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Impact of microplastics and other toxics on human health

Australian Science Communicators submission to the Senate Community Affairs References Committee

Terms of reference

The Australian Science Communicators (ASC) is a national professional body that represents people who communicate science, health and environmental information to the public, providing insight into how complex and evolving evidence is translated for public understanding.

Response to Term (e)

Term (e) of the provided terms of reference considers whether current public information and education about microplastics is effective in notifying the public of potential harms and health prevention opportunities.

Public communication about microplastics and their impact on health is occurring while the scientific evidence base is still developing. That said, it is worth noting that no harm has been conclusively demonstrated in humans from these substances based on extensive reviews by the World Health Organisation, US Food and Drug Administration and the European Food Safety Authority.[1]

The ASC observes that public discussion about the human health impacts of microplastics has at times been shaped by imprecise language and uneven reporting quality. Broad terms such as toxins can be misleading if they are not clearly defined or contextualised. One of the foundational principles of toxicology is “the dose makes the poison”, yet this principle is not always clearly reflected in public-facing communication.

From a communication perspective, there are risks if emerging or uncertain findings are presented as settled evidence. Oversimplified or alarmist messaging can undermine public trust if claims are later revised or contested, as could be seen during the COVID-19 pandemic[2]. At the same time, insufficient or unclear communication can leave people

[1] World Health Organisation: https://www.who.int/publications/i/item/9789240054608
US Food and Drug Administration
https://www.fda.gov/food/environmental-contaminants-food/microplastics-and-nanoplastics-foods
European Food Safety Authority DOI:10.2903/sp.efsa.2025.EN-9733.

[2] Intemann, K. Science communication and public trust in science. *Interdisciplinary Science Reviews*. 2023;48(2):350-365. doi:10.1080/03080188.2022.2152244

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uncertain about what is known, what remains unresolved, and what actions – if any – are appropriate. As such, professional science communicators should be called upon to advise in this area.

We would also like to draw your attention to an article recently published in *The Guardian,* 'A bombshell': doubt cast on discovery of microplastics throughout human body'[3], which has drawn attention from both the ASC and the Science Journalists Association of Australia (SJAA). Australia's science, health and environment reporting has been operating under increasing financial pressures with fewer journalists. Quality journalism – such as this article – analyses and synthesises scientific papers and data, conveying a breadth of information to Australian audiences and holding science to account. It is vital that Australia's science, health and environmental media gain support and funding to provide the information the public needs for evidence-based decision-making about their own actions and health, and via a number of different outlets to provide rigour to such investigations.

It is essential that communication about the risks or impacts of microplastics on human health is delivered appropriately, proportionately and safely, avoiding messaging that may cause unnecessary fear or unintended public reactions. An extreme hypothetical example would be communication that amplifies stress or fear in healthcare settings to the point that individuals reject life-saving treatments administered using medical plastics, such as a plastic syringe. Clear, evidence-based communication that carefully contextualises risk is therefore critical to ensuring public understanding while maintaining confidence in essential health and medical systems.

Response to Term (h)

In addition to current environmental monitoring and analytical research, there is a need for science communication research to better understand how microplastics information is interpreted and acted upon across different communities. Research in science communication can help identify how different audiences perceive microplastic risks, which messengers and channels are most trusted and how information can be framed to support informed decision-making without creating unnecessary alarm. This work is particularly important in Australia's diverse social landscape, where effective communication strategies may need to differ across communities and culturally diverse audiences. Strengthening the evidence base for science communication will help ensure that emerging scientific findings about microplastics are translated into clear, credible and accessible information that supports both public understanding and policy implementation.

[3] Carrington, D. (2026) 'A bombshell': doubt cast on discovery of microplastics throughout human body. *The Guardian*. https://www.theguardian.com/environment/2026/jan/13/microplastics-human-body-doubt, accessed 5 March 2026.

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Conclusion

We note that many of the questions in the terms of reference should be informed by current scientific evidence rather than by public opinion alone. We recommend commissioning a research and evidence summary from the Learned Academies to outline the current state of scientific knowledge on microplastics and human health.

In considering recommendations on microplastic exposure, there is also an opportunity to broaden the scope to include other forms of particulate exposure, such as air quality. Air pollution is a serious matter, responsible for thousands of deaths in Australia each year.[4] Taking this broader perspective could help address long-lasting health impacts associated with multiple types of particulate exposure.

In summary, the ASC emphasises the importance of a strong evidence base grounded in high-quality science, health and environmental research. It supports evidence-based communication, education and journalism on microplastics and human health. Well-resourced information that explains evidence, uncertainty and research methods in plain language is essential for improving public understanding and maintaining trust as knowledge about microplastics and human health continues to evolve.

[4] Pillay, D. et al. (2023) 3,200 deaths a year: 1 of many reasons air pollution in Australia demands urgent national action. *The Conversation*. https://theconversation.com/3-200-deaths-a-year-1-of-many-reasons-air-pollution-in-australia-demands-urgent-national-action-212973, accessed 5 March 2026.