Public Health Officer scope to reduce greenhouse gas emissions and air pollution from fossil fuel energy

A Review of Australian Public Health Legislation

PHAA Monograph Series No. 1


Australian National University, School of Medicine, Canberra, ACT, Australia.

(Image: origin unknown: from rpics at https://www.reddit.com/r/images/comments/v41fl/chess_xpost_from_rpics/)
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The Public Health Association of Australia

The Public Health Association of Australia (PHAA) is recognised as the principal non-government organisation for public health in Australia working to promote the health and well-being of all Australians. It is the pre-eminent voice for the public’s health in Australia.

The PHAA works to ensure that the public’s health is improved through sustained and determined efforts of the Board, the National Office, the State and Territory Branches, the Special Interest Groups and members.

The efforts of the PHAA are enhanced by our vision for a healthy Australia and by engaging with like-minded stakeholders in order to build coalitions of interest that influence public opinion, the media, political parties and governments.

Health is a human right, a vital resource for everyday life, and key factor in sustainability. Health equity and inequity do not exist in isolation from the conditions that underpin people’s health. The health status of all people is impacted by the social, cultural, political, environmental and economic determinants of health. Specific focus on these determinants is necessary to reduce the unfair and unjust effects of conditions of living that cause poor health and disease. These determinants underpin the strategic direction of the Association.

All members of the Association are committed to better health outcomes based on these principles.

**Vision for a healthy population**

A healthy region, a healthy nation, healthy people: living in an equitable society underpinned by a well-functioning ecosystem and a healthy environment, improving and promoting health for all.

The reduction of social and health inequities should be an over-arching goal of national policy and recognised as a key measure of our progress as a society. All public health activities and related government policy should be directed towards reducing social and health inequity nationally and, where possible, internationally.

**Mission for the Public Health Association of Australia**

As the leading national peak body for public health representation and advocacy, to drive better health outcomes through increased knowledge, better access and equity, evidence informed policy and effective population-based practice in public health.
Abstract

Given the urgency of mitigating global warming and climate disruption with the consequent impacts on health and wellbeing, all avenues for the public health movement to drive action to mitigate and adapt to these threats need to be explored. This project investigated the legislated powers granted to Australian public health medical officers (PHOs) to protect health through actions to limit fossil fuel use. A review of Australian state and territory Public Health Acts was undertaken to ascertain the scope for PHO’s intervention in curtailing fossil fuel use, unconventional gas extraction, and coal mining and burning on public health grounds. Powers exist in the acts which public health officers could use to protect the public’s health from climate disruption. Secondly, this project sought international comparisons of public health agencies using their powers reduce pollution and coal/gas use. The implications of these examples for Australia are discussed. Finally, the Report suggests some areas and action that PHOs might take to exercise their powers to protect and promote the public’s health from greenhouse gas emissions, global warming and climate disruption. We leave it to our current public health medical officers to decide how they want posterity to judge them on this issue.

Preface

This report was prepared for the Ecology and Environment Special Interest Group (EESIG) of the Public Health Association of Australia by the listed authors under the supervision of Peter Tait, Co-Convener of the EESIG, as part of an ANU Medical School Prevention, Evaluation and Policy Project during year four of the Population Health course in 2018. Academic supervision of the project was provided by Devin Bowles.

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Introduction

Ambient air pollution (AAP) is a leading cause of morbidity and mortality worldwide and remains a major contributor to global burden of disease (GBD). The impact of AAP on global health has risen steadily in the past three decades, with deaths attributable to AAP increasing from 3.5 million (95% UI 3.0 million to 4.0 million) in 1990 to 4.2 million (95% UI 3.7 million to 4.8 million) in 2017. Impacts of global warming on human health can also be viewed in combination with those of AAP given greenhouse gas GHG emissions and air pollutants typically arise from the same source. Global warming affects health through a variety of direct and indirect pathways, summarised in Figure 1. It is clear that action must be taken in an effort to combat the detrimental effects of global warming, particularly climate disruption, and AAP on human health. Of critical importance is the conversion of such scientific knowledge into government action. This involves the complex interplay of science with interests, politics, policy, and society. In Australia, the scope of public health legislation to influence such change, at both a state and national level, has not been explored.

Figure 1: Global Warming Health effects

This project investigated the legislated powers granted to Australian public health medical officers (PHOs) to protect health through actions to limit fossil fuel consumption. A review of the Australian state and territory Public Health Acts (PHAs) was undertaken to ascertain the scope for the intervention of PHOs in curtailing fossil fuel use, unconventional gas extraction, and coal mining and burning on the grounds of public health. Secondly, this project sought international comparisons of PHOs using their powers for reduction in pollution and coal/gas use.
These comparisons are discussed with reference to their potential for use in Australia. Finally, recommendations will be made with regard to public health exercising responsibility and powers to curtail GHG emission to protect and promote human health and wellbeing.

The Public Health Acts of Australia

In Australia there is no federal PHA. Instead, each of the eight states and territories have their own PHA that guides public health officers, including the Chief Health Officer (CHO), to achieve the aims and objectives listed therein.\textsuperscript{5-12} The state/territory PHAs are broadly worded and impart wide-ranging freedom and discretion to public health officers to protect and promote public health. Table 1 outlines the different powers granted by the state/territory PHAs, specifically those that could be directly applicable to use for reducing fossil fuel generated GHG emissions and mitigating climate change.

Table 1. Summary of available public health medical officers’ powers in Australian public health acts.

<table>
<thead>
<tr>
<th>Power</th>
<th>ACT</th>
<th>NSW</th>
<th>VIC</th>
<th>SA</th>
<th>QLD</th>
<th>WA</th>
<th>NT</th>
<th>TAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure Environmental Health</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Appoint Environmental Officer</td>
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<tr>
<td>Monitor Air + Water Quality</td>
<td>✔</td>
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<tr>
<td>Early Detection/Prevention PH Risks</td>
<td>✔</td>
<td>✔</td>
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<td>✔</td>
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<td>Draft Policy</td>
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<tr>
<td>Investigate (seizure etc.)</td>
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<td>Report Without Defamation</td>
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<tr>
<td>Improvement Notices &amp; Enforcement Orders</td>
<td>✔</td>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Initiate Criminal Prosecuting</td>
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<td>✔</td>
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<tr>
<td>Cease Operation Orders</td>
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<tr>
<td>Withdraw Powers from local council</td>
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<td>✔</td>
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</table>

In general, all of the state/territory PHAs have a common objective to protect, promote and improve public health and well-being, as well as prevent disease, injury, disability, and premature death. Furthermore, in the Australian Capital Territory (ACT), Western Australia (WA), Queensland (QLD), New South Wales (NSW), Victoria (VIC), Tasmania (TAS) and South Australia (SA) PHAs, the objectives also include a statement on prevention or early detection of diseases and other public health risks, and certain other conditions of health.
The PHAs of WA, ACT, QLD, NSW, TAS, VIC, and Northern Territory (NT) include a provision that ensures a healthy environment for all state citizens, to a reasonably practicable extent. These same states/territories also enable public health officials to monitor air and water quality. Interestingly, the NSW, VIC, WA, and TAS PHAs include the power to employ an environmental health officer. While the specific tasks of the environmental health officer are not clearly stated, an officer in such a position would be optimally placed to intervene where air and water quality are compromised, and possibly extended to include greenhouse gas emissions and particulate matter produced as a result of fossil fuel use. In SA, WA and TAS PHAs allow PHOs to withdraw powers from local councils to be retained and used by public health for the good of the community. Other relevant sections of the state/territory PHAs include supporting programmes and campaigns to improve public health, providing information to decision-making authorities about public health matters, and putting into place sound public health practices and procedures that consider not only public health, but the social, economic and environmental needs of future generations.

The CHO is generally given extensive power and functions in relation to the administration of the PHA. For example, the CHO can prepare and publish draft public health policies on any relevant matter (SA, QLD, WA, NT, VIC). More specifically, the CHO has several powers that he or she can directly wield against any party that is acting in a way that is detrimental to public health. The CHO can conduct an inquiry into any matter relating to public health, under their own volition or at the request of the Minister. Authorised officers can enter, inspect and seize anything that they suspect constitutes an offence under the PHA (ACT, NSW, TAS, SA, QLD, WA, NT, VIC). Authorised officers can give improvement notices to any party they believe is carrying on an activity that poses a risk to public health (ACT, NSW, TAS, SA, QLD, WA, NT, VIC). They can also give an enforcement order to that party to carry out (or stop carrying out) a relevant activity, including giving orders to cease operations (ACT, NSW, TAS, SA, QLD, WA, NT, VIC). The CHO can also commence proceedings for criminal liability for an offence under this act (NSW, TAS, SA, QLD, WA, NT, VIC). Importantly, the PHAs of ACT, NSW, TAS, QLD, and WA also protect any public health officers from being charged with defamation following any report made under the auspices of the PHA.

From this review it is evident that PHAs give public health authorities, especially the CHO, wide scope to act in a number of different ways regarding fossil fuel use. One major limitation to use of these powers may be in the interpretation of what a clear and present threat or an imminent danger to public health might be. Given the evidence of current and emerging public health threats from GHG emissions, a reasonable interpretation is that PHAs are applicable to curbing greenhouse gas emissions and consequent climate disruption.
International Examples

In order to see if PHAs have been used to protect the public from climate disruption previously, and whether such use might be applicable to Australia, we sought overseas examples in relation to addressing fossil fuel use.

Scotland’s Public Health Response to Unconventional Oil and Gas Extraction

Unconventional oil and gas extraction (UOGE), including hydraulic fracturing (fracking) techniques, is currently being used in several countries globally to increase the world’s supply of fossil fuels. Proponents of UOGE cite benefits such as increased economic growth and employment, and improved onshore supplies of fossil fuels for domestic energy requirements. However, critics consider UOGE processes to be a short-term energy solution with long-term risks to public health and the environment. Currently there is no definitive international statement concerning the immediate and long-term environmental and public health effects of these processes.

The regulatory system for development of UOGE in Scotland is unique. The Scottish government controls planning and environmental pollution regulation, whereas the United Kingdom (UK) government controls workplace health and safety, as well as development and licensing for gas exploration.\(^{13}\) In 2013 the UK government proposed to commence fracking in Britain. They commissioned Public Health England (PHE) to undertake a public health impact assessment which determined that “where potential risks [from fracking] have been identified in the literature, the reported problems are typically a result of operational failure and a poor regulatory environment. Therefore, good on-site management and appropriate regulation of all aspects including exploratory drilling, gas capture, use and storage of hydraulic fracturing fluid, and post-operations decommissioning are essential to minimise the risk to the environment and public health”.\(^ {14}\) Based on the results of this and other reports, the UK government decided to commence fracking.

However, the Scottish government considered the PHE impact assessment to be incomplete as it did not take into consideration certain factors such as climate change, greenhouse gas emissions or sustainable water practices.\(^ {13}\) In 2015 the Scottish government placed a moratorium on onshore UOGE activities and commissioned reports on the possible effects of UOGE in multiple sectors such as public health, transport, economic factors, geology, seismicity, and climate change. The public health report was specifically asked to consider a broad range of health implications arising from UOGE.

In 2016, Health Protection Scotland (HPS), a division of the National Healthcare System (NHS) Scotland, published the health impact assessment of UOGE in Scotland.\(^ {15}\) This external peer reviewed report included a thorough examination of current published scientific data and concluded that the current overall evidence was inadequate to determine if UOGE would pose a risk to public health in Scotland.\(^ {13}\)
However, the report deemed there to be sufficient evidence that UOGE would result in multiple airborne and waterborne environmental hazards as well as respirable crystalline silica at levels that could pose a risk to UOGE worker health, and potentially effects on the health of nearby residents. The report advised a precautionary approach to UOGE development. On the basis of this, as well as the results of the other commissioned reports and a public consultation exercise, the Scottish government decided in October 2017 to ban UOGE on Scottish soil.

While not specifically an application of a public health act, this two-year process in Scotland illustrates a proactive and effective public health contribution (health impact assessment) to using legislation for health protection in relation to a fossil fuel industry.

**United Kingdom Case Studies of Public Health Influencing Local Councils**

The Public Health in a Changing Climate report discusses the transfer of public health into the purview of local government and its statutory underpinnings, and how this has been used to leverage action on climate change mitigation.

Changes to the Social and Health Act in 2012 moved public health under the purview of local government. Consequently, each local authority has a director of public health, a role that sat previously in the now defunct Primary Care Trusts. This allowed more cohesion across sectors such as transport and industry that are needed to implement strategies such as reducing emissions and initiatives aimed at increasing active transport.

Within this new structure, joint needs assessments are completed by health and wellbeing boards and are used to inform joint health strategies. Although the ability to influence change is informal and not statutory, strategies to mitigate climate change have been successfully implemented by public health directors in several local government areas as a result. Although a review concedes this has not been done to its full potential, there have been several successful case studies.

**Wakefield**

Wakefield was part of the West Yorkshire Low Emissions Strategy 2016 to 2021. This included a needs assessment, which identified transport related emissions including nitrogen oxide as a major contributor to air pollution. Strategies implemented included salary sacrificing for cycling equipment, leasing low emission cars and charging ports at workplaces for electric vehicles.

Additionally, clear air zones were proposed, where only compliant vehicles could enter. This was to provide an economic signal for private businesses to upgrade their fleets to meet the standards and avoid undue logistical impacts. As an example for local businesses and the community, the council upgraded their own car and bus fleets with low or near zero emissions vehicles.
Middlesbrough

Middlesbrough provided vulnerable households with energy efficiency measures such as installing external insulation, funded by public health. In collaboration with the charity, Middlesbrough Environment Cities, the Middlesbrough council delivered several projects aimed at improving sustainable local food supply including urban farming, which includes growing food in public spaces, and support for events raising awareness of food miles, which is a key contribution of food production to global warming.

Oldham

Public health officers worked with the local council to identify environmental hub areas to negotiate access for environmentally sustainable local food growing projects to reduce the footprint of food production as well as preserving environmental spaces.

This set of British examples demonstrate that having both statutory and non-statutory links between public health departments and local councils enabled public health officers to influence local council to deliver projects, like those outlined, to address GHG emissions. While not directly comparable to the situation in Australia, the examples suggests PHOs can use their powers should they want to.

Phase-out of Coal Power in Ontario, Canada

Coal-powered electricity generation accounts for roughly 29% of Australia’s greenhouse gas emissions, and during 2016 there were 24 coal plants in operation throughout the nation. Both the health and environmental hazards of coal-fired power plants have been well documented and include significantly increased risks of cardiovascular and respiratory diseases.

Coal-fired power accounted for 25% of Ontario’s electricity generation during the decade prior to 2014. Environmentalists and the Ontario Medical Association (OMA) joined forces to create the Ontario Clean Air Alliance (OCAA). The OCAA successfully lobbied for the phase-out of coal-powered electricity in Ontario, with their goal of zero percent coal-fired power production being achieved by 2014.

Their actions have been referred to as ‘the single largest greenhouse gas reduction measure in North America’, accompanied by a reduction in the average number of smog-alert days from 53 to zero per year.

Reasons for the success of the OCAA in achieving this policy change are numerous, with leader Jack Gibbons identifying the following key factors:

1. A clear message
2. Addressing an important political issue
3. A pragmatic solution
4. Strong public support for the message that the OCAA has built up
5. Persistence
Finally, and perhaps the most important contributor to success, was the implementation of what the OCAA refers to as a ‘credible messenger’ to support their case, and this came in the form of the OMA. The OCAA recognised early on that the general public is far more motivated to change behaviour out of concern for their health as opposed to concern for the environment, and “while the politicians could ignore the environmentalists when they said that smog kills, they couldn’t ignore Ontario’s doctors”. The OMA was clear that they were not attempting to advise on energy policy, but rather brought to attention the quantifiable costs of air pollution on the public health system. They concluded that continued air pollution would lead to 1,900 premature deaths, 9,800 hospital admissions, 13,000 emergency department visits, and 46 million illnesses annually. The resulting annual total economic damages were estimated at CAD $10 billion, which could otherwise be avoided by the phase-out of coal power.

This report gained significant traction and public attention due to the manner in which it was presented, in the context of public health, as an issue that affects every member of society on a personal level, including healthy individuals. Consequently, the changes proposed by the OCAA resonated with the community. Health concerns trumped electricity price concerns, evident from surveys in 1999 and 2001 demonstrating that Ontario residents were “willing to pay more for their electricity in order to convert the coal-fired power stations to natural gas”. The enormous success of this policy change has influenced Canada’s federal government to agree to put in place a framework to phase out all coal-fired electricity nation-wide by 2030.

The lesson from the Ontario phase out of coal electricity generation is that where the public health system supports a societal change for health reasons, it makes that change more possible.

**The Paris Agreement**

The Report on the Conference of the Parties and the final Paris Agreement have recognised a right to health as one factor to be recognised in “… voluntary mitigation actions and their co-benefits for adaptation, health and sustainable development” and in taking action to “respect, promote and consider their respective obligations on … the right to health …” in the context of climate mitigation in an international context.

This confers no direct obligation of PHOs, but the Paris Agreement has introduced health into the GHG reduction and global warming mitigation discourse, and Australia has agreed to reduce its GHG emissions in accord with that international agreement. Therefore, it puts an indirect pressure on PHOs to consider that minimising the health effects of global warming might be a topic within their purview.
Effectiveness of public health legislation

In exploring use of public health legislation we found an article that sought evidence that using public health legislation was effective. Moulton et al. analysed systematically reviews of public health legislation for its effectiveness as a public health tool between 1990 and late 2007. None of the reviews they located looked at what they classified as “infrastructure” legislation; that is public health legislation of the type covered by public health acts reviewed in this report.28

Recommendations

One of the problems identified in the environment and public health debate has been that until now environmental health concerns have been predominantly mediated by the environmental sector, rather than health departments, even though national health departments are well-situated to advocate for public health in climate change.29 Workman et al. make these recommendations for improving health co-benefits in policies pertaining to climate change:

a) Ally health with the pursuit of national renewable energy goals.

b) Identify influential champions for health in the climate policy community.

c) Create a story-line, specifically about the benefits of climate change policy, with several threads that will resonate with other diverse groups in the community.

d) Find and use opportunities to communicate with the public about the health effects of climate change, and how this can be mitigated.29

Drawing these ideas together, our recommendations for public health involvement in mitigating and reducing climate change are set out in Table 2. Common to all enablers is the underlying duty of PHOs to ensure the public’s health.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Summary</th>
<th>Enabler</th>
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<tbody>
<tr>
<td>Monitor and publicise local links between ambient temperature, air and water quality and health impacts</td>
<td>Track key measures of air temperature, air and water quality. Simultaneously use existing administrative data to track daily presentations and admissions of relevant medical conditions, including heatstroke, coronary events, gastroenteritis, and relevant respiratory conditions. Correlate, report and routinely publicise links between temperature air/water quality and medical conditions.</td>
<td>All states and territories other than SA permit measurement of air quality. Health officers routinely have access to de-identified patient data for surveillance purposes. Health officers have a duty to advocate for early detection and prevention of public health risks. Instigation of improvement notices and enforcement orders</td>
</tr>
<tr>
<td>Quantifying the cost to the healthcare system of continuing fossil</td>
<td>Data from the monitoring is used to quantify the health impacts (physical and psychological) of fossil fuel use and climate disruption, and estimate the financial and social costs.</td>
<td>Investigating, detecting, reporting and creating policy to protect the public health.</td>
</tr>
<tr>
<td>Fuel production and consumption in Australia</td>
<td>Report this routinely to parliaments and the public. See Climate and Health Alliance report, <em>Coal and health in the Hunter</em>.30</td>
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| Strengthen intersectoral links between health and other departments, particularly energy and environment | Improving intersectoral collaboration across departments:  
- facilitate health sector leadership,  
- enable better policy and program design,  
- improve public support for implementation,  
- allow better design and coordination of public education and promotion campaigns. |
| Take an oversight role across all of government to ensure a Health-in-All-Policy approach is being taken, especially regarding GHG emissions | Monitor planning and implementation of other departments’ policy and programs (with the department responsible for climate change mitigation) to ensure a full range of mitigation and adaptation strategies that reduce health threats and introduce co-benefits are being developed and implemented.  
Ensure the policies and programs enforce equity and do not increase social disadvantage. |
| Monitor and report on the activities of industries and companies that have major GHG emissions | Monitor industrial sectors and particularly large companies with major GHG emissions and quantify their contributions to the burden of climate related disease and report this publicly.  
Where necessary take action to have them reduce their emissions. |

**Conclusion**

Review of the Australian state / territory public health acts shows that there is considerable scope and indeed a legislated mandate for public medical / health officers to use the acts to effect powerful and robust change to promote the public’s health and protect the public from the threats to health from greenhouse gas emissions, global warming and climate disruption. The powers in the acts range from the very broad, protecting the public health, through to quite specific actions, such as issuing cease operations notices. While there is some heterogeneity between the scope and powers conferred by the acts of different jurisdictions, this only means that a public health medical officer might have to use a different approach in a particular jurisdiction. The key point therefore is not whether the acts are able to be used to reduce fossil fuel use but whether public health medical officers would use them in this way.

The aim of this report is to raise the proposition that the acts might be used in this way. It would seem there is no strict legal impediment. Our recommendations aim to suggest where state and territory PHOs might use public health legislation to push through the often obstructive atmosphere of the political system to fulfil their legislated mandate of protecting and promoting public health. The report does not address
the political or parliamentary aspects of the use of the acts in this way, which clearly have relevance to their actual use.

Thus, use of the acts to avoid where possible and otherwise minimise the effects on health from global warming and climate disruption carries an aspect of communal expectation; does the community expect their public health agencies to exercise their powers and fulfil their responsibilities to protect and enhance the public health of Australia in relation to global warming by using their powers as has been done overseas? To some extent this is a judgement that will be delivered on our current public health medical officers in the future. It is up to them however as to how they would like posterity to judge them. As a basis for further discussion, we commend the report to you.

References