



Senate Inquiry - Impact of microplastics and other toxics on human health

Cancer Council Australia

6 March 2026



Cancer Council is the peak, non-Government cancer control organisation in Australia. As the national body in a federation of eight state and territory member organisations, Cancer Council Australia works to make a lasting impact on cancer outcomes by: shaping and influencing policy and practice across the cancer control continuum; developing and disseminating evidence-based cancer information; convening and collaborating with cross-sectorial stakeholders and consumers to set priorities; and speaking as a trusted voice on cancer control in Australia.

Cancer Council Australia acknowledges the traditional custodians of the lands on which we live and work. We pay respect to Aboriginal and Torres Strait Islander Elders past and present and extend that respect to all other Aboriginal and Torres Strait Islander people.

This submission was authorised by:

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Executive Summary

This submission was developed in response to the Community Affairs Reference Committee Inquiry, *Impact of microplastics and other toxics on human health*. Cancer Council welcomes the opportunity to provide evidence-informed commentary on the potential impacts of microplastics, toxics and forever chemicals on human health. This submission was developed in consultation with Cancer Council's Occupational and Environmental Cancers Committee, chaired by Melissa Treby (Cancer Education and Screening Manager, Cancer Council Western Australia). The Committee includes members with national standing in relevant disciplines including epidemiology, molecular biology, occupational health, occupational hygiene, clinical oncology, and public health. The scope of this submission is limited to microplastics, toxics and forever chemicals as they relate to cancer risk in humans.

Regarding microplastics as they relate to cancer risk, we recognise that:

- Public discourse and media coverage on the possible association of microplastic exposure and cancer risk has increased in recent years.
- Whilst there have been growing experimental and mechanistic studies that indicate biologically plausible pathways where microplastics could contribute to carcinogenesis, epidemiological evidence of any increased cancer in the community remains limited and inconclusive.¹⁻³
- A major barrier to advancing this evidence base is the absence of standardised methods for the collection, preparation, quantification, and characterisation of microplastics in human studies.²
- It is an urgent priority to develop consistent exposure assessment methodologies for human samples, to enable expanded epidemiological research on microplastics and cancer.^{1, 2, 4}
- Long-term human studies that employ consistent exposure assessments and dose-response modelling are required to establish conclusive evidence on the carcinogenicity of microplastics and their wider impact on the health of Australians.^{1, 5}

While there is increasing community pressure for decision-makers and regulatory bodies to address human exposure to microplastics,⁶ the limitations of current evidence precludes any such measures being identified as preventing cancer. National policies and protocols addressing microplastics should be guided by a precautionary and proportionate approach, informed by the broader evidence of potential impacts on human health and the environment.

Per and polyfluoroalkyl substances (PFAS) are colloquially known as "forever chemicals" as they are not readily broken down in the environment and when absorbed are not easily eliminated from the body.⁷ In December 2024, Cancer Council submitted to the 'Senate Select Committee on PFAS (per and polyfluoroalkyl substances)' outlining evidence and recommendations regarding PFAS exposure and cancer risk. This submission is publicly available via the Senate Inquiry's [webpage](#) (submission #62) and Cancer Council's key recommendations have not been replicated in this current paper.

As research continues, it will be essential to monitor emerging risks and develop guidelines and regulatory frameworks if any carcinogenic risk to humans is established for microplastics, toxics, and forever chemicals. Alignment of emerging scientific findings with international best practice, while remaining appropriate for the Australian context is the challenge and the goal.

We have provided specific points to address relevant Terms of Reference in our response below.

Addressing the Terms of Reference

TOR B: Disruption of key developmental pathways in the first 1,000 days of life that significantly impact later-life health outcomes like obesity, heart disease, diabetes and cognitive function

While the evidence around microplastics and the impact they may have on long-term health outcomes continues to evolve, we recommend focusing on proven, evidence-based measures to reduce the risk of young Australians developing non-communicable diseases, including obesity and cancer.

In 2024, overweight and obesity were the leading cause of preventable disease in Australia, accounting for 8.3% of the total burden of chronic disease.⁸ The International Agency for Research on Cancer (IARC) has shown that there is *sufficient* evidence that high body mass increases the risk of 13 different types of cancer.⁹ Over a quarter (28%) of children and adolescents aged 5–17 had overweight or obesity in 2022.¹⁰ Children with obesity are more likely to carry that weight into adulthood, subsequently increasing their risk of developing non-communicable disease such as diabetes and cancer.¹¹

Action is essential to address overweight and obesity, particularly in children and young people, to reduce their risk of developing cancer and other non-communicable diseases later in life. Cancer Council have priorities relating to the implementation of government regulation to protect children from the marketing of unhealthy foods and drinks, via the development of a comprehensive food marketing policy framework, and to seeing the Health Star Rating System becoming mandatory to assist people in making better informed choices and to improve the availability of healthier food options.

Further information regarding Cancer Council's priorities and advocacy work on the prevention, treatment and management of obesity can be found in our National Cancer Prevention Policy [here](#).

TOR D: Links between endocrine disruptors and increased rates of cancer in young people, fertility issues, hormone dysregulation, respiratory diseases, inflammatory conditions and immune system dysfunction

The rising incidence of early-onset cancers both in Australia and internationally^{12, 13} has resulted in growing public concern, reinforcing the importance of raising awareness and addressing modifiable risk factors to reduce their impact in Australia. Early-onset cancers refer to cancers diagnosed in people younger than 50 years old.¹⁴ Australia has experienced a rise in early-onset cancers across multiple cancer types, and data indicates Australia has the highest incidence of early-onset colorectal cancer globally.^{13, 15} Importantly, cancer incidence is increasing across both younger and older populations in Australia. An estimated 88% of cancer cases are diagnosed in people aged 50 or older, and 95% of the estimated increase in cancer incidence between 2000 and 2025 is attributable to an increasing and aging population.¹³

Like all cancers, the incidence of early-onset cancers is likely driven by a complex interplay of risk factors and influences which differ by cancer type.¹⁶ Lifestyle factors linked to early-onset cancers include tobacco smoking, high body mass index, low physical activity, and dietary patterns characterised by high intakes of red and processed meats, sugar-sweetened beverages, and ultra-processed foods, alongside low consumption of fruits, vegetables, whole grains, and fibre.^{16–20} For women with breast cancer, early-onset cancers have also been attributed to changes in reproductive trends.¹⁶ The rising rates of early-onset cancers has also been partially attributed to increased participation in cancer screening and early detection amongst those under 50.^{16, 17, 21}

Endocrine-disrupting chemicals (EDCs) are chemically diverse substances identified for their evident or potential adverse impact on reproductive or hormonal processes. Around 1000 heterogeneous chemicals have been classified as EDC compounds.²² EDCs as a distinct chemical group, are not recognised by IARC as a carcinogen, and the term is not routinely used in IARC *Monographs*. Some chemicals usually categorised as EDCs have been individually assessed by IARC to cause cancer in humans, including the now-banned drug diethyl stilboestrol and pollutants, including 2,3,7,8-tetra-chlorodibenzo-p-dioxin (TCDD), polychlorinated biphenyls (PCBs) and perfluorooctanoic acid (PFOA).^{23, 24} Others chemicals recognised as EDCs have been classified by IARC as *probably carcinogenic* to humans, such as polybrominated biphenyls (PBBs), or *possibly carcinogenic* to humans, such as perfluorooctanesulfonic acid (PFOS)^{23, 24} It is important to note that the importation of PCBs have been banned in Australia since 1975, and the importation, exportation and manufacturing of three PFAS chemicals (PFOA, PFOS and Perfluorohexane sulfonate [PFHxS]) were banned in 2025.^{25, 26} Epidemiological evidence for the potential carcinogenicity of chemicals that are categorised as EDCs is complex due to a focus on reproductive and endocrine toxicity of EDCs, confounding factors, and the co-occurrence of multiple EDCs in the environment, underscoring the importance of further longitudinal studies.²⁷⁻³¹ Given the likely multifactorial drivers of early-onset cancers, addressing their rising burden in Australia will require public health strategies that target established and modifiable risk factors while supporting research into environmental exposures for which evidence remains scant.

TOR E: The effectiveness of any education or informative efforts to notify the public of potential harms and prevention opportunities

Public communication on the risks of microplastics and opportunities to prevent exposure must only be based on clear evidence regarding potential health impacts, and consequently, health benefits from reduced exposure. At the present time, the evidence regarding the risks from exposure to microplastics remains unclear and is continuing to evolve. While microplastics have been identified in a range of human tissues and fluids, including blood, urine, stool, lung tissue, breast milk, semen, and placenta, the accumulation and distribution pathways and understanding of the potential human health hazards are still developing. The effects on human health are far from being adequately determined.³² Therefore, long-term patient-centred studies should be undertaken to understand and evaluate the real-world impact of exposure to microplastics on cancer risk and outcomes.³³

Prevention messaging should focus on areas where there are robust evidence and well-known modifiable public health risk factors that can be addressed, with clear health benefits as a result. Messaging that may lead to disproportionate public concern and distress must be curtailed, and governments have a responsibility to only share evidence-based information with the public.

To reduce cancer risk, we recommend that government messaging focuses on Australians increasing their levels of physical activity, reducing their smoking rates and alcohol use, minimising exposure to ultraviolet radiation from the sun, avoiding excess weight gain, and eating healthy foods. Occupational exposure to all cancer-causing agents should be eliminated or reduced to as low as reasonably practicable by following the hierarchy of controls risk management process. Cancer Council has a suite of priority areas for action that the government can implement to help reduce Australians' risk of developing cancer, and to ensure that systems and programs are put in place which support Australians to adopt these preventive health behaviours, to support the best public health outcomes for all Australians. We also support the funding and implementation of national prevention initiatives including those focused on associated environmental risks including the National Preventive Health Strategy and the proposed National Prevention and Early Intervention Framework.

Transparency and public trust are vital, and governments must consider these factors when developing prevention, response, and action plans around environmental exposure to microplastics. The public should feel confident that the government is providing evidence-based information and only recommending actions that are proven to result in human and environmental health benefits, including microplastics.

TOR F: The potential benefits of a national standard for consumer products

As iterated above, there is scant evidence linking microplastic exposure to increased risk of cancer in humans, therefore this provides limited opportunities for cancer prevention activities. The potential benefits of introducing a national standard for consumer products are unclear. When considering the implementation of a national standard, and relevant initiatives currently taken by entities such as Cancer Australia, Food Safety Australian and New Zealand (FSANZ), the National Health and Medical Research Council (NHMRC) and Competition and Consumer Authority (CCA), a case for a new initiative is not evident. Any such standard should be developed based on consultation between relevant statutory authorities concerning potential benefits for all aspects of human health, and the environment.

While there is currently a lack of available evidence on the health impacts of microplastic exposure, this should not preclude government action, which must consider evidence on health impacts beyond cancer, as well as environmental impacts. This sentiment has been echoed in the literature, which has called for decision makers and regulatory bodies to initiate actions that can prevent or mitigate human exposure to microplastics.⁶

With reference to food safety in particular, FSANZ is an independent statutory agency³⁴ and key body for national standards of food safety. Presently, FSANZ has published consumer information regarding microplastics in food, which has assessed the available scientific evidence regarding microplastics, the mechanisms in which these products can enter the food chain, and potential health risks of microplastics in food.³⁵ As a result of this review, FSANZ has developed the current view that plastic contamination in food is unlikely to result in an immediate health risk to consumers, although, FSANZ is committed to maintaining a watching brief on this issue, and any new developments that may arise.³⁵

Internationally, the European Union has developed a Commission Regulation, which restricts the addition of synthetic polymer microparticles, such as glitter, being intentionally added to products.³⁶ This regulation is indicative of the global impact of microplastics, and speaks to early actions that are already being introduced internationally to address exposure to microplastics. There is currently not enough evidence to consider recommending similar regulations in Australia based on a cancer prevention lens. Action might be warranted to mitigate exposure while the evidence around the health impacts of microplastics continues to evolve.

TOR G: Protocols and policies of other countries which have proven to be effective

The paucity of epidemiological evidence on microplastics and cancer hinders the evaluation of international policies and protocols from the perspective of preventing cancer. The effectiveness of such policies and protocols should be assessed in the context of broader public health outcomes and environmental impacts.

Given the global presence of microplastics in ecosystems, a coordinated international response is vital. The intergovernmental negotiating committee's international legally binding instrument on plastic pollution will be a transformative step on protecting global health and the environment. Cancer Council supports the World Health Organisation's (WHO) advocacy in the treaty's development, emphasising that health should be a core objective and that the known and predicted health risks and exposures

associated with plastic polymers, chemicals and additives, microplastics and nano-plastics must be addressed.³⁷

Existing international policies and protocols on microplastics often extend beyond health departments, such as water and textile sectors. For example, mandatory microfiber filters on washing machines have been introduced in France to prevent microplastics entering waterways through synthetic clothing.³⁸ The European Commission has developed a sustainable and circular textile strategy which aims to reduce the unintentional release of microplastics from synthetic textiles.³⁹ Norway has implemented a national microplastic monitoring program, and one is currently in development in Canada.^{40, 41} Importantly, in 2019, WHO reported that there was inadequate evidence for routine monitoring of microplastics in drinking-water on the basis of human health concerns.⁴² This report highlighted the need for water suppliers and regulators to focus resources on well-established risks to human health, such as microbial pathogens.⁴² Policies or protocols addressing microplastics on the basis of human health should be founded on robust evidence and coordinated across relevant sectors.

TOR H: The adequacy of current research, monitoring and measurement standards for microplastic contamination in Australia

Whilst there is increasing evidence on the mechanistic plausibility of microplastics' carcinogenic pathways, including oxidative stress, endocrine disruption and gut dysbiosis, human evidence remains scarce.¹⁻³ A major limitation is the absence of standardised methods for the collection, preparation, quantification, and characterisation of microplastics in human studies.² There is an urgent need to develop widely accepted, consistent exposure assessment methodologies for human samples to advance epidemiological research on microplastics and cancer.^{1, 2, 4} Long-term human studies employing consistent exposure assessments and dose-response modelling are vital to establishing conclusive evidence on the carcinogenicity of microplastics and their impact on the health of Australians.^{1, 5}



Public Health Association
AUSTRALIA

4 March 2026

The Secretary,
Senate Standing Committee on Community Affairs
References Committee

Impact of microplastics and other toxics on human health

PHAA has had the opportunity to review the submission by Cancer Council Australia to your inquiry into the *Impact of microplastics and other toxics on human health*. We write to indicate that we fully support the submission. As the submission states:

“National policies and protocols addressing microplastics should be guided by a precautionary and proportionate approach, informed by the broader evidence of potential impacts on human health and the environment.”

Yours sincerely,

Adj/Prof Terry Slevin
CEO

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