

## Per- and Polyfluoroalkyl Substances (PFAS) General Information Regarding Blood Donations

### The Research Team

The Queensland Alliance for Environmental Health Sciences (QAEHS) at the University of Queensland has been contributing to the international body of knowledge regarding per- and polyfluoroalkyl substances (PFAS) for the last two decades.

Researchers at QAEHS are collaborating with researchers both internationally and nationally, including Queensland University of Technology and Australian National University and are currently investigating how PFAS impact human health and how PFAS are eliminated from the body over time. The Research Team includes experts in environmental toxins with international and medical expertise.

The Research Team has a history of a strong engagement with the communities that have been exposed through environmental or occupational exposure to PFAS to ensure they remain informed about the planned research and about the findings of the research. The QAEHS Team has presented the findings of their research in public documents available on their website (see below), in letters to participants, as well as peer reviewed publications in scientific journals.

### Links and QR Code to our Website Presenting Recent and Ongoing Studies

[Airservices Exposure Study 2](#)



[National Health and Medical Research Council Study](#)



[Case Study: Avalon Station](#)



### BACKGROUND

#### PFAS Exposure and Potential Health Effects

**Exposure** Everyone in the community has some background exposure to PFAS in their daily activities; through food, dust, air, water, and many everyday products (e.g., water-resistant fabrics, non-stick cookware, cleaning, and personal care products). Some individuals have experienced elevated PFAS exposure through environmental contamination or occupational exposure.

**Health Effects** Increases in exposure to specific PFAS has been associated with;

- Increases in cholesterol levels
- Changes in liver enzymes
- Lower antibody response to some vaccines
- Certain types of cancers

An association means that there is a statistical relationship between PFAS exposure and the above health effects. This does not mean that the PFAS exposure caused the health effect. Additional research is needed to fully understand the relationship between exposure to PFAS and human health effects. Current information provided by the Australian Expert Health Panel (enHealth) for PFAS is available via the link/QR code below.

#### Elimination of PFAS

**Elimination** When exposure to elevated levels of PFAS has stopped, PFAS levels in our blood will slowly decrease over time without any intervention. PFAS are slowly eliminated from the body through urine, faeces, or loss of blood (e.g., menstruation). As the body naturally eliminates these chemicals, the PFAS level in blood will decrease over time.

**Blood Donation** There is increasing evidence that plasma and blood donation can reduce PFAS levels<sup>1</sup>. In addition to both national and international evidence, our own research has demonstrated an increase in the elimination of PFAS when participants have been plasma and/or blood donors. A fact sheet summarising of our recent study, as well as frequently asked questions for those interested in donating blood/plasma is available on our study website (See weblink and QR code for “Case Study: Avalon Station” above).

### Links to Information About PFAS

[PFAS Australian Information Portal](#)



[enHealth PFAS Factsheet](#)



<sup>1</sup>.Nilsson et al (2022) 'Serum concentration trends and apparent half-lives of per- and polyfluoroalkyl substances (PFAS) in Australian firefighters', *International Journal of Hygiene and Environmental Health*; Gasiorowski et al (2022) 'Effect of Plasma and Blood Donations on Levels of Perfluoroalkyl and Polyfluoroalkyl Substances in Firefighters in Australia: A Randomized Clinical Trial', *JAMA Network Open*; Genuis et al (2014) 'Phlebotomy treatment for elimination of perfluoroalkyl acids in a highly exposed family: a retrospective case-series', *PLoS One*,

## For Those Considering Blood Donation to Reduce their PFAS Levels

Given the concerns around the potential impact of PFAS on human health, it is reasonable for people who wish to increase the elimination of PFAS from their blood to consider donating blood or plasma via Lifeblood.

### Eligibility for Blood donation

Some people who wish to donate blood or plasma through Lifeblood may find that they are not eligible to do this. You can check if you are eligible on Lifeblood's webpage (see link and QR code)

[Lifeblood Eligibility](#)

There are three main reasons why you may not be able to donate blood;

- Your age
- Your blood is not eligible for donation (e.g., Hepatitis B positive).
- You have a medical condition that prevents you from donating blood.



### Alternative Venesection

If a person cannot donate through Lifeblood, then it is possible for them to discuss this issue with their GP.

Most GPs have not been trained to have a detailed understanding of environmental contaminant. The GP may need to read and consider this information sheet to understand how the PFAS levels can be reduced through venesection. A venesection is the removal of blood for a therapeutic purpose.

There are advantages in consulting with a GP who knows your health issues prior to having a venesection arranged. This consultation allows the GP to determine if it is safe to have the venesection after considering your health conditions from that perspective.

The GP may choose to arrange tests such as a haemoglobin and iron check and possibly other tests depending on the individual's health situation when deciding whether it is safe to have a venesection. When the GP arranges the venesection, it is the equivalent of a blood donation (not a plasma donation). Usually, a venesection involves taking about 400-450 ml of blood. Often the venesection is done about four times a year. Sometimes a person's health will only allow for a smaller amount of blood to be taken such as 200 ml. A GP can explain what the best option is and how often the procedure can be done. (Over time, even small venesections can still help to reduce the PFAS levels.)

Venesections to reduce PFAS levels are not currently listed as therapeutic venesections so most hospital outpatient (haematology / liver clinics) or pathology companies will not arrange for venesections for this purpose.

This means that a GP will need to arrange a venesection to be done at their own clinic. The equipment for doing the venesection is often available from the GP's local pathology company. The Medicare rebate for venesections is restricted to specific conditions and does not include increasing PFAS elimination. The GP will need to determine the appropriate consultation fee and whether a treatment room fee is included as part of the process of informed consent. Some GPs arrange for a consent form to be signed for all procedures.

If it is medically safe for a person to have regular venesections, then it is appropriate for a patient to have access to venesections with the hope that reducing the PFAS levels will reduce possible health risks into the future. However, the decision to have a venesection to address elevated PFAS levels will always remain with each patient. While there is evidence of health concerns with raised PFAS levels and there is evidence now that the PFAS levels can be reduced through venesections, there is no current evidence of health benefits having the venesections for this purpose.

Monitoring with follow up testing such as further haemoglobin and iron levels will need to be determined by the GP and will depend on the individual's health.

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### Considerations when arranging for the Venesection to be performed Safely at the Clinic

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These considerations would be in addition to a practice's usual approach to venesections for a patient.

- Ensure the equipment is present for arranging the venesection.
  - Ensure that routine resuscitation equipment is available as required for accredited general practices and that the health care team is well versed in managing routine emergencies.
  - Ensure the practice nurse is aware of the procedure and understands their role.
  - Determine whether 400-450 ml can be safely taken for this individual patient (as would be taken for a standard blood donation) or whether a lower volume should be considered (for example if the person has cardiac problems, has epilepsy or other risk factors).
  - Ensure the patient is well hydrated and not fasted for a prolonged time.
  - Have the patient on a comfortable bed that can be lain flat if the person feels faint or the blood pressure drops.
  - The venesections could be carefully moderated to ensure that the blood is removed over 20 minutes rather than rapidly released.
  - It is normal procedure for the blood pressure to be monitored with a blood pressure check before and after the procedure and during the procedure as indicated.
  - A clinician (nurse or doctor) should be present during this time, so this procedure is usually arranged in a treatment room where the patient can be easily attended to if distressed.
  - After completion of the procedure, an appropriate dressing is applied with pressure and the blood is discarded (not donated).
  - The patient should be followed up with a cup of tea and biscuit (or similar) and the usual processes of review to ensure the individual does not feel faint after the procedure and is safe to leave.
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