



Under the weather

WHEN Hurricane Katrina unleashed her fury on the south-east coast of the US late last year, the region became immersed in the most intense storm season ever recorded. Thousands died in Katrina and her little sisters Rita and Wilma, all of which were category five storms whipped up by warmer than usual sea surface temperatures in the Atlantic basin.

During the same year, 200 cities across the US registered record-high temperatures, with accompanying widespread heat stress and a severe toll on human life. In Europe in the summer of 2003, the continent's hottest in more than 500 years, extreme temperatures were blamed for an estimated 22,000-45,000 deaths over a two-week period.

Other continents, too, have in recent years had their share of cyclones, floods, droughts and heat-waves, some of which have disrupted the production of food and triggered outbreaks of infectious diseases such as malaria, dengue fever, cholera and leptospirosis.

Few experts now doubt that environmental changes such as increased greenhouse gas emissions are contributing to the overheating of our planet, and that this poses a serious threat to human livelihood and health.

"Evidence is mounting that ... changes in the broad-scale climate system may already be affecting human health, including mortality and morbidity from extreme heat,

Dengue fever in Sydney? Experts warn it's one of many alarming possibilities in our health forecast unless something is done to address global climate change.

BY JENI HARVIE

cold, drought or storms; changes in air and water quality; and changes in the ecology of infectious diseases," said an article in science journal *Nature* late last year.¹

The World Health Organization estimates climate change is already claiming more than 150,000 lives a year and can be linked to 5 million illnesses annually, a toll that could double by 2030.²

Professor Tony McMichael, director of the national centre for epidemiology and population health at the Australian National University in Canberra, says humans are at a crossroads. "We cannot continue to consume the planet's natural capital and overload it with our wastes," he says.

"The most important message is that climate change is not just one more environmental problem to add to a long list that has accrued since industrialisation. This one is different, it is on a global scale, it involves a disturbance of life-supporting systems ... on which the good health and actual survival of the population depends."

Although predictions about the

health effects of climate change are based largely on estimates, Professor McMichael says patterns are beginning to emerge, citing the northward shift of tick-borne viral encephalitis in Sweden and the expanded range of malaria in the highlands of African countries such as Ethiopia.

"There is still a lot we don't know about how climatic variations naturally affect these diseases ... but there is a reasonable basis for [doing statistical estimations], just as one might estimate what proportion of lung cancer in Australia is due to cigarette smoking," he says. "My estimation for diarrhoeal disease in developing countries is that climate change over the past decade has increased the occurrence by 2-3%. Similar calculations have been done for malaria and dengue fever."

Global temperatures are already up about 0.8°C and Australia last year experienced its hottest year on record, with temperatures averaging 1°C above the long-term average.

Remote Aboriginal and Torres Strait Island communities, the elderly and those on low incomes are particularly at risk of climate-related health

"By the year 2100 up to 15,000 Australians could die every year from heat-related illnesses, and the dengue transmission zone could reach as far south as Brisbane and Sydney."

problems, experts say. A joint report by the AMA and the Australian Conservation Foundation (ACF) late last year predicted Australian temperatures could rise by as much as 6°C by 2100, and focused on two of the health problems that are likely to rise dramatically as a result — heat stress and dengue fever.³

"If we continue to allow emissions to increase, by the year 2100 up to 15,000 Australians could die every year from heat-related illnesses, and the dengue transmission zone could reach as far south as Brisbane and Sydney," says AMA president Dr Mukesh Haikerwal. "Australia is one of the biggest polluters per capita; it is important we contribute to the debate and raise awareness about the health effects of climate change."

Apart from dengue, other vector-borne viruses on the Australian radar include Ross River virus, Barmah Forest virus, Murray Valley encephalitis, Japanese encephalitis (JE) and malaria. Currently, there is no evidence these diseases are expanding their range in Australia, but as the climate changes it is anticipated some or all of them will become a bigger problem here or in our region.

Professor Brian Kay, director of the Australian centre for international and tropical health and nutrition at the Queensland Institute of Medical Research, says rates of JE, dengue and Murray Valley encephalitis will almost certainly increase as warmer temperatures

cont'd next page



Providing GPs with patient management advice from psychiatrists.

Extensive links to mental health resources and online chat available on psychsupport.com.au

Now offers advice from specialists in both child & adolescent and drug & alcohol psychiatry.

To access GP Psych Support:

Phone: 1800 200 588

Fax: (02) 9425 3879

Email: Register and submit questions online at www.psychsupport.com.au

News review

from previous page

shorten the time required to incubate the viruses before transmission. He says dengue is the biggest threat: "It is a pandemic globally because control of mosquitoes is a very sad state of affairs. Even in Singapore [which sprays widely], there were 1200 cases in 2004."

Australia's control of breeding mosquitoes is good, but the local population is still at risk of imported cases brought in by tourists, he says. "For example, in 2004 there were eight separate introductions of dengue fever into Cairns alone. The prognosis is things are going to get more difficult," he says.

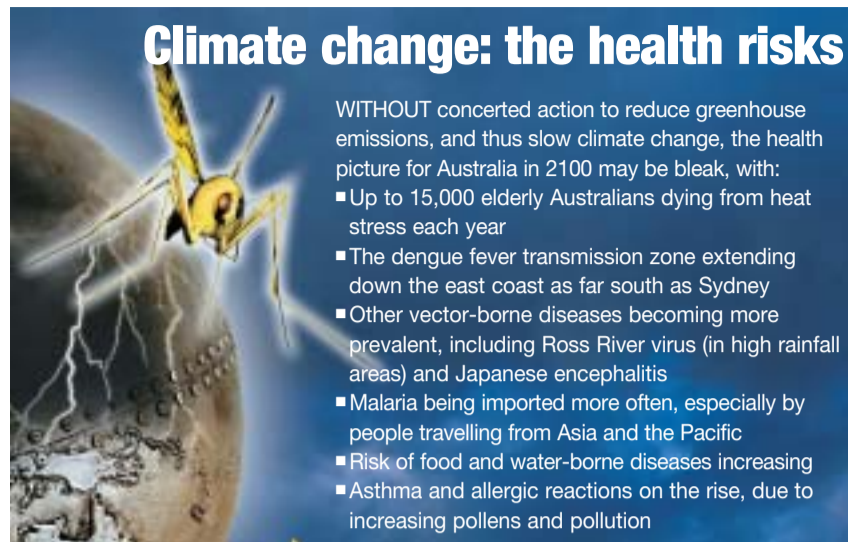
Associate Professor Tilman Ruff, an infectious disease specialist at the University of Melbourne, describes as "robust" the evidence linking the spread of dengue to climate change. He believes the chances of Ross River virus and JE becoming more widespread are also strong. "Northern Australia worries me because we have the appropriate vectors ... We have already seen one incursion of JE into Cape York. The threat is quite real and climate change in general will increase the incidence and range of transmission."

Malaria is also a reasonably high risk, according to Professor Ruff. With its established response systems and infrastructure, Australia is well placed to manage the disease, he says, but the same cannot be said of many Asian and Pacific countries where climate change is likely to hit particularly hard.

"In a decade or two some of these countries will become non-viable, which will increase the number of environmental refugees who could potentially introduce malaria into Australia."

Vector-borne diseases are not the only ones that have Professor Ruff worried. Water-borne diseases, such as cholera and typhoid, are also likely to increase as estuaries and rivers heat up, he says. And fungal contamination of food is likely to lead to an increase in food-borne diseases.

An increase in asthma has already been noted around the world, with some evidence it is related to a rise in air-borne pollens as plants respond to rising temperatures and higher levels of carbon dioxide. Rising humidity, temperatures and rainfall have also been linked to an



Climate change: the health risks

WITHOUT concerted action to reduce greenhouse emissions, and thus slow climate change, the health picture for Australia in 2100 may be bleak, with:

- Up to 15,000 elderly Australians dying from heat stress each year
- The dengue fever transmission zone extending down the east coast as far south as Sydney
- Other vector-borne diseases becoming more prevalent, including Ross River virus (in high rainfall areas) and Japanese encephalitis
- Malaria being imported more often, especially by people travelling from Asia and the Pacific
- Risk of food and water-borne diseases increasing
- Asthma and allergic reactions on the rise, due to increasing pollens and pollution

increase in other allergen-producing organisms, such as mould and house dust mites.⁴

Fluctuations in climate bring other health problems too, particularly in rural areas, where the link between drought and depression or other mental illness is well recognised, especially in men.

The experts say drought and other extreme weather events are something we are going to have to get used to. CSIRO modelling has shown "the extremes [are likely to] become more extreme" as the Australian climate changes, says ACF executive director Mr Don Henry. "They predict there will be more category five cyclones in northern Australia, more droughts, more flooding, more hot days, more high fire-prone days.

"People should view the greenhouse gas problem as a cancer. It is damaging our vital signs," he says. "Our climate is fundamental to life. The good news is we have time to change it, to save the world."

REFERENCES

1. *Nature* 2005; 438:310-17.
2. WHO Fact Sheet: *Climate and Health*, July 2005 <http://www.who.int/globalchange/news/fsclimandhealth/en/>
3. *Climate Change Health Impacts in Australia*, September 2005 http://www.acfonline.org.au/uploads/res_AMA_ACF_Full_Report.pdf
4. *Environmental Health Perspectives* 2005; 113:915-19.

Health message for the environment



HEALTH messages and environmental messages can end up being very similar, says Dr Grant Blashki (left), a GP and senior research fellow at Monash University.

"It's about walking and not using the car, which is good for the environment and good for people's health. It's about fresh food messages, getting it locally so we are cutting transport [and pollution] and it's good for us."

And Dr Blashki says doctors can make a difference: "Look at what happened with cigarette smoking. Doctors agitated about that and it became a public health issue with strong anti-smoking messages.

"Potentially there are a lot of possibilities for doctors to introduce ideas to patients about using renewable or green energy. They can do this by setting an example [becoming a paperless office, using green power and switching off lights], engaging patients, spreading

the word and putting pressure on governments.

"The medical profession has a real responsibility to provide a science-based response to the issue."

Dr Blashki is a founding member of Doctors for the Environment Australia (DEA), a voluntary organisation mostly made up of GPs, which next month will release two posters designed for doctors' waiting rooms that highlight the health effects of climate change and suggest simple actions people can take.

"The posters will introduce the public to the role that climate and biodiversity play in human health and the importance of addressing them to maintain our health," says Dr David King, GP adviser to the project.

"Medical and health professionals have an important role to play in helping to educate the public on the impact of such issues on health."

The posters will be available from the DEA web site at www.dea.org.au

