INVITED EDITORIAL

Prescribing a healthy planet: The vital link between climate, healthcare, and empowering medical students for change in Aotearoa

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Introduction

Human wellbeing is inexorably linked with planetary health.[1] This relationship has long been understood in Indigenous worldviews and is receiving increasing attention in academic literature and public health movements. Yet education on planetary health and the health implications of climate change has thus far failed to reach across health student curricula. Students of health disciplines, whether they be doctors, nurses, or dietitians, are not receiving adequate education about planetary health. Failure to deliver this information to the next generation of health professionals stymies the protection and restoration of human and planetary health, which is desperately needed for a viable and equitable future.

As we write, Te Ika-a-Māui is reeling from two significant rainfall events. The severe but relatively localised flooding in Auckland has been followed by the even more extensive and devastating damage from Cyclone Gabrielle.[2] Both events are entirely in keeping with the predictions that have been made for the effects of climate change in Aotearoa. Warmer sea temperatures increase rainfall amounts and we can expect record-breaking rainfalls (as well as record-breaking droughts in other areas) to increase in frequency over the coming years. The deficiencies in our readiness and our political response, both nationally and at a local level, have been laid bare.

OraTaiao is a pan-health non-politically aligned organisation which represents nearly 1000 individuals and 20 organisational members.[3] We advocate for a climate response within Aotearoa that puts health, wellbeing, and equity at its centre, gives effect to Te Tiriti o Waitangi, positions Aotearoa as a global leader in transitioning to carbon neutrality, and acknowledges and mitigates the disproportionate effect of climate change on Indigenous and disabled people as well as children, women and the elderly. Our advocacy extends well beyond the health sector, guided by the knowledge that most of the socio-environmental determinants of health are found elsewhere, within our transport, housing, urban planning, agricultural, and financial sectors.

Climate action and health

HEALTH EFFECTS OF CLIMATE CHANGE

The understanding of planetary health and its connection with human wellbeing is strongly established in Indigenous knowledge. Within Te Ao Māori, the health and wellbeing of people is intrinsically linked to the health of the environment, and any imbalance or harm to the environment can have negative impacts on physical, mental, and spiritual health.[4]

At the same time, it is necessary to understand climate change as a symptom of systems that have historically oppressed Indigenous peoples and damaged nature. In order for the current inequitable, extractive system to come into being in Aotearoa, Māori had to have been dispossessed of lands and waters, and the cultural and kinship ties associated with them. Industrial activity in our nation severely exceeds several of our planetary boundaries, most egregiously through the use of fertiliser and ruminant emissions. Climate-damaging industries are sustained on lands that were unjustly acquired by the Crown, through outright theft as well as projects that installed alienating policies and institutions. This would not have been possible had Māori sovereignty remained undisturbed, and so it is impossible to separate climate change and health from colonisation. In parallel, destruction of natural habitats impedes Māori health; interruption of cultural knowledge associated with ecosystems and disruption of food and economic sovereignty are major contributors to health inequities for Māori.

The evolution of Lancet Countdown series headlines over the last decade shows the change in thinking with respect to the health effects of climate change over that time. In 2009 climate change was "the biggest global health threat of the 21st century", by 2015 it was clear that "tackling climate change could be the greatest global health opportunity of the 21st century", and in 2018 it was said that our voice as health professionals was "essential in driving forward progress on climate change and realising the health benefits of this response".[5–7] Since the 2006 UK Stern Review on the Economics of Climate Change, it has been clear that the cost of action on climate change is significantly less than the cost of inaction, and more recently that the health benefits alone of a well-designed emissions reduction would cover the costs of meeting our Paris Treaty obligations.[8–9]

The reasons for this are not just due to the costs of the health impacts of climate change that result from flooding, heat impacts, increased vector-borne illnesses, worsened asthma and psychological effects. They are also because of the health benefits that clearer air, better diets, drier and warmer homes, reduced physical inactivity, less polluted groundwater, reduced noise pollution and enhanced neighbourhood connections can give.[10] The necessary changes of increasing active and public transport, reducing private car use, shifting away from industrialised animal farming, improving housing, phasing out fossil-fuel boilers, greening urban spaces, rewetting wetlands and the protection and expansion of wild places should be advocated for and implemented based on their health benefits alone, regardless of their climate benefits.

AOTEAROA NEW ZEALAND'S RESPONSE TO CLIMATE CHANGE

Aotearoa's response to climate change has rapidly evolved over the past eight years and incorporates a number of overlapping commitments and plans. The international Paris Agreement was signed in late

2015 and made three main commitments: to keep the global average temperature well below 2°C above pre-industrial levels while pursuing efforts to limit the temperature increase to 1.5°C; to strengthen the ability of countries to deal with the impacts of climate change; and to make sure that financial flows support the development of low-carbon and climate-resilient economies. Each individual country contributes to these efforts via a Nationally Determined Commitment (NDC) with our first NDC committing to a reduction in greenhouse gas emissions to 30 per cent below 2005 levels by 2030.

In 2018 the Zero Carbon Act passed through parliament. This guides our domestic climate response, committing Aotearoa to reducing long-term climate gases to net zero emissions by 2050, and reducing short-term gases (almost all biogenic methane) by 24–48% by 2050. It established a Climate Change Commission which advises the government by drafting regular emissions budgets, the first from 2022–2025 and then 5-yearly thereafter to guide our response. The Zero Carbon Act requires all reductions to be met domestically. There is however a gap between the Paris Agreement 2030 NDC and our emissions budgets, which can legally be met by international mitigation or offsetting. The Zero Carbon Act received cross-party support with only ACT opposing, though efforts to bring agriculture properly into our country's plans have been slow to eventuate.

From the Zero Carbon Act process, in 2022 our first Emissions Reduction Plan was published to guide how we will implement the 2022–2025 emissions budget, and in August last year our first National Adaptation Plan was revealed. Both are very disappointing in terms of putting health and wellbeing at their centres and fail to adequately realise the enormous health benefits that stand to be achieved. They also sit seemingly in isolation from each other, with scant attention shown as to how our adaptation response to climate change can also drive emissions reduction. This is particularly pertinent in the aftermath of the recent climate-related flooding events in Nelson, Auckland, Tairāwhiti and Hawkes Bay, as some politicians and media commentators have used these as an opportunity to portray mitigation and emissions reduction as either pointless or a lost cause, with adaptation the only worthwhile course to follow. Similarly, both Emissions Reduction and Adaptation Plans pay some attention to Te Tiriti o Waitangi, but without clearly outlining how it will be enacted with proper agency given to tangata whenua.

Healthcare itself is responsible for about 4% of our total emissions in Aotearoa, similar to many developed countries. There are specific sources of emissions within healthcare that are not seen elsewhere, such as anaesthetic gases and the hydrofluorocarbon propellants in inhalers, but most of our emissions are due to the routine work of healthcare — production and use of pharmaceuticals, space heating (often from coal boilers), material use, staff travel, and international flights for conferences.[11–13] The 2021–2022 health sector reforms have given an opportunity to put the health sector as a front runner of decarbonisation in Aotearoa, but it is fair to say that this has yet to be realised and other systemic issues like staffing shortages and equitable access are getting more attention. It goes without saying that all the above commitments are just that—commitments—and those of us who do work in climate advocacy are reluctant to applaud promises until real quantifiable and successful action is apparent.

Incorporating planetary health into medical curricula

Aotearoa's current medical curricula does not address climate change and hence is unable to equip future clinicians with the tools to address this critical topic that has direct impact on healthcare. A lack of education on the relationship between climate change and health is also a missed opportunity to fully grasp and address Māori health and Te Tiriti o Waitangi, given the intertwined precipitation of environmental degradation and inequities across history. There is space for addition of this topic to almost all aspects of the medical school curricula. However, the modules that it would be most feasible to incorporate climate change into would be Public Health, Psychological Medicine, Ethics, Hauora Māori, and Pacific Health.

Globally, the push to include sustainability and environmental health into the medical curricula has come from students themselves. To see a similar change in Aotearoa, the onus is on the medical schools as well as the medical students to bring a change.

The importance of education planetary health and climate change extends into all health education. Nutrition and dietetics studies have significant potential to incorporate climate health into their curricula. Dietetics excels at equipping practitioners with knowledge on how to harness healthy diets for human wellbeing, which is often a neglected aspect of other health studies. However, nutrition modules do not usually adequately expose students to the role of diet in planetary health or how it can be understood as part of a food system. Too narrow a focus on optimising nutrition in a clinical context misses a significant opportunity for current and future dietitians to advocate for planetary health diets and system changes for the betterment of public health.

Where to from here?

Where does this leave the individual medical student or clinician? It is worth looking at the national environment in which we work and the raft of statements that have come out in recent years from the health system, professional representative bodies, unions, and training colleges. Most recently, Te Pae Tata Interim New Zealand Health Plan 2022 states as one of the six priority actions of the new health sector bodies an aim to "implement a climate sustainability and response plan across the health sector".[14] This sets a clear desire to both decarbonise the health sector and improve health sector resilience to climate change, and agrees with the multiple climate change position statements that have been published in recent years by the likes of the RACP, ACEM, RACS, RNZCGP, RANZCP, ANZCA, and NZCPHM.[15–21]

It does not, however, go far enough. As outlined in many of the position statements above, our professional duties do not end at the door of the clinic or the hospital. Points 77–79 of the NZMA Code of Ethics for the Medical Profession are particularly pertinent here:[22]

> *77: "Doctors should accept a share of the profession's responsibility toward society in matters relating to the health and safety of the public, health promotion and education, environmental issues that have a bearing on the health of individuals and populations, and legislation affecting the health or well-being of the community."*
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> *78: "Doctors have a role in ongoing efforts to achieve health equity."*
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> *79: "While doctors have a primary responsibility to the individual patient, they have a concurrent responsibility to all other patients and the community."*

The 2022 NZMA Position Statement on Planetary Health went further in clarifying our role as clinicians: "As scientists, leaders, health professionals and health advocates, doctors have a duty to raise awareness of the physical and psychological health impacts of environmental changes, advocate for the structural changes that are necessary to promote planetary health and the wellbeing of all people, and educate their patients about the health benefits of pro-environmental changes."[23] It's worth noting as well the New Zealand Medical Council's Statement on Good Medical Practice: "If you are concerned that patient safety may be at risk from inadequate premises, equipment or other resources, policies or systems, put the matter right if possible. In all other cases you should record your concerns and tell the appropriate body."[24]

This body of statements and policy documents reveals a gradual shift in thinking over the last decade as the realisation of the climate crisis as a clear and present threat to people's health and wellbeing, as well as the health system generally, has become clear. It has been the case that overt opposition to healthy climate action has been unethical for some years, but it is increasingly arguable that a lack of

action by doctors and medical students, as distinct from opposition, is on shaky ethical grounds.

This puts yet another obligation on us as we navigate the existing difficulties within healthcare — exams, understaffing, health sector underfunding, long and arduous working hours, years or decades of training, enforced movement for work, and the day-to-day worry of avoiding errors and maintaining high standards. It would be understandable and easy to consider climate change as a problem for another time, and for someone else. We must avoid this thinking. Simply put, we should be actively supporting the changes necessary for healthy decarbonisation of society for their health benefits alone. What the climate crisis adds is a sense of the importance of making these changes as quickly and as fairly as possible. Every one of us needs to add our part to the wider societal change that will be happening, and of course that part will vary from person to person. That said, the following are some of the places you can start:

PERSONAL

- Personal transport emissions— cycle, walk and take public transport wherever possible. The best e-vehicle is an e-bike!
- Personal dietary emissions — a switch to a vegan diet with waste avoidance over the average NZ diet can reduce the emissions that derive from diet by half. It does not have to be strict; even a partial shift gives a benefit, especially with the forms of protein that produce an outsized climate footprint: beef, lamb and dairy products.
- It is important to avoid complacency at a personal level — our role within the healthcare sector does not stop at one or two sustainable actions, but should extend to developing healthy habits and promoting them amongst our colleagues. These habits might include the use of public transport and carpooling, appropriate disposal of waste, reducing waste production, or advocating and encouraging discussions for climate action.

CLINICAL & PROFESSIONAL

- Join OraTaiao.
- Become active within your local hospital sustainability group. None exists? Then start one with some like-minded colleagues — they are guaranteed to be there!
- Organising sustainability-themed events, creating educational materials, and participating in community outreach programs. For example, medical students at McGill University in Montreal, Canada have organised a "Greening the Curriculum Conference" that focuses on incorporating sustainability into medical education and reducing the environmental impact of healthcare events.
- Significant space exists to introduce and develop sustainability-focused healthcare electives.
- Consider your prescribing: limit large dispensing if adjusting medications, deprescribe when possible, consider whether a medication is needed. Use dry-powder inhalers wherever possible. Consider the anaesthetic agent you will use.
- Consider your use of resources: are tests and referrals needed? Will they change patient management?
- Reduce medical waste, use reusable equipment, and advocate for more sustainable purchasing and supply chain practices in healthcare institutions. Students at the University of California, San Francisco (UCSF) School of Medicine have started a program to recycle single-use medical devices, which has diverted more than 1200 pounds of medical waste from landfills.[25]
- Advocate for policy changes that promote sustainability in healthcare, such as reducing healthcare emissions, promoting sustainable food practices in hospitals, and promoting green building design and energy efficiency in healthcare facilities.
- Avoid long-haul flights for medical education. Look on the contracted availability of this as an unnecessary luxury that your unions could use as a bargaining tool to achieve gains elsewhere.
- Remind whenever possible your professional bodies, whether as student or training representatives on boards or as general members, that their responsibilities with respect to the environment do not end with drafting a position statement. Demand they extend their role, incorporate climate change into teaching curriculums and use their social standing and influence to achieve wider societal acceptance of the changes necessary.
- Be alert to and avoid greenwashing, whether from dubious offsetting of emissions, conferences with unethical sponsors, or aspirational climate plans without any clear action points identifiable.
- Get involved with sustainability research or incorporate a sustainability aspect to whatever research you are involved in. In the context of healthcare in hospitals, this could involve research into sustainability practices, waste management, green spaces, carbon footprint/energy use, transportation, resource consumption, pharmaceuticals or medical devices.[26]
- Utilise telemedicine where appropriate, which can reduce transport emissions and increase access to care in rural areas.

SYSTEMIC CHANGES/WIDER INDIVIDUAL ACTIONS

- Advocate for curricula to include more planetary health.
- Submit, and if time and resources permit, make in-person depositions, on local and central government consultations. Rely on the simple message that climate action is health action, and do not be afraid in this instance to use the remaining status that the title "Doctor" gives. We have found that personalising the message makes a huge difference, especially for local submissions (e.g., the direct effect you have seen a cycleway has had for your patients, and why this benefit should be offered to all).
- We study and work within a racist health sector founded on colonisation.[27] Decolonising the health system and the country is essential to a fair, effective and Te Tiriti-based climate response.
- Talking to family, relations and friends is an underestimated action in our experience. The size of the climate crisis is so vast and means that huge numbers of people are quietly struggling with an increasing sense of existential dread. If you make personal or professional changes with the climate in mind, do not be quiet about it. For example, "I am cycling more to work because I want to reduce my emissions. I have a safe route, it takes the same time every day and I feel much better." is a short, simple, but powerful testimony.

Conclusion

We stand at present at the edge of a precipice of enormous change. Impacts from climate change are inevitable and will become increasingly severe in coming years and decades, but their degree will depend on our actions over our lifetimes and working careers. This should galvanise us to realise the enormous benefits from a climate response that puts health, wellbeing, equity and decolonisation at its heart. The health sector needs to accept our crucial central role in Aotearoa's climate response. Comprehensive education on climate change, its impacts and the wider topic of planetary health needs to urgently become a core part of medical and wider healthcare curricula, and it should start to inform all our personal and professional decisions.

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