The Australian Society for Medical Research

Submission

Inquiry into the effects of Climate Change on Training and Employment Needs

The Health and Medical Research Perspective

Prepared for the Senate Education, Employment and Workplace Relations Committee

August 2008

The Australian Society for Medical Research ACN 000 599 235 - ABN 18 000 599 235
145 Macquarie Street. Sydney, 2000 Ph: (02) 9256 5450, Fax (02) 9252 0294
Email: asmr@world.net, Website: www.asmr.org.au Snr Executive Officer: Catherine West

Declaration of interests

The Australian Society for Medical Research (ASMR) represents members from the health and medical research sector including researchers from universities and research institutes, medical colleges and patient groups.

Some members are recipients of funding from the Australian and /or state government bodies, including the National health and Medical Research Council (NHMRC), and the Australian Research Council (ARC).

ASMR receives direct funding from the NHMRC for ASMR Medical Research Week®, a public outreach program that raises public awareness of medical research in Australia.

Who we represent

The Australian Society for Medical Research (ASMR) is the peak professional body representing Australian health and medical research. In addition to 1200 direct members, ASMR represents a further 18,000 people actively involved in health and medical research through 55 affiliated professional societies and Medical Colleges. Corporate and disease related foundation memberships bring a further 100,000 Australians with an interest in health and medical research into the ASMR network.

The issue

How does Australia's capacity need to change in order to address the ability of universities and other research and training institutions to meet current and future demand for climate change professionals?

Global climate change will result in consequences that impact the health and well being of Australians. As life expectancy and population growth in Australia increase, the patterns of health and disease will be altered. Climate change is now a pivotal variable in determining how these patterns will change and thus where the demands on health and medical research will fall into the twenty-first century. The challenge facing this sector is to identify where the vulnerabilities resulting from climate change lie and adapt current practice as a result. Australia's resilience in the face of the health effects of climate change will be reliant on the effective progress of this adaptation.

Health impacts of climate change

There is broad agreement as to the likely primary health impacts of climate change, most notably that the effects will be predominantly adverse[1,2,3]. For Australia the primary effects fall into six key areas:

1. Temperature extremes

The increase in average summer temperatures will result in an increase in heat-related hospitalizations, illness and deaths.

2. Adverse weather events

More extreme weather including storms, floods and cyclones are predicted which will result in more weather-related injury and deaths. Bushfires are also predicted to be more extreme which will lead to more bushfire-related injury and deaths than experienced at present.

3. UV exposure

The rise in temperatures will result in increased UV exposure and hence increased incidence of skin cancers. This will particularly affect rural areas where outdoor jobs are more prevalent.

---

[1] *UK health impacts of climate change*, Parliamentary Office of Science and Technology (UK), PostNote 232, November 2004

[2] *Healthy planet, places and people,* Research Australia Report, 2007.

[3] *Climate change health check 2020* , Climate Institute of Australia Report, April 2008

4. Air pollution and allergy

An increase in temperatures and changes to the cold/warm climate cycle will cause changes to the allergens present in the air. In addition, the increase in frequency and severity of bushfires will contribute to a deterioration in air quality. It is predicted that there will be an increase in the incidence of people suffering from allergies and asthma as a direct result of the changes in air quality and composition.

5. *Mental health*

Mental health is predicted to be a leading burden of disease in Australia by 2020. An increase in mental health problems is predicted to arise as a result of long-term drought. This will particularly impact rural areas where drought can devastate livelihoods.

6. Infectious Disease

Increases are predicted to occur in three main disease categories:

i. Vector borne diseases, transferred by insects (especially mosquitoes), such as malaria, Dengue fever and Ross River virus will become more prevalent, particularly in far Northern regions. Dengue fever has been predicted to spread as far south as Sydney by 2100[4].
ii. Food borne diseases caused by bacteria such as *Salmonella* and *Campylobacter* will increase in frequency as average temperatures rise.
iii. Water borne disease encompassing gastrointestinal disease and diarrhoea requiring hospital admission will increase in incidence. This effect is more likely in remote areas, particularly remote indigenous communities where there is a shortage of access to fresh water.

The secondary effects of climate change on health represent the flow-on health effects arising indirectly from the primary impacts. Mental health issues arising from the trauma of an extreme weather event, an increase in obesity due to a decline in physical activity as a result of increased temperatures are two such examples. In each key area there are easily identifiable consequences that have the potential to have as large an impact on the health and well-being of Australians as the primary effects.

The tertiary effects of climate change go beyond the immediate health impact to address the likely social, economic and demographic changes in the population and the health issues that will arise as a result. As an illustration, it is predicted that the change in climate will cause the price of fresh produce to rise. The knock on effect will be that those on lower incomes or who are socially disadvantaged will consume more processed foods of lower quality leading to increases in the prevalence of diabetes and obesity in these communities, with indigenous communities considered to be most

[4] *Addressing the public health impacts of climate change*, National Centre for Epidemiology and Population Health (ANU) Report, September 2005

vulnerable[5,6]. Knowledge of and research into these secondary and tertiary effects on health is currently very limited.

Recommendations

1. Training of health professionals that specifically targets areas where the impacts of climate change are predicted to be greatest.

It is clearly apparent that health professionals will be needed in the key areas where climate change will have the greatest effects. This will require training and education at an undergraduate level as well as re-training of already qualified health professionals including doctors, nurses and allied health workers, to enable them to move into the fields of most need. Health professionals will be needed to provide both primary care in the target areas and to engage in policy development, public education and community advocacy to deal with the tertiary impacts on public health.

2. Training focussed on equipping health professional with the skills necessary to work in and engage with communities that have special needs.

The health impacts of climate change are likely to disproportionately affect communities in rural and remote (indigenous) areas. Delivering this workforce to these communities is currently a major problem with many rural vacancies filled by overseas trained professionals[7]. Further compounding this issue is that rural doctors are predominantly generalists rather than specialists. Health careers in rural settings need to be promoted as desirable choices on both a professional and personal level.

3. Education and training of health and medical researchers to enable the development of strategies to counteract the effects of climate change.

Research is a key component that facilitates adaptation**.** Both mitigation and prevention approaches are needed to deal with the health issues that will arise as a result of climate change. The spread of diseases needs careful monitoring, improved treatments need to be developed and ultimately, ways of preventing and curing the diseases that will increase in incidence must be devised. The work of researchers is critical to deliver results at each of these stages however the numbers of students studying science is declining and there has been a dramatic decline in the number of clinician researchers in recent years. A recent survey of health and medical researchers undertaken by ASMR found that lack of funding and employment insecurity may have ramifications for the recruitment and retention of researchers[8].

---

[5] *Climate change health check 2020* , Climate Institute of Australia Report, April 2008

[6] Woodruff, Hales, et al. *Climate Change Health Impacts in Australia: Effects of dramatic CO_2 emission reductions.* Australian Conservation Foundation/Australian Medical Association, Canberra Report, 2005.

[7] *The viability of rural and regional communities: Resolving Victoria's rural medical workforce crisis*, Rural Workforce Agency, Victoria, White paper, March 2007

[8] *Perceptions in health and medical research careers: the Australian Society for Medical Research Workforce Survey*, M Kavallaris et al. MJA **188**, 520–24, 2008

4. Provision of funding for research in areas that will be impacted by climate change.

It is essential that research funding is provided in the key primary and secondary areas impacted by climate change. This funding needs to support both research and research professionals. Without adequate financial support it will be impossible to develop preventative measures such as vaccines or effective treatments and monitoring systems that will be essential to minimise the health impacts. The limited information about the direct effects of climate on human health, particularly the secondary impacts and the effectiveness of interventions represents a source of vulnerability. Furthermore, research in to the tertiary effects of climate change is essential in order to develop effective public health policies to deal with the social, economic and demographic changes arising out of climate change. It is only by building this knowledge through research that strategies can be devised to lessen the effects of climate change on the health of Australians.

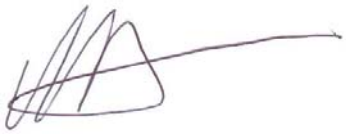
Conclusion

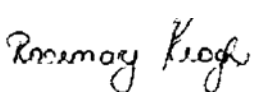
In order to address these recommendations, the training of doctors, health professionals and scientists will need to be undertaken, and research in the key target areas will need to be supported. This will require universities, hospitals and medical centres, industry, government and independent research institutes to work together using a co-ordinated strategy.

There is a great potential to counteract some of the adverse effects of climate change on health by pre-empting where the impact will be greatest and implementing mitigating and preventative strategies. The challenge is to ensure that there is adequate education, on-going training and support for health professionals and medical researchers as well as research initiatives in the areas that will be most impacted by climate changes in order to deliver this outcome.

In addition to a focus on identified target areas, health and medical research in particular, must not neglect the basic biomedical science which underpins a superbly trained and adaptable workforce capable of meeting unforeseen challenges resulting from climate change.

The ASMR would like to thank the Australian Government for the opportunity of contributing to the review of the National Innovation System, and would be delighted to provide clarification on the above or any additional information.





Dr Mark Hulett, PhD
President, ASMR

Dr Rosemary Keogh
Director, ASMR