



Supplementary Information Following Public Hearing

Senate Community Affairs References Committee

Inquiry into the impact of microplastics and other toxics on human health

Thank you again for the opportunity to appear before the Senate Community Affairs References Committee as part of the inquiry into the impact of microplastics and environmental toxins on human health. I appreciated the discussion and the opportunity to contribute a reproductive health perspective to this important inquiry.

I would like to briefly reinforce several key points from my evidence and highlight areas particularly relevant to the committee's consideration of prevention and public education:

- From a reproductive biology perspective, eggs and sperm are highly sensitive cells that develop over several months prior to conception.
 - Women are born with all the eggs they will ever have; however, these eggs are particularly sensitive to their environment during the final stages of maturation, approximately 90-120 days before ovulation.
 - Men produce sperm continuously from puberty, with a development cycle of approximately 80-90
 - This demonstrates that both egg and sperm quality may be influenced by environmental exposures during the months immediately prior to conception
- There is increasing evidence that environmental toxins (including microplastics) can be detected in human tissues, including follicular fluid (where eggs are housed in the ovaries), seminal plasma and placental tissue. This demonstrates that exposure can occur during critical stages of reproductive and early human development.
- Environmental exposures during this preconception window may influence egg and sperm health, with downstream effects on embryo development, in both IVF and spontaneous conception, and ongoing health of the resulting offspring.
- The evidence also shows that environmental exposures during in utero development may influence the formation of key reproductive systems (eggs in baby girls, testes in boys), highlighting the importance of early-life windows in determining long-term and generational reproductive health.



From a clinical and patient perspective, one of the most consistent themes I see is that people are already concerned about environmental exposures and are seeking practical ways to reduce risk before trying to conceive. However, clear and consistent public health guidance in this area remains limited, and the volume of information available, including through social media, can be overwhelming and difficult to navigate.

One area that may be worth consideration is the role of earlier reproductive health education, including simple, practical strategies to reduce unnecessary environmental exposures. Introducing this type of education in schools, alongside broader health education, may help individuals build awareness well before they are making decisions about fertility.

In my experience, it is also important that public messaging in this area remains practical and achievable. Whilst the science is still evolving and can feel complex, there are actually simple, realistic steps that can be implemented in everyday life to help reduce just some of these every day exposures, and when used in combination with supporting the body's natural detoxification systems, can be effective in reducing overall body-burden. There is much published literature on this subject, but most easily seen in the book Countdown by Dr Shanna Swan PhD (<https://www.shannaswan.com/countdown>)

From a policy perspective, it is also useful to consider international approaches. The European Union has taken a precautionary, hazard-based approach to endocrine-disrupting chemicals, including identifying them as substances of very high concern under the [REACH framework](#) and implementing restrictions across sectors such as pesticides, cosmetics and food contact materials. A key principle underpinning this approach is the minimisation of human exposure, recognising that waiting for definitive causal evidence may delay opportunities for prevention. There is also increasing momentum toward broader strategies aimed at reducing population-level exposure to these chemicals, which may provide useful insights when considering prevention-focused approaches in Australia.

Internationally, there is also increasing regulatory activity targeting microplastics, including restrictions on intentionally added microplastics in products within the European Union and efforts in the United States to reduce plastic use across government operations. These developments further reflect a broader global shift toward reducing environmental exposure to plastic-related chemicals. <https://med.stanford.edu/news/insights/2025/01/microplastics-in-body-polluted-tiny-plastic-fragments.html>

In my view, reproductive health provides an important lens through which to consider environmental health risks, particularly in relation to prevention, early life development, and long-term health outcomes.