



Submission on the Role and functions of an Australian Centre for Disease Control

By Michael Abramson, Shyamali Dharmage, Fay Johnston, Guy Marks and Graeme Zosky, on behalf of the Centre for Air pollution, energy and health Research (CAR)

9 December 2022

Thank you for the opportunity to respond to the consultation paper regarding the Role and functions of an Australian Centre for Disease Control (CDC). Whilst the Government has committed to establish a CDC to improve pandemic preparedness, we agree that the CDC also needs to work to prevent non-communicable (chronic) diseases.

Summary

- The CDC should be guided by the One Health and All hazards approaches
- The functions of the CDC should include prioritising research in environmental health and providing advice on preventive health, healthy behaviours, tobacco and other drugs
- The CDC has an opportunity to reduce the preventable burden of disease from poor air quality
- The CDC could collaborate with other agencies to create a single secure point of data access
- The CDC should maintain a national register of trained public health workers in relevant fields
- The CDC should recruit staff and train leaders from culturally diverse and at-risk populations
- An arm or centre within the CDC could provide leadership on preventive health and have a role in assessing the efficacy of preventive health measures
- The CDC could advise NHMRC and MRFF about urgent research priorities

CDC Design Principles

The CAR strongly endorses the One Health and “All hazards” approaches in the consultation paper. We agree that health is threatened by a range of chemical (including air pollution), biological and radiological exposure hazards, and the health effects of climate change. The impacts include both communicable and noncommunicable diseases. We welcome the draft mission statement being guided by One Health – recognising the connection that exists between the health of people, animals and the environment (including air quality). The case studies in the consultation paper are helpful. We consider that the Public Health Agency of Canada is a good model, given a very similar federated system of government to Australia.

We agree that linkages to primary care need to be improved, given the central roles of primary care in disease prevention, health education and health improvement.

Functions of the CDC

Of the draft CDC functions in scope (Table 1), we agree that there should be a role to prioritise research in environmental health. This could be undertaken in collaboration with other relevant bodies such as enHealth and the Australian Radiation Protection and Nuclear Safety Authority (ARPANSA). Of draft functions possibly in scope, we would encourage the CDC to provide advice on preventive health, healthy behaviours, tobacco and other drugs strategies. The US CDC (also a case study in the paper) operates a world leading behavioural risk factor surveillance system (<https://www.cdc.gov/brfss/index.html>). Whilst some *ad hoc* risk factor surveys have been conducted by research groups and State Health Departments, there is a place for more national leadership and consistency in Australia.

Why do we need a CDC?

Among many good reasons in the consultation paper, the CAR wishes to highlight external threats to health such as climate change and air pollution. Whilst it is often considered that air quality is relatively good in major Australian cities, this was not true during the “Black Summer” bushfires in 2019-20¹. As climate change accelerates, we can expect more megafires and medium term increases in particulate air pollution in the future. Furthermore the World Health Organization (WHO) has recently revised air quality guidelines downwards, as there is increasing evidence that there is no safe level of particulate air pollution². Human caused air pollution is already responsible for 2,700 deaths each year in Australia³. Extreme events and outdoor urban background air pollution will continue to pose increasing threats to public health.

Currently in Australia, action to reduce the substantial preventable burden of disease from poor air quality, is hampered due to structural barriers because different agencies are responsible for air quality regulation, standards, enforcement and health protection. The new CDC is a major opportunity to address this fragmentation in a holistic and integrated manner. This will support both emergency responses during extreme events and chronic disease prevention, through action on everyday background exposures.

A data revolution

The CAR notes with some dismay that not even the National Notifiable Disease Surveillance System is fully interoperable with the State and Territory systems. We strongly support the CDC providing access to nationally identifiable data for linkage with existing data sets. The barriers are not technical, but legislative and regulatory. Cloud based platforms now exist that can provide secure access and analytical facilities for deidentified linked data. A good example is the Centre for Air pollution, energy and health Research (CAR) Data Analysis Technology (DAT) which is a collection of IT infrastructure that enables easy data sharing and reuse, and reproducible data analysis – see <https://www.car-cre.org.au/cardatplatform>

The Office of the Data Commissioner, Australian Institute of Health & Welfare (AIHW), Australian Bureau of Statistics (ABS), Population Health Research Network (PHRN) and other National Collaborative Research Infrastructure Strategy (NCRIS) funded data silos will be key partnerships in this area. It is not recommended that the CDC become another data silo, but rather that it collaborates with these agencies to create a single secure point of access.

7. What existing data sources are important for informing the work of the CDC, and how could existing data bodies (national, state and territory) be utilised and/or influenced by the CDC?

- *Are there data currently not collected in Australia which should be considered?*

Environmental health data are currently fragmented across multiple jurisdictions and Departments. CARDAT is an example of an attempt to bring together air quality data for specific research projects.

- *What else is needed to ensure that Australia is able to identify emerging risks to public health in a timely way?*

We suggest real-time data exploration of some key outcomes that reflect changing patterns of health and illness i.e. GP attendances, ambulance callouts, hospital emergency department and admissions data. Currently these data are fragmented across multiple jurisdictions and agencies. Some states (eg. NSW) are more advanced in integrating them than others. AIHW does maintain a national hospital data collection, but it has not been available in real-time. Notifiable disease registries being under separate public health legislation is problematic. Unified data management and security is the key.

- *Would the development of a national data plan with an agreed scope and/or an evidence-based health monitoring framework be useful?*

Yes, but it needs to be taken into account how to work with the current data custodians such as AIHW. The structure of the CDC needs to consider how it best partners with existing infrastructure (see above).

9. How do we ensure the CDC has the technical capability to analyse this data and develop timely guidance?

CDC needs to recruit and maintain a broad multidisciplinary workforce, not just epidemiologists, statisticians and programmers. Taking COVID as an example, Health Departments needed more than just statisticians to develop and evaluate interventions to limit the spread. See the next point for further development of this response.

A World-class Workforce

The CAR agrees with the consultation paper that the pandemic exposed the limits of the public health workforce. Academic centres such as ours were approached by State Health Departments to provide a surge workforce, particularly for contact tracing. The smaller States and Territories have not historically had well coordinated public health training schemes. We would note that the Master of Applied Epidemiology is not the only relevant postgraduate degree. Generic Master of Public Health (MPH) courses are now available in all capital cities, and elsewhere through distance education / remote learning. The Council of Academic Public Health Institutions Australasia (CAPHIA) is the peak organisation that represents public health in universities that offer undergraduate and postgraduate programs, research and workforce development throughout Australasia (<https://caphia.com.au/>). We strongly support the CDC maintaining a register of trained public health workers in fields including epidemiology, biostatistics, bioinformatics, infection prevention and control, relevant laboratory sciences (eg. microbiology, toxicology etc), public risk communication, contact tracing etc.

15. How could a CDC work to ensure that our public health workforce is prepared for future emergencies, both in Australia and abroad?

Developing relevant material and courses to train people will be important. Some graduate certificate and masters courses that can target this area have already emerged from the COVID pandemic. The CAR notes that the Tertiary Education Quality & Standards Agency

(TEQSA) regulates delivery of these courses by tertiary institutions, so the CDC would not be in a position to drive this process.

Leadership on Preventive Health

The CAR agrees with the consultation paper that a substantial disease burden could be prevented through a reduction in risk factors such as physical inactivity, poor diet, alcohol, tobacco and other drugs, obesity etc. The Australian National Preventive Health Agency had many achievements including world leadership on tobacco control. It was very regrettable that the Agency was wound up by a previous Government in 2014. We agree that these functions should be resumed by an arm or centre within the CDC.

21. How can the CDC foster a holistic approach across public health, including the domains of health protection and promotion and disease prevention and control?

It is important that CDC breaks down (and does not reinforce) barriers and boundaries between communicable and noncommunicable diseases. This distinction is increasingly becoming obsolete as advances in the knowledge about the aetiology and pathogenesis of major diseases, including many cancers, cardiovascular and other chronic diseases. We need to promote an integrated approach to environmental health, broadly defined, to ensure that we ensure that Australians live in an environment that maximises health.

23. Should the CDC have a role in assessing the efficacy of preventive health measures?

Yes, currently there is no such existing agency, unlike the Medical Services Advisory Committee (MSAC) for therapeutics and medical devices. A similar structure could be established with an internal analytical team for quantitative evaluation.

Wider Determinants of Health

The CAR welcomes the inclusion of the environment (including air quality) among the wider determinants of health. As argued above, extreme events and outdoor urban background air pollution will continue to pose increasing threats to public health. Typically the most disadvantaged communities are those most heavily exposed to air pollution.

25. How can the CDC best deliver timely, appropriate, and evidence-based health information to culturally diverse and/or at-risk populations?

The CDC needs to establish a workforce with appropriate skills and framework that is effective. It should train staff/leaders from such populations. Indigenous representation in leadership at the CDC, would encourage trust. Ensuring that the CDC workforce includes indigenous health practitioners would enable greater engagement and communication with Indigenous communities for the purpose of determining their health needs, tailoring health promotion and prevention activities, and supporting community based and driven initiatives

Research Prioritisation

The CAR believes that the CDC should have a role in research prioritisation. The existing National Health & Medical Research Council (NHMRC) / Medical Research Future Fund (MRFF) mechanism for targeted research calls during the COVID pandemic and in response to the health effects of bushfires is cumbersome and highly competitive. The CDC could facilitate more collaboration between institutions conducting public health, clinical and relevant basic biomedical research. It should develop procedures to fast track critical research during public health emergencies.

27. Should the CDC have a role in advising on (or directly administering) funding or prioritisation of public health and medical research?

The CDC could advise NHMRC and MRFF about urgent research priorities. The CAR does not consider that the CDC should be a funding agency itself, but rather advise on research needs based on disease burden, urgency etc

References

- 1 Borchers Arriagada N, Palmer AJ, Bowman DM, Morgan GG, Jalaludin BB, Johnston FH. Unprecedented smoke-related health burden associated with the 2019-20 bushfires in eastern Australia. *Med J Aust*. 2020. doi: 10.5694/mja2.50545
- 2 World Health Organization. *WHO global air quality guidelines: particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide*. World Health Organization, Geneva, 2021.
- 3 Hanigan IC, Broome RA, Chaston TB, Cope M, Dennekamp M, Heyworth JS, *et al*. Avoidable Mortality Attributable to Anthropogenic Fine Particulate Matter (PM_{2.5}) in Australia. *Int J Environ Res Public Health*. 2021; **18**: 254. doi: <https://doi.org/10.3390/ijerph18010254>

About the Centre for Air pollution, energy and health Research (CAR)

[CAR](#) is a Centre of Research Excellence funded by the National Health and Medical Research Council. The centre brings together more than 30 researchers at the forefront of their fields, based in seven of Australia's leading universities.

CAR brings together researchers focusing on health impacts of air pollution, and new versus traditional forms of energy. The centre supports teams of researchers in the fields of epidemiology, exposure assessment, toxicology, chemistry, biostatistics and clinical respiratory medicine to pursue collaborative projects and to develop their capacity. Our centre's vision for a healthier community is the driving force behind our research.

For more information

This submission has been produced by the Centre for Air pollution, energy and health Research (CAR).



For more information about CAR and our work on fossil fuels and energy transitions as well as the health impacts of air pollution: contact us at car@sydney.edu.au or visit our website: www.car-cre.org.au