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CONTRIBUTED COMMENT

CLIMATE CHANGE – A CHALLENGE FOR INDIVIDUALS

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Abstract

Major health consequences of a changing climate are predicted. The importance of individual action to counter climatic changes and their effects on health is emphasized here.

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Introduction

Evidence-based medicine reveals a grim planetary health scenario which is deemed to worsen unless climate change can be mitigated or controlled.¹ The speed of change is alarming² and many prestigious medical associations including the Australian Medical Association (AMA), Royal Australasian College of Physicians (RACP), Australian College of Rural and Remote Medicine (ACRRM), Australian College of Emergency Medicine (ACEM), Doctors for the

Environment Australia (DEA), American Medical Association, American College of Physicians, British Medical Association and World Health Organisation now call climate change a medical emergency.²⁻⁵ Additionally, lay lobby groups, notably “The Extinction Rebellion”, and “green” political parties are passionately voicing and demonstrating their concerns.

Effects of climate change on health

Rising temperatures lead to increased health problems including an increased incidence of heat stroke and heat stress, particularly in the elderly, the young and those with chronic disease and the malnourished.⁶ Climate change also contributes to the migration of serious disease-carrying mosquito vector extending diseases such as filariasis, bacterial infections such as tularaemia and serious viral illnesses including yellow fever, dengue, zika, Barmah Forest disease, West Nile virus and chikungunya.⁷

Over the past decade, *pari passu* with increasing temperatures, the world has experienced more and more extreme climatic events such as floods and fires destroying human and animal lives, property, livelihoods and natural environments. These effects have been seen readily this year in Australia: massive confluent bushfires fanned by forceful winds and intensified by extreme, record high temperatures and at the time of writing remain uncontrolled in NSW, South Australia, Western Australia and Queensland. Cities have been blanketed by smoke pollution, with attendant health issues.⁸⁻⁹ Oceans have warmed and are more acid. The O₂ content is falling and sea levels are rising.² Marine heat waves have impacted on aquatic life including coral. These changes have imposed costs on commercial activity. Rising temperatures, phosphate fertilisers and reduced water flows have transformed many Australian rivers into blue algae-contaminated death puddles. Extreme weather events, drought and floods are rapidly becoming the world norm, including within Australia.¹ With the current widespread Eastern States droughts, we can again predict contamination of the Tasman Sea and even New Zealand by our previously fertile, now wind eroded and drifting, soils.¹⁰ On summer days, Australia can be the hottest place in the world.¹¹ It is clear that under certain conditions, the land mass of Australia is a heat furnace, due to several mechanisms including direct heating, calefaction by bushfires and increased CO₂ emissions.

Both natural climate variation, unpredictable extreme natural events such as volcanic eruptions and anthropogenic factors

contribute to 'climate change'. However, regardless of aetiology, the consequential human health issues will impact on all, albeit differentially, corresponding to both geography and individual wealth. "Climate change" is an imprecise and emotive buzzword in the lay press,¹² medical journals, on-line and traditional news outlets and social medial posts. Use of the term is usually associated with urgent pleas to reduce greenhouse gas emissions, particularly from fossil fuels,^{1,6} but the benefits to flow from such action are uncertain. Nevertheless, urgent 'climate change' amelioration is required. Australian politicians are currently exhorted to "do something" though it is uncertain, indeed unlikely, that anything the Australian government may or can do will have a significant effect, given the relatively small Australian contribution (between 1 and 5 percent, depending on what is included) to global causes of "climate change". Renewable energy supplies such as solar, wind and wave power provide promise for the future, and new hydrogen fuel technology together with potential fusion power and possibly the recycling of fission fuel stockpiles will eventually replace fossil fuels. But it will be decades before these new sources can meet the world's energy demands. In addition, many 'renewable' sources of power present their own problems of how to prevent electrical grid failures and maintain continuous electrical power. Adequate storage devices for power produced from renewable sources are urgently required.

Petitions for government intervention abound, but little attention is given to our individual responsibilities: what can the 7.7 billion inhabitants of this planet do to reduce the problem? President John F. Kennedy in his 1961 inaugural speech confronted the American people as follows: "...And so my fellow Americans: ask not what your country can do for you - ask what you can do for your country".¹³ It is surely time for the world's inhabitants to ask themselves, not what the planet can do for us - rather what can I do for the planet? An open question is whether individual contributions can amount to a meaningful force, but there is at least logical

justification. The success of the Montreal Protocol in restoring the ozone layer shows the value of human endeavour and accord.¹⁴ To ignore the logic requires the hypothesis that continuing the *status quo* is free of any cost, which is patently absurd. But there are many perverse incentives in this area,¹⁵ and they need to be identified and removed.

A recent ABC "Australia Talks National Survey" found that 72% of Australians respondents declared that climate change was the leading contemporary worry.¹⁷ Such sentiments require corresponding actions by individuals. What are the problems and what can individuals do?

- Population growth is the elephant in our "Climate Change" room. Global population numbers are predicted to increase from the 7.7 billion inhabitants currently to 9.7 billion by 2050. At present that's approximately 8 billion people excreting waste, exhaling CO₂, and placing demand on goods and services that in turn depend on consuming Earth's biological and mineral resources. Population control, accompanied by practical assistance to maximise individual contributions is urgently required. Paradoxically, that action may temporarily result in even greater demands on resources as standards of living and educational standards improve.
- We each have a responsibility to embrace all measures that protect our environment – simple and sometimes apparently small actions: recycling waste, avoiding plastics, developing renewable energy sources, using low energy household goods, sparing use of ubiquitous reverse-cycle and other air-conditioners, building environmentally friendly dwellings, drying clothes on a line rather than using a dryer, adopting teleconferencing rather than unnecessary air travel. Where possible, use of public transport, cycling or walking rather than driving should be strongly encouraged, and sharing car transport rather than necessarily owning a vehicle would reduce emissions. Note that many of the above

can be assisted by regulation. Thus effective application of climate-changing measures require both individual and government (and supra-government i.e. UNO) action. The recent reduction in single-use plastic bags by supermarkets is a good example of a mixed voluntary and regulated approach – and how easily accomplished! Regarding air-conditioners, restriction to 25°C cooling and 20° heating would be safe restrictions. The effectiveness of this empirical proposal needs to be modelled and, if found positive, regulated.

- Internationally, illegal mass forest clearing, especially clearing by burning, must be stopped. In Australia, we must protect our remnant forests and engage in tree planting to help reduce spiralling atmospheric CO₂ levels.
- Water, not a pollutant, is critical for survival and its husbanding is an essential component of the climate change problems. Over 2 billion people on our planet do not have access to safe drinking water whilst in western society this precious commodity is often wasted or sold in plastic bottles. Additionally, 80% of our wastewater is discharged, untreated into the environment. Technology has advanced to the stage that even human waste can be safely recycled and such technology must be exploited. The time has come for utilisation of "Toilet to Tap" science. This may take several years but planting native/succulent plants in lieu of water hungry lawns can be implemented immediately.
- Consumerism must be reduced, particularly in wealthy Western civilisations. How much travel do we really need? Is an overseas holiday appropriate when most Australians have not toured or experienced many of Australia's idyllic, peaceful and safe holiday regions?
- We should question how much duplication of attire our society requires. Erwan Autret from the French energy agency ADEME¹⁸

has estimated that by 2050, unless there is a change in our appetite for the latest fashions, 25% of the world's CO₂ emissions will be from the manufacture of fabrics. This is not sustainable. Global clothing production already consumes 4% of the world's potable water.¹⁸

Conclusion

With our world shrouded by extreme climatic events, 2020 brings enormous challenges for the future of our planet. Working together and contributing as individuals we may overcome the environmental issues of our generation that previous generations have largely denied or ignored. Otherwise the ominous threats to health of a changing climate paint a bleak picture.

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