Environmental Health Standing Committee (enHealth) of the Australian Health Protection Principal Committee

enHealth Factsheet on PFAS

Key facts:

- **For most people, the level of PFAS exposure is likely to be small and PFAS levels in the general Australian food supply are very low.**
- **PFAS can persist for a long time in humans and in the environment and as a precaution, it is recommended exposure be minimised where possible.**
- **If you live or work in a PFAS affected community, your state or territory health department can provide you with local advice on how to minimise exposure to PFAS.**

Introduction

Per-and poly-fluoroalkyl substances (PFAS) are a class of manufactured chemicals used since the 1950s to make products that resist heat, stains, grease, and water.

PFAS are of concern around the world because they can persist for a long time in humans and in the environment.

Human exposure pathways

For most people, the level of exposure is likely to be small. No public health and safety issues with PFAS have been identified from the overall dietary exposure for the general Australian population.

In locations where PFAS have been used as an active ingredient in aqueous film-forming foam (AFFF) firefighting foams, there may be higher PFAS levels in the local environment. In these communities, people may have increased exposure to certain PFAS, including perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS), and have elevated blood concentrations above the general population of these PFAS.

Key exposure pathways of PFAS in these communities may include regular consumption of contaminated groundwater from drinking water bores, certain locally grown food or seafood sourced from impacted waterways.

PFAS and the general food supply

Current evidence suggests PFAS levels in the general Australian food supply are very low and regulation of PFAS chemical contaminants in the general food supply is therefore not required.

The Australian Government Department of Health and Aged Care developed health-based guidance values, in the form of a tolerable daily intake (TDI), for PFOS, PFOA and PFHxS for use in human health risk assessments including site investigations across Australia. A TDI is an estimate of the amount of a chemical that can be ingested daily over a lifetime without appreciable health risk to the consumer.

In some instances, advice is issued by local authorities in specific areas where PFAS contamination has been identified, as people within these areas may frequently consume food or water with some PFAS contamination.

PFAS and drinking water supplies

To ensure safe drinking water and provide a basis for determining the quality of water supplied to consumers in all parts of Australia, the National Health and Medical Research Council (NHMRC) has developed the Australian Drinking Water Guidelines (2011). The Guidelines are underpinned by the available scientific evidence and are used by state and territory health departments, drinking water regulators, local health authorities and water utilities.

The Guidelines include maximum health-based guidance values for PFOA and PFOS plus PFHxS in drinking water. These were published in 2018 and were derived using the TDI values recommended by the Department of Health and Aged Care. The Guidelines undergo rolling revisions to ensure they represent the latest scientific evidence on safe drinking water.

What evidence is there of health effects from exposure to PFAS?

PFAS exposure has been associated with:

- increased levels of cholesterol in the blood
- increased levels of uric acid in the blood
- reduced kidney function
- alterations in some indicators of immune function
- altered levels of thyroid hormones and sex hormones
- later age for starting menstruation in girls, and earlier menopause
- lower birth weight in babies.

However, these differences have generally been small and unlikely to cause significant negative health outcomes.

Potential associations between PFAS exposure and increased risk of two uncommon cancers, namely testicular and kidney cancer, have also been reported. Much of this evidence relates specifically to PFOA, and not PFOS or PFHxS, which are more common in Australia. However, studies of these cancers remain conflicting and associations have only been observed in high exposure groups, such as workers in international factories where PFOA is produced.

It is important to recognise an association does not constitute causation. To date, a causative relationship between the above health effects and PFAS exposure has not been established.

The science and our understanding of these issues will continue to evolve. As a precaution, the Environmental Health Standing Committee (enHealth) continues to recommend exposure to PFAS be minimised wherever possible.

If you live or work in a PFAS affected community, your state or territory health department can provide you with local advice on how to minimise exposure to PFAS.

Mental health and wellbeing

For some, knowing their community is affected by PFAS may increase stress and worry. Findings from the PFAS Health study showed people living in PFAS affected communities, irrespective of PFAS blood concentrations, are more likely to experience psychological distress than those in comparison areas.

Individuals can access mental health support through a range of face-to-face, digital and enquiry services. For information on available mental health supports, please visit: https://www.health.gov.au/topics/mental-health-and-suicide-prevention/about-mental-health.

Pregnancy and breastfeeding

The scientific research to date does not indicate that PFAS exposure during pregnancy is a major contributor to poor health outcomes in either pregnant women or their babies.

The significant health benefits of breastfeeding are well established and outweigh any potential health risks to an infant or child from the possibility of any PFAS being transferred through breast milk. PFAS have been detected in human breast milk and breastfeeding may contribute to an infant's exposure. However, enHealth does not recommend mothers living in or around sites contaminated with PFAS cease breastfeeding.

Blood testing

Most Australians are expected to have detectable levels of PFAS in their blood due to the widespread use of this family of chemicals in a range of applications and products.

At present, there is insufficient scientific evidence for medical practitioners to be able to tell a person whether their blood level of PFAS will make them sick now or later in life, or to link any current health problems to the PFAS levels found in their blood.

Additional information

Further information on the Australian Government's response to PFAS, including information on site investigations, health advice and links to relevant government departments can be found at: https://www.pfas.gov.au/.