



LESLEY DIXON MIDWIFERY ADVISOR

global heating: a hazard for pregnant women and their babies

"It is unequivocal that human influence has warmed the atmosphere, ocean and land" (IPPC 6th report, 2021).

The planet is warming at an unprecedented rate, with an increasing frequency and severity of extreme weather events globally. More heatwaves, droughts, floods and tropical cyclones are all a result of human-induced climate change. It is predicted that temperatures will continue to rise until at least the mid-century with warming of 1.5-2°C exceeded, unless deep reductions in emissions are achieved.

Climate change is affecting every country across the globe and we are now starting to see the impact of these changes on the health and wellbeing of women and their babies during pregnancy and following birth, with a growing body of evidence linking air pollution and heat exposure to negative outcomes.

EXTREME HEAT AND PRE-TERM BIRTH

We know that extreme heat compromises the woman's ability to thermo-regulate which increases the risk of adverse outcomes for the neonate. A meta-analysis of 70 studies set in 27 countries explored the association between high environmental temperatures and stillbirth, pre-term birth and low birth weight (Chersich et al., 2020). This analysis found that pre-term birth was more common at higher than lower temperatures, with the odds increasing by 5% per 1°C increase in temperature. During heatwaves the odds of pre-term birth increased by 16% (1.16 CI 1.10-1.23). Higher temperatures were also linked to lower birth weight

in 18 of the 28 studies that reported this outcome, and eight studies found an increase in stillbirth rates (1.05, CI 1.01-1.08) for every 1°C increase in temperature. These risks were particularly increased for women in lower socio-economic groups or at age extremes.

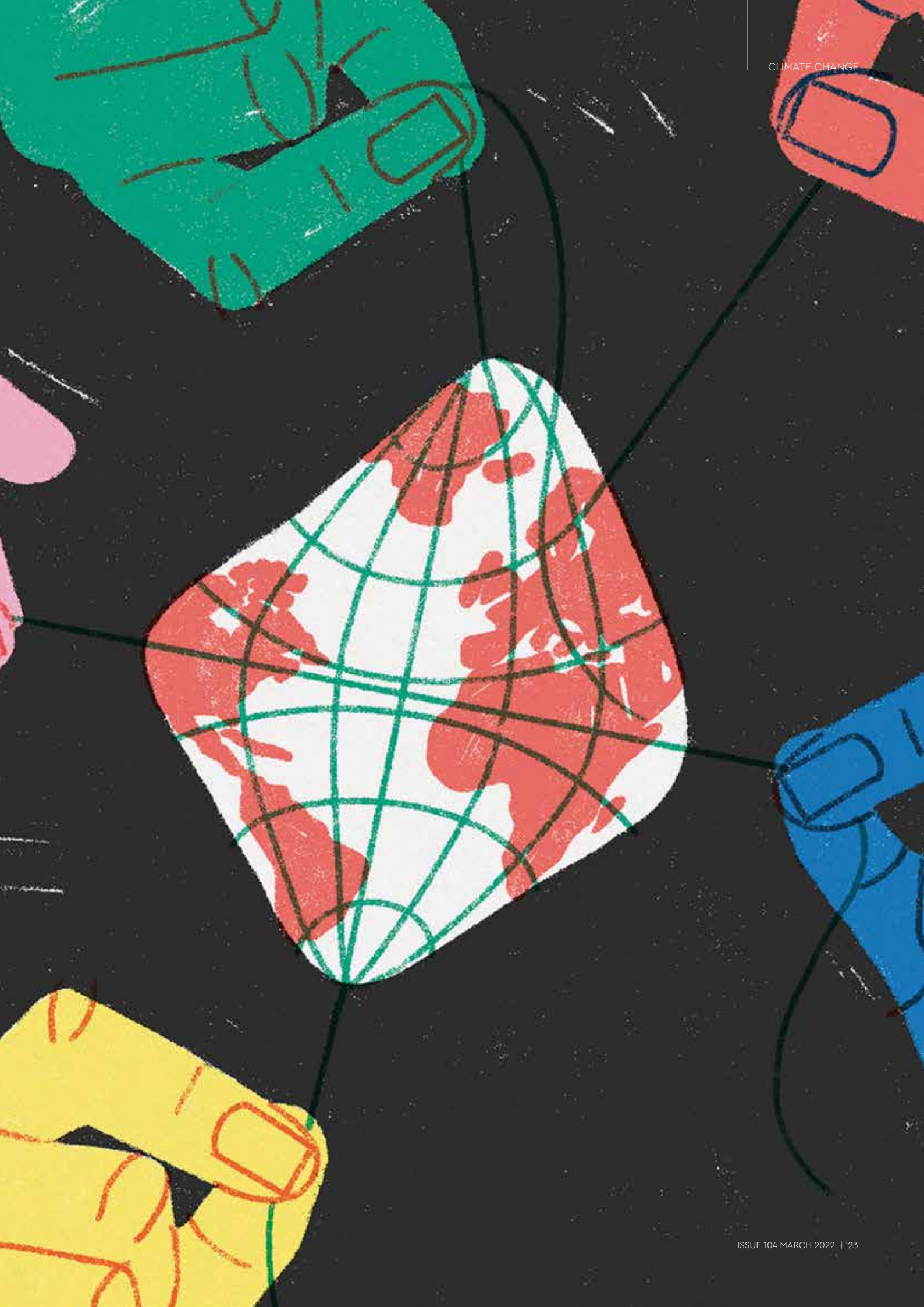
Two more recent studies provide further evidence of this risk. The first, from Harris County in Texas, explored the links between extreme heat and the risk of spontaneous pre-term birth (Cushing, Morello-Frosch, & Hubbard, 2022). The study concluded that the risk of pre-term birth was 15% higher on extremely hot days (>40°C) and this association was stronger earlier in pregnancy and in economically disadvantaged groups. The second study, set in New South Wales, Australia, assessed the risk of heat exposure and pre-term birth for women with different health and demographic characteristics (Jegasothy, Randall, Ford, Nippita, & Morgan, 2022). They found an increased risk of pre-term birth at mean daily temperatures of 25°C

(RR 1.14, CI 1.07, 1.21) and the increase was slightly higher among women with diabetes, hypertension, chronic illness and women who smoked during pregnancy.

WILDFIRE EXPOSURE AND AIR POLLUTION

The warming global environment has also led to an increase in the frequency and severity of wild/bush fires, which release pollutants into the air, soil and groundwater. A Californian

"This decade is make or break for the planet. To stand a chance of limiting global warming to 1.5°C, the science shows we now have about eight years left to almost halve global greenhouse gas emissions" (Minister of Climate Change, James Shaw).





study explored the association between wildfire exposure and embryo development leading to gastroschisis (Park et al., 2022). Pregnancies were considered exposed to wildfire effects if the woman lived within 15 miles of the closest edge of the wildfire. The study was undertaken between 2007 and 2010 and included 844,348 births, of which 176,581 were exposed during the first trimester, and 15,963 (2%) exposed before pregnancy (within 30 days prior to the pregnancy). For women exposed to wildfire in the first trimester, there was a higher risk of gastroschisis (adjusted relative risk (aRR) 1.28, 95% confidence interval (CI) 1.07, 1.54). Those with wildfire exposure before pregnancy (within 30 days) demonstrated even higher risk (aRR 2.21, 95% CI 1.40, 3.48). In contrast, second and third trimester wildfire exposures were not associated with higher gastroschisis risk.

Ambient air pollution from burning fossil fuels not only impacts the environment but has also been linked to pre-eclampsia and pregnancy-induced hypertensive disorders (Pedersen et al., 2017), low birth weight (Smith et al., 2017) and pre-term birth

(Costello, Steurer, Baer, Witte, & Jelliffe-Pawlowski, 2022).

WHAT IS AOTEAROA DOING?

"Climate change is a priority for the Government because it's a threat to our economy, our environment and our everyday lives" (Rt Hon Jacinda Ardern).

Like many countries, politicians are working towards policies and programmes of work that will set out how we will reduce carbon emissions. In Aotearoa this work has involved:

- Establishing a Climate Change Commission to provide advice on ways to mitigate and adapt to climate change, as well as monitoring progress towards reduction goals.
- The Zero Carbon Act, which was legislated in 2019, identifying a reduction target for greenhouse gas emissions to be achieved by 2050.
- Adopting an international target known as a Nationally Determined Contribution (NDC) under the Paris Agreement. This sets out the contribution the country will make towards the agreement's goals. New Zealand has

significantly increased its contribution to the global effort to tackle climate change by aiming to reduce net greenhouse emissions by 50% by 2030.

- An emissions reduction plan, which has been drafted and is currently being finalised.

HOW IS NEW ZEALAND TRACKING?

The Global Climate Action Tracker (CAT) measures government action on climate change against the globally agreed Paris Agreement. This agreement aims to limit warming to 1.5°C. The CAT provides independent analysis and tracks 39 countries, covering 85% of global emissions. They track:

- Climate policies and actions on emissions
- The impact of pledges, targets and NDCs
- The efforts of countries in comparison to others, to identify whether it is a 'fair share' of the effort to limit warming.

The CAT rates New Zealand's efforts as "highly insufficient" and not stringent enough to limit warming to 1.5°C at present, with a need for substantial improvements. It is hoped that the emissions reduction plan will set more ambitious reduction targets and climate policies.

NEW ZEALAND – OVERALL RATING: HIGHLY INSUFFICIENT

Policies & action HIGHLY INSUFFICIENT < 4°C WORLD	Domestic target INSUFFICIENT < 3°C WORLD	Fair share target CRITICALLY INSUFFICIENT 4°C+ WORLD	Climate finance HIGHLY INSUFFICIENT
Net zero target year 2050	comprehensiveness rated as POOR	Land use & forestry	historically considered a SINK

WHAT IS THE COLLEGE DOING?

The College and its members are committed to health-centred climate action and supporting national and global initiatives which reduce the negative impacts of climate change.

The College is a member of Ora Taiao, the New Zealand Climate and Health Council, which is part of a worldwide movement of health professionals and organisations focusing on the health challenges relative to climate change and the opportunities therein.

We strongly support the Ora Taiao mission statement and purpose which is:

- To educate all New Zealanders on the threat of climate change and its effects on human health and survival.
- To promote interventions that combine health and environmental benefits.
- To encourage personal and organisational action on climate change.
- To promote a rapid reduction in New Zealand's greenhouse gas emissions.
- To encourage societal responses to climate change, that promote equitable health and social outcomes and are consistent with Te Tiriti o Waitangi.

The College's consensus statement *Climate change, midwifery and environmental sustainability* was ratified in November 2021, and in January 2022, a webpage dedicated to the topic was added to the College website. The webpage currently has three sections: *About climate change, Take action, and Learn more.*

It will be updated regularly with useful information supporting midwives to develop 'green' practice, along with information they can share with whānau on ways to reduce their impact on the environment. We would welcome feedback and articles from midwives on what they are doing to reduce their carbon footprint. ■

ways to act on climate change: every action counts

- Support policies to reduce carbon emissions: keep the pressure on all political parties to ensure that climate change and carbon emission reduction remain priorities.
- Buy less: every product we buy has a carbon footprint; therefore reduce, reuse and recycle wherever possible. The fashion industry contributes to up to 10% of global emissions.
- Adopt a more plant-based diet: animal agriculture is a large contributor to global emissions, so reducing consumption of meat and dairy products can help reduce emissions.
- Reduce food waste: food scraps in landfill are broken down by bacteria which produce methane.
- Fly less, drive less: travel is a large contributor to global carbon emissions.

References available on request.

Midwifery post-graduate education grants



Did you know that grants are available for midwives undertaking midwifery post-graduate study?

Health Workforce provide grants to subsidise the full cost of fees and some travel and accommodation costs.

Applications are administered by the New Zealand College of Midwives and will be prioritised on a first come first served basis.

Apply online www.midwife.org.nz



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Student Midwifery Grants 2022

The College is offering grants to assist students at each midwifery school who are currently undertaking a Bachelor of Midwifery programme.

Grants are available for each school of midwifery for second, third and fourth year students. Please refer to the College website for further information and application forms www.midwife.org.nz

To apply, applicants must:

1. be a College member
2. intend to practise in New Zealand on graduation

Please email your completed application forms to lynda.o@nzcom.org.nz

The Grants Advisory Committee will award the grants.

Applications open until 15 July 2022



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