

Climate change: a medical emergency

The impact on emergency medicine

Gerry FitzGerald



Climate change: a medical emergency

1. Is this for real?
2. How ill it affect health?
3. What has it got to do with emergency medicine?
4. What can we (in emergency medicine) do about do about it?

The climate council



- Global temperatures have been rising rapidly, posing **grave risks for humanity**.
- **The global effort** to tackle climate change has begun, but **must be accelerated**.
- **Australia is one of the most vulnerable developed countries** to the impacts of climate change, but is contributing little to solutions.
- **Inaction has already cost us dearly**. A 1.5° C world, our best possible future, will change our lives even further.
- Limiting global warming to no more than 1.5° C is a formidable challenge but **solutions are available**

Will Steffen, Martin Rice, Lesley Hughes and Annika Dean. The good, the Bad and the ugly:
Limiting temperature rise to 1.5° C Climate Council of Australia Ltd 2018

The science is overwhelming!

- All of the world's scientific bodies unanimously concur.
 - The only dissenting voice initially was the Association of Petroleum Geologists and they have now revised their position to accept the science.
- More than 97% of published articles in the scientific literature concur with the consensus view
- Over 90% of scientists surveyed on numerous occasions concur with the consensus view.

The challenge is the dichotomy between the scientific clarity and the public/political perspectives.



The Scientific Consensus
on Climate Change



97%

Doran and
Zimmerman 2009
79 scientists



97.5%

Anderegg et al 2010
908 scientists



98.5%

Cook et al 2013
10,306 scientists

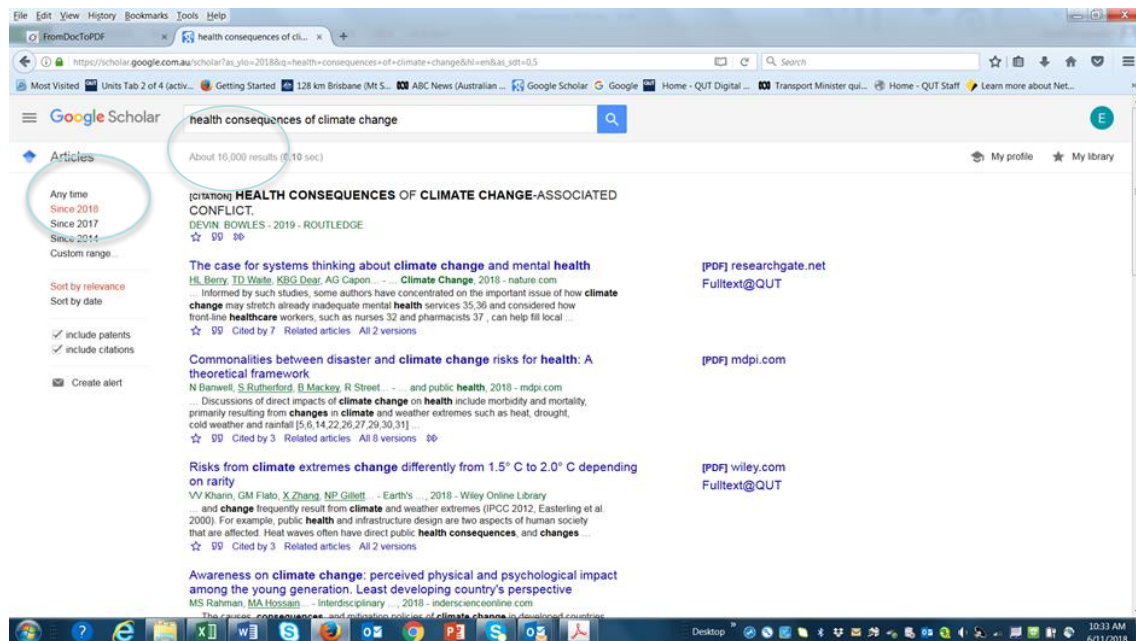
The science is overwhelming

Google Scholar!

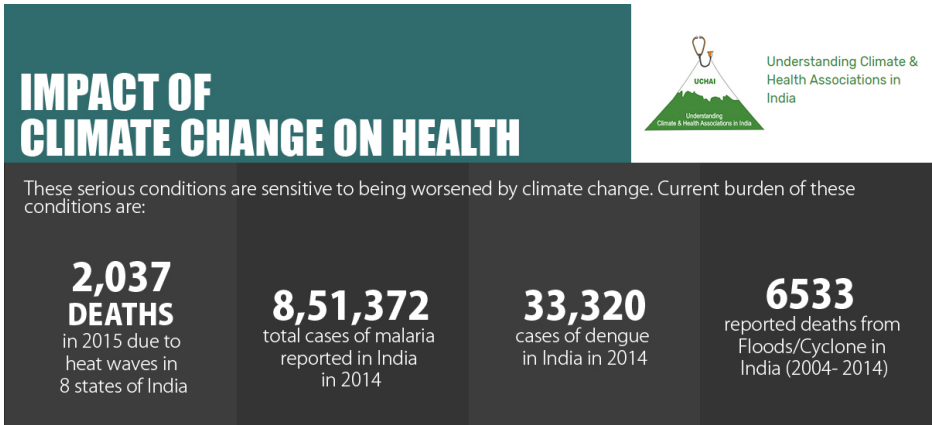
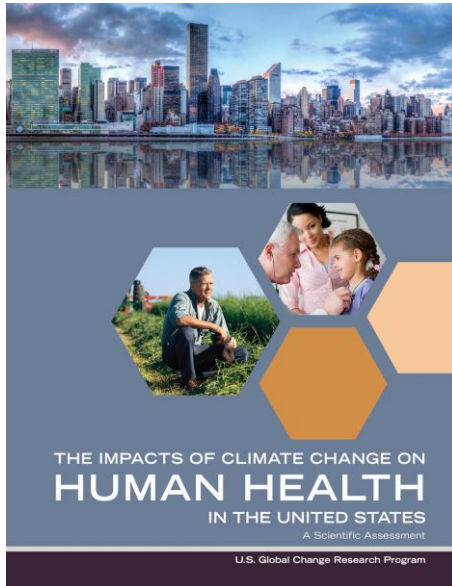
“Health consequences of climate change”

2018

➤ 16,000 articles

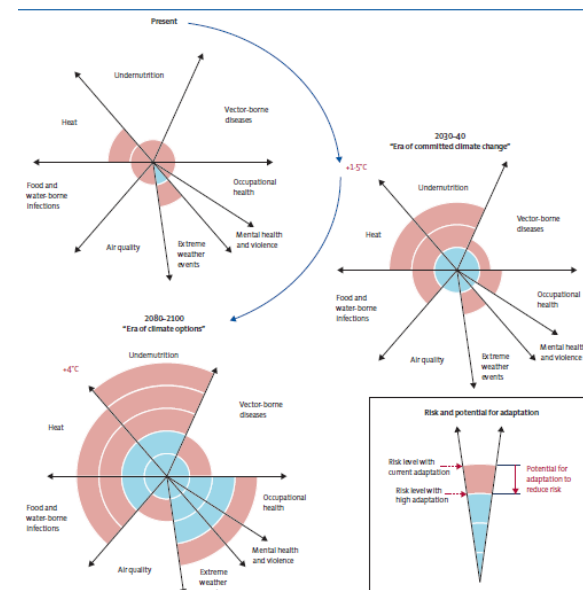


How will it affect health?



The Lancet Commission on Health and Climate Change

- The effects of climate change are being felt today and future projections represent an unacceptably high and potentially catastrophic risk to human health
- Tackling climate change could be the greatest global health opportunity of the 21st Century
- Achieving a decarbonised global economy and securing the public health benefits it offers is no longer primary a technical or economic one-it is now a political one.
- The health community has a vital role to play in accelerating progress to tackle climate change



Nick Watts, Neil Adger, Paolo Agnolucci, Jason Blackstock, Peter Byass, Wenjia Cai, et al Health and climate change: policy responses to protect public health. The Lancet Commissions. Volume 386, ISSUE 10006, P1861-1914, November 07, 2015

The risk is likely to vary

- **Variable impact**
 - Modelling suggest Higher temperature will not be consistent across the planet
 - The effects may increase or decrease rainfall dependent on prevailing conditions
- **Vary by Adaptation**
 - Behavioural
 - Structural
 - Physiological

The direct health impacts:

Rising temperatures directly affect the health of people

- Heat stress
 - Hyperpyrexia and heat stroke
- Chronic diseases
 - Cardiovascular
 - Respiratory
 - Renal
 - Mental health
- Pathogens and their spread (e.g. Salmonellosis)
- Allergic diseases (warm moist environments breed allergens)

Modified by:

- Dehydration
- Exercise
- Infectious diseases
- Co morbidities
- Pollutants



Indirect effects on health

- Major weather events
 - Heatwaves
 - Storms, cyclones etc
 - Drought
 - Floods
 - Direct injury
- Changes to vector distributions
- Allergens (pollens)
- Changing distributions of venomous animals
- Effects associated with major social disruption
 - Poverty and its impacts
 - People movements due to rising sea levels
 - Food and water security
- Infectious diseases
 - Food and Water borne diseases

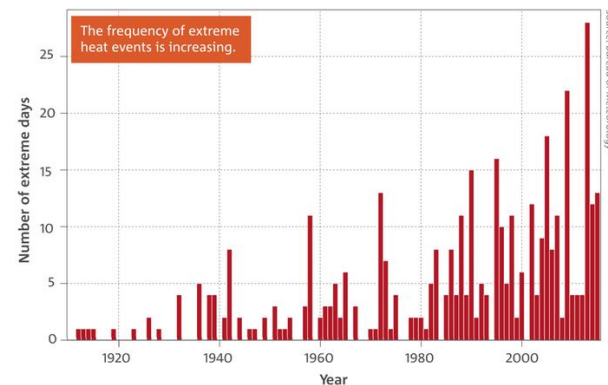


Major weather events

- Heatwaves
- Storms
- Glacial lake melting ice shelves
- Drought
- Bushfires
- Floods

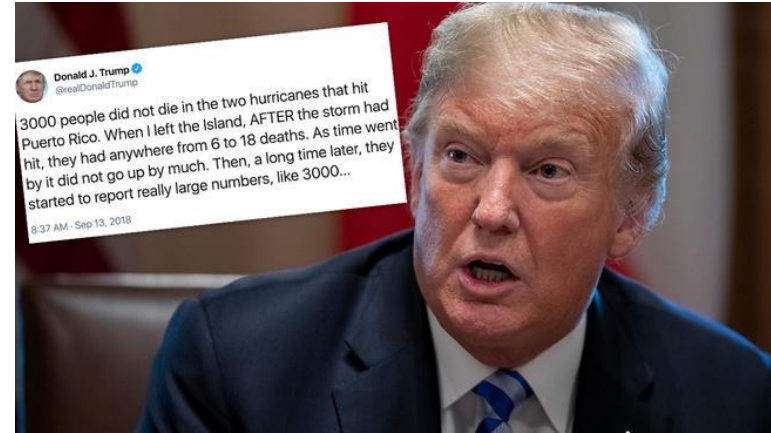
Heatwave:

- The second biggest killer in Australia after pandemics
- Increased mortality
- Increased Ambulance transport
- Increased ED attendances
- Children and the elderly particularly vulnerable

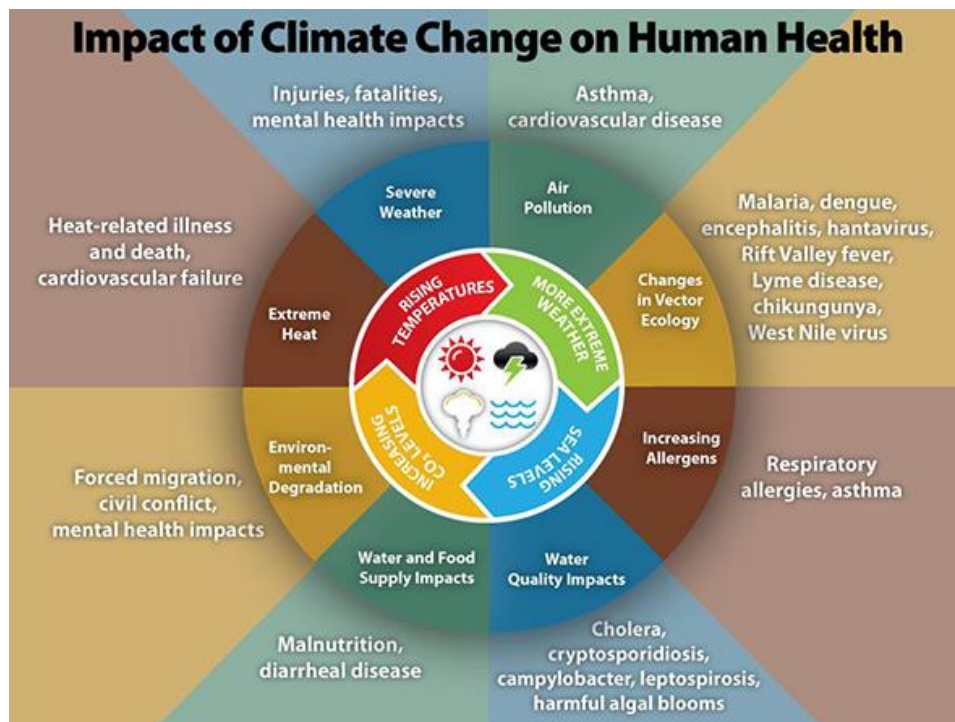


Counting the cost

- It is difficult to count the human cost
- A direct causative link may be obvious
 - e.g. drowning or trauma
- Indirect effects are more complex
 - Heatwave effects
 - Lost of health care associated with a disaster.
- Estimated may be based on epidemiological evaluations



What is the risk for Emergency Medicine



<https://www.aliem.com/wp-content/uploads/2018/05/Climate-Change-CDC.jpg>

It is a problem for emergency medicine

Putting aside the fact for a moment the fact that Emergency Physicians are not immune to the broader societal challenges

Impact on Emergency health

- Demand increase
- Direct effects damage from major events
- Workforce availability
- Supplies and
- Security

The impact on emergency medicine

*'Twas a dangerous cliff, as they freely confessed,
Though to walk near its crest was so pleasant;
But over its terrible edge there had slipped
A duke and full many a peasant.
So the people said something would have to be done,
But their projects did not at all tally;
Some said, "Put a fence 'round the edge of the cliff,"
Some, "An ambulance down in the valley.
The Ambulance Down in the Valley Joseph Malins (1895)*

Is it our business?

**Are we happy to be just the
ambulance in the valley!**

What can the Emergency medicine Community do about it?



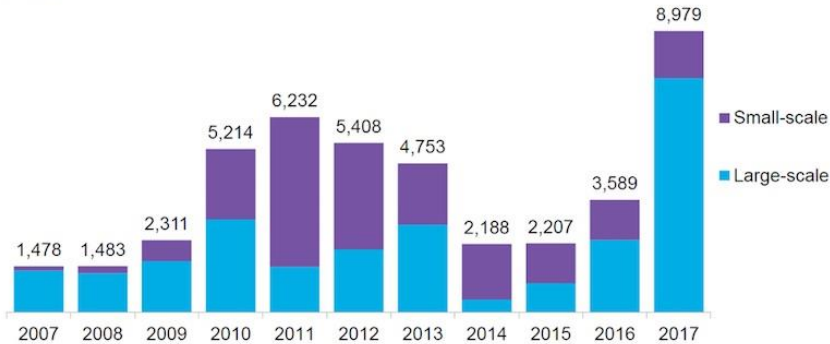
The challenge is clear.

- The only debate is how can change our habits without damaging our life style and economy.
 - We understand that it is the poor and vulnerable who suffer the most of economic disruption
 - However, that lifestyle and economy is at very real long term risk from the economic damage that climate change will exact.
 - The economic trade off is turning around
- There is an incredible opportunity for Australia with its abundant sunshine to become the renewable power house for Asia.

There is hope!

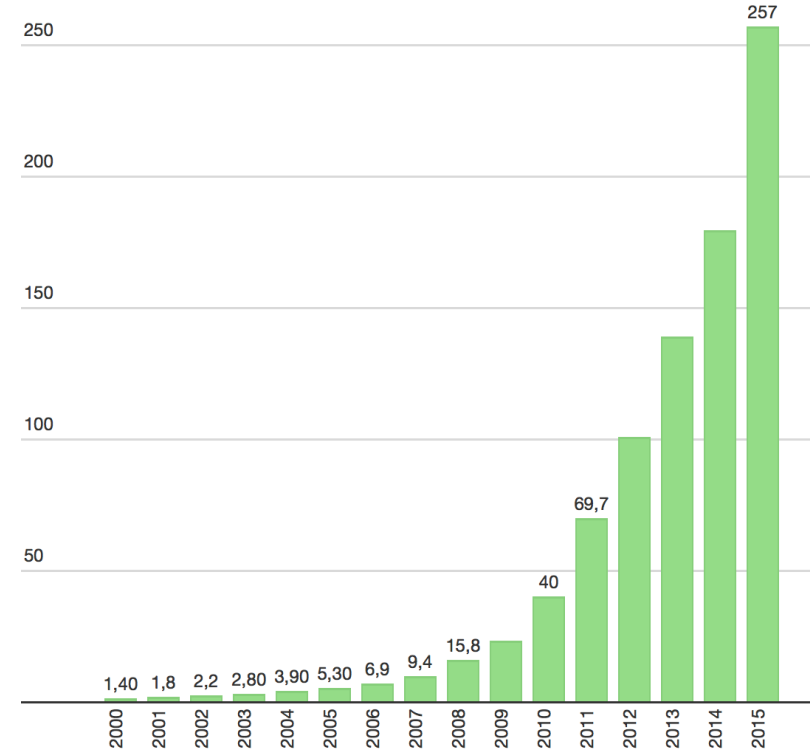
Total New Clean Energy Investment in Australia

USD m



Source: Bloomberg New Energy Finance

Global Solar Energy Capacity (GW)



Quelle: [CleanTechnica](#) [Daten](#)

There is hope! When the money people are part of the solution

Moody's investor's service

The potential effects from climate change on the Australian states

- Risks associated with damage to infrastructure, weakening revenues and higher spending
- Diversity provides a natural mitigant
- Extent varies across states
- Robust institutional frameworks between state and central movement facilitates the planning for and responses to climate risks



What can we do about it?



- There is the potential to find this too daunting and depressing.
- **We are not alone.** Almost all medical bodies have positions on climate change. We can work together and support these efforts
 - WHO
 - American College of Physician
 - Climate council
 - Governments
 - AMA
 - Lancet



Australian Health professionals call to action

- Commit to no new or expanded coal mines and no new coal-fired power stations, phase out existing coal-fired power stations, and rapidly remove all subsidies to fossil fuel industries; the Adani coal mine must not proceed
- Increase the national renewable energy target to at least 50% by 2030
- Develop multisector regional development transition plans for communities and regions affected by the progressive phase-out of fossil fuel industries
- Review Australia's Nationally Determined Contributions to the Paris Agreement (a requirement of signing the agreement), and develop a plan to reduce carbon emissions by at least 50% by 2030, compared with 2005
- Support Pacific Island nations to prepare for and adapt to the effects of climate change

Kerry Arabena, Fiona Armstrong, Helen Berry, Peter Brooks, Tony Capon et al. Australian health professionals' statement on climate change and health. The Lancet. Vol 392, November 17, 2018 pp22169-2170.

ACEM



AUSTRALASIAN COLLEGE
FOR EMERGENCY MEDICINE

STATEMENT

Document No: S68
Approved: Mar-12
Version No: 01

STATEMENT ON CLIMATE CHANGE

1. PURPOSE AND SCOPE

This document is a statement of the Australasian College for Emergency Medicine (ACEM) and relates to the effect and impact climate change has on health.

ACEM views this topic as being of such importance to health that it has developed a Climate Change Statement.

ACEM recognises the potential for man-made climate change to contribute to global warming and increased frequency and severity of natural disasters.

ACEM recognises the significant effects global warming has on world disease patterns.

2. STATEMENT

The Australasian College for Emergency Medicine support efforts to minimise the impact of climate change and actively adopts measures to reduce its carbon footprint. This is based on the need to have an increased awareness and preparedness for both the likely health impact of climate change and disasters we may see as a consequence.



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POLICY

Document No:
Approved:
Version No:

P59
Nov-10
01

POLICY ON HEATWAVE

BMJ: Healthcare professionals must lead on climate change

*“Health professional can and should **emphasise the health benefits of decarbonised economy and engage fully with industry leaders to achieve this goals.**”*

Veerabhadran Ramanathan. Healthcare professionals must lead on climate change BMJ 2016;355:i5245

American College of Physicians

- The health sector must implement environmentally sustainable and energy efficient practices
- Physician must advocate for climate change adaptation and mitigation
- Physicians are encouraged to become educated about climate change and its effect on human

World Association for Disaster and Emergency Medicine

- Recognises the importance of climate change and its influence on disasters
- Recommends all **professional and organisations adopt a risk based approach linked to the Sendai Framework for action**



WHO's actions for climate and health

WHO's climate change and health work plan has four main objectives:

- advocate and raise awareness
- strengthen partnerships
- enhance scientific evidence
- strengthen health system



**World Health
Organization**

What can EDs do?

- **Be prepared** for the impact
 - Surveillance
 - Planning
 - Equipment
 - Surge capability
- **Be prepared to help our neighbours**

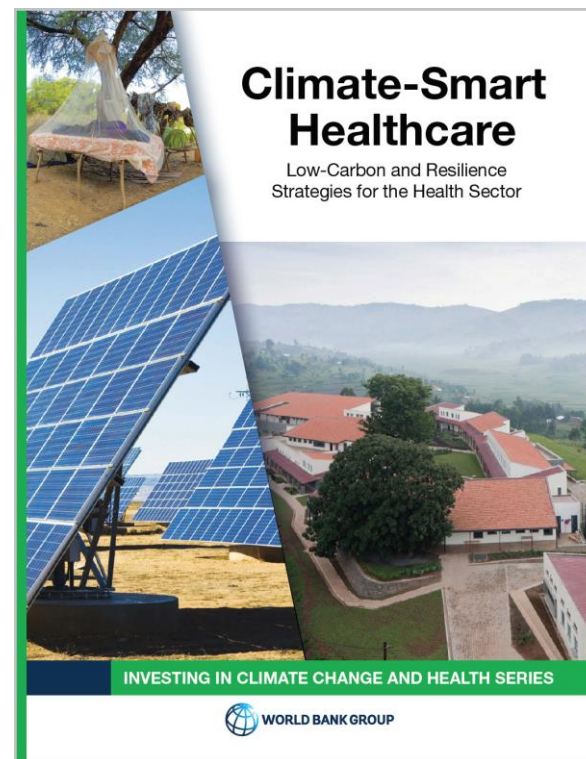
Mitigation strategies

- Capability development
- Surge capacity
- Resource and equipment preparedness

Ghazali D, Guericolas M, Thys, Sarasin F, Gonzalez P, Casalino E. Climate change impacts on disaster and emergency medicine focussing on mitigation disruptive effects: an International perspective. International Journal of Environment Research and Public Health 2018, 15, 1379 doi:10.3390/ijerph15071379.

We can reduce our carbon footprint:

- Further research may be required to identify the significant contributors of Emergency medicine and seek ways to reduce it.



Use our credibility to demonstrate leadership

- Advocacy
 - “Don’t try to convince the Liberal Party on climate change, convince the voters and the politicians will follow” (Turnbull)
- Educate the professions and the public

Why? Its personal!

Ted and Rose are likely to be alive a the turn of the next century dealing with the consequences of a further rise of 1.5°C.

They will be telling their grandchildren about why our generation did nothing!

