Climate Change and Health – Concrete Steps for Physicians and Health Professionals

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Abstract

Climate change poses a great threat to global health in the 21st century. Physicians and health care professionals can take an active role to limit the health impacts of global warming. We must educate ourselves on the health repercussions of climate change, act as role models in our community, and actively promote health at the patient level by encouraging active transport such as walking and biking, and reduced red meat consumption, both of which are health co-benefits in the fight against global warming.

Résumé

Les changements climatiques constituent une importante menace pour la santé publique mondiale au 21e siècle. Les médecins et les professionnels de la santé peuvent jouer un rôle actif pour limiter les conséquences du réchauffement climatique sur la santé. Nous devons prendre conscience des répercussions des changements climatiques sur la santé, agir en tant que modèles dans notre collectivité et promouvoir activement la santé auprès de nos patients en encourageant les modes de transport actif comme la marche et le vélo, ainsi que la réduction de la consommation de viande rouge. Dans la lutte contre le réchauffement climatique, ces deux éléments comportent des avantages indirects notables pour la santé.

Global warming has been described as the "greatest threat to global health in the 21st century."[1] It is estimated that climate change will be directly responsible for 250,000 deaths yearly between 2030 and 2050. Indoor and ambient air pollution are accountable for over 7 million deaths worldwide each year.[2] Canadian-specific health challenges include premature death due to air pollution, heat strokes, West Nile virus, and Lyme disease. Health care professionals have publicly voiced the need to take action against climate change.[3,4] Yet, most recently in Paris with the 2015 Conference of the Parties (COP21), politics and economy remain in the forefront of this battle, leaving many us of wondering how physicians and health professionals can participate in mitigating climate change.

It is possible for physicians and health professionals to concretely take action: as experts in climate change and health, as role models in their community and by promoting health at a patient level. A "central finding" of the 2015 Lancet Commission on Health and Climate Change is that the fight against climate

change "could be the biggest global health opportunity of the 21st century."[5]

Health Professionals as Health Experts in Climate Change

The World Health Organization urges health professionals to learn about the health impacts of climate change on their patients.[6] All should be sensitized to the challenges specific to their patient population, as well as public health measures that are already established such as heat alerts during heat waves. This also includes being cognizant of the current health system's ability to adapt to consequences of natural disasters, and also foresee the impact of an aging population more vulnerable to temperature extremes.

Health Professionals as Role Models

There are several organizations for health providers and professional associations that have taken a stance on climate change. The Canadian Medical Association (CMA) has issued a policy on Climate Change and Human Health.[7] They promote education and capacity building, surveillance and research, the reduction of disease burden, and being prepared for climate emergencies. In 2015, the CMA has publicly pledged to divest investments worth over 1.5 million $CAD in fossil-fuel companies in hopes of influencing others to do the same.

Many organizations also unite within the Global Climate and Health Alliance with a mandate to keep health as a central challenge of global warming. They also provide support to the health sector in order to innovate, and develop sustainable policies to fight climate change. Indeed, the health care sector itself is a non-negligible source of energy utilization with reported gas emissions accounting for 3 to 8% of the total greenhouse gas emission in the United Kingdom (UK), as well as the United States (US).[2] Besides pushing forward research on health impacts of climate change, health care systems should lead by example by investing in clean energy sources, building green infrastructure, and adopting innovative environmentally friendly procurement methods and waste management strategies.[2] Adopting low-carbon model from the choice of energy supply, to energy efficient buildings with easy access by public transportation, by decreasing the use of polluting incinerators and expanding tele-medicine are few instances where health professionals can become leaders in climate change.

Promoting Health Co-benefits

"What is good for the environment is also good for human health."[7] That is how the CMA concludes their policy paper on climate change. Health co-benefits from mitigation are the positive effects on human health as a result of interventions aimed at curbing global warming. Active travel should become part of lifestyle modifications offered by primary care providers. Indeed, adopting active travel with walking and cycling instead of driving carbon-emitting vehicles reduces greenhouse gas emissions to a greater extent than switching to lower emission cars.[8] In addition, it improves health by decreasing rates of cardiovascular and respiratory disease, obesity diabetes, certain cancers, and even depression and dementia. This can mean saving 7332 disability-adjusted life-years [DALYs] for the population in London alone,[8] not to mention the desirable economic outcomes with potential cost saving.[5] In the US, close to 1300 deaths could be avoided if bicycles were used instead of cars to travel over short distances.[9] Rates of diabetes also appear to be lower in US cities with high active transport.[9] Therefore, there is little reason not to introduce active travel as part of the lifestyle counselling to promote physical activity.

Reducing red meat consumption is another major co-benefit that health professional should advocate for in the adaptation against climate change. Livestock production is the main culprit responsible for the major part of gas emissions in the agricultural sector; together with deforestation, they account for 25% of all greenhouse gas emissions.[2] Diets rich in red meat and saturated fats, often rich in calories have known associations with obesity, various cancers, and cardiovascular disease. Modifying patients' diet is yet another key opportunity for health care providers to both improve health at a patient level, while tackling climate change. Indeed, beef production can yield between 14 and 32 kg of carbon dioxide equivalents per kilogram of meat,[9] and moderate reductions of meat production can potentially lower DALYs from ischemic heart disease by 15%, and years of life lost by 16% in the UK.[10] Other health co-benefits in the mitigation of climate change include, for, the reduction respiratory illnesses and other air pollution related diseases via the achievement of producing cleaner air.

Actions to halt climate change have numerous health benefits both at a population level, but also for the patients we care for. Indeed, recommending active travel and reducing meat intake should be included as part of a health professional's "lifestyle modifications" armamentarium to promote healthy diet and physical exercise. However, implementing behavioural change to mitigate climate change is a complex enterprise extending beyond the confines of the medical office and calls for a combined initiative involving a public health approach with shared policies,[11] and innovative urban planning.[12] Personal motivation and various psychological factors further impacts one's choices for mitigation.[13] Although empiric data on the role of patient incentives to induce changes is limited, the role for physicians cannot be ignored and should be further explored. Potential implications and roles for physicians and health care providers are summarized in Table 1.

Table 1. CanMED Roles and Implications for Physicians and Health Care Providers

CanMEDS roles	Implications in Mitigating Climate Change

Medical Expert	Understand and apply health co-benefits adapted to individual patients
	• Active transport with walking and biking
	  • Reduction in all-cause mortality, cancer mortality and improved cardiorespiratory health[1]
	• Reduced red and processed meat intake
	  • Reduction in diabetes, colorectal cancer, cardiovascular disease[2]

Communicator	Educate patients about health impacts of climate change Consider discussing the added health co-benefits when suggesting lifestyle modifications
Collaborator	Participate in local public health and urban planning initiatives that promote strategies to mitigate climate change. Such initiatives include: • Safe infrastructures designed for walking and biking • Green spaces • Easier access to public transportation
Leader	Engage in promoting the role of health care providers as leaders in climate change[3] Participate in local consultations to reduce environmental impact generated by the health care system • Energy efficient infrastructure • Environmentally friendly waste management • Use of clean energy sources • Expanding the use of tele-medicine Review and adapt our own lifestyle to integrate changes to set positive examples within our community

Health Advocate	Encourage health promotion by
	• Raising awareness of health repercussion from climate change (locally and globally)[4]
	  • Heat stroke from global warming
	  • Respiratory illnesses from pollutants
	  • Increased vector-borne and water-borne infectious disease
	  • Precarious food production and psychological stress from natural disasters
	• Promote health co-benefits in our daily practice

Scholar	Engage in learning activities to stay informed about health related impacts of climate change through continuing medical education[5] (CME) on the topic, and publications in medical journals
Professional	Show commitment to patient health promotion and climate change, while acknowledge that not all patients believe, nor desire to be involved in changes against climate change.

One should, however, remain sensitive to the idea that not all patients understand, nor believe the concept of global warming. Nonetheless, little harm and great benefits can arise if physicians, nurses, and other health allies have a greater understanding of the health challenges of climate change that directly impact their patients, and further offer solutions that are more conducive in mitigating global warming.

Funding

There was no funding involved.

Competing interest

There are no competing interests.

References

1. Costello A, Abbas M, Allen A, et al. Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission. Lancet 2009;373:1693–733.
2. World Health Organization. Promoting health while mitigating climate change. Geneva: Author; 2015.

3. Sibbald B. Physicians' roles on the front line of climate change. CMAJ 2013;185:195.
4. Patrick K. Physicians and climate change policy: we are powerful agents of change. CMAJ 2015;187:307.
5. Watts N, Adger WN, Agnolucci P, et al. Health and climate change: policy responses to protect public health. Lancet 2015;386(10006):1861–914. doi: 10.1016/S0140-6736(15)60854–6. Epub 2015 Jun 25.
6. World Health Organization. Did you know?... By taking action on climate change you can strengthen public health. Put Health at the Center of the Climate Agreement. Geneva: Author;2015.
7. Canadian Medical Association. Climate change and human health. Ottawa: Canadian Medical Association; 2010.
8. Woodcock J, Edwards P, Tonne C, et al. Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport. Lancet 2009;374:1930–43.
9. Patz JA, Frumkin H, Holloway T, Vimont DJ, Haines A. Climate change: challenges and opportunities for global health. JAMA 2014;312:1565–80.
10. Friel S, Dangour AD, Garnett T, et al. Public health benefits of strategies to reduce greenhouse-gas emissions: food and agriculture. Lancet 2009;374:2016–25.
11. Lowe M. Obesity and climate change mitigation in Australia: overview and analysis of policies with co-benefits. Aust N Z J Public Health 2014;38:19–24.
12. Nieuwenhuijsen MJ. Urban and transport planning, environmental exposures and health-new concepts, methods and tools to improve health in cities. Environ Health 2016;15 Suppl 1:38.
13. Semenza JC, Ploubidis GB, George LA. Climate change and climate variability: personal motivation for adaptation and mitigation. Environ Health 2011;10:46.