Doctors’ travel in the Anthropocene

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ABSTRACT

The health sector is uniquely placed as both a significant contributor to greenhouse gas emissions and a first responder to the impacts of climate change. The breadth and complexity of the health sector mean that decarbonisation will be a substantial challenge to current practice. Doctors are leaders in the health system and in their communities, and there are multiple imperatives for doctors to lead on decarbonisation. Here we specifically examine the impact of travel undertaken by hospital-based senior doctors for the purpose of continuing medical education. Where quantified, doctors’ travel is a significant source of greenhouse gas emissions for district health boards, although there is significant uncertainty about the estimates. This travel occurs within a system that encourages and enables it through educational, financial, regulatory and cultural mechanisms, and is for many doctors an important component of their job satisfaction. This system needs to be redesigned to optimise education, job satisfaction, collaboration and wellbeing in the decarbonised health sector of the future.

Climate change is now a global emergency, a red alert for humanity. Increased global temperatures are already resulting in dangerous storms, fires, heat waves and droughts. Transformative change is needed in every sector of every country to adapt to change that is already occurring and to prevent it getting worse. Climate change is one of the greatest threats to human health and will drive inequity in health and society. Measurable harm to human health, environmental values and societal security can be attributed to every tonne of greenhouse gas emitted.

Doctors must respond

It’s clear that doctors and other healthcare professionals must be leaders in climate change action. The editor of The Lancet, Dr Richard Horton, has advocated for all doctors to become climate activists in their duty to protect the wellbeing of humanity. This reflects that doctors have influence well beyond their clinical encounters: they are the trusted voices of communities, with the ability to influence public perception on climate change and climate policy. Increasingly, doctors and doctors’ organisations are taking up this challenge.

One of the specific areas where doctors can lead is the decarbonisation of healthcare. Healthcare is a major sector of developed economies. Globally, it is estimated that healthcare is responsible for 4.4% of emissions. Individual countries’ health-system footprints vary, and it is estimated that the healthcare sector of New Zealand contributes between 3% and 8% of the country’s total greenhouse gas emissions. Several countries are starting to grapple with the challenge of decarbonising healthcare. Most notably, the National Health Service of United Kingdom has laid out plans for full carbon neutrality by 2045. The New Zealand Government also announced in 2020 that the public sector, including district health boards (DHBs), would be carbon-neutral by 2025.

Like the rest of society, systems of healthcare have evolved, over a period of time, to become highly carbon intensive. Individual healthcare activities, such as prescribing medications, undertaking surgery and infrastructure like the design and location of healthcare facilities, have never had to take emissions into account previously. We are now left with the legacy of a healthcare ecosystem that is reliant on emitting carbon every day. This complex system drives the behaviour and expectations of individuals within it.

Thus, the challenge of decarbonising our health system is similar in complexity to the decarbonisation of an entire society, although smaller in scale. It will involve a wide range of actions at every level of the system, from reorienting healthcare towards prevention, to changes in supply chains, improving infection control, building design and operation and changing the prescribing habits and travel patterns of staff and patients.
Doctors’ travel is a significant emitter

Key to reducing greenhouse gas emissions is measuring the sources of emissions. As DHBs have begun to measure their emissions footprint, doctors’ travel appears to be an important source. Twelve of the larger DHBs, which account for 85% of health funding, currently report greenhouse gas emissions from an incomplete range of sources. In sum, staff flights were the largest source of emissions in this group of DHBs after energy sources (natural gas, coal and electricity consumption) (Figure 1). Of the staff flights, around half were attributed to senior doctors. We undertook to collect this data in more detail, and sought emissions estimates from doctor travel from all DHB sustainability officers and public documents (five responded). Where data were available, doctors’ travel accounted for between 4% and 30% of emissions from those DHBs. Most DHB sustainability officers had low confidence in the precision of these measurements, except for one DHB where doctors’ travel for medical education was all booked by one travel agent. The inaccuracy of measuring emissions from doctor travel is a major issue for DHBs. It results in large uncertainties in the magnitude of emissions and the cost of offsetting charges. For example, in Capital & Coast DHB, the range of costs for offsetting doctor travel emissions at $64 per tonne (the current price per tonne of carbon under the Emission Trading Scheme) could range from $173,000 to $402,000. As the carbon price is expected to increase sharply in coming decades, the implications for public hospital budgets are significant.

Reducing uncertainty around the level of doctor emissions within and between DHBs requires a nationally agreed, standardised approach to collecting the relevant information. This may involve all continuing medical education (CME) travel being booked through one organisation within each DHB, as is already done in Counties Manukau Health.

The system that facilitates doctors’ travel

This DHB-funded travel is required for CME, a major component of continuous professional development (CPD). The Medical Council of New Zealand (MCNZ) requires that doctors maintain, develop and increase their knowledge, skills and professional performance and relationships,

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Figure 1: Emission profile of twelve New Zealand district health boards.

Source: Data for the figure provided by Margriet Geesink, Northland DHB. Note: this profile does not include a full range of healthcare emissions (eg, procurement and construction were not included in this data).
in the service of patients, the public or the profession.\cite{16} The medical colleges have their own systems for measuring and prioritising CPD activities: for example, awarding points according to the duration of an event.

The choices that doctors make are driven by the systems they work in. In the case of hospital specialists, the prevailing collective employment contract allocates $16,000 per full-time equivalent to CPD activities, based on union negotiations and the requirements of MCNZ and colleges.\cite{17} Thus, our professional culture, the scoring of CPD activities and the ability to seek reimbursement all promote making long trips for conferences. Other groups of doctors, such as doctors in training, general practitioners, university-employed academic doctors or doctors employed in the private sector or laboratories, have generally lower entitlements to CPD funding, and thus presumably travel less.\cite{18,19}

This system encouraging doctors to travel is not by chance. Many specialists find intellectual stimulation, collegial networking, and reinvigoration from these trips, and their contribution to battling burnout and stress should not be underestimated.\cite{20} The travel afforded to senior doctors is also a signal of status and a “reward” for the demands society places on doctors. This travel allowance may then have tangible advantages to recruitment and retention in the public hospital workforce.

The MCNZ has recently revised the framework for recertification of doctors, to emphasise the value of reflective, interactive local-group CPD activities, such as reviewing and measuring clinical performance and reducing the recognition of didactic CME activities.\cite{16} There is uncertainty around the best form of CME delivery, and didactic conferences appear to be among the least effective methods.\cite{21-24} Thus, MCNZ and colleges who administer CPD programmes are realigning the way that educational value is attributed to conferences and incentivising higher-quality methods which also tend to involve less travel.

**An uncomfortable dilemma**

There is an uncomfortable truth about travel to medical conferences in the Anthropocene. These meetings are held with the intent of improving health outcomes. However, they directly contribute to climate instability and wide-ranging adverse consequences for health and equity.\cite{25,26} Moreover, the educational justification for this travel is less clear than for activities such as measuring and discussing one’s own clinical outcomes with local colleagues.

**What are the potential solutions and challenges?**

Any changes around CPD to reduce emissions will be occurring within an entire health system that has already committed to decarbonise.\cite{7} It is hard to overstate how significant this change will be for healthcare in the medium and long term.\cite{10,27,28} A wide range of physical and personnel infrastructure at local and central health system level will be needed to enable this to happen and clinicians will be integral to many of these activities.

Currently we have a system that is reliant on emitting carbon, such as by encouraging and financially supporting travel for CME, and it is difficult for any doctor with environmental goals to have an impact. One method to neutralise emissions is carbon offsetting: the purchase of forests that store more carbon over time, to offset pollution elsewhere.\cite{29} Offsetting has significant limitations\cite{30} and also presents an immediate question: who pays for it? Whether paid for directly by the Government or deducted from the CPD allowance, taxpayers will effectively be paying. Moreover, as the price of carbon increases, travel for CME is unlikely to rank highly as a use for offsets compared to emissions from healthcare activity.

The COVID-19 pandemic has also shown us that rapid change is possible and that virtual options for CME can have unexpected benefits, such as reducing travel time and increasing access for a greater range of participants.\cite{26,30} Some of the limitations to these virtual formats, like a lack of networking, can be overcome through software innovations. Other proposals to reduce the carbon budget of CME include less frequent meetings, more central locations or multiple networked venues.\cite{31,32}

To change the system around CME in the medium to long term, there needs to be alignment of the incentives for educational goals (MCNZ and college level), strategic goals (DHB and union level) and job satisfaction and intellectual stimulation (personal goals). The health workforce is under significant strain, with cumulative underfunding of the health system over decades, increasing workloads and expectations on senior doctors, high levels of burn out, as well as the impact of COVID-19.\cite{33,34} Discussing emissions from CME
travel, with the implications of needing to reduce it, provokes controversy, particularly when high value is placed on it by a stressed workforce.\textsuperscript{35–37} However, this issue is likely to get more acute and public, not less. The system needs to be redesigned to think about how the explicit goal of CME of improving patient outcomes and the additional benefit of helping with staff motivation and retention can be achieved in a way that does not contribute to climate change. Activities that reduce stress and avoid burnout, improved staffing and work systems, and facilitation of academic interests are all options that could be considered. Most of the changes in the health system that reduce emissions have co-benefits in reducing costs and improving health. Likewise, there may be co-benefits in realigning doctors CPD systems.

The path ahead

Leadership in climate change is not easy. It involves looking internally as well as externally. There are tensions between flying to conferences to improve individual medical knowledge and skills, and the more diffusely shared ecological, social and public-health harms associated with emissions from these activities. As doctors work in, and respond to, complex systems, a system-level response is required. This will involve a realignment of incentives to provide and encourage the best quality CPD activities as part of a stimulating and rewarding career, while maintaining transparent and accountable recognition of greenhouse gas emissions.
COMPETING INTERESTS
Jay Hadfield and Jesse Gale work for Capital & Coast District Health Board. Jesse Gale is also chair of the sustainability committee of the Royal Australian and New Zealand College of Ophthalmologists. The views expressed in this paper do not reflect the views of their organisations.

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