C higher temperature rise by 2080, whereas temperatures significantly below those currently projected could be achieved by creating 10% more. Green space also offers immediate health gains including measurable psychological benefits, lower levels of perceived stress and reduced plasma cortisol. It can also reduce health inequalities as populations with high levels of green space have the lowest health inequalities relative to inequalities in income.

Tackling the underlying causes of climate change can benefit health and save money

Focusing only on climate change adaptation is akin to treating a patient's symptoms without addressing the serious underlying condition: mitigation is essential if we are to alter the long-term prognosis. Many climate policy responses are sensible public health interventions in their own right and can also reduce health inequalities. Climate change action – e.g. clean energy, policies to enable active travel (walking and cycling), and improved home insulation - offers substantial health co-benefits in the near term. **Greater involvement of the health community in climate change mitigation is needed to accelerate progress**.

Minimising the long-term severity of climate impacts requires action on its root causes; population growth, and increasing per capita consumption, and growing carbon intensity of development. **These must be addressed urgently if we are to avoid the worst health impacts of climate change**.

To help drive this transition, the Commission recommends:

- **A rapid phase out of coal, with many of the 2,200 coal-fired plants currently proposed for construction globally being replaced with cleaner alternatives**. Fossil fuel consumption such as coal-fired electricity generation, is at the heart of this, negatively influencing health directly through local air pollution and indirectly through climate change. This global transition towards clean energy will help to prevent the 7 million premature deaths that occur every year as a result of air pollution.

- **Encourage a transition to cities that support and promote lifestyles that are healthy for the individual and for the planet**. Health professionals are essential in facilitating this, providing vital expertise and guidance to city-planners on how best to improve urban health through active transport, reduced air pollution and more efficient buildings.
- **Ensure accurate quantification of the avoided burden of disease, reduced healthcare costs and enhanced economic productivity associated with low-carbon policies**. The public health profession will be at the centre of these efforts, but requires broader support from legislation, and training and capacity building.
- **Ministries of health, health professionals and health service managers should lead by example**, by improving the environmental sustainability and climate resilience of the healthcare facilities and systems they work in. Healthcare sustainability can be improved by increasing renewable energy generation at healthcare facilities, installing combined heat and power systems, improving building energy efficiency, implementing sustainable procurement and transport policies, waste reduction and avoiding unnecessary interventions. At a broader level, this will require a shift in emphasis from treatment towards prevention and more community-based care pathways.
- Health professionals act at the foreground of the response to climate change, as they have in response to tobacco and the HIV/AIDS pandemic. **A crucial role health professionals can play is in communicating the evidence to the wider public and calling for the inclusion of health dimensions in climate-related policy decisions** at local, national and international levels. Further, a shift towards policy-making which prioritises human wellbeing and equity rather economic growth at any cost would both benefit health and help to tackle climate change.

Conclusions

It is clear that climate change poses a major threat to health, and that action to reduce emissions can itself have direct public health benefits. The 2015 Lancet Commission on Health and Climate Change highlights the essential role the health community can and must play in transforming climate change threats into opportunities. Health professionals and policy-makers can connect action on climate change with the many health benefits of: a green economy; greater social equality; more resilient livelihoods; and a reversal of the global epidemic of obesity and non-communicable diseases.

With a clear evidence base and limited time the health sector must find its voice on sustainability at every level. As trusted members of society with expertise in communicating complex information and managing uncertainty, health professionals are well placed to promote behaviour and policy changes that will improve public health today and safeguard health into the future.

Progress will require truly collaborative leadership, across sectors and at local, national and international levels, requiring health professionals and policymakers to work with actors from a range of sectors towards the shared objective of a safer climate and higher quality of life for all. With meaningful health sector engagement, concerted action on climate change can become our biggest global health opportunity.

2015 LANCET COMMISSION ON HEALTH AND CLIMATE CHANGE

The Commission is an international, independent collaboration of academic experts, formed to map out justification for policy responses to climate change. It exists as a collaboration between European and Chinese climate scientists, geographers, social and environmental scientists, biodiversity experts, engineers, energy policy experts, economists, political scientists and public policy experts, and health professionals – all seeking a response to climate change which is designed to protect and promote human health. Administrative, communications and design personnel also support this Commission.