Australian Academy of Health & Medical Sciences

Submission to the Inquiry into PFAS (per- and polyfluoroalkyl)

Submission to Select Committee on PFAS

16 December 2024

Per- and polyfluoroalkyl substances

Per- and polyfluoroalkyl substances (PFAS) are a group of almost 15,000 synthetic chemicals that are ubiquitously present in the environment[1] – including in drinking water, the food supply, and household products.[2] PFAS are often referred to as "forever chemicals" due to their strong carbon-fluoride bonds,[3] which make them highly durable, able to persist in the environment for decades and build up in human and animal bodies over time.[4] The process whereby chemicals build up in human and animal bodies is known as "bioaccumulation".

PFAS are endocrine disrupting chemicals (EDCs). EDCs are able to impact hormone functioning in human and animal bodies. In recent years, concerns around possible health impacts of the build-up of PFAS and other chemicals in the human body (i.e. bioaccumulation) have increased.

Preliminary research has proposed potential links between the bioaccumulation of chemical contaminants and health risks such as disruptions to the immune and reproductive systems,[5,6] inhibited childhood neuro-development,[7] and increased risk of some cancers.[8] However, confirming and quantifying these and other potential risks is challenging for many reasons, including that this requires the tracking and separating of the effects of thousands of different chemicals, each of which are found in varying levels in different environments, and which interact which each other in humans.

Understanding the potential health risks of PFAS requires much wider monitoring of these and other chemical contaminants, and large-scale investigations into their connections to adverse health outcomes.

The Academy of Health and Medical Sciences makes four recommendations, which are outlined in the following pages:

Recommendation 1: Establish a national human biomonitoring (HBM) program to track Australians' bioaccumulation of PFAS together with other chemical contaminants.

Recommendation 2: Immediately establish an interim program that monitors pregnant women's levels of PFAS and other chemical contaminants while the HBM programme is established.

Recommendation 3: Expand studies examining the links between PFAS exposure and health outcomes, with priority given to research on the impact of early life PFAS exposure.

Recommendation 4: Regularly review and reconsider legally acceptable levels of PFAS and other chemical contaminants exposure.

Monitoring exposure

Australia has recently begun monitoring and researching environmental levels of PFAS: some water supplies are now monitored, and the Australian Government, in collaboration with states and territories, has launched initiatives such as the PFAS National Environmental Management Plan and the PFAS Investigation and Management Program. These programmes – while not comprehensive or standardised – are a step in the right direction towards understanding the extent of environmental PFAS contamination. Australia is yet to make equivalent progress to monitor the bioaccumulation of PFAS in humans.

The effects of individual chemicals cumulate even when they occur in low concentrations, often as part of complex chemical mixtures.[9] The combined effects of these mixtures are not well understood.

Identifying the extent of PFAS bioaccumulation across the Australian population, and then investigating the connection between PFAS exposure and health outcomes, requires adequate monitoring of the levels of a wide range of chemical contaminants that co-accumulate in the human body. Australia does not currently have a human biomonitoring programme to monitor and evaluate exposure to chemical

contaminants such as PFAS – making it an anomaly among comparable nations including the United States (US), Canda, Germany, France, Czech Republic, Belgium, South Korea and Japan.[10]

While Australia works to establish a wide-ranging national HBM programme that monitors the chemical exposures of a demographically representative pool of Australians, it could begin monitoring the levels of some chemical contaminants in priority populations such as pregnant women. A growing body of evidence is connecting exposure to an EDC mixture in pregnancy and early childhood with increased risk of disrupted childhood neurodevelopment associated with child language and communication development.[7,9]

Recommendation 1: Establish a national human biomonitoring (HBM) programme to track Australians' bioaccumulation of PFAS together with other chemical contaminants.

Recommendation 2: Immediately establish an interim program that monitors pregnant women's levels of PFAS and other chemical contaminants while the HBM programme is established.

Connecting exposure to outcomes

Monitoring levels of PFAS and other chemical contaminants in human blood will capture data that enables Australian researchers to connect exposure levels to health outcomes, clarifying the findings of smaller-scale existing, and emerging research. The usefulness of traditional research methods is, in part, limited because we do not have access to an unexposed comparative population. However, dose-response can still be examined. For example, a recent Australian study has connected differing levels of PFAS exposure to their relative effects.[11]

Longitudinal studies tracking PFAS exposure from pregnancy through early childhood are essential to understanding the potential risks to brain development and future health. Additionally, larger-scale research is needed to explore potential links between PFAS exposure and chronic conditions.

Connecting exposure data with health outcomes is key to developing evidence-informed public health policies and prevention strategies aimed at minimising any health risks that may be associated with PFAS and other chemical contaminants.

Recommendation 3: Expand studies examining the links between PFAS exposure and health outcomes, with priority given to research on the impact of early life PFAS exposure.

Reducing exposure

The current evidence base has not determined a maximum safe level or PFAS exposure or accumulation. In addition, there are uncertainties surrounding Australians' bioaccumulation of chemical mixtures and how these effect health outcomes. Given current evidence gaps and uncertainties, the Australian Government

should consider deploying regulatory action to reduce the levels of PFAS in the environment and human bodies.

A first step towards this could involve reviewing international best practice to identify measures that could be effective in the Australian context. For example:

- In April 2024 the US Environmental Agency set low, legally enforceable limits on six types of PFAS through its National Primary Drinking Water Regulation.[12] Australia's National Health and Medical Research Council is currently consulting on a draft update to its 2018 guidelines around safe levels of PFAS in drinking water.[13] The final update will provide the Australian Government with a resource able to inform a regulatory approach to reducing exposure through drinking water.

- Over the past 20 years, the EU has taken increasing action against PFAS pollution under its Chemicals Strategy for Sustainability, including restricting the use of PFAS in household products, textiles, and other common items.[14] In September 2024, the European Commission adopted new measures restricting the use of a sub-group of PFAS, which it has deemed as posing unacceptable risks to human and environmental health.[15]

- Canada's recent report on PFAS outlines potential regulations targeting the entire class of these persistent chemicals rather than addressing them individually.[16] Proposed measures include restricting the production, use, and release of all PFAS, improving monitoring of environmental and human exposure, and ensuring that any substitutes for PFAS are safe before their introduction.

Recommendation 4: Regularly review and reconsider legally acceptable levels of PFAS and other chemical contaminants exposure.

AAHMS thanks the Select Committee on PFAS for the opportunity to respond to this Inquiry. For further information, please contact: policy@aahms.org.

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